ANNEXURE to ITEM 10(1)

B.A. Geography (Pass Course)

Paper No.	Title	Internal Assessment	External Assessment	Maximum Marks	Total Marks	Time
Semester-I						
101	Geography of India	20	50	70	70	3 Hours
Semester-II						
103	Physical Geography-I	20	50	70	70	3 Hours
102 & 104	Maps, Scales and Representation of Physical Features (Practical)			60	60	3 Hours
Semester-III						
201	Physical Geography –II	20	50	70	70	3 Hours
Semester-IV						
203	Human Geography	20	50	70	70	3 Hours
202 & 204	Representation of Climatic Data & Map Projections (Practical)			60	60	3 Hours
Semester-V						
301	Economic Geography	20	50	70	70	3 Hours
Semester-VI						
303	Introduction to Remote Sensing, GIS and Quantitative methods	20	50	70	70	3 Hours
302 & 304	Distribution Maps, Diagrams, Remote Sensing and Field Survey Report (Practical)			60	60	3 Hours

Paper 101 Geography of India

Maximum Marks : 70
External Assessment: 50
Internal Assessment: 20
Time : 3 Hours

Note: Question 1 is compulsory and comprises of ten short questions to be answered in 15-20 words. There will be eight long questions, two from each section. The candidate has to answer one question from each section. All five questions carry equal marks.

SECTION- A

1. India: Location, relief structure and drainage systems.
2. Climate, soils, natural vegetation, and natural disasters in India.

SECTION – B

3. Population: distribution, density, growth and composition.
4. Migration, human settlement types and levels of urbanization.

SECTION-C

5. Land resources, irrigation, regional variations in cropping pattern, Green revolution and problems of Indian agriculture.
6. Energy and mineral resources: coal, petroleum, hydroelectricity and nuclear energy, iron ore, manganese and mica.

SECTION-D

7. Industries- iron and steel, cotton textile, sugar and petrochemical industries; and industrial regions of India.
8. Modes of transport and communication, international trade changing pattern of export and import.

Suggested Readings

1. Deshpande, C D: India – A Regional Interpretation, Northern Book Depot, New Delhi, 1992.
2. Singh, Gopal : Geography of India, Atma Ram and Sons, 2006.
3. Shafi, M : Geography of South Asia, McMillan and Company, Calcutta, 2000.
4. Singh, R L (ed) : India : A Regional Geography, National Geographical Society, India, Varanasi, 1971.
5. Spate, D H K and ATA Learmonth : Indian and Pakistan – Land, People and Economy, Methnen and Company, London, 1967.

Paper 103 Physical Geography – I

Maximum Marks : 70
External Assessment: 50
Internal Assessment: 20
Time : 3 Hours

Note: Question 1 is compulsory and comprises of Ten short questions to be answered in 15-20 words. There will be eight long questions, two from each section. The candidate has to answer one question from each section. All five questions carry equal marks.

SECTION- A

1. Definition, Nature, scope and fields of Physical Geography.
2. Interior of the earth, Geological time scale and rocks.

SECTION- B

3. Earth movements; organic, eperogenic, earth quakes and volcanoes.
4. Theory of Isostasy ; Wegner's theory of continental drift and Plate tectonic theory.

SECTION- C

5. Weathering; causes and its types.
6. Mass-movements; causes, its types and impacts.

SECTION- D

7. Concept of cycle of erosion; cycle of erosion by W.M.Davis and
8. Process of Wind, River, Underground water, Glaciers and Sea waves.

References

1. Sharma H.S. Perspective in Geomorphology, Concept, New Delhi 1980.
2. Singh Savinder, Geomorphology, Prayag Publication, Allahabad 1998.
3. Singh Savinder, Physical Geography Prayag Publication, Allahabad, 1998.
4. Sparks B.W. Geomorphology, Jojngman, London, 1960.
5. Thornbury W.D. 1969 Principles of Geomorphology, New York, John Wiley & Sons.

Paper 102 & 104
Maps, Scales and Representation of Physical Features (Practical)

Maximum Marks: 60
Time : 3 Hours

Distribution of Marks
Exercises = 36
Record File = 12
Viva-voce = 12

Note: There will be four questions in all and candidate has to attempt three exercises selecting at least from each unit.

UNIT-I.

1. Introduction to Cartography.	
2. Maps and their types.	
3. Map Scales.	Exercises
(i) Methods of Expressing a scale	2
(ii) Conversion of Statement of Scale into R.F. and vice-versa.	1
(iii) Plain Scale (Km and mile)	1
(iv) Comparative Scale	2
(v) Diagonal Scale	2
4 Measurement of Distances and Areas on Maps	2
5 Enlargement and Reduction of Maps	2

UNIT-II

		Exercises
1.	Introduction to Topographical Sheets India and adjacent countries Degree Sheet Half Degree Sheet Quarter Degree Sheet Conventional Signs	3
2.	Methods of representing relief	1
3.	Representation of Topographical features by contours. Slopes (Concave, convex, undulating and terraced) Valleys (V Shaped, U shaped, Gorge, Re-entrant) Ridges (Conical hill, Volcanic hill, Plateau, Escarpment) Complex features (waterfall, sea cliff, overhanging cliff, Fiord coast)	4
4.	Drawing of Profiles	5
(a)	Cross Profiles: Serial, superimposed, projected and composite profiles.	
(b)	Longitudinal profiles	

Suggested Readings:

1. F.J. Monkhouse and H.R. Wilkinson (1972) Maps and Diagrams, Mothuen and Co. Ltd., London
2. L.R. Singh and Raghuvander Singh (1973), Map Work and Practical Geography, Central Book Depot, Allahabad.
3. R.I. Singh and P.K. Dutt (1968), Elements of Practical Geography, Students Friends, Allahabad.
4. Singh Gopal (2004) 4th edition, Map Work and Practical Geography, Viksa Publication House.

Paper 201 Physical Geography-II

Maximum Marks : 70
External Assessment: 50
Internal Assessment: 20
Time : 3 Hours

Note: *Question 1 is compulsory and comprises of Ten short answer type questions to be answered in 15-20 words. There will be eight long questions, two from each section. The candidate has to answer one question from each section. All five questions carry equal marks.*

SECTION-A

1. Weather and Climate; Origin, composition and structure of atmosphere.
2. Insolation, Global heat budget, Horizontal and vertical distribution of temperature, inversion of temperature.

SECTION-B

3. Atmospheric pressure- measurement and distribution, pressure belts, planetary winds, Monsoon, Jet Streams EL NINO- La Nina Phenomenon and Local winds.
4. Humidity- measurement and variables, evaporation, condensation, precipitation forms and types and distribution, hydrological cycle.

SECTION-C

5. Air masses- concept and classification; Fronts- type and characteristics, Weather disturbances- tropical and extra-tropical cyclones.
6. Climate classification by Koppen; climatic change and global warming.

SECTION-D

7. Configuration of oceanic floors and surface relief of Pacific, Atlantic and Indian Oceans; temperature and salinity of oceans.
8. Tides, waves and oceanic currents; circulation in Pacific, Atlantic and Indian Oceans; Oceanic resources.

Suggested Readings:

1. Barry, RG and Chorley R.J., Atmosphere, Weather and Climate, Routledge, 1998.
2. Critchfield, H., General Climatology, Prentice-Hall of India, 2002.
3. King, C. Oceanography for Geographers, Edward Arnold, London, 1975.
4. Trewartha, GT: An Introduction to Climate, Mc-Graw Hill, New York, 1981.
5. Trewartha, G.T., The Earth's Problems Climates, University of Wisconsin Press, USA.

Paper 203 Human Geography

Maximum Marks : 70
External Assessment: 50
Internal Assessment: 20
Time : 3 Hours

Note: *Question 1 is compulsory and comprises of Ten short answer type questions to be answered in 15-20 words. There will be eight long questions, two from each section. The candidate has to answer one question from each section. All five questions carry equal marks.*

Section -I

1. Nature and scope of Human Geography, Branches of Human Geography, Approaches to the study of Human Geography.
2. Division of Mankind: Spatial distribution of race and tribes of India; concept of men-environment relation : A historical approach.

Section - II

3. Human adaptation to the environment (i) Cold region – Eskimo (ii) Hot region- Bushman (iii) Plateau – Gonds (iv) Mountains – Gujjars
4. Meaning, nature and components of resources; Classification of resources – renewal and non- renewable ; biotic and aboitic, recyclable and non recyclable.
   Distribution, utilization and conservation of biotic (flora and fauna) and aboitic (water, minerals and energy) resources.

Section - III

5. Distribution and density of world population, population growth, fertility and mortality patterns.
6. Concept of over, under and optimum population; Population theories: Malthus, Ricardo and Marx.

Section-IV

7. Rural settlements: Meaning, classification and types. Urban settlements: Origin, classification and functions of towns.
8. Population pressure, resource use and environment degradation; sustainable development, concept of deforestation, soil erosion, air and water pollution.

Suggested Readings:-

1. Agarwal, A etal : The Citizen's Fifth Citizen's Report, Centre for Science & Environment, New Delhi, 1999.
2. Alexander, John. W. : Economic Geography, Prentice Hall of India Ltd., New Delhi, 1988.

3. Bergwan, Edward E: Human Geography: Culture Connections and Landscape, Prentice-Hall, New Jersey, 1985.
4. Carr, M. Patterns: Process and Change in Human Geography, McMillan Education, London, 1987.
5. Chandna, R.C. : A Geography of Population : Concepts, Determinants and Patterns, Kalyani Publishers, New Delhi, 1986.
6. DeBlij, H. J. : Human Geography, Culture, Society and Space, John Wiley, New York, 1996.
7. Fellman, J.L. : Human Geography-Landscapes of Human Activities, Brown and Benchman Pub., USA, 1997.
8. Global Environment Outlook: Earthscan, London, 2000.
9. McBride, P.J. Human Geography; Systems Patterns and Change, Nelson, UK and Canada, 1996.
10. Michael, Can: New Patterns : Process and Change in Human Geography, Nelson, 1996.

Paper – 202 & 204 Representation of Climatic Data & Map Projections (Practical)

Maximum Marks: 60
Time : 3 Hours

Distribution of Marks
Exercises = 36
Record File = 12
Viva-voce = 12

Note: There will be four questions in all and candidate has to attempt three exercises selecting at least from each unit.

UNIT-I.

1. Measurement of temperature, rainfall, pressure and humidity.
2. Representation of temperature and rainfall.
   (i) Line and Bar Graph – 1 Exercise.
   (ii) Distribution of temperature (180 therms) – 1 Exercise.
   (iii) Distribution of rainfall (180 hytes) – 1 Exercise.
   (iv) Hythergraph - 1 Exercise.
   (v) Rainfall deviation diagram - 1 Exercise.
3. Climograph (wet and dry places) - 2 Exercise.
4. Distribution of pressure (180 bars) - 2 Exercise.
5. Weather map Interpretation (January & July) - 2 Exercise.
6. Change and tape survey – 2 Exercise.

UNIT-II

1. Introduction to Map Projection: Meaning, Classification and importance; Characteristics of latitudes and longitudes lines.
2. Cylindrical projections: Characteristics, applications and drawing; (3)
   (i) Simple cylindrical projection
   (ii) Cylindrical equal area projection.
   (iii) True shape or orthomorphic or Mercator's Projection. (5)
3. Conical Projections: Characteristics, applications and drawing.
   (i) Simple conical projections with one standard parallel
   (ii) Simple conical projection with two standard parallel
   (iii) Bonne's Projection
   (iv) Polyconic projection.
   (v) International Map Projection.
4. Zenithal Projections: Characteristics, applications and drawing. (5)
   (i) Polar Zenithal Equidistant Projection.
   (ii) Polar Zenithal Equal Area Projection
   (iii) Polar Zenithal Gnomonic Projection

(iv) Polar Zenithal Stereographic Projection.
(v) Polar Zenithal Orthographic Projection

5. Characteristics, applications and drawings of (i) Sinosoidal and (ii) Mollweide Projections. (2)
6. Plane Table Survey. (2)

Suggested Readings:

1. Mishra R.P. and Ramesh A. 1999. Fundamentals of Cartography, Concept Publishing Company, New Delhi.
2. Robinson, A.H. et.al. Elements of Cartography, John Wiley & Sons, 1995.
3. Singh, R.L., 1979. Elements of Practical Geography, Kalyani Publisher, New Delhi.
4. Gregory S. 1963. Statistical Methods and the Geography, Longman, London.
5. Khan, A.A. 1996. Text Book of Practical Geography, Concept, New Delhi,.
6. Lawarence, GRP1968. Cartographic Methods, Methuen, London,.
7. Monkhouse, F.J. and Wilkinson, H.R1994. Maps and Diagrams, Methuen, London,
8. Pal. S.K. 1998: Statistics for Geoscientist- Techniques and Applications, Concept Publication, New Delhi,.
9. Sarkar, A.K 1997: Practical Geography-A Systematic Approach, Orient Longman, Calcutta,.
10. Steers, J.B. Map Projections; University of London Press, London.

Paper 301 Economic Geography

Maximum Marks : 70
External Assessment: 50
Internal Assessment: 20
Time : 3 Hours

Note: *Question 1 is compulsory and comprises of Ten short answer type questions to be answered in 15-20 words. There will be eight long questions, two from each section. The candidate has to answer one question from each section. All five questions carry equal marks.*

Section A

1. Nature, scope and relationship of economic geography with economics and other branches of social sciences.
2. Classification of economic activities and their impact on environment.

Section B

3. World natural resources: Types, bases and classification.
4. Conservation and utilization of natural resources.

Section C

5. Spatial distribution of food (rice and wheat), commercial (cotton and sugarcane) and plantation crops (tea, rubber and coffee).
6. Classification of mineral resources (ferrous and non-ferrous), distribution and production of coal, iron ore, petroleum and natural gas.

Section D

7. Classification of industries, world distribution and production of iron and steel and textile industry, major industrial complexes of the world.
8. Transport, communication and trade: geographical factors in their development, major modes of water, land and air transport, recent trends in international trade

Suggested Readings:

1. Hartshorne TN and Alexander JW. 1988. Economic Geography, Prentice Hall, New Delhi.
2. Jones CF and Darkenwald GG. 1975. Economic Geography. McMillan Company, New York
3. Thomas, RS. 1962. The Geography of Economic Activities. McGraw Hill, New York.
4. Wheeler J et al. 1995. Economic Geography. John Wiley, New York.

Paper-303-Introduction to Remote Sensing, GIS & Quantitative Methods

Maximum Marks : 70
External Assessment: 50
Internal Assessment: 20
Time : 3 Hours

Note: *Question 1 is compulsory and comprises of Ten short answer type questions to be answered in 15-20 words. There will be eight long questions, two from each section. The candidate has to answer one question from each section. All five questions carry equal marks.*

Section-A

1. Introduction to Aerial Photographs: their advantages and types.
2. Elements of aerial Photo interpretation.

Section-B

3. Introduction to Remote Sensing; Electromagnetic spectrum, stages in remote sensing, type of satellites.
4. Types of Imageries and their application in various fields such as agriculture, environment and resource mapping.

Section-C

5. Introduction to Geographical Information System: Definition, purpose, advantages and software and hardware requirements.
6. Application of GIS in various fields of geography.

Section-D

7. Measure of Central Tendency: Mean, Median and Mode.
8. Measure of Dispersion: Range, Quartile deviation and Mean deviation, Standard deviation, Coefficient of variation.

Suggested Readings:

1. Aslam Mahmood 1993. Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi,.
2. John R. Jensen 2009. Remote Sensing of the Environment;, An Earth Resource Perspective, Pearson Education, (India Edition) New Delhi,
3. Kumar Meenakshi 2001. Remote Sensing, NCERT, New Delhi,
4. Lillesand and R.W.Kiefer,2005. Remote Sensing and Image Interpretation, John Wiley and Sons.

Pritvish Nag, and M.Kudrat 1998. Digital Remote Sensing, Concept Publishing Company, New Delhi,

Paper 302 & 304 Distribution Maps, Diagrams, Remote Sensing and Field Survey Report (Practical)

Maximum Marks: 60
Time : 3 Hours

Distribution of Marks
Exercises = 27
Record File = 9
Viva-voce = 9

Note: There will be four questions in all and candidate has to attempt three exercises selecting at least from unit I and II, while unit III is compulsory.

UNIT-I

1. Principal of map design and layout
2. Symbolization: point, line and area symbol
3. Lettering and toponomy
4. Mechanics of map construction
5. Distribution maps
   (i) Qualitative distribution maps
   - Choroschematic maps- 1 Exercise
   - Chorochromatic maps- 2 Exercise

   (ii) Quantitative distribution Maps
   - Isopleth maps-3 Exercises
   - Choropleth maps-3 Exercises
   - Dot maps-3 Exercises
   - Diagrammatic maps- 3 Exercises.
6. Prismatic Compass Survey – 2 Exercises.

UNIT-II

1. Demarcation of Principal Point, Conjugate Principal point and Flight line on Aerial Photographs – 1 Exercise
2. Determination of Scale of Aerial Photographs – 1 Exercise.
3. Interpretation of Single Vertical Photographs – 1 Exercise.
4. Use of Stereoscope and Identification of Features – 1 Exercise.
5. Identification of Features on IRSID, LISS III imagery (Mark copy of FCC) -1 Exercise.

UNIT-III

Socio-economic Survey and Report Writing -15 marks.

Field Survey Report = 10 marks
Viva-voce = 5 marks

Suggested readings:

1. Mishra RP and Ramesh A. 1999. Fundamentals of Cartography, Concept Publishing Company, New Delhi.
2. Monkhouse FJ and Wilkinson HR. 1972. Maps and Diagrams, Methuen Press, London
3. Singh Gopal. 2004. Map Work and Practical Geography, Vikas Publication House, New Delhi.
4. Singh RL. 1979. Elements of Practical Geography, Kalyani Publishers, New Delhi
5. John R. Jensen, Remote Sensing of the Environment; An Earth Resource Perspective, Pearson Education, (India Edition) New Delhi, 2009.
6. Lillesand and R.W.Kiefer, Remote Sensing and Image Interpretation, John Wiley and Sons, 1994.

B.Sc. Geography (Pass Course)

Paper No.	Title	Internal Assessment	External Assessment	Maximum Marks	Total Marks	Time
Semester-I						
101	Geography of India	30	75	105	105	3 Hours
Semester-II						
103	Physical Geography-I	30	75	105	105	3 Hours
102 & 104	Maps, Scales and Representation of Physical Features (Practical)			90	90	3 Hours
Semester-III						
201	Physical Geography –II	30	75	105	105	3 Hours
Semester-IV						
203	Human Geography	30	75	105	105	3 Hours
202 & 204	Representation of Climatic Data & Map Projections (Practical)			90	90	3 Hours
Semester-V						
301	Economic Geography	30	75	105	105	3 Hours
Semester-VI						
303	Introduction to Remote Sensing, GIS and Quantitative methods	30	75	105	105	3 Hours
302 & 304	Distribution Maps, Diagrams, Remote Sensing and Field Survey Report (Practical)			90	90	3 Hours

Paper 101 Geography of India

Maximum Marks : 70
External Assessment: 50
Internal Assessment: 20
Time : 3 Hours

Note: Question 1 is compulsory and comprises of ten short questions to be answered in 15-20 words. There will be eight long questions, two from each section. The candidate has to answer one question from each section. All five questions carry equal marks.

SECTION- A

1. India: Location, relief structure and drainage systems.
2. Climate, soils, natural vegetation, and natural disasters in India.

SECTION – B

3. Population: distribution, density, growth and composition.
4. Migration, human settlement types and levels of urbanization.

SECTION-C

5. Land resources, irrigation, regional variations in cropping pattern, Green revolution and problems of Indian agriculture.
6. Energy and mineral resources: coal, petroleum, hydroelectricity and nuclear energy, iron ore, manganese and mica.

SECTION-D

7. Industries- iron and steel, cotton textile, sugar and petrochemical industries; and industrial regions of India.
8. Modes of transport and communication, international trade changing pattern of export and import.

Suggested Readings

1. Deshpande, C D: India – A Regional Interpretation, Northern Book Depot, New Delhi, 1992.
2. Singh, Gopal : Geography of India, Atma Ram and Sons, 2006.
3. Shafi, M : Geography of South Asia, McMillan and Company, Calcutta, 2000.
4. Singh, R L (ed) : India : A Regional Geography, National Geographical Society, India, Varanasi, 1971.
5. Spate, D H K and ATA Learmonth : Indian and Pakistan – Land, People and Economy, Methnen and Company, London, 1967.

Paper 103 Physical Geography – I

Maximum Marks : 70
External Assessment: 50
Internal Assessment: 20
Time : 3 Hours

Note: Question 1 is compulsory and comprises of Ten short questions to be answered in 15-20 words. There will be eight long questions, two from each section. The candidate has to answer one question from each section. All five questions carry equal marks.

SECTION- A

1. Definition, Nature, scope and fields of Physical Geography.
2. Interior of the earth, Geological time scale and rocks.

SECTION- B

3. Earth movements; organic, eperogenic, earth quakes and volcanoes.
4. Theory of Isostasy ; Wegner's theory of continental drift and Plate tectonic theory.

SECTION- C

5. Weathering; causes and its types.
6. Mass-movements; causes, its types and impacts.

SECTION- D

7. Concept of cycle of erosion; cycle of erosion by W.M.Davis and
8. Process of Wind, River, Underground water, Glaciers and Sea waves.

References

1. Sharma H.S. Perspective in Geomorphology, Concept, New Delhi 1980.
2. Singh Savinder, Geomorphology, Prayag Publication, Allahabad 1998.
3. Singh Savinder, Physical Geography Prayag Publication, Allahabad, 1998.
4. Sparks B.W. Geomorphology, Jojngman, London, 1960.
5. Thornbury W.D. 1969 Principles of Geomorphology, New York, John Wiley & Sons.

Paper 102 & 104
Maps, Scales and Representation of Physical Features (Practical)

Maximum Marks: 90
Time : 3 Hours

Distribution of Marks
Exercises = 54
Record File = 18
Viva-voce = 18

Note: There will be four questions in all and candidate has to attempt three exercises selecting at least from each unit.

UNIT-I.

1. Introduction to Cartography.	
2. Maps and their types.	
3. Map Scales.	Exercises
(i) Methods of Expressing a scale	2
(ii) Conversion of Statement of Scale into R.F. and vice-versa.	1
(iii) Plain Scale (Km and mile)	1
(iv) Comparative Scale	2
(v) Diagonal Scale	2
4 Measurement of Distances and Areas on Maps	2
5 Enlargement and Reduction of Maps	2

UNIT-II

		Exercises
1.	Introduction to Topographical Sheets India and adjacent countries Degree Sheet Half Degree Sheet Quarter Degree Sheet Conventional Signs	3
2.	Methods of representing relief	1
3.	Representation of Topographical features by contours. Slopes (Concave, convex, undulating and terraced) Valleys (V Shaped, U shaped, Gorge, Re-entrant) Ridges (Conical hill, Volcanic hill, Plateau, Escarpment) Complex features (waterfall, sea cliff, overhanging cliff, Fiord coast)	4
4.	Drawing of Profiles	5
(a)	Cross Profiles: Serial, superimposed, projected and composite profiles.	
(b)	Longitudinal profiles	

Suggested Readings:

1. F.J. Monkhouse and H.R. Wilkinson (1972) Maps and Diagrams, Mothuen and Co. Ltd., London
2. L.R. Singh and Raghuvander Singh (1973), Map Work and Practical Geography, Central Book Depot, Allahabad.
3. R.I. Singh and P.K. Dutt (1968), Elements of Practical Geography, Students Friends, Allahabad.
4. Singh Gopal (2004) 4th edition, Map Work and Practical Geography, Viksa Publication House.

Paper 201 Physical Geography-II

Maximum Marks : 70
External Assessment: 50
Internal Assessment: 20
Time : 3 Hours

Note: *Question 1 is compulsory and comprises of Ten short answer type questions to be answered in 15-20 words. There will be eight long questions, two from each section. The candidate has to answer one question from each section. All five questions carry equal marks.*

SECTION-A

1. Weather and Climate; Origin, composition and structure of atmosphere.
2. Insolation, Global heat budget, Horizontal and vertical distribution of temperature, inversion of temperature.

SECTION-B

3. Atmospheric pressure- measurement and distribution, pressure belts, planetary winds, Monsoon, Jet Streams EL NINO- La Nina Phenomenon and Local winds.
4. Humidity- measurement and variables, evaporation, condensation, precipitation forms and types and distribution, hydrological cycle.

SECTION-C

5. Air masses- concept and classification; Fronts- type and characteristics, Weather disturbances- tropical and extra-tropical cyclones.
6. Climate classification by Koppen; climatic change and global warming.

SECTION-D

7. Configuration of oceanic floors and surface relief of Pacific, Atlantic and Indian Oceans; temperature and salinity of oceans.
8. Tides, waves and oceanic currents; circulation in Pacific, Atlantic and Indian Oceans; Oceanic resources.

Suggested Readings:

1. Barry, RG and Chorley R.J., Atmosphere, Weather and Climate, Routledge, 1998.
2. Critchfield, H., General Climatology, Prentice-Hall of India, 2002.
3. King, C. Oceanography for Geographers, Edward Arnold, London, 1975.
4. Trewartha, GT: An Introduction to Climate, Mc-Graw Hill, New York, 1981.
5. Trewartha, G.T., The Earth's Problems Climates, University of Wisconsin Press, USA.

Paper 203 Human Geography

Maximum Marks : 70
External Assessment: 50
Internal Assessment: 20
Time : 3 Hours

Note: *Question 1 is compulsory and comprises of Ten short answer type questions to be answered in 15-20 words. There will be eight long questions, two from each section. The candidate has to answer one question from each section. All five questions carry equal marks.*

Section -I

1. Nature and scope of Human Geography, Branches of Human Geography, Approaches to the study of Human Geography.
2. Division of Mankind: Spatial distribution of race and tribes of India; concept of men-environment relation : A historical approach.

Section - II

3. Human adaptation to the environment (i) Cold region – Eskimo (ii) Hot region-Bushman (iii) Plateau – Gonds (iv) Mountains – Gujjars
4. Meaning, nature and components of resources; Classification of resources – renewal and non- renewable ; biotic and aboitic, recyclable and non recyclable.
   Distribution, utilization and conservation of biotic (flora and fauna) and aboitic (water, minerals and energy) resources.

Section - III

5. Distribution and density of world population, population growth, fertility and mortality patterns.
6. Concept of over, under and optimum population; Population theories: Malthus, Ricardo and Marx.

Section-IV

7. Rural settlements: Meaning, classification and types. Urban settlements: Origin, classification and functions of towns.
8. Population pressure, resource use and environment degradation; sustainable development, concept of deforestation, soil erosion, air and water pollution.

Suggested Readings:-

1. Agarwal, A etal : The Citizen's Fifth Citizen's Report, Centre for Science & Environment, New Delhi, 1999.
2. Alexander, John. W. : Economic Geography, Prentice Hall of India Ltd., New Delhi, 1988.

3. Bergwan, Edward E: Human Geography: Culture Connections and Landscape, Prentice-Hall, New Jersey, 1985.
4. Carr, M. Patterns: Process and Change in Human Geography, McMillan Education, London, 1987.
5. Chandna, R.C. : A Geography of Population : Concepts, Determinants and Patterns, Kalyani Publishers, New Delhi, 1986.
6. DeBlij, H. J. : Human Geography, Culture, Society and Space, John Wiley, New York, 1996.
7. Fellman, J.L. : Human Geography-Landscapes of Human Activities, Brown and Benchman Pub., USA, 1997.
8. Global Environment Outlook: Earthscan, London, 2000.
9. McBride, P.J. Human Geography; Systems Patterns and Change, Nelson, UK and Canada, 1996.
10. Michael, Can: New Patterns : Process and Change in Human Geography, Nelson, 1996.

Paper – 202 & 204 Representation of Climatic Data & Map Projections (Practical)

Maximum Marks: 90
Time : 3 Hours

Distribution of Marks
Exercises = 54
Record File = 18
Viva-voce = 18
Note: There will be four questions in all and candidate has to attempt three exercises selecting at least from each unit.

UNIT-I.

1. Measurement of temperature, rainfall, pressure and humidity.
2. Representation of temperature and rainfall.
   (i) Line and Bar Graph – 1 Exercise.
   (ii) Distribution of temperature (180 therms) – 1 Exercise.
   (iii) Distribution of rainfall (180 hytes) – 1 Exercise.
   (iv) Hythergraph - 1 Exercise.
   (v) Rainfall deviation diagram - 1 Exercise.
3. Climograph (wet and dry places) - 2 Exercise.
4. Distribution of pressure (180 bars) - 2 Exercise.
5. Weather map Interpretation (January & July) - 2 Exercise.
6. Change and tape survey – 2 Exercise.

UNIT-II

Total Exercises = 15

1. Introduction to Map Projection: Meaning, Classification and importance; Characteristics of latitudes and longitudes lines.
2. Cylindrical projections: Characteristics, applications and drawing; (3)
   (i) Simple cylindrical projection
   (ii) Cylindrical equal area projection.
   (iii) True shape or orthomorphic or Mercator's Projection. (5)
3. Conical Projections: Characteristics, applications and drawing.
   (i) Simple conical projections with one standard parallel
   (ii) Simple conical projection with two standard parallel
   (iii) Bonne's Projection
   (iv) Polyconic projection.
   (v) International Map Projection.
4. Zenithal Projections: Characteristics, applications and drawing. (5)
   (i) Polar Zenithal Equidistant Projection.
   (ii) Polar Zenithal Equal Area Projection
   (iii) Polar Zenithal Gnomonic Projection

(iv) Polar Zenithal Stereographic Projection.
(v) Polar Zenithal Orthographic Projection

5. Characteristics, applications and drawings of (i) Sinosoidal and (ii) Mollweide Projections. (2)
6. Plane Table Survey. (2)

Suggested Readings:

1. Mishra R.P. and Ramesh A. 1999. Fundamentals of Cartography, Concept Publishing Company, New Delhi.
2. Robinson, A.H. et.al. Elements of Cartography, John Wiley & Sons, 1995.
3. Singh, R.L., 1979. Elements of Practical Geography, Kalyani Publisher, New Delhi.
4. Gregory S. 1963. Statistical Methods and the Geography, Longman, London.
5. Khan, A.A. 1996. Text Book of Practical Geography, Concept, New Delhi,.
6. Lawarence, GRP1968. Cartographic Methods, Methuen, London,.
7. Monkhouse, F.J. and Wilkinson, H.R1994. Maps and Diagrams, Methuen, London,
8. Pal. S.K. 1998: Statistics for Geoscientist- Techniques and Applications, Concept Publication, New Delhi,.
9. Sarkar, A.K 1997: Practical Geography-A Systematic Approach, Orient Longman, Calcutta,.
10. Steers, J.B. Map Projections; University of London Press, London.

Paper 301 Economic Geography

Maximum Marks : 70
External Assessment: 50
Internal Assessment: 20
Time : 3 Hours

Note: *Question 1 is compulsory and comprises of Ten short answer type questions to be answered in 15-20 words. There will be eight long questions, two from each section. The candidate has to answer one question from each section. All five questions carry equal marks.*

Section A

1. Nature, scope and relationship of economic geography with economics and other branches of social sciences.
2. Classification of economic activities and their impact on environment.

Section B

3. World natural resources: Types, bases and classification.
4. Conservation and utilization of natural resources.

Section C

5. Spatial distribution of food (rice and wheat), commercial (cotton and sugarcane) and plantation crops (tea, rubber and coffee).
6. Classification of mineral resources (ferrous and non-ferrous), distribution and production of coal, iron ore, petroleum and natural gas.

Section D

7. Classification of industries, world distribution and production of iron and steel and textile industry, major industrial complexes of the world.
8. Transport, communication and trade: geographical factors in their development, major modes of water, land and air transport, recent trends in international trade

Suggested Readings:

1. Hartshorne TN and Alexander JW. 1988. Economic Geography, Prentice Hall, New Delhi.
2. Jones CF and Darkenwald GG. 1975. Economic Geography. McMillan Company, New York
3. Thomas, RS. 1962. The Geography of Economic Activities. McGraw Hill, New York.
4. Wheeler J et al. 1995. Economic Geography. John Wiley, New York.

Paper-303-Introduction to Remote Sensing, GIS & Quantitative Methods

Maximum Marks : 70
External Assessment: 50
Internal Assessment: 20
Time : 3 Hours

Note: *Question 1 is compulsory and comprises of Ten short answer type questions to be answered in 15-20 words. There will be eight long questions, two from each section. The candidate has to answer one question from each section. All five questions carry equal marks.*

Section-A

1. Introduction to Aerial Photographs: their advantages and types.
2. Elements of aerial Photo interpretation.

Section-B

3. Introduction to Remote Sensing; Electromagnetic spectrum, stages in remote sensing, type of satellites.
4. Types of Imageries and their application in various fields such as agriculture, environment and resource mapping.

Section-C

5. Introduction to Geographical Information System: Definition, purpose, advantages and software and hardware requirements.
6. Application of GIS in various fields of geography.

Section-D

7. Measure of Central Tendency: Mean, Median and Mode.
8. Measure of Dispersion: Range, Quartile deviation and Mean deviation, Standard deviation, Coefficient of variation.

Suggested Readings:

1. Aslam Mahmood 1993. Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi,.
2. John R. Jensen 2009. Remote Sensing of the Environment;, An Earth Resource Perspective, Pearson Education, (India Edition) New Delhi,
3. Kumar Meenakshi 2001. Remote Sensing, NCERT, New Delhi,
4. Lillesand and R.W.Kiefer,2005. Remote Sensing and Image Interpretation, John Wiley and Sons.
5. Pritvish Nag, and M.Kudrat 1998. Digital Remote Sensing, Concept Publishing Company, New Delhi,

Paper 302 & 304 Distribution Maps, Diagrams, Remote Sensing and Field Survey Report (Practical)

Maximum Marks: 90
Time : 3 Hours

Distribution of Marks
Exercises = 45
Record File = 12
Viva-voce = 13

Note: There will be four questions in all and candidate has to attempt three exercises selecting at least from unit I and II, while unit III is compulsory.

UNIT-I

1. Principal of map design and layout
2. Symbolization: point, line and area symbol
3. Lettering and toponomy
4. Mechanics of map construction
5. Distribution maps
   (i) Qualitative distribution maps
   - Choroschematic maps- 1 Exercise
   - Chorochromatic maps- 2 Exercise

   (ii) Quantitative distribution Maps
   - Isopleth maps-3 Exercises
   - Choropleth maps-3 Exercises
   - Dot maps-3 Exercises
   - Diagrammatic maps- 3 Exercises.
6. Prismatic Compass Survey – 2 Exercises.

UNIT-II

1. Demarcation of Principal Point, Conjugate Principal point and Flight line on Aerial Photographs – 1 Exercise
2. Determination of Scale of Aerial Photographs – 1 Exercise.
3. Interpretation of Single Vertical Photographs – 1 Exercise.
4. Use of Stereoscope and Identification of Features – 1 Exercise.
5. Identification of Features on IRSID, LISS III imagery (Mark copy of FCC) -1 Exercise.

UNIT-III

Socio-economic Survey and Report Writing -20 marks.

Field Survey Report = 14 marks
Viva-voce = 6 marks

Suggested readings:

1. Mishra RP and Ramesh A. 1999. Fundamentals of Cartography, Concept Publishing Company, New Delhi.
2. Monkhouse FJ and Wilkinson HR. 1972. Maps and Diagrams, Methuen Press, London
3. Singh Gopal. 2004. Map Work and Practical Geography, Vikas Publication House, New Delhi.
4. Singh RL. 1979. Elements of Practical Geography, Kalyani Publishers, New Delhi
5. John R. Jensen, Remote Sensing of the Environment; An Earth Resource Perspective, Pearson Education, (India Edition) New Delhi, 2009.
6. Lillesand and R.W.Kiefer, Remote Sensing and Image Interpretation, John Wiley and Sons, 1994.

COMPUTER APPLICATIONS (VOCATIONAL COURSE) W.E.F. 2015-16

Semester-V

Paper Code	Subject	External	Internal	Max Marks
BC-501	Cost Accounting	80	20	100
BC-502	Entrepreneurship Development	80	20	100
BC-503	Income Tax-I	80	20	100
BC-504	Company Law-II	80	20	100
BC (Voc)-505	Computer Aided Design	60	20*	80
BC (Voc)-506	Data Structure	60	20*	80
BC (Voc)-507	On the Job Training Report**	-	-	40

***Internal Assessment will be based on Practical Exam conducted by Internal Examiner.**

Semester-VI

Paper Code	Subject	External	Internal	Max Marks
BC-601	Management Accounting	80	20	100
BC-602	Auditing	80	20	100
BC-603	Income Tax-II	80	20	100
BC-604	Security Market Operations	80	20	100
BC (Voc)-605	Advanced Computer Applications			
	Theory	60	10	100
	Practical	30		
BC (Voc)-606	System Analysis & Design			
	Theory	60	10	100
	Practical	30		

Note :

****The students shall undergo On-the-Job Training to get a practical experience of the Computer Applications in Business. The faculty will supervise the students for their training. Three copies of the Project Report shall be submitted to the college, which will be sent for evaluation to an external examiner. There will be no Viva-Voce of there project/training reports.**

OFFICE MANAGEMENT & SECRETARIAL PRACTICE (VOCATIONAL COURSE) W.E.F. 2015-16

Semester-V

Paper Code	Subject	External	Internal	Max Marks
BC-501	Cost Accounting	80	20	100
BC-502	Entrepreneurship Development	80	20	100
BC-503	Income Tax-I	80	20	100
BC-504	Company Law-II	80	20	100
BC (Voc)-505	Office Practice	60	20	80
BC (Voc)-506	Typewriting (English)	80**	-	80
BC (Voc)-507	On-the-Job Training Report	-	-	40

****Examination will be conducted by Internal Examiner.**

Semester-VI

Paper Code	Subject	External	Internal	Max Marks
BC-601	Management Accounting	80	20	100
BC-602	Auditing	80	20	100
BC-603	Income Tax-II	80	20	100
BC-604	Security Market Operations	80	20	100
BC (Voc)-605	Computer Application			
	Theory	70	10	100
	Practical	20		
BC (Voc)-606	Shorthand(English) Practical	100	-	100

Each student will be required to undergo on-the-job training of four weeks duration during the vacation after IInd Semester and IVth Semester examinations. The purpose of such training is to appraise the student with the real world office and secretarial practices. On completion of 'On-the-Job Training Report' each student will be required to submit a report which would be called 'On-the-Job Training Report' atleast one month before the commencement of B.Com-IIIrd semester and B.Com-Vth Semester examinations respectively and such training reports will be evaluated by external and internal examiners. There will be a viva-voce of the Training Report.

MASTER OF BUSINESS ADMINISTRATION (HOSPITALITY MANAGEMENT

Examination (Annual System)
Duration (Two Year)

PART-I

Paper No.	Paper	Ext. M.	Int. M.	Max Marks	Time
MBA (HM) 101	Element of Hospitality Management	80	20	100	3
MBA (HM) 102	Introduction to Tourism Business	80	20	100	3
MBA (HM) 103	Hotel /Tourism Marketing	80	20	100	3
MBA (HM) 104	Tourism Product of India	80	20	100	3
MBA (HM) 105	Human Resources Development	80	20	100	3
MBA (HM) 106	Principles of Management	80	20	100	3
MBA (HM) 107	Financial Accounting for Hotel & Travel Organisations	80	20	100	3
MBA (HM) 108	General Viva		100		

PART-II

Compulsory Papers

MBA (HM) 201	Customer Relationship Management in Hospitality Sector	80	20	100	3
MBA (HM) 202	Event Management	80	20	100	3
MBA (HM) 203	Information and Communication Technologies Hospitality Industry	80	20	100	3
MBA (HM) 204	Financial; Management	80	20	100	3
MBA (HM) 205	Statistics and Research Methodology	80	20	100	3
MBA (HM) 206	On-the-Job Training Viva-Voce			200	3

Optional Paper (Tourism)

MBA (HM) 207	Air Travel Management	80	20	100	3
MBA (HM) 208	Tour Packaging Management	80	20	100	3
MBA (HM) 209	Travel Agency Management	80	20	100	3
	OR				

Optional Paper (Hotel)

MBA (HM) 210	front office Management	80	20	100	3
MBA (HM) 211	Housekeeping	80	20	100	3
MBA (HM) 212	Food & Beverage Management & Operations	80	20	100	3
		Total Marks		1800	

B.A. Part II
English (Compulsory)
Semester III
Session 2015-16

Scheme of Examination

Total Marks:	100
Theory:	80
Int. Assessment:	20
Time:	3 hrs

Prescribed Text:

Fragrances: edited by Dinesh Kumar, Sunita Siroha and S.S. Rehal, and published by Orient Blackswan, New Delhi.

Workload: 8 periods of 45 minutes' duration per week for Text. 2 periods of 45 minutes' duration per week for Grammar and Composition for a group of 20 students.

tructions to the Paper-setter and Students:

e: All questions are compulsory.

Q.No.1 (a) Explanation of one stanza out of the given two with reference to the context. 8 Marks

Q.No.2 (a) Very short answer type text-based questions: Students will be required to answer any six out of the given eight questions in a word/phrase/sentence. 6 Marks

(b) Students will be required to attempt any two out of the given three questions based on the text in 100 words each. Short answer type questions also may not be the same as given in the exercises. 6+6=12 Marks

Q.No.3 Long answer type question based on the text, to be answered in about 200 words on any one of the given two questions. The questions will be designed to test the candidate's critical understanding of the text. 12 Marks

Q.No.4 (a) Grammar: This question will be based on the grammar topics discussed in the text book. The sentences will not necessarily be the same as given in exercises. Students will be required to attempt any fifteen out of the given twenty. 15 Marks

(b) One question on poetic forms/devices. The student will be required to attempt one out of the given two. The candidates may be asked to identify devices/forms on the basis of extracts from poems. 6 Marks

(c) Transcription of any five words out of the given eight.
(For blind candidates only) There will be a question based on vocabulary. 5 Marks

(d) Vocabulary exercise (any four out of the given six). 4 Marks

No.5 Composition: Students will be required to write an essay in about 300 words on any one of the f our given topics of general nature.

12 Marks

Bachelor of Technology (Common for All Branches)

SCHEME OF STUDIES/EXAMINATIONS

Semester – I

S. No.	Course No.	Course Title	Teaching Schedule				Allotment of Marks				Duration of Exam (Hrs.)
			L	T	P	Hours/ Week	Theory	Sessional	Practical	Total	
1	AS-101N	Applied Physics-I	4	1	0	5	75	25	0	100	3
2A	AS-103N	Applied Chemistry	3	1	0	4	75	25	0	100	3
2B	ME-101N	Manufacturing Technology and Processes	4	0	0	4	75	25	0	100	3
3	AS-105N	Applied Mathematics-I	4	1	0	5	75	25	0	100	3
4A	HS-101N	Technical Communication	3	1	0	4	75	25	0	100	3
4B	BT-101N	Fundamentals of Biotechnology	3	1	0	4	75	25	0	100	3
5A	ME-105N	Engg. Drawing and Graphics	1	0	3	4	75	25	0	100	3
5B	ECE-101N	Basics of Electronics Engg.	3	1	0	4	75	25	0	100	3
6A	EE-101N	Electrical Technology Fundamentals	4	1	0	5	75	25	0	100	3
6B	CSE-101N	Introduction to Computer Programming	3	1	0	4	75	25	0	100	3
7	AS-107N	Applied Physics Lab -I	0	0	2	2	0	20	30	50	3
8A	AS-109N	Applied Chemistry Lab	0	0	2	2	0	20	30	50	3
8B	ME-107N	Engg. Workshop	0	0	3	3	0	20	30	50	3
9A	EE-103N	Electrical Technology Lab	0	0	2	2	0	20	30	50	3
9B	CSE-103N	Computer Programming Lab	0	0	2	2	0	20	30	50	3
10B	ECE-103N	Basic Electronics Lab	0	0	2	2	0	20	30	50	3
		Total	**19/ 21**	**5/5**	**9/9**	**33/35**	**450**	**210/230**	**90/120**	**750A /800B**	

Bachelor of Technology (Common for All Branches)

SCHEME OF STUDIES/EXAMINATIONS

Semester – II

S. No.	Course No.	Course Title	Teaching Schedule				Allotment of Marks				Duration of Exam (Hrs.)
			L	T	P	Hours/ Week	Theory	Sessional	Practical	Total	
1	AS-102N	Applied Physics-II	4	1	0	5	75	25	0	100	3
2A	AS-103N	Applied Chemistry	3	1	0	4	75	25	0	100	3
2B	ME-101N	Manufacturing Technology and Processes	4	0	0	4	75	25	0	100	3
3	AS-104N	Applied Mathematics-II	4	1	0	5	75	25	0	100	3
4A	HS-101N	Technical Communication	3	1	0	4	75	25	0	100	3
4B	BT-101N	Fundamentals of Biotechnology	3	1	0	4	75	25	0	100	3
5A	ME-105N	Engg. Drawing and Graphics	1	0	3	4	75	25	0	100	3
5B	ECE-101N	Basics of Electronics Engg.	3	1	0	4	75	25	0	100	3
6A	EE-101N	Electrical Technology Fundamentals	4	1	0	5	75	25	0	100	3
6B	CSE-101N	Introduction to Computer Programming	3	1	0	4	75	25	0	100	3
7	AS-106N	Applied Physics Lab -II	0	0	2	2	0	20	30	50	3
8A	AS-109N	Applied Chemistry Lab	0	0	2	2	0	20	30	50	3
8B	ME-107N	Engg. Workshop	0	0	3	3	0	20	30	50	3
9A	EE-103N	Electrical Technology Lab	0	0	2	2	0	20	30	50	3
9B	CSE-103N	Computer Programming Lab	0	0	2	2	0	20	30	50	3
10B	ECE-103N	Basic Electronics Lab	0	0	2	2	0	20	30	50	3
		Total	**19/ 21**	**5/5**	**9/9**	**33/35**	**450**	**210/230**	**90/120**	**750A /800B**	

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Theory	Sessional	Total	
AS-101N	Applied Physics-I	4	1	0	75	25	100	3
Purpose	*To introduce the basics of Physics to the students for applications in Engineering field.*							
Course Outcomes (CO)								
CO-1	Introduce the fundamentals of interference and diffraction and their applications.							
CO-2	To make the students aware of the importance of polarization and Laser in technology.							
CO-3	Applications of Optical Fiber and Ultrasonics in various fields.							
CO-4	Discussion of theory of relativity and detection of nuclear radiations.							

Unit - I

Interference: Principle of Superposition, Conditions for interference, Division of wave-front: Fresnel's Biprism and Applications, Division of amplitude: Wedge-shaped film, Newton's rings, Michelson Interferometer and Applications.

Diffraction: Types of diffraction, Fraunhofer diffraction at a single slit, Plane transmission diffraction grating: theory, secondary maxima and minima, width of principal maxima, absent spectra, overlapping of spectral lines, determination of wavelength; Dispersive power and resolving power of diffraction grating.

Unit – II

Polarization: Polarization of transverse waves, Plane of polarization, Polarization by reflection, Double refraction, Nicol Prism, Quarter and half wave plate, Specific Rotation, Laurent 's half shade polarimeter, Biquartz polarimeter.

Laser: Introduction, Stimulated Absorption, Spontaneous and Stimulated Emission; Einstein's Coefficients and its derivation, Population Inversion, Direct and Indirect pumping, Pumping schemes, Main components of Laser, He-Ne Laser, Semiconductor Laser, Characteristics of Laser, Applications of Laser.

Unit – III

Optical Fiber: Introduction, Principle of propagation of light waves in optical fibers: total internal reflection, acceptance angle, numerical aperture, V- number; Modes of propagation, Types of optical fibers: single mode fiber, multimode fibers; Fiber optics communication system, Advantages of optical fiber communication, Applications of optical fibers.

Ultrasonics: Ultrasonic waves, Properties of ultrasonic waves, Production of ultrasonic waves: Magnetostriction and Piezoelectric methods, Detection of ultrasonic waves, Measurement of velocity of ultrasonic waves, Applications of ultrasonic waves.

Unit - IV

Special theory of Relativity: Concept of ether, Michelson-Morley experiment, Postulates of Special theory of relativity, Frame of reference, Galilean Transformations, Lorentz transformations, Consequences of Lorentz Transformations: Length contraction, Time dilation; Velocity transformations, Variation of mass with velocity, Einstein's mass-energy relation, Einstein's energy-momentum relation.

Nuclear Radiation and Detection: Classification of nuclear radiations, Interaction of charged particle (light and heavy) and gamma radiations with matter (basic concepts); Gas-filled detector: Ionization Chamber, Proportional Counter, Geiger Muller Counter; Scintillation Detector, Semiconductor Detector.

Text Books

1. P.K. Diwan, *Applied Physics for Engineers*, Wiley India Pvt. Ltd.
2. S.P. Taneja, *Modern Physics for Engineers*, R. Chand & Co.

Reference Books

1. N. Subrahmanyam, B. Lal, M.N. Avadhanulu, *A Textbook of Optics*, S. Chand & Company Ltd.
2. Arthur Beiser, *Concepts of Modern Physics*, Tata McGraw-Hill Publishing Company Limited.
3. R. Resnick, *Introduction to Special Relativity*, John Wiley & Sons. (Asia) Pte. Ltd.
4. V.K. Mittal, R.C. Verma, S.C. Gupta, *Introduction to Nuclear and Particle Physics*, PHI Learning Private Limited.
5. S.S. Kapoor, V.S. Ramamurthy, *Nuclear Radiation Detectors*, New Age International (P) Limited.

Note: *Examiner will set eight questions by selecting two from each unit. Students will be required to attempt five questions selecting at least one question from each unit.*

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Theory	Sessional	Total	
AS-103N	Applied Chemistry	3	1	0	75	25	100	3
Purpose	*To introduce some of the concepts of applied chemistry to students.*							
Course Outcomes (CO)								
CO-1	Basic concepts of thermodynamics and phase rule chemistry.							
CO-2	General methods of water purification and introduction of green chemistry.							
CO-3	Importance of lubricants and drawbacks of corrosion.							
CO-4	Introduction of different engineering materials. .							

Unit - I

Thermodynamics: First, second, third and zeroth law of thermodynamics, concept of entropy (for reversible and irreversible process, of ideal gases, of phase transition), free energy, work function, chemical potential, Gibb's Helmholtz equation, Clausius-Clapeyron equation and related numerical problems. Phase rule, terminology and derivation of Gibbs phase rule, phase diagrams of water system, sulphur system, (Pb-Ag) system, (Zn-Mg) system and (Na-K) system.

Unit - II

Water and its treatment: Hardness of water and its determination by EDTA, alkalinity and its determination, related numerical problems, Scale and sludge formation (composition, properties and methods of prevention), Water softening by ion exchange process, desalination (reverse osmosis, electrodialysis)

Green Chemistry: Definition and concept, Twelve principles of green chemistry, Alternate solvents-ionic liquids, super critical fluid (SCF) system, derivatized and immobilized solvent materials.

Unit - III

Corrosion: Dry and Wet corrosion, electrochemical theory of corrosion, Pitting, water-line, differential aeration and stress corrosion, factors affecting corrosion, preventive measures (proper design and material selection, cathodic and anodic protection).

Lubricants: Mechanism of thin and thick layer lubrication, classification of lubricants and important propertiers of lubricants (viscosity index, flash and fire point, saponification number, pour point, iodine number,) Greases as lubricants: consistency and drop point test

Unit-IV

Engineering materials: Ceramics (brief introduction of clays, silica, feldspar, porcelain and Vitreous Enamels), cement (introduction, raw materials, manufacture of portland cement, analysis of cement) Nanoscale materials(introduction, properties of nanomaterials, brief discussion of nanocrystals and clusters, fullerenes, carbon nanotubes, dendrimers, nano wires, nanocomposites)

Text Book

1. Rajesh Agnihotri, *Engineering Chemistry*, Wiley India Pvt. Ltd.

Reference Books

1. J.C. Kuriacone, J. Rajaram, *Chemistry in Engineering and Technology*, McGraw Hill Education (India) Private Ltd. Volume I and II.
2. S.S. Dua, *A Text Book of Engineering Chemistry*, S.Chand and Company Ltd.
3. Atkin, *Physical Chemistry*, Oxford Publication.
4. Puri, Sharma, Pathania, *Principals of Physical Chemistry*, Vishal Publications.

Note: *Examiner will set eight questions by selecting two from each unit. Students will be required to attempt five questions selecting at least one question from each unit.*

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Theory	Sessional	Total	
ME-101N	Manufacturing Technology and Processes	4	0	0	75	25	100	3
Purpose	*To make the students aware of different manufacturing processes like metal casting, forming, metal cutting and joining processes.*							
Course Outcomes (CO)								
CO-1	Define and classify the manufacturing processes, accidents, safety methods, comprehend about the engineering materials, properties and application areas.							
CO-2	Comprehend the procedure of casting of liquid materials such as molten metal's. Define and classify the plant layout.							
CO-3	Comprehend the procedure of manufacturing process of forming materials into shapes.							
CO-4	Explain the procedure of how the materials are joined together and the processes used to achieve this.							

Unit - I

Introduction: Introduction to Manufacturing Processes and their Classification. Industrial Safety; Introduction, Types of Accidents, Causes and Common Sources of Accidents, Methods of Safety, First Aid.
Engineering Materials: General Properties and Applications of Engineering Materials, Mild Steel, Medium Carbon Steel, High Carbon Steel, High Speed Steel and Cast Iron.

Unit – II

Foundry: Introduction to Casting Processes, Basic Steps in Casting Process, Pattern, Types of Patterns, Pattern Allowances, Risers, Runners, Gates, Moulding Sand and its composition, Sand Preparation, Molding Methods, Core Sands and Core Making, Core Assembly, Mold Assembly, Melting (Cupola) and Pouring, Fettling, Casting Defects and Remedies.

Unit – III

Cold Working (Sheet Metal Work): Sheet Metal Operations, Measuring, Layout Marking, Shearing, Punching, Blanking, Piercing, Forming, Bending and Joining, Advantages and Limitations.
Hot Working Processes: Introduction to Hot Working, Principles of Hot Working Processes, Forging, Rolling, Extrusion, Wire Drawing.
Plant Layout: Objectives of Layout, Types of Plant Layout and their Advantages.

Unit – IV

Introduction to Machine Tools: Specifications and Uses of commonly used Machine Tools in a Workshop such as Lathe, Milling, Drilling, Introduction to Metal Cutting. Nomenclature

of a Single Points Cutting Tool and Tool Wear. Mechanics of Chips Formations, Type of Chips , Use of Coolants in machining.
Welding: Introduction to Welding, Classification of Welding Processes, Gas Welding: Oxy-Acetylene Welding, Resistance Welding; Spot and Seam Welding, Arc Welding: Metal Arc, TIG & MIG Welding, Welding Defects and Remedies, Soldering & Brazing.

Text Books

1. Hazra & Chaudhary, *Workshop Technology Vol. I &II* , Asian Book Comp., New Delhi.
2. R.A. Lindberg, *Process and Materials of Manufacture*, Prentice Hall of India, New Delhi.

Reference Books

1. J.S. Campbell, *Principles of Manufacturing Materials and Processes*, McGraw- Hill.
2. Amitabha Ghosh & Ashok Kumar Malik, *Manufacturing Science*, East-West Press.
3. Ostwald, Munoz , *Manufacturing Process and Systems*, John Wiley.
4. Chapman, WAJ, Edward Arnold , *Workshop Technology*, Vol. 1, 2 & 3.

Note: *Examiner will set eight questions by selecting two from each unit. Students will be required to attempt five questions selecting at least one question from each unit.*

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Theory	Sessional	Total	
AS-105N	Applied Mathematics-I	4	1	0	75	25	100	3
Purpose	*To acquaint the students with the basic use of matrices, differential calculus and integral calculus.*							
Course Outcomes (CO)								
CO-1	How to find the inverse of the higher order matrices using Gauss Jordan method, using the rank how to get the solution of system of linear equations, and application of Eigen values and Eigen vectors.							
CO-2	Find higher order derivatives, to find the approximate values of the function using series method and, tracing of plane curves.							
CO-3	Extension of some concept of differential calculus for more than one variable							
CO-4	Application of integral calculus to find the area, volume, surface, volume of solid of revolution and, easy way to solve the multiple integrals by changing the variables.							

Unit - I

Linear Algebra: Rank of a matrix, elementary transformations, elementary matrices, Gauss Jordon method to find inverse using elementary transformations, normal form of a matrix, linear dependence and independence of vectors, consistency of linear system of equations, linear and orthogonal transformations, eigenvalues and eigenvectors, properties of eigenvalues, Cayley - Hamilton theorem and its applications, diagonalization of matrices, quadratic forms.

Unit - II

Differential Calculus I: Successive differentiation, Leibnitz theorem and applications, Taylor's and Maclaurin's series (single variable), Expansion of functions, Asymptotes (Cartesian and Polar Co-ord.), Curve Tracing (for standard curves, Cartesian and Polar)

Unit - III

Differential Calculus II: Concept of limit and continuity of a function of two and three variables, Partial derivatives, variable treated as constant, Euler's theorem on Homogeneous functions, total derivative, differentiation of an implicit function, chain rule, change of variables, Jacobian, Taylor's and Maclaurin's series(two variables). Maxima and minima of a function of two variables, Lagrange's method of undetermined multipliers

Unit - IV

Integral Calculus: Application of single integration to find the volume and surface areas of solid of revolution, Double integrals, Change of order of integration, Areas enclosed by plane curves, Triple integrals, Volume of solids, Change of variables.

Text Books

1. E. Kreyszig, Advanced *Engineering Mathematics*, Wiley India.

Reference Books

1. G. B. Thomas, R. L. Finney, *Calculus and Analytic Geometry*, Pearson Education.
2. B. V. Ramana, *Engineering Mathematics*, Tata McGraw Hill
3. Michael D. Greenberg, *Advanced Engineering Mathematics*, Pearson Education, Prentice Hall.

Note: *Examiner will set eight questions by selecting two from each unit. Students will be required to attempt five questions selecting at least one question from each unit.*

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Theory	Sessional	Total	
HS-101N	Technical Communication	3	1	0	75	25	100	3
Purpose	*To enhance the students' communication skills by giving adequate exposure in reading, writing, listening and speaking skills and the related sub-skills*							
Course Outcomes (CO)								
CO-1	Know the process of technical communication and its components.							
CO-2	Improve the language skills i.e. Listening Skills, Speaking Skills, Reading Skills and Writing Skills (LSRW).							
CO-3	Construct basic and intermediate skills in English language.							
CO-4	Enhance comprehension skills, presentation skills, group discussion skills etc.							
	Create literature sensibility and learn life skills through it.							
	Develop confidence for communicating in English and create interest for the life-long learning of English language							

Unit-I

Introduction: Meaning; Types; Role of Communication; Barriers to Communication

Unit-II

Communicative Skills:
i) Listening: Traits of a good listener; Barriers
ii) Speaking: Achieving confidence, clarity and fluency; Paralinguistic features
iii) Reading Skills: Vocabulary; Scanning; Skimming; the SQ3R Reading Technique
iv) Writing: Characteristics; Language; Techniques for effective writing

Unit-III

Professional Speaking:
i) Group Discussion ii) Oral Presentation iii) Job Interview

Unit-IV

Technical Writing:
i) Technical letters ii) Job Application and Resume iii) Technical articles

Text Books

1. Meenakshi Raman and Sangeeta Sharma, *Technical Communication: Principles and Practice*, Oxford University Press
2. M. Ashraf Rizvi, *Effective Technical Communication*, McGraw Hill

Reference Books

1. Wallace and Masters, *Personality Development for Life and Work,* Thomson Learning
2. Farhathullah,T. M. *Communication Skills for Technical Students*
3. *Advanced Learner's Dictionary,* Oxford University Press
4. Sanjay Kumar, *Communication Skills*, Oxford University Press

Note: *Examiner will set eight questions by selecting two from each unit. Students will be required to attempt five questions selecting at least one question from each unit.*

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Theory	Sessional	Total	
BT-101N	Fundamentals of Biotechnology	3	1	0	75	25	100	3
Purpose	*To familiarize the students with the basics of Biotechnology*							
Course Outcomes (CO)								
CO-1	Introduction to essentials of life and macromolecules essential for growth and development							
CO-2	Defining the basic concepts of cell division, genes and Immune system							
CO-3	Introduction of basic tools and techniques in Genetic Engineering and Transgenics							
CO-4	Explain the role of Biotechnology in Agriculture, Medicine, Environment, Industry and Forensic Science							

UNIT - I

Introduction to living world: Concept and definition of Biology; Characteristic features of living organisms; Cell ultra-structure and functions of cell organelles like nucleus, mitochondria, chloroplast, ribosomes and endoplasmic reticulum; Difference between prokaryotic and eukaryotic cell; Difference between animal and plant cell.

Introduction to Biomolecules: Definition, general classification and important functions of carbohydrates, lipids, proteins, nucleic acids (DNA& RNA: Structure and forms), vitamins, hormones and enzymes.

UNIT-II

Genetics: Cell division- Mitosis and its utility to living systems. Meiosis and its genetic significance; **Gene**: Concept, location, definition and structure; Introduction to replication, transcription, translation, Mutations, Genetic disorders;**Human traits**: Genetics of blood groups, diabetes type I & II.

Role of immune system in health and disease: Brief introduction to morphology and pathogenicity of bacteria, fungi, virus, protozoa beneficial and harmful for human beings.

UNIT-III

Concepts of Genetic Engineering: Definition; Tools used in recombinant DNA Technology: Plasmids as nature's interlopers, restriction enzymes as nature's pinking-shears, Vectors as gene transfer vehicles.

Transgenesis: Production and significance of transgenic plants and animals; Basic concept of genetically modified organisms.

UNIT-IV

Applications of Biotechnology: Definition of biotechnology; Applications of Biotechnology in Agriculture, Medicine, Environment, Industry and Forensic Science.

Role of biology in allied fields: Role of biology in Information Technology (Bioinformatics), Nanotechnology (Nanobiotechnology), Micro-electromechanical systems (Bio-MEMS) and Sensors (Biosensors). Ethical issues related to Biotechnology.

Text Book

1. Deswal & Deswal, *Introduction to Biotechnology*, Dhanpat Rai Publications

Reference Books

1. Bruce *et al., Molecular Biology of cell*, (4th ed.) Alberts, Garland Science Publishing, New York.
2. Pelczar Jr., M.J.; Chan, E.C.S. and Krieg, N.R., *Microbiology*, Tata McGraw Hill, New Delhi.
3. David L. Nelson and M.M. Cox, *Lehninger: Principles of Biochemistry* (3rd edition), Maxmillan/ Worth publishers.
4. Snusted & Simmons, *Genetics*.
5. Glick, B. R. and Pasternak, J.J., *Molecular Biotechnology: Principles Application of Recombinant DNA.* ASM press WashingtonDC.
6. Goldsby, R A,. Kindt, T.J, Osborne, B.A., *Kuby's Immunology*, W. H. Freeman and company, New York.
7. Watson, James D. and Gilman, M, *Recombinant DNA* (2nd Edition), W.H Freeman and Company, New York.
8. Malacinski, G. M., *Essentials of Molecular Biology* (4th ed.), Jones & Bartlet Publishers, Boston

Note: *Examiner will set eight questions by selecting two from each unit. Students will be required to attempt five questions selecting at least one question from each unit.*

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Theory	Sessional	Total	
ME-105N	Engg. Drawing and Graphics	1	0	3	75	25	100	3
Purpose	*To draw and interpret various projections of 1D, 2D and 3D objects.* *To understand the basics of AUTOCAD and perform exercises.*							
Course Outcomes (CO)								
CO-1	To familiarize with the projections of points and straight lines							
CO-2	To draw with the projection of planes and solids							
CO-3	To familiarize with the sectioning of solids and development of surfaces							
CO-4	To know the AUTOCAD basics and exercise the problems							

Unit-I

Introduction, Projection of Points: Introduction to Engineering Equipments, Elements of Engineering Drawing, Types of Lines, Various types of projections, First and third angle systems of orthographic projections. Projections of points in different quadrants.
Projection of Straight Lines:
Projections of straight lines: parallel to one or both reference planes, contained by one or both planes, perpendicular to one of the planes, inclined to one plane but parallel to the other plane, inclined to both the planes, true length of a line and its inclinations with reference planes, traces of a line.

Unit-II

Projection of planes: Introduction, types of planes, Projection of planes by change of position method only, projection of plane perpendicular to a plane, with axis parallel to both planes, with axis parallel to one plane and inclined to the other plane.
Projection of Solids: Types of solids, Projections of Polyhedra Solids and Solids of Revolution – in simple positions with axis perpendicular to a plane, with axis parallel to both planes, with axis parallel to one plane and inclined to the other.

Unit-III

Section of Solids: Introduction - section planes - apparent section - true section - sectional view - need for sectional view - cutting plane - cutting plane line.
Sectional view of simple solids such as Prism, Cylinders, Pyramids and Cones in simple positions Section plane perpendicular to one plane and parallel to the other, section plane perpendicular to one plane and inclined to the other.
Development of Surfaces: Development of surface of various simple solids in simple positions such as cubes, cylinders, prisms, pyramids etc.

Unit-IV

Orthographic views (First Angle Projection Only): Three orthographic views of solids, Orthographic Views of Nuts & Bolts.

AUTOCAD basics: Cartesian and Polar Co-ordinate system, Absolute and Relative Co-ordinates systems.Basic Commands: Line, Point, Rectangle, Polygon, Circle, Arc, Ellipse, Polyline
Basic editing Commands: Basic Object Selection Methods, Window and Crossing Window Erase, Move, Copy, Offset, Fillet, Chamfer, Trim, Extend, Mirror Display Commands: Zoom, Pan, Redraw, and Regenerate Simple dimensioning and text, simple exercises.

Text Book

1. T. Jeyapoovan, *Engineering Graphics using AUTOCAD 2000*, Vikas Publishing House.
2. Basudeb Bhattacharyya, *Machine Drawing*, Oxford University Press, New Delhi

Reference Books

1. Amar Pathak, *Engineering Drawing*, Dreamtech Press, New Delhi.
2. N.D. Bhatt and V.M.Panchal, *Engineering Drawing: Plane and Solid Geometry*, Charotar Publishing House.
3. Thomas E.French, Charles J.Vierck, Robert J.Foster, *Engineering drawing and graphic technology*, McGraw Hill International Editions.
4. P.S. Gill, *Engineering Graphics and Drafting*: Millennium Edition, S.K. Katariaand Sons.
5. *A Primer on Computer aided Engineering Drawing-2006*, published by VTU, Belgaum.

Note: *Examiner will set eight questions by selecting two from each unit. Students will be required to attempt five questions selecting at least one question from each unit.*

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Theory	Sessional	Total	
ECE-101N	Basics of Electronics Engg.	3	1	0	75	25	100	3
Purpose	*To familiarize the students with the basics of Electronics Engineering.*							
Course Outcomes (CO)								
CO-1	Explain the fundamentals and applications of basic semiconductors and diodes.							
CO-2	Explain Bipolar Junction Transistors (BJT): Biasing techniques, BJT Amplifier, Feedback, Oscillators.							
CO-3	Discuss Operational Amplifier (OP-Amp): Block Diagram, Configurations, Parameters and Applications.							
CO-4	Discuss the Special Semiconductor Devices: Field Effect Transistors (FET), Types of FETs, Characteristics, Operation and Applications of SCR, UJT and TRIAC.							

Unit - I

Semiconductor Diodes: Active Components (Current & Voltage Sources) and Passive Electronic components (Resistors, Capacitors & Inductors), concept of P-N diode, Diode Equivalent Circuits, Load Line Analysis, Diode as a Switch, Breakdown Mechanisms, Zener Diode: Operation and Applications, Rectifiers: Half Wave and Full Wave Rectifiers, Photo Diode and Applications, LED.

Unit – II

Bipolar Junction Transistor: Different Types of Transistors, basic operation of a transistor, Amplifying Action of BJT, Input and Output Characteristics of Common Base (CB), Common Collector (CC) and Common Emitter (CE) Configurations, Operating Point, Transistor as a switch and amplifier, Biasing: Fixed Bias, Self Bias, Voltage Divider Bias, Concept of Feedback in amplifiers, Advantages of negative feedback, Oscillators: Barkhausen criterion for oscillations.

Unit – III

Operational Amplifier: Operational Amplifier: Basic Block Diagram, Equivalent Circuit, Characteristics of Ideal Op-Amp, Concept of Virtual Short, Ideal Op-Amp vs Practical Op-Amp, Configurations of Op-Amp: Inverting, Non-Inverting, Differential, Parameters of Op-Amp: Bandwidth, Slew Rate, Gain, CMRR, PSRR, Input offset voltage, Output offset voltage, Op-Amp Applications: Summing and Difference Amplifiers, Integrator and Differentiator.

Unit – IV

Special Semiconductor Devices: Operation and I-V Characteristics of enhancement and depletion MOSFET, concept of n-MOSFET, p-MOSFET and C-MOSFET, DIAC: Characteristics, Operation and Applications, UJT: Characteristics, Operation and

Applications, SCR: Characteristics, Operation and Applications, TRIAC: Characteristics, Operation and Applications.

Text Books

1. Boylestad & Nashelsky, *Electronics Devices & Circuits*, Pearson Education.

Reference Books

1. *Basic Electronics Engineering*, Wiley Precise Textbook Series, Wiley India.
2. N. N. Bhargava S. C. Gupta D. C. Kulshreshtha, *Basic Electronics and Linear Circuits*, Tata McGraw-Hill Education
3. Millman & Halkias, *Integrated Electronics*, Mc-Graw Hill.
4. David A. Bell, *Electronic Devices and Circuits*, Oxford University Press.
5. Donald L. Schilling & Charles Belove, *Electronics Circuits*, Mc-Graw Hill.
6. Thomas L. Floyd, *Electronic Devices*, Pearson Education
7. Malvino, *Electronics Principles*, Mc-Graw Hill.

Note: *Examiner will set eight questions by selecting two from each unit. Students will be required to attempt five questions selecting at least one question from each unit.*

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Theory	Sessional	Total	
EE-101N	Electrical Technology Fundamentals	4	1	0	75	25	100	3
Purpose	*To familiarize the students with the basics of Electrical Technology*							
Course Outcomes (CO)								
CO-1	Deals with steady state circuit analysis subject to DC							
CO-2	Deals with AC fundamentals & steady state circuit response subject to AC and circuit parameters solution techniques							
CO-3	Deals with introductory Balanced Three Phase System analysis in first part and second part deals with qualitative analysis of magnetic circuits & Single Phase Transformer.							
CO-4	Explains the general constructional features and working of various types of Electrical Machines (qualitative analysis only)							

Unit - I

D.C. circuits excited by independent voltage/current source (steady state): Ohm's Law, junction & node, circuit elements classification: Linear & nonlinear, active & passive, lumped & distributed, unilateral & bilateral with examples. KVL, KCL, Loop analysis of resistive circuit in the context of dc voltages & currents, Node-voltage analysis of resistive circuit in the context of dc voltages & currents.Star-Delta transformation for set of pure resistors. Relevant D.C. circuit analytical problems for quantitative analysis.

Network Theorems: Superposition, Thevenin's and Norton's theorems all in the context of dc voltage and current sources acting in a resistive network,maximum power transfer theorem, Relevant D.C. circuit analytical problems for quantitative analysis.

Unit - II

AC Fundamentals: Mathematical representation of various wave functions. Sinusoidal periodic signal, instantaneous & peak values, polar & rectangular form representation of impedances & phasor quantities. Addition & subtraction of two or more phasor sinusoidal quantities using component resolution method. RMS & average values of various waveforms including clipped, clamped, half wave rectified& full wave rectified sinusoidal periodic waveforms etc. Generation of alternating emf (dynamo). Relevant analytical problems for quantitative analysis.

A.C. Circuits: Behavior of various components fed by A.C. source. (steady state response of pure R, pure L, pure C, RL, RC, RLC series with waveforms of instantaneous voltage, current & power on simultaneous real axis scale and corresponding phasor diagrams),P.F.active, reactive & apparent power. Frequency response of Series & Parallel RLC circuit including resonance, Q factor, cut-off frequency & bandwidth. Relevant A.C. circuit analytical problems solutions using 'j-omega' operator method.

Unit - III

Balanced Three Phase Systems: Necessity & advantage of three phase system, mode of generation of 3 phase supply. Phase and line voltages & currents, power. Measurement of 3-phase power by two wattmeter method for various types of star & delta connected balanced resistive, inductive & capacitive loads including phasor diagrams at various power factors. Phase sequence significance. Relevant problems for quantitative analysis.

Electromagnetism & Magnetic circuits (Qualitative analysis only): Laws of EMI, statically & dynamically induced emf, self & mutual induction, dot notation, RH Screw rule, Fleming's RH & LH rules. MMF, Relation between magnetic flux, m.m.f. and reluctance, magnetic fringing. Hysteresis & Eddy current losses & their minimization

Single Phase Transformer (Qualitative analysis only): Principle, construction & emf equation. Phasor diagram for ideal case and at no load. Winding resistance & leakage reactance. Actual transformer at resistive, inductive & capacitive loads with phasor diagrams. Losses & Efficiency, condition of maximum efficiency, regulation. OC & SC test, direct load test, equivalent circuit, concept of auto transformer.

Unit - IV

ELECTRICAL MACHINES (Qualitative analysis only)

Prime mover, Stator-Rotor, Field–Armature, necessity of a starter.

D.C. Machines: Principle, general construction & working. Split ring /Commutator working in DC generator & motor, generated emf equation, Torque Equation. Types of DC Machines, speed control of DC Shunt motor.

A.C. Machines: 3-phase Induction motor: Concept of rotating magnetic field, principle, types, general construction and working. Concept of slip & its significance.

Synchronous Generator (alternator): Principle, general construction & working.

Synchronous motor: Principle, general construction & working.

General comparison amongst squirrel cage I.M., phase wound rotor type I.M. & DC motor. General comparison between alternator & DC generator.

Text Books

1. Vijay Kumar Garg, *Basic Electrical Engg: A complete Solution,* Wiley India Ltd.
2. Rajendra Prasad, *Electrical Engg. Fundamentals*, PHI Pub.

Reference Books

1. S.K. Sahdev, *Basic Electrical Engg.*, Pearson Education
2. PV Prasad, *Basic Electrical Engg,* Sivangaraju, Cengage Learning Pub.
3. Bobrow, *Electrical Engg. Fundamentals*, Oxford Univ. Press
4. Kulshreshtha, *Basic Electrical Engg.*, McGraw Hill Pub.

Note: *Examiner will set eight questions by selecting two from each unit. Students will be required to attempt five questions selecting at least one question from each unit.*

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Theory	Sessional	Total	
CSE-101N	Introduction to Computer Programming	3	1	0	75	25	100	3
Purpose	*To familiarize the students with the basics of Computer System and C Programming*							
Course Outcomes (CO)								
CO-1	Describe the overview of Computer System and Levels of Programming Languages.							
CO-2	Learn the basic concepts of C Language.							
CO-3	Description and applications of arrays and functions.							
CO-4	Description and applications of pointers and user defined data types.							

Unit – I

Overview of Computers: Block diagram and its description, Number systems, Arithmetic of number systems, Computer Hardware: Printers, Keyboard and Mouse, Storage Devices.
Introduction to programming language: Different levels of PL: High Level language, Assembly language, Machine language; Introduction to Compiler, Interpreter, Debugger, Linker, Loader, Assembler.
Problem Analysis: Problem solving techniques, Algorithms and Flowchart representation.

Unit – II

Overview of C: Elements of C, Data types; Storage classes in C; Operators: Arithmetic, relational, logical, bitwise, unary, assignment and conditional operators, precedence & associativity of operators.
Input/output: Unformatted & formatted I/O function in C.
Control statements: if statement, switch statement; Repetition: for, while, and do-while loop; break, continue, goto statements.

Unit – III

Arrays: Definition, types, initialization, processing an array, String handling.
Functions: Definition, prototype, parameters passing techniques, recursion, built-in functions, passing arrays to functions, returning arrays from functions.

Unit – IV

Pointers: Declaration, operations on pointers, pointers and arrays, dynamic memory allocation, pointers and functions, pointers and strings.
Structure & Union: Definition, processing, Structure and pointers, passing structures to functions, use of union.
Data files: Opening and closing a file, I/O operations on files.

Text Books

1. Pradip Dey and Manas Ghose, *Computer Fundamental and Programming in C*, Oxford Pub.
2. Vikas Gupta, *Computer Concepts and C Programming*, Dreamtech.

Reference Books

1. Forouzan Behrouz, *Computer Science: A Structured Programming Approach Using C*, Cengage Learning.
2. Brian W. Kernighan Dennis Ritchie, *C Programming Language*, Pearson
3. Yashwant Kanetker, *Let us C*, BPB Publications.
4. A K Sharma, *Fundamentals of Computers & Programming*, Dhanpat Rai Publications
5. Kashi Nath Dey, Samir Bandyopadhyay, *C Programming Essentials*, Pearson.
6. Rajaraman V., *Computer Basic and C Programming*, Prentice Hall of India Learning.

Note: *Examiner will set eight questions by selecting two from each unit. Students will be required to attempt five questions selecting at least one question from each unit.*

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Practical	Sessional	Total	
AS-107N	Applied Physics Lab-I	0	0	2	30	20	50	3
Purpose	*Give the knowledge of basic practicals of Physics in Engineering.*							
Course Outcomes (CO)								
CO-1	To make the students familiar with the experiments related with optics.							
CO-2	To give the knowledge of handling of the experiments related with resistance using different methods.							

List of Experiments

1. To find the wavelength of monochromatic light by Newton's ring experiment.
2. To find the wavelength of various colours of white light with the help of plane transmission diffraction grating.
3. To verify Newton's formula and hence to find the focal length of the given convex lens.
4. To find the specific rotation of sugar solution by using a Polarimeter.
5. To find the frequency of A.C. mains by using Sonometer and horse shoe magnet.
6. To find low resistance by Carrey-Foster bridge.
7. To find the resistance of a galvanometer by post office box.
8. To find the value of high resistance by substitution method.
9. To convert a galvanometer into an ammeter of desired range and verify the same.
10. To find high resistance by leakage method.
11. To compare the capacitances of two capacitors by de-sauty's bridge and hence to find the dielectric constant of a medium.
12. To find the wavelength of sodium light by Michelson's interferometer.
13. To find the resolving power of telescope.
14. To find the wavelength of sodium light using Fresnel bi-prism.

Note: *Student will be required to perform at least 10 experiments out of the given list.*

Recommended Books

1. C.L. Arora, *B. Sc. Practical Physics,* S. Chand & Company Ltd.
2. B.L. Worshnop and H, T, Flint, *Advanced Practical Physics,* (KPH).

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Practical	Sessional	Total	
AS-109N	Applied Chemistry Lab-I	0	0	2	30	20	50	3
Purpose	*To train the students for handling of chemicals and glassware*							
Course Outcomes (CO)								
CO-1	Testing of certain properties of water samples							
CO-2	Determination of some of the properties of lubricants							
CO-3	To determine some important properties of liquids							
CO-4	To make familiar with the use of flame photometer, spectrophotometer							

List of Experiments

1. Determination of temporary and permanent hardness by EDTA method **or** Determination of Ca^{2+} and Mg^{2+} hardness of water using EDTA method.
2. To determine the alkalinity of given water sample.
3. Determination of Dissolved Oxygen **(DO)** in given water sample.
4. To determine the flash point and fire point of an oil by Pensky-Marten flash point apparatus.
5. Determination of viscosity of lubricant by Red Wood Viscometer (No. 1 and No. 2).
6. To determine the strength of HCl solution by titrating it with NaOH solution condutometrically.
7. To determine the amount of sodium and potassium ions in a given water sample by flame photometer.
8. To determine the total iron content (Fe^{2+} and Fe^{3+}) in an iron ore by **internal/self/external** indicator method.
9. To determine the concentration of $KMnO_4$ solution spectrophotometrically.
10. To determine the coefficient of viscosity of a liquid by Ostwald viscometer.
11. To determine the refractive indices of given organic liquid using Abbe's refractometer.
12. To determine the strength of strong acid by titrating it with strong base using pH meter.
13. To determine the surface tension of a given liquid by means of stalagmometer by drop number method.

Note: *Student will be required to perform at least 10 experiments out of the given list.*

Recommended Books

1. S.S. Dara, *A Text Book on Experimental and Calculation :Engineering Chemistry*, S. Chand & Company (Ltd.)
2. Shashi Chawla, *Essential of Experimental Engineering Chemistry*, Dhanpat Rai Publishing Company.
3. O.P. Virmani, A.K. Narula, *Theory & Practice Applied Chemistry*, New Age.

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Practical	Sessional	Total	
ME-107N	Engg. Workshop	0	0	3	30	20	50	3
Purpose	*To aware the students with hands on experience on different trades of engineering like fitting, carpentry, smithy, welding, machine shop and sheet metal.*							
Course Outcomes (CO)								
CO-1	Prepare models of various basic prototypes in the carpentry trade such as Lap joint, T joint, Dove tail joint, Mortise & Tenon joint, Cross-Lap joint							
CO-2	Prepare models of various basic prototypes in the trade of Welding such as Lap joint, Lap & T joint, Edge joint, Butt joint and Corner joint.							
CO-3	Comprehend various machine tools and prepare specified models involving various operations in the trade of Machining on lathe, drilling, shaper machines							
CO-4	Identify fitting, marking, carpentry, measuring and machine tools.							

List of Experiments

1. To study different types of measuring tools used in metrology and determine least counts of vernier calipers, micrometers and vernier height gauges.
2. To study different types of machine tools (lathe, shape, milling, drilling machines)
3. To prepare a job on a lathe involving facing, outside turning, taper turning, step turning, radius making and parting-off.
4. To study different types of fitting tools and marking tools used in fitting practice.
5. To prepare lay out on a metal sheet by making and prepare rectangular tray, pipe shaped components e.g. funnel.
6. To prepare joints for welding suitable for butt welding and lap welding.
7. To perform pipe welding.
8. To study various types of carpentry tools and prepare simple types of at least two wooden joints.
9. To prepare simple engineering components/ shapes by forging.
10. To prepare mold and core assembly, to put metal in the mold and fettle the casting.
11. To prepare horizontal surface/ vertical surface/ curved surface/ slots or V-grooves on a shaper/ planner.
12. To prepare a job involving side and face milling on a milling machine

Note: (i) *At least 10 experiments are to performed by students in a semester*; (ii) *At least 7 experiments should be performed from the above list; remaining three experiments may either be performed from the above list or designed and set by the concerned institution as per the scope of the syllabus.*

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Practical	Sessional	Total	
EE-103N	Electrical Technology Lab	0	0	2	30	20	50	3
Purpose	*To familiarize the students with the Electrical Technology Practicals*							
Course Outcomes (CO)								
CO-1	Understand basic concepts of Network theorems							
CO-2	Deals with steady state frequency response of RLC circuit parameters solution techniques							
CO-3	Deals with introductory Single Phase Transformer practicals							
CO-4	Explains the constructional features and practicals of various types of Electrical Machines							

List of Experiments

1. To verify KVL and KCL.
2. To verify Superposition theorem on a linear circuit with at least one voltage & one current source.
3. To verify Thevenin's Theorem on a linear circuit with at least one voltage & one current source
4. To verify Norton's Theorem on a linear circuit with at least one voltage & one current source.
5. To study frequency response of a series R-L-C circuit on CRO and determine resonant frequency& Q- factor for various Values of R, L, and C.
6. To study frequency response of a parallel R-L-C circuit on CRO and determine resonant frequency & Q -Factor for various values of R, L, and C.
7. To perform O.C. and S.C. tests on a single phase transformer.
8. To perform direct load test on a single phase transformer and plot efficiency v/s load characteristic.
9. To perform speed control of DC shunt motor.
10. To perform starting & reversal of direction of a three phase induction motor.
11. Measurement of power in a 3 phase balanced system by two watt meter method.
12. To calibrate a single phase energy meter.
13. To study connections & working of fluorescent tube light.

Note: *Student will be required to perform at least 9 experiments out of the given list.*

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Practical	Sessional	Total	
CSE-103N	Computer Programming Lab	0	0	2	30	20	50	3
Purpose	*To Introduce students with C Programming*							
Course Outcomes (CO)								
CO-1	Understand the basic concepts of C Programming							
CO-2	Implementation of arrays and functions.							
CO-3	Implementation of pointers and user defined data types.							
CO-4	Write individual and group reports: present objectives, describe test procedures and results.							

List of Programs

1. Write a program to find the sum of individual digits of a positive integer.
2. Write a program to generate the first n terms of the Fibonacci sequence.
3. Write a program to generate all the prime numbers between 1 and n, where n is the input value given by the user.
4. Write a program to calculate the following Sum:
   Sum=$1-\frac{x^2}{2!}+\frac{x^4}{4!}-\frac{x^6}{6!}+\frac{x^8}{8!}\dots$
5. Write a program to find the roots of a quadratic equation.
6. a) Write a function to generate Pascal's triangle.
   b) Write a function to construct a pyramid of numbers.
7. Write a C functions to find both the largest and smallest number of an array of integers.
8. Write a program for addition of Two Matrices
9. Write a program for calculating transpose of a matrix.
10. Write a program for Matrix multiplication by checking compatibility
11. Write programs that use both recursive and non-recursive functions for the following
    a. To find the factorial of a given integer.
    b. To find the GCD (greatest common divisor) of two given integers.
12. Write a function that uses functions to perform the count the lines, words and characters in a given text.
13. Write a program to explores the use of structures, union and other user defined variables
14. Write a program to print the element of array using pointers
15. Write a program to implement call by reference
16. Write a program to print the elements of a structure using pointers
17. Write a program to read a string and write it in reverse order
18. Write a program to concatenate two strings
19. Write a program to check that the input string is a palindrome or not.
20. Write a program which copies one file to another.
21. Write a program to reverse the first n characters in a file.

Note: *Student will be required to perform at least 10 programs out of the given list.*

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Practical	Sessional	Total	
ECE-103N	Basic Electronics Lab-I	0	0	2	30	20	50	3
Purpose	*To familiarize the students with the basics of Electronics Engineering, PCB design and fabrication processes.*							
Course Outcomes (CO)								
CO-1	Study and Identification of various basics electronics components..							
CO-2	Study and perform the experimental verification of diodes, BJT, JFET, MOSFET, OP-Amps.							
CO-3	To provide the knowledge in assembling and testing of the PCB based electronic circuits.							

List of Experiments

1. Identification, Specifications, Testing of R, L, C Components (Colour Codes), Potentiometers, Switches (SPDT, DPDT and DIP), Bread Boards, Diodes, BJTs, JFETs, MOSFETs, Power Transistors, SCRs and LEDs.
2. Study the operation of Digital Multi Meter, Function / Signal Generator, Regulated Power Supply (RPS), Cathode Ray Oscilloscopes; Amplitude, Phase and Frequency of Sinusoidal Signals on CRO.
3. To study & perform the Experimental Verification of V-I characteristics of PN- diode in forward and reverse bias & study of various parameters of diode like threshold voltage and breakdown voltage etc.
4. To study & perform the Experimental Verification of Half-Wave & Full-Wave Rectifier and calculate its ripple factor, efficiency and PIV.
5. To study & perform the Experimental Verification of Zener Diode as a Voltage Regulator and calculate its parameters.
6. To study & perform the Experimental Verification of the input and output characteristics of BJT in common-emitter configuration & calculate all its parameters.
7. To study & perform the Experimental Verification of Op-Amp as Inverting, Non-Inverting, Differential amplifier & calculate its Voltage gain.
8. To study & perform the Experimental Verification of Summing and Difference amplifier & calculate its Voltage gain.
9. To study & perform the Experimental Verification of the I-V characteristics of JFET and MOSFET & calculate all its parameters.
10. Simulation of simple electronic circuits and analyzing its input and output waveforms using any of EDA tools.

Note: *Experiments are to be performed using bread-board and components only.*

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Theory	Sessional	Total	
AS-102N	Applied Physics - II	4	1	0	75	25	100	3
Purpose	*To introduce the fundamentals of solid state physics and its applications to the students.*							
Course Outcomes (CO)								
CO-1	To make the students aware of basic terminology of crystal structure.							
CO-2	Introduce the elementary quantum mechanics, which will be useful in understanding the concepts of solid state physics.							
CO-3	Discussion of classical free electron theory, quantum theory and Band theory of solids.							
CO-4	Basics and applications of superconductivity and nanomaterials.							

Unit - I

Crystal Structure: Crystalline and Amorphous solids, Crystal Structure: lattice translation vector, symmetry operations, space lattice, basis; Unit cell and Primitive cell, Fundamental types of lattices: two-dimensional and three dimensional Bravais lattices; Characteristics of Unit cells: Simple Cubic (SC), Body Centred Cubic (BCC), Face Centred Cubic (FCC), Hexagonal Close Packed (HCP) structure; Simple crystal structures: Sodium Chloride, Cesium Chloride, Diamond, Cubic Zinc Sulfide; Miller Indices, Bonding in Solids, Point defects in crystals: Schottky and Frenkel defects.

Unit – II

Quantum Theory: Need and origin of Quantum concept, Wave-particle duality, Phase velocity and group velocity, Uncertainty Principle and Applications; Schrodinger's wave equation: time-dependent and time –independent; Physical Significance of wave function ψ.

Unit – III

Free Electron Theory: Classical free electron theory: electrical conductivity in metals, thermal conductivity in metals, Wiedemann-Franz law, success and drawbacks of free electron theory; Quantum free electron theory: wave function, eigen values; Fermi-Dirac distribution function, Density of states, Fermi energy and its importance, Thermionic Emission (qualitative).

Band theory of Solids: Bloch theorem, Kronig-Penney Model (qualitative), E versus k diagram, Brillouin Zones, Concept of effective mass of electron, Energy levels and energy bands, Distinction between metals, insulators and semiconductors, Hall effect and its Applications.

Unit –IV

Superconductivity: Introduction, General features of Superconductors, Meissner effect, Types of superconductors, Elements of BCS theory, London equations, Applications of superconductivity.

Nanomaterials: Introduction, Synthesis of nanomaterials: Top-down and Bottom-up approach, Sol-Gel and Ball Milling methods, Properties of Nanomaterials, Applications of Nanomaterials.

Text Books

1. P.K. Diwan, *Applied Physics for Engineers*, Wiley India Pvt. Ltd.
2. S.P. Taneja, Modern Physics for Engineers, R. Chand & Co.

Reference Books

1. C. Kittel, *Introduction to Solid State Physics*, John Wiley & Sons.
2. Arthur Beiser, *Concepts of Modern Physics*, Tata McGraw-Hill Publishing Company Limited.
3. S.O. Pillai, *Solid State Physics, New Age International (P) Limited.*
4. J.L. Powell, B. Crasemann, *Quantum Mechanics*, Narosa Publishing House.
5. C.P. Poole, F.J. Owens, *Introduction to Nanotechnology*, John Wiley & Sons (Asia) Pte. Ltd.

Note: *Examiner will set eight questions by selecting two from each unit. Students will be required to attempt five questions selecting at least one question from each unit.*

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Theory	Sessional	Total	
AS-104N	Applied Mathematics -II	4	1	0	75	25	100	3
Purpose	*To acquaint the students with the basic use of theory of equations, Laplace transform and its applications, Ordinary differential equation and its applications, and vector calculus.*							
Course Outcomes (CO)								
CO-1	How to find the roots and relation between them for the higher order polynomials, to solve the integrals by the beta and Gamma functions, and by the Leibnitz's rule for differentiation under the integral sign.							
CO-2	Introduction about the concept of Laplace transform and how it is useful in solving the definite integrals and initial value problems.							
CO-3	Methods to solve the ODE and some of its applications.							
CO-4	How to perform the derivative and integral of the vectors, its application to find the line, surface and volume integrals.							

Unit - I

Theory of Equations : Introduction, formation of equations, Relation between roots and coefficients, Reciprocal Equations, Transformation of equations

Integral Calculus: Beta and Gamma functions, Evaluation of integrals by Leibnitz's rule (Differentiation under the Integral sign)

Unit - II

Laplace Transforms and its applications: Laplace transforms: Basic concepts, Existence conditions, transform of elementary functions, Properties of Laplace transforms, transform of derivatives and integrals, multiplication and division property, Evaluation of integrals by Laplace transforms, Inverse transforms, The Convolution theorem, Unit step function, second shifting theorem, Dirac's Delta function, Application to linear differential equations and simultaneous linear differential equations with constant coefficients.

Unit – III

Ordinary Differential Equations and its applications: Exact differential equations, Equations reducible to exact differential equations, Applications of differential equations of first order and first degree to simple electric circuits, Newton's law of cooling, heat flow and orthogonal trajectories.

Linear differential equations of second and higher order, complete solution, complementary function and particular integral, method of variation of parameters and method of

undetermined coefficients to find the particular integral, Cauchy's and Legendre's linear equations, simultaneous linear equations with constant coefficients.

Unit - IV

Vector Calculus: Differentiation of Vectors, Scalar and vector point functions, Gradient of a scalar field and directional derivative, divergence and Curl of a vector field and their physical interpretations, line integrals, surface integral, volume integral, Green's theorem in the plane, Stoke's Theorem, Gauss Divergence Theorem(without proof) and their applications.

References Books

1. E. Kreyszig, *Advanced Engineering Mathematics*, Wiley India.
2. G. B. Thomas, R. L. Finney, *Calculus and Analytic Geometry*, Pearson Education.
3. B. V. Ramana, *Engineering Mathematics*, Tata McGraw Hill
4. Michael D. Greenberg, *Advanced Engineering Mathematics*, Pearson Education, Prentice Hall.

Note: *Examiner will set eight questions by selecting two from each unit. Students will be required to attempt five questions selecting at least one question from each unit.*

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Practical	Sessional	Total	
AS-106N	Applied Physics Lab-II	0	0	2	30	20	50	3
Purpose	*To give the practical knowledge of handling the sophisticated instruments.*							
Course Outcomes (CO)								
CO	To make the students familiar with the experiments related with solid state physics.							

List of Experiments

1. To find the frequency of ultrasonic waves by piezoelectric methods.
2. To find the value of e/m for electrons by Helical method.
3. To find the ionisation potential of Argon/Mercury using a thyratron tube.
4. To study the variation of magnetic field with distance and to find the radius of coil by Stewart and Gee's apparatus.
5. To study the characteristics of (Cu-Fe, Cu-Constantan) thermocouple.
6. To find the value of Planck's constant by using photoelectric cell.
7. To find the value of coefficient of self inductance by using a Rayleigh bridge.
8. To find the value of Hall Coefficient of semiconductor.
9. To study the V-I characteristics of a p-n diode.
10. To find the band gap of intrinsic semiconductor using four probe method.
11. To calculate the hysteresis loss by tracing a B-H curve.
12. To verify Richerdson thermionic equation.
13. To find the flashing and quenching potential of Argon and to find the capacitance of unknown capacitor.
14. To find the temperature coefficient of resistance by using Pt resistance thermometer by post office box.

Note: *Student will be required to perform at least 10 experiments out of the given list.*

Recommended Books

1. C.L. Arora, *B. Sc. Practical Physics*, S. Chand & Company Ltd.
2. B.L. Worshnop and H. T Flint, *Advanced Practical Physics*, KPH.

Bachelor of Technology (Electronics & Communication Engineering)

SCHEME OF STUDIES/EXAMINATIONS

Semester – III

S. No.	Course No.	Course Title	Teaching Schedule				Allotment of Marks				Duration of Exam (Hrs.)
			L	T	P	Hours/ Week	Theory	Sessional	Practical	Total	
1	AS-201N	Mathematics-III	3	1	0	4	75	25	0	100	3
2	ECE-201N	Signals & Systems	3	1	0	4	75	25	0	100	3
3	ECE-203N	Electronic Devices	3	1	0	4	75	25	0	100	3
4	ECE-205N	Network Analysis & Synthesis	3	1	0	4	75	25	0	100	3
5	ECE-207N	Digital Electronics	3	1	0	4	75	25	0	100	3
6	ECE-209N	Analog Communications	3	1	0	4	75	25	0	100	3
7	ECE-211N	Signals & Systems Lab	0	0	3	3	0	40	60	100	3
8	ECE-213N	Digital Electronics Lab	0	0	3	3	0	40	60	100	3
9	ECE-215N	Analog Communications Lab	0	0	3	3	0	40	60	100	3
		Total	**18**	**6**	**9**	**33**	**450**	**270**	**180**	**900**	
10	MPC-201N	Environmental Studies*	3	0	0	3	75	25	0	100	3

**MPC-201N is a mandatory course and student has to get passing marks in order to qualify for the award of degree but its marks will not be added in the grand total.*

Bachelor of Technology (Electronics & Communication Engineering)

SCHEME OF STUDIES/EXAMINATIONS

Semester – IV

S. No.	Course No.	Course Title	Teaching Schedule				Allotment of Marks				Duration of Exam (Hrs.)
			L	T	P	Hours/ Week	Theory	Sessional	Practical	Total	
1	HS-201N	Fundamentals of Management	3	0	0	3	75	25	0	100	3
2	CSE-203N	Data Structures & Algorithms	3	1	0	4	75	25	0	100	3
3	ECE-202N	Electronics Measurements & Instruments	3	1	0	4	75	25	0	100	3
4	ECE-204N	Electromagnetic Theory	3	1	0	4	75	25	0	100	3
5	ECE-206N	Analog Electronics	3	1	0	4	75	25	0	100	3
6	ECE-208N	Computer Architecture & Organisation	3	1	0	4	75	25	0	100	3
7	CSE-210N	Data Structures Lab	0	0	3	3	0	40	60	100	3
8	ECE-212N	Electronics Measurements & Instruments Lab	0	0	3	3	0	40	60	100	3
9	ECE-214N	Analog Electronics Lab	0	0	3	3	0	40	60	100	3
		Total	**18**	**5**	**9**	**32**	**450**	**270**	**180**	**900**	
10	MPC-202N	Energy Studies*	3	0	0	3	75	25	0	100	3

**MPC-202N is a mandatory course and student has to get passing marks in order to qualify for the award of degree but its marks will not be added in the grand total.*

***Note:** All the students have to undergo six weeks industrial training after IVth semester and it will be evaluated in Vth semester.*

Bachelor of Technology (Electronics & Communication Engineering)

SCHEME OF STUDIES/EXAMINATIONS

Semester – V

S. No.	Course No.	Course Title	Teaching Schedule				Allotment of Marks				Duration of Exam (Hrs.)
			L	T	P	Hours/ Week	Theory	Sessional	Practical	Total	
1	ECE-301N	Microprocessors & Interfacing	3	1	0	4	75	25	0	100	3
2	AS-303N	Numerical Analysis	3	1	0	4	75	25	0	100	3
3	ECE-303N	Antenna & Wave Propagation	3	1	0	4	75	25	0	100	3
4	ECE-305N	VLSI Technology	3	1	0	4	75	25	0	100	3
5	ECE-307N	Control Systems	3	1	0	4	75	25	0	100	3
6	HS-309N	Business Intelligence & Entrepreneurship	3	0	0	3	75	25	0	100	3
7	ECE-309N	Microprocessors & Interfacing Lab	0	0	3	3	0	40	60	100	3
8	ECE-311N	Design Automation Lab	0	0	3	3	0	40	60	100	3
9	ECE-313N	Antenna & Wave Propagation Lab	0	0	3	3	0	40	60	100	3
10	ECE-315N	Training Viva*					0	100	0	100	
		Total	**18**	**5**	**9**	**32**	**450**	**370**	**180**	**1000**	

**The performance of the student will be evaluated after the presentation delivered and the report submitted by him/her related to Industrial training undertaken after IVth semester.*

Bachelor of Technology (Electronics & Communication Engineering)

SCHEME OF STUDIES/EXAMINATIONS

Semester – VI

S. No.	Course No.	Course Title	Teaching Schedule				Allotment of Marks				Duration of Exam (Hrs.)
			L	T	P	Hours/ Week	Theory	Sessional	Practical	Total	
1	ECE-302N	Digital Signal Processing	3	1	0	4	75	25	0	100	3
2	ECE-304N	Digital Design using Verilog	3	1	0	4	75	25	0	100	3
3	CSE-309N	Essentials of Information Technology	3	1	0	4	75	25	0	100	3
4	ECE-306N	Digital Communication	3	1	0	4	75	25	0	100	3
5	ECE-308N	Computer Communication Network	3	1	0	4	75	25	0	100	3
6	ECE-310N	Digital Signal Processing Lab	0	0	3	3	0	40	60	100	3
7	ECE-312N	Digital Design using Verilog Lab	0	0	3	3	0	40	60	100	3
8	ECE-314N	Digital Communication Lab	0	0	3	3	0	40	60	100	3
9	ECE-316N	Personality & Soft Skills Development *	3	0	0	3	0	200	0	200	3
		Total	**18**	**5**	**9**	**32**	**375**	**445**	**180**	**1000**	

**The student will be evaluated on the basis of technical seminar and technical group discussions of 100 marks each.*

***Note:** All the students have to undergo six weeks industrial training after VIth semester and it will be evaluated in VIIth semester.*

Bachelor of Technology (Electronics & Communication Engineering)

SCHEME OF STUDIES/EXAMINATIONS

Semester – VII

S. No.	Course No.	Course Title	Teaching Schedule				Allotment of Marks				Duration of Exam (Hrs.)
			L	T	P	Hours/ Week	Theory	Sessional	Practical	Total	
1	ECE-401N	Microcontroller & Embedded Systems Design	3	1	0	4	75	25	0	100	3
2	ECE-403N	Digital Image Processing	3	1	0	4	75	25	0	100	3
3	ECE-405N	Power Electronics	3	1	0	4	75	25	0	100	3
4		DEC-I*	3	1	0	4	75	25	0	100	3
5		DEC - II*	3	1	0	4	75	25	0	100	3
6	ECE-407N	Microcontroller & Embedded Systems Design Lab	0	0	3	3	0	40	60	100	3
7	ECE-409N	Digital Image Processing Lab	0	0	3	3	0	40	60	100	3
8	ECE-411N	Project -I**	0	0	8	3	0	100	100	200	3
9	ECE-413N	Training Viva***					0	100	0	100	
		Total	**15**	**5**	**14**	**34**	**375**	**405**	**220**	**1000**	

** The students should select two Departmental Elective Courses (DEC) from the following list.*

Course No.	Course Title	Course No.	Course Title
ECE-415N	Advance Digital Communication	ECE-429N	Consumer Electronics
ECE-417N	Nano Electronics	ECE-431N	Robotics
ECE-419N	Optical Communications	ECE-433N	Non-Conventional Energy Resources
ECE-421N	Adaptive Signal Processing	ECE-435N	Microstrip line Analysis
ECE-423N	Satellite Communication	ECE-437N	Cloud Computing
ECE-425N	Digital VLSI Design	ECE-439N	Software Defined Radios
ECE-427N	Analog CMOS IC Design		

***The project should be initiated by the students in the beginning of VIIth semester and will be evaluated at the end of the semester on the basis of a presentation and report.*

****The performance of the student will be evaluated after the presentation delivered and the report submitted by the student related to Industrial training undertaken after VIth semester.*

Bachelor of Technology (Electronics & Communication Engineering)

SCHEME OF STUDIES/EXAMINATIONS

Semester – VIII

S. No.	Course No.	Course Title	Teaching Schedule				Allotment of Marks				Duration of Exam (Hrs.)
			L	T	P	Hours/ Week	Theory	Sessional	Practical	Total	
1	ECE-402N	Wireless & Mobile Communication	3	1	0	4	75	25	0	100	3
2	ECE-404N	Microwave Engineering	3	1	0	4	75	25	0	100	3
3		DEC-III*	3	1	0	4	75	25	0	100	3
4		DEC – IV*	3	1	0	4	75	25	0	100	3
5	ECE-406N	Project-II**	0	0	12	12	0	100	100	200	3
6	ECE-408N	Wireless & Mobile Communication Lab	0	0	3	3	0	40	60	100	3
7	ECE-410N	Microwave Engineering Lab	0	0	3	3	0	40	60	100	3
8	ECE-436N	General Fitness & Professional Aptitude***					0	100	100	200	3
		Total	**12**	**4**	**18**	**34**	**300**	**380**	**320**	**1000**	

**The student should select two Departmental Elective Courses (DEC) from the following list.*

Course No.	Course Title	Course No.	Course Title
ECE-412N	DSP Processor	ECE-424N	Biomedical Signal Processing
ECE-414N	Mobile Communication Networks	ECE-426N	Multimedia Communications
ECE-416N	MEMS	ECE-428N	Mixed VLSI Design
ECE-418N	Transducers & its Applications	ECE-430N	Microstrip Antenna
ECE-420N	Radar Engineering	ECE-432N	Strategic Electronics
ECE-422N	High Frequency Circuit and Systems	ECE-434N	Cognitive Radios

***The project initiated by the students in VIIth semester will be continued in VIIIth semester and will be evaluated at the end of the semester on the basis of a presentation and report.*

****ECE-436 is a mandatory course and student has to get passing marks in order to qualify for the award of degree but its marks will not be added in the grand total.*

Bachelor of Technology (Computer Science & Engineering)

SCHEME OF STUDIES/EXAMINATIONS

Semester – III

S. No.	Course No.	Course Title	Teaching Schedule				Allotment of Marks				Duration of Exam (Hrs.)
			L	T	P	Hours/ Week	Theory	Sessional	Practical	Total	
1	HS-201N	Fundamentals of Management	3	0	0	3	75	25	0	100	3
2	CSE-201N	Discrete Structures	3	1	0	4	75	25	0	100	3
3	CSE-203N	Data Structures	3	1	0	4	75	25	0	100	3
4	CSE-205N	Database Management Systems	3	1	0	4	75	25	0	100	3
5	ECE-207N	Digital Electronics	3	1	0	4	75	25	0	100	3
6	CSE-209N	Programming Languages	3	1	0	4	75	25	0	100	3
7	CSE-211N	Data Structures Lab	0	0	3	3	0	40	60	100	3
8	ECE-213N	Digital Electronics Lab	0	0	3	3	0	40	60	100	3
9	CSE-215N	Data Base Management Systems Lab	0	0	3	3	0	40	60	100	3
		Total	**18**	**5**	**9**	**32**	**450**	**270**	**180**	**900**	
10	MPC-202N	Energy Studies*	3	0	0	3	75	25	0	100	3

**MPC-202N is a mandatory course and student has to get passing marks in order to qualify for the award of degree but its marks will not be added in the grand total.*

Bachelor of Technology (Computer Science & Engineering)

SCHEME OF STUDIES/EXAMINATIONS

Semester – IV

S. No.	Course No.	Course Title	Teaching Schedule				Allotment of Marks				Duration of Exam (Hrs.)
			L	T	P	Hours/ Week	Theory	Sessional	Practical	Total	
1	AS-201N	Mathematics-III	3	1	0	4	75	25	0	100	3
2	CSE-202N	Object Oriented Programming	3	1	0	4	75	25	0	100	3
3	CSE-204N	Internet Fundamental	3	0	0	3	75	25	0	100	3
4	CSE-206N	Digital Data Communication	3	1	0	4	75	25	0	100	3
5	ECE-301N	Microprocessor & Interfacing	3	1	0	4	75	25	0	100	3
6	CSE-210N	Operating System	3	1	0	4	75	25	0	100	3
7	CSE-212N	Object Oriented Programming Lab	0	0	3	3	0	40	60	100	3
8	ECE-311N	Microprocessor Lab	0	0	3	3	0	40	60	100	3
9	CSE-216N	Internet Lab	0	0	3	3	0	40	60	100	3
		Total	**18**	**5**	**9**	**32**	**450**	**270**	**180**	**900**	
10	MPC-201N	Environmental Studies*	3	0	0	3	75	25	0	100	3

**MPC-201N is a mandatory course and student has to get passing marks in order to qualify for the award of degree but its marks will not be added in the grand total.*

***Note:** All the students have to undergo 4 - 6 six weeks industrial training after IVth semester and it will be evaluated in Vth semester.*

Bachelor of Technology (Computer Science & Engineering)

SCHEME OF STUDIES/EXAMINATIONS

Semester – V

S. No.	Course No.	Course Title	Teaching Schedule				Allotment of Marks				Duration of Exam (Hrs.)
			L	T	P	Hours/ Week	Theory	Sessional	Practical	Total	
1	CSE-301N	Automata Theory	3	1	0	4	75	25	0	100	3
2	CSE-303N	Computer Networks	3	1	0	4	75	25	0	100	3
3	CSE-305N	Design and Analysis of Algorithms	3	1	0	4	75	25	0	100	3
4	CSE-307N	Computer Organisation and Architecture	3	1	0	4	75	25	0	100	3
5	CSE-309N	Essential of Information Technology	3	1	0	4	75	25	0	100	3
6	CSE-311N	Computer Network Lab	0	0	3	3	0	40	60	100	3
7	CSE-313N	Design and Analysis of Algorithms Lab	0	0	3	3	0	40	60	100	3
8	CSE-315N	Advance of Information Technology Lab	0	0	3	3	0	40	60	100	3
9	CSE-317N	Seminar	0	0	2	2	0	40	60	100	3
10	CSE-319N	Technical Communication and Soft Skills Lab	0	0	2	2	0	40	60	100	3
11	CSE-321N	Industrial Training (Viva-Voce)*						40	60	100	
		Total	**15**	**5**	**13**	**33**	**375**	**365**	**360**	**1100**	

**The performance of the student will be evaluated after the presentation delivered and the report submitted by him/her related to Industrial training undertaken after IVth semester.*

Bachelor of Technology (Computer Science & Engineering)

SCHEME OF STUDIES/EXAMINATIONS

Semester – VI

S. No.	Course No.	Course Title	Teaching Schedule				Allotment of Marks				Duration of Exam (Hrs.)
			L	T	P	Hours/ Week	Theory	Sessional	Practical	Total	
1	CSE-302N	Compiler Design	3	1	0	4	75	25	0	100	3
2	CSE-304N	Simulation & Modellinig	3	1	0	4	75	25	0	100	3
3	CSE-306N	Mobile Computing	3	1	0	4	75	25	0	100	3
4	CSE-308N	Computer Graphics and Animation	3	1	0	4	75	25	0	100	3
5	CSE-310N	Software Engineering	3	1	0	4	75	25	0	100	3
6	CSE-312N	Computer Graphics Lab	0	0	3	3	0	40	60	100	3
7	CSE-314N	Simulation Lab	0	0	3	3	0	40	60	100	3
8	CSE-316N	Software Engineering Lab	0	0	3	3	0	40	60	100	3
		Total	**15**	**5**	**9**	**29**	**375**	**245**	**180**	**800**	

Note: *All the students have to undergo 4-6 weeks industrial training after VIth semester and it will be evaluated in VIIth semester.*

Bachelor of Technology (Computer Science & Engineering)

SCHEME OF STUDIES/EXAMINATIONS

Semester – VII

S. No.	Course No.	Course Title	Teaching Schedule				Allotment of Marks				Duration of Exam (Hrs.)
			L	T	P	Hours/ Week	Theory	Sessional	Practical	Total	
1	CSE-401N	Unix & Linux Programming	4	0	0	4	75	25	0	100	3
2	CSE-403N	Web Technology	4	0	0	4	75	25	0	100	3
3	HS-401N	Entrepreneurship	4	0	0	4	75	25	0	100	3
4		DEC-I*	3	0	0	3	75	25	0	100	3
5		DEC-II*	3	0	0	3	75	25	0	100	3
6	CSE-405N	Web Technology Lab	0	0	2	2	0	40	60	100	3
7	CSE-407N	Project-I**	0	0	8	8	0	100	100	200	3
8	CSE-409N	Computer Hardware & Troubleshooting Lab	0	0	2	2	0	40	60	100	3
9	CSE-411N	Seminar	0	0	2	2	0	100	0	100	
10	CSE-413N	Industrial Training (Viva-Voce)***						40	60	100	
		Total	**18**	**0**	**14**	**32**	**375**	**445**	**280**	**1100**	

** The students should select two Departmental Elective Courses (DEC) from the following list.*

Course No.	**DEC-I**	**Course No.**	**DEC-II**
CSE-415N	Object Oriented Software Engineering	CSE-421N	Agile Software Engineering
CSE-417N	Big Data and Analytics	CSE-423N	Parallel Computing
CSE-419N	Cryptography & Information Security	CSE-425N	Expert Systems

***The project should be initiated by the students in the beginning of VIIth semester and will be evaluated at the end of the semester on the basis of a presentation and report.*

****The performance of the student will be evaluated after the presentation delivered and the report submitted by the student related to Industrial training undertaken after VIth semester.*

Bachelor of Technology (Computer Science & Engineering)

SCHEME OF STUDIES/EXAMINATIONS

Semester – VIII

S. No.	Course No.	Course Title	Teaching Schedule				Allotment of Marks				Duration of Exam (Hrs.)
			L	T	P	Hours/ Week	Theory	Sessional	Practical	Total	
1	CSE-402N	Neural Networks & Fuzzy Logic	4	0	0	4	75	25	0	100	3
2		DEC-III*	4	0	0	4	75	25	0	100	3
3		DEC-IV*	4	0	0	4	75	25	0	100	3
4	CSE-404N	Mobile Apps Development	4	0	0	4	75	25	0	100	3
5	CSE-406N	Mobile Apps Development Lab	0	0	3	3	0	40	60	100	3
6	CSE-408N	Project-II**	0	0	16	16	0	100	100	200	3
		Total	**16**	**0**	**19**	**35**	**300**	**240**	**160**	**700**	
7	CSE-410N	General Fitness & Professional Aptitude***						100		100	

**The student should select two Departmental Elective Courses (DEC) from the following list.*

Course No.	DEC-III	Course No.	DEC-IV
CSE-412N	Software Project Management	CSE-418N	Cloud Computing
CSE-414N	Cycber Security	CSE-420N	Graph Theory
CSE-416N	Data Mining	CSE-422N	Natural Language Programming

***The project initiated by the students in VIIth semester will be continued in VIIIth semester and will be evaluated at the end of the semester on the basis of a presentation and report.*

****CSE-410 is a mandatory course and student has to get passing marks in order to qualify for the award of degree but its marks will not be added in the grand total.*

Bachelor of Technology (Mechanical Engineering)

SCHEME OF STUDIES/EXAMINATIONS

Semester – III

S. No.	Course No.	Course Title	Teaching Schedule				Allotment of Marks				Duration of Exam (Hrs.)
			L	T	P	Hours/ Week	Theory	Sessional	Practical	Total	
1	AS-201N/ HS-201N	Mathematics –III/ Fundamentals of Management	3	1	0	4	75	25	0	100	3
2	ME-201N	Basic Thermodynamics	3	1	0	4	75	25	0	100	3
3	ME-203N	Mechanics of Solid –I	3	1	0	4	75	25	0	100	3
4	ME-205N	Machine Drawing	2	0	3	5	75	25	0	100	3
5	ME-207N	Kinematics of Machines	3	1	0	4	75	25	0	100	3
6	ME-209N	Material Science	4	0	0	4	75	25	0	100	3
7	ME-211N	Kinematics of Machine Lab	0	0	2	2	0	40	60	100	3
8	ME-213N	Material Science Lab	0	0	2	2	0	40	60	100	3
9	ME-215N	Mechanics of Solid Lab	0	0	2	2	0	40	60	100	3
		Total	**18**	**4**	**9**	**31**	**450**	**270**	**180**	**900**	
10	MPC-201N	Environmental Studies*	3	0	0	3	75	25	0	100	3

**MPC-201N is a mandatory course and student has to get passing marks in order to qualify for the award of degree but its marks will not be added in the grand total.*

Bachelor of Technology (Mechanical Engineering)

SCHEME OF STUDIES/EXAMINATIONS

Semester – IV

S. No.	Course No.	Course Title	Teaching Schedule				Allotment of Marks				Duration of Exam (Hrs.)
			L	T	P	Hours/ Week	Theory	Sessional	Practical	Total	
1	AS-201N/ HS-201N	Mathematics –III/ Fundamentals of Management	3	1	0	4	75	25	0	100	3
2	ME-202N	Production Technology-I	4	0	0	4	75	25	0	100	3
3	ME-204N	Steam Generation & Power	3	1	0	4	75	25	0	100	3
4	ME-206N	Mechanics of Solid-II	3	1	0	4	75	25	0	100	3
5	ME-208N	Fluid Mechanics	4	1	0	5	75	25	0	100	3
6	ME-210N	Dynamics of Machine	3	1	0	4	75	25	0	100	3
7	ME-214N	Fluid Mechanics Lab	0	0	2	2	0	40	60	100	3
8	ME-216N	Dynamics of Machine Lab	0	0	2	2	0	40	60	100	3
9	ME-218N	Steam Generation & Power Lab	0	0	2	2	0	40	60	100	3
10	ME-220N	Production Technology Lab	0	0	3	3	0	40	60	100	
		Total	**20**	**5**	**9**	**34**	**450**	**310**	**240**	**1000**	
10	MPC-202N	Energy Studies*	3	0	0	3	75	25	0	100	3

**MPC-202N is a mandatory course and student has to get passing marks in order to qualify for the award of degree but its marks will not be added in the grand total.*

***Note:** All the students have to undergo six weeks industrial training after IVth semester and it will be evaluated in Vth semester.*

Bachelor of Technology (Mechanical Engineering)

SCHEME OF STUDIES/EXAMINATIONS

Semester – V

S. No.	Course No.	Course Title	Teaching Schedule				Allotment of Marks				Duration of Exam (Hrs.)
			L	T	P	Hours/ Week	Theory	Sessional	Practical	Total	
1	ME-301N	I.C. Engine & Gas Turbine	3	1	0	4	75	25	0	100	3
2	ME-303N	Fluid Machines	3	1	0	4	75	25	0	100	3
3	ME-305N	Heat Transfer	3	1	0	4	75	25	0	100	3
4	ME-307N	Industrial Engineering	3	1	0	4	75	25	0	100	3
5	ME-309N	Machine Design-I	2	0	4	6	75	25	0	100	3
6	ME-311N	Production Technology-II	4	0	0	4	75	25	0	100	3
7	ME-313N	I.C. Engine Lab	0	0	2	2	0	40	60	100	3
8	ME-315N	Fluid Machines Lab	0	0	2	2	0	40	60	100	3
9	ME-317N	Heat Transfer Lab	0	0	2	2	0	40	60	100	3
10	ME-319N	Industrial Training (Viva-Voce)*	0	0	0	0	0	40	60	100	3
		Total	**18**	**4**	**10**	**32**	**450**	**310**	**240**	**1000**	

**The performance of the student will be evaluated after the presentation delivered and the report submitted by him/her related to Industrial training undertaken after IVth semester.*

Bachelor of Technology (Mechanical Engineering)

SCHEME OF STUDIES/EXAMINATIONS

Semester – VI

S. No.	Course No.	Course Title	Teaching Schedule				Allotment of Marks				Duration of Exam (Hrs.)
			L	T	P	Hours/ Week	Theory	Sessional	Practical	Total	
1	ME-302N	Refrigeration and Air Conditioning	3	1	0	4	75	25	0	100	3
2	ME-304N	Tribology & Mechanical Vibration	3	1	0	4	75	25	0	100	3
3	ME-306N	Operation Research	3	1	0	4	75	25	0	100	3
4	CSE-209N	Essentials of IT	3	1	0	4	75	25	0	100	3
5	ME-308N	Computer Aided Design and Manufacturing	4	0	0	4	75	25	0	100	3
6	ME-310N	Machine Design-II	2	0	4	6	75	25	0	100	3
7	ME-312N	Refrigeration and Air Conditioning Lab	0	0	2	2	0	40	60	100	3
8	ME-314N	Tribology & Mechanical Vibration Lab	0	0	2	2	0	40	60	100	3
9	ME-316N	Computer Aided Design and Manufacturing Lab	0	0	2	2	0	40	60	100	3
		Total	**18**	**4**	**10**	**32**	**450**	**270**	**180**	**900**	

Note: *All the students have to undergo six weeks industrial training after VIth semester and it will be evaluated in VIIth semester.*

Bachelor of Technology (Mechanical Engineering)

SCHEME OF STUDIES/EXAMINATIONS

Semester – VII

S. No.	Course No.	Course Title	Teaching Schedule				Allotment of Marks				Duration of Exam (Hrs.)
			L	T	P	Hours/ Week	Theory	Sessional	Practical	Total	
1	ME-401N	Measurement and Control	4	0	0	4	75	25	0	100	3
2	ME-403N	Mechatronics	4	0	0	4	75	25	0	100	3
3	HS-301N	Entrepreneurship	3	0	0	3	75	25	0	100	3
4		DEC – I*	4	0	0	4	75	25	0	100	3
5		DEC –II*	3	0	0	3	75	25	0	100	3
6	ME-405N	Measurement & Control Lab	0	0	2	2	0	40	60	100	3
7	ME-407N	Mechatronics Lab	0	0	2	2	0	40	60	100	3
8	ME-409N	Project-I**	0	0	8	8	0	100	100	200	
9	ME-411N	Industrial Training (Viva-Voce)***	0	0	0	0	0	40	60	100	
10	ME-413N	Seminar-I	0	0	2	2		50	50	100	
		Total	**18**	**0**	**16**	**32**	**375**	**395**	**330**	**1100**	

** The students should select two Departmental Elective Courses (DEC) from the following list.*

Course No.	DEC-I	Course No.	DEC-II
ME-413N	Non-Conventional Machining	ME-425N	Finite Element Methods in Engineering
ME-415N	Soft Computing Techniques	ME-427N	Advanced Manufacturing Technology
ME-417N	Non-Destructive Evaluation & Testing	ME-429N	Robotics: Mechanics and Control
ME-419N	Design and Optimization	ME-431N	Simulation of Mechanical Systems
ME-421N	Computational Fluid Dynamics	ME-433N	Control Engineering
ME-423N	Fundamental of Gas Dynamics	ME-435N	Environmental Pollution and Abatement

***The project should be initiated by the students in the beginning of VII^{h} semester and will be evaluated at the end of the semester on the basis of a presentation and report.*

****The performance of the student will be evaluated after the presentation delivered and the report submitted by the student related to Industrial training undertaken after VIth semester.*

Bachelor of Technology (Mechanical Engineering)

SCHEME OF STUDIES/EXAMINATIONS

Semester – VIII

S. No.	Course No.	Course Title	Teaching Schedule				Allotment of Marks				Duration of Exam (Hrs.)
			L	T	P	Hours/ Week	Theory	Sessional	Practical	Total	
1	ME-402N	Automobile Engineering	4	0	0	4	75	25	0	100	3
2		DEC-III*	4	0	0	4	75	25	0	100	3
3		DEC-IV*	4	0	0	4	75	25	0	100	3
4	ME-404N	Power Plant Engineering	4	0	0	4	75	25	0	100	3
5	ME-406N	Quality Assurance & Reliability	4	0	0	4	75	25	0	100	3
6	ME-408N	Automobile Engineering Lab	0	0	2	2	0	40	60	100	3
7	ME-410N	Project-II**	0	0	10	10	0	100	100	200	
8	ME-412N	Seminar	0	0	2	2	0	100	0	100	
		Total	**20**	**0**	**14**	**34**	**375**	**365**	**160**	**900**	

**The student should select two Departmental Elective Courses (DEC) from the following list.*

Course No.	DEC-III	Course No.	DEC-IV
ME-414N	Smart Materials Structures & Devices	ME-426N	Manufacturing Management
ME-416N	Lubrication Technology	ME-428N	Design of Pressure Vessels and Piping
ME-418N	Energy Management	ME-430N	Concurrent Engineering
ME-420N	Waste Heat Recovery System	ME-432N	Industrial Combustion
ME-422N	Foundary Engineering	ME-434N	Metal Forming and Finishing
ME-424N	Ergonomics in Design	ME-436N	Air Craft and Rocket Propulsion

***The project should be initiated by the students in the beginning of VIIIth semester and will be evaluated at the end of the semester on the basis of a presentation and report.*

***Note:** Project-II should not be related to Project-I unless it involves large amount of work, time and effort.*

Bachelor of Technology (Biotechnology Engineering)

SCHEME OF STUDIES/EXAMINATIONS

Semester – III

S. No.	Course No.	Course Title	Teaching Schedule				Allotment of Marks				Duration of Exam (Hrs.)
			L	T	P	Hours/ Week	Theory	Sessional	Practical	Total	
1	BT-201N	Cell Biology	3	1	0	4	75	25	0	100	3
2	BT-203N	Microbiology	3	1	0	4	75	25	0	100	3
3	BT-205N	Biochemistry	3	1	0	4	75	25	0	100	3
4	BT-207N	Genetics	3	1	0	4	75	25	0	100	3
5	HS-201N	Fundamentals of Management	3	0	0	3	75	25	0	100	3
6	BT-209N	Cell Biology & Genetics Lab	0	0	3	3	0	40	60	100	3
7	BT-211N	Microbiology Lab	0	0	3	3	0	40	60	100	3
8	BT-213N	Biochemistry Lab	0	0	3	3	0	40	60	100	3
		Total	**15**	**4**	**9**	**28**	**375**	**245**	**180**	**800**	
9	MPC-202N	Energy Studies*	3	0	0	3	75	25	0	100	3

**MPC-202N is a mandatory course and student has to get passing marks in order to qualify for the award of degree but its marks will not be added in the grand total.*

Bachelor of Technology (Biotechnology Engineering)

SCHEME OF STUDIES/EXAMINATIONS

Semester – IV

S. No.	Course No.	Course Title	Teaching Schedule				Allotment of Marks				Duration of Exam (Hrs.)
			L	T	P	Hours/ Week	Theory	Sessional	Practical	Total	
1	BT-202N	Molecular Biology	3	1	0	4	75	25	0	100	3
2	BT-204N	Immunology	3	1	0	4	75	25	0	100	3
3	BT-206N	Bio-analytical Techniques	3	1	0	4	75	25	0	100	3
4	BT-208N	Industrial Microbiology & Enzyme Technology	3	1	0	4	75	25	0	100	3
5	BT-210N	Organic Chemistry	3	1	0	4	75	25	0	100	3
6	BT-212N	Molecular Biology Lab	0	0	3	3	0	40	60	100	3
7	BT-214N	Immunology Lab	0	0	3	3	0	40	60	100	3
8	BT-216N	Bio-analytical Techniques Lab	0	0	3	3	0	40	60	100	3
9	BT-218N	Industrial Microbiology Lab	0	0	3	3	0	40	60	100	3
		Total	**15**	**5**	**12**	**32**	**375**	**285**	**240**	**900**	
10	MPC-201N	Environmental Studies*	3	0	0	3	75	25	0	100	3

**MPC-201N is a mandatory course and student has to get passing marks in order to qualify for the award of degree but its marks will not be added in the grand total.*

***Note:** All the students have to undergo 4-6 weeks industrial training after IVth semester and it will be evaluated in Vth semester.*

Bachelor of Technology (Biotechnology Engineering)

SCHEME OF STUDIES/EXAMINATIONS

Semester – V

S. No.	Course No.	Course Title	Teaching Schedule				Allotment of Marks				Duration of Exam (Hrs.)
			L	T	P	Hours/ Week	Theory	Sessional	Practical	Total	
1	BT-301N	Recombinant DNA Technology	3	1	0	4	75	25	0	100	3
2	BT-303N	Bioreactor Analysis & Design	3	1	0	4	75	25	0	100	3
3	BT-305N	Bioprocess Engineering	3	1	0	4	75	25	0	100	3
4	BT-307N	Downstream Processing	3	1	0	4	75	25	0	100	3
5	BT-309N	Molecular Diagnostic Techniques & Healthcare Biotechnology	3	1	0	4	75	25	0	100	3
6	CSE-309N	Essentials of Information Technology	3	1	0	4	75	25	0	100	3
7	BT-313N	Recombinant DNA Technology Lab	0	0	3	3	0	40	60	100	3
8	BT-315N	Fermentation & DSP Lab	0	0	3	3	0	40	60	100	3
9	BT-317N	Diagnostic Techniques Lab	0	0	3	3	0	40	60	100	3
10	CSE-315N	Information Technology Lab	0	0	2	2	0	40	60	100	3
11	BT-319N	Industrial Training (Viva-Voce)*	0	0	2	2	0	40	60	100	
		Total	**18**	**6**	**13**	**37**	**450**	**350**	**300**	**1100**	

**The performance of the student will be evaluated after the presentation delivered and the report submitted by him/her related to Industrial training undertaken after IVth semester.*

Bachelor of Technology (Biotechnology Engineering)

SCHEME OF STUDIES/EXAMINATIONS

Semester – VI

S. No.	Course No.	Course Title	Teaching Schedule				Allotment of Marks				Duration of Exam (Hrs.)
			L	T	P	Hours/ Week	Theory	Sessional	Practical	Total	
1	BT-302N	Microbial Biotechnology	3	1	0	4	75	25	0	100	3
2	BT-304N	Plant Biotechnology	3	1	0	4	75	25	0	100	3
3	BT-306N	Animal Biotechnology	3	1	0	4	75	25	0	100	3
4	BT-308N	Principles of Biostatistics	3	1	0	4	75	25	0	100	3
5	BT-310N	Environmental Biotechnology	3	1	0	4	75	25	0	100	3
6	BT-312N	Food Biotechnology	3	0	0	3	75	25	0	100	3
7	BT-314N	Animal Cell Culture Lab	0	0	3	3	0	40	60	100	3
8	BT-316N	Plant Cell Culture Lab	0	0	3	3	0	40	60	100	3
9	BT-318N	Food & Environmental Biotechnology Lab	0	0	3	3	0	40	60	100	3
		Total	**18**	**5**	**9**	**32**	**450**	**270**	**180**	**900**	

Note: *All the students have to undergo 4-6 weeks industrial training after VIth semester and it will be evaluated in VIIth semester.*

Bachelor of Technology (Biotechnology Engineering)

SCHEME OF STUDIES/EXAMINATIONS

Semester – VII

S. No.	Course No.	Course Title	Teaching Schedule				Allotment of Marks				Duration of Exam (Hrs.)
			L	T	P	Hours/ Week	Theory	Sessional	Practical	Total	
1	BT-401N	Bioinformatics	3	1	0	4	75	25	0	100	3
2	BT-403N	Pharmaceutical Biotechnology	3	1	0	4	75	25	0	100	3
3		DEC -I*	3	1	0	4	75	25	0	100	3
4		DEC -II*	3	1	0	4	75	25	0	100	3
5	HS-401N	Entrepreneurship	3	0	0	3	75	25	0	100	3
6	BT-405N	Bioinformatics Lab	0	0	4	4	0	40	60	200	3
7	BT-407N	Seminar	0	0	2	2	0	100	0	100	
8	BT-409N	Project-I**	0	0	8	8	0	100	100	200	
9	BT-411N	Industrial Training (Viva-Voce)***	0	0	2	2		40	60	100	
		Total	**15**	**4**	**16**	**35**	**375**	**405**	**220**	**1000**	

** The students should select two Departmental Elective Courses (DEC) from the following list.*

Course No.	DEC-I	Course No.	DEC-II
BT-413N	Biosensor and Bioinstrumentation	BT-421N	Advanced Management Information System and Information Technology
BT-415N	Biochips and Microarray Technology	BT-423N	Behavioural Neuroscience
BT-417N	Nano-Biotechnology	BT-425N	Herbal Drug Technology
BT-419N	Stem Cell Technology	BT-427N	Human Genetics and Human Genome

***The project should be initiated by the students in the beginning of VIIth semester and will be evaluated at the end of the semester on the basis of a presentation and report.*

****The performance of the student will be evaluated after the presentation delivered and the report submitted by the student related to Industrial training undertaken after VIth semester.*

Bachelor of Technology (Biotechnology Engineering)

SCHEME OF STUDIES/EXAMINATIONS

Semester – VIII

S. No.	Course No.	Course Title	Teaching Schedule				Allotment of Marks				Duration of Exam (Hrs.)
			L	T	P	Hours/ Week	Theory	Sessional	Practical	Total	
1	BT-402N	Biocatalysis & Biotransformation	3	1	0	4	75	25	0	100	3
2		DEC -III*	3	1	0	4	75	25	0	100	3
3		DEC -IV*	3	1	0	4	75	25	0	100	3
4	BT-404N	Bioethics, IPR and Biosafety	3	0	0	3	75	25	0	100	3
5	BT-406N	Professional Practice & Communication Skills Lab	0	0	2	2	0	40	60	100	3
6	BT-408N	Advanced Techniques in Biotechnology Lab	0	0	2	2	0	40	60	100	3
7	BT-410N	Project-II	0	0	16	16	0	100	100	200	3
		Total	**12**	**3**	**20**	**35**	**300**	**280**	**220**	**800**	
8	BT-412N	General Proficiency**						100	0	100	0

**The student should select two Departmental Elective Courses (DEC) from the following list.*

Course No.	DEC-III	Course No.	DEC-IV
BT-414N	Virology	BT-422N	Developmental Biology
BT-416N	Molecular Modeling and Drug Design	BT-424N	Protein Engineering
BT-418N	Cancer Biology	BT-426N	Biomaterial Technology
BT-420N	Plant Physiology and Biotechnology	BT-428N	Food Process Engineering

***BT-412N is a mandatory course and student has to get passing marks in order to qualify for the award of degree but its marks will not be added in the grand total.*

KURUKSHETRA UNIVERSITY, KURUKSHETRA

("A" Grade NAAC Accredited University)

(2015-16 onwards in phased manner)

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (INDUSTRIAL & PRODUCTION ENGINEERING)

SEMESTER-I	Subject	L	T	P/D	Total	Sessional Marks	Theory Marks	Duration
MTIP-601	Non-Conventional Machining	4	-	-	4	40	60	3
MTIP-603	Product Design & Development	4	-	-	4	40	60	3
MTIP-605	Computer Aided Design and Manufacturing	4	-	-	4	40	60	3
MTIP-607	Advanced Engineering Materials	4	-	-	4	40	60	3
MTIP-609	Research Methodology and Optimization Techniques	4	-	-	4	40	60	3
MTIP-611	CAD/CAM Lab	-	-	2	2	40	60	2
						240	**360**	
						600		

SEMESTER-II	Subject	L	T	P/D	Total	Sessional Marks	Theory Marks	Duration
MTIP-602	Mechatronics	4	-	-	4	40	60	3
MTIP-604	Tool Engineering	4	-	-	4	40	60	3
MTIP-606	Advanced Metal Casting	4	-	-	4	40	60	3
MTIP-608	Advanced Welding Processes	4	-	-	4	40	60	3
MTIP-610	Mechatronics Lab	-	-	2	2	40	60	2
-	**Elective-I (I&P)**	4	-	-	4	40	60	3
Total						**240**	**360**	
						600		

LIST OF ELECTIVES – I (Industrial and Production Engineering) for 2nd Semester		
1.	MTIP-612	Advanced Metal Cutting
2.	MTIP-614	Computational Methods in Engineering
3.	MTIP-616	Design of Experiments
4.	MTIP-618	Operations Management
5.	MTIP-620	Strategic Entrepreneurship

SEMESTER-III	Subject	L	T	P	Total	Sessional Marks	Theory Marks	Duration
-	**Elective-II**	4	-	-	4	40	60	3
-	**Elective-III**	4	-	-	4	40	60	3
MTIP-613	**Synopsis of Dissertation**	-	-	-	-	100	-	-
					Total	**180**	**120**	
						300		

LIST OF ELECTIVES –II (Industrial and Production Engineering) for 3rd Semester		
1.	MTIP-615	Supply Chain Management
2.	MTIP-617	Finite Element Methods
3.	MTIP-619	Sequencing and Scheduling
4.	MTIP-621	Productivity Management
5.	MTIP-623	Simulation of Industrial Systems

LIST OF ELECTIVES – III (Industrial and Production Engineering) for 3rd Semester		
1.	MTIP-625	Smart Materials
2.	MTIP-627	Manufacturing Optimization through Intelligent Techniques
3.	MTIP-629	Quality Engineering and Management
4.	MTIP-631	Enterprise Resource Planning
5.	MTIP-633	Intellectual Property Rights and Patent Laws

SEMESTER-IV		L	T	P	Total	Internal Marks	External Marks
MTIP-622	Dissertation	-	-	-	-	100	200
					Total		**300**

INSTRUCTIONS FOR PAPER SETTER

- The question paper is to be attempted in **THREE Hours**.
- Maximum Marks for the paper are **60.**
- The syllabus for the course is divided into **FOUR units.**
- The paper will have a total of **NINE questions.**
- **Question No. 1,** which is compulsory, shall be OBJECTIVE Type **and have content from the entire syllabus (all Four Units).**

  Q. No. 2 & 3 from Unit I

  Q. No. 4 & 5 from Unit II

  Q. No. 6 & 7 from Unit III

  Q. No. 8 & 9 from Unit IV
- All questions will have equal **weightage of 12 marks.**
- The candidate will attempt a total of **FIVE questions**, each of 12 marks. Q. No. 1 is compulsory. The candidate shall attempt remaining **four** questions by selecting **only one question from each unit.**
- A question may have any number of sections labeled as 1(a), 1(b), 1(c), 1(d), ---- 2(a), 2(b), --.A section may further have any number of subsections labeled as (i), (ii), (iii),.
- **SPECIAL INSRUCTIONS FOR Q. No. 1 ONLY**

  Question No. 1, which is compulsory, shall be OBJECTIVE/ short answer type **and have content from the entire syllabus (all Four Units).**

  Emphasis is to be given on the basic concepts, analytical reasoning and understanding of the various topics in the subject. This question may have a number of parts and/or subparts. The short questions could be combination of following types:
  - Multiple Choice
  - Yes/ No choice
  - Fill in Blanks type
  - Short numerical computations
  - Short Definitions
  - Matching of Tables

The above mentioned question types is **only a Guideline**. Examiner could set the question as per the nature of the subject.

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (1st Sem.)
(INDUSTRIAL & PRODUCTION ENGINEERING)
MTIP–601 NON-CONVENTIONAL MACHINING

L	T	P	
4	0	-	Sessional: 40
			Theory: 60
			Total: 100
			Duration of Exam. : 3 Hrs.

UNIT I

Introduction, Need of Non-conventional machining processes, Characteristics of conventional and Non-conventional Machining processes. **Mechanical Working Processes**: **Abrasive Jet Machining:** Machining setup, Abrasives, Process Parameters, Machining Characteristics, Material removal models in AJM, Process capability, Advantages, limitations, Applications

Water Jet Machining: Basic mechanism of Water jet machining setup, Process parameters, Catcher, Process capabilities, Advantages, limitations, Applications **Abrasive Water Jet Machining process:** Working Principle, AWJM Machine, Process Variables, Mechanism of Metal Removal, Cutting Parameters, Process capabilities, Applications, Environmental issues.

Ultrasonic Machining: Fundamental principles, Equipment, Magnetostriction, Elements of process, Mechanics of cutting, Analysis of Process Parameters, Process capabilities, Economic considerations. Applications, Limitations

UNIT II

Chemical Machining: Introduction, Fundamental Principles, Process Parameters; Maskants and Etchants, Advantages, Limitations, Applications.

Electrochemical Machining Processes: Introduction, Classification of ECM Processes, Fundamentals Principles of ECM, Elements of ECM, ECM Machine Tool Process, Determination of Metal Removal Rate, Evaluation of Metal Removal of an alloy, Electrochemistry of ECM, Cathode and Anode reaction, Dynamics of ECM, Self-Regulating feature of ECM, Process Parameters, Process capabilities, Electrochemical Deburring. **Electrochemical Grinding:** Schematics, Electrochemistry, Process Parameters, Process capabilities, Applications, Advantages, Limitations.

UNIT III

EDM: Introduction, Basic Principles & Schematics, Process Parameters, Characteristics of EDM, Dielectric, Electrode Material, Modelling of Material Removal, Spark Erosion Generators, Analysis and Metal Removal Rate in RC circuit, Selection of Tool Material and Tool Design, Di-Electric system, Process Variables, Dielectric Pollution and its effects, Process Characteristics, Applications, Electric Discharge Grinding and Electric Discharge Diamond Grinding; **Wire EDM**: Working Principle, Wire EDM Machine, Advances in Wire-cut EDM Process Variables, Process Characteristics, Applications.

UNIT IV

Laser Beam Machining Back Ground, Production of Laser, Working Principle of LBM, Types of LASERS, Process Characteristics, Metallurgical effects, Advantages and Limitations, Applications.

Electron Beam Machining:

Electron Beam Action, Generation and control of Electron beam, Theory of Electron Beam Machining, Process Parameters, Process capabilities, Applications.

High Energy Rate Forming, Elctro-Hydraulic Forming, Explosive Forming, Hot Machining Analysis of the Process.

RECOMMENDED BOOKS:

- Advanced Machining Processes by V.K. Jain. Allied Publishers Pvt Ltd
- Modern Machining Processes by P.C. Pandey and H.S. Shan. Tata McGraw- Hill
- Unconventional Manufacturing Process by M K Singh, New Age Publishers
- Advanced Methods of Machining by J. A. Mcgeough, Springer
- Non-Traditional Manufacturing Process by Benedict, CRC pub.
- Nonconventional manufacturing by P. K. Mishra, Narosa Publishers

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units). All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (1st Sem.)
(INDUSTRIAL & PRODUCTION ENGINEERING)
MTIP-603: PRODUCT DESIGN & DEVELOPMENT

L	T	P	
4	0	-	

Sessional: 40
Theory: 60
Total: 100
Duration of Exam. : 3 Hrs.

UNIT-I

INTRODUCTION: Introduction to product design, Design by evolution and innovation, Essential factors of product design, Production consumption cycle, Flow and value addition in production consumption cycle, Morphology of design.

PRODUCT DESIGN PRACTICE AND INDUSTRY: Product strategies, Time to market, Analysis of the product, Basic design considerations, Role of aesthetics in product design.

UNIT-II

DESIGN FOR MANUFACTURE AND ASSEMBLY: Overview and motivation, Basic method: Design guidelines: Design for assembly, Design for piece part production, Advanced method: Manufacturing cost analysis, cost driver modeling, manufacturing cost analysis, Critique for design for assembly method.

DESIGN FOR THE ENVIRONMENT: Environmental objectives, Basic DFE methods, design guidelines, Life cycle assessment, Techniques to reduce environmental impact

UNIT-III

HUMAN ENGINEERING CONSIDERATIONS IN PRODUCT DESIGN: Human being as applicator of forces, Anthropometry, the design of controls, the design of displays, Man/Machine information exchange, Workplace layout from ergonomic considerations.

VALUE ENGINEERING: Value, Nature and measurement of value, Maximum value, Normal degree of value, Importance of value, value analysis job plan, creativity, steps to problem solving and value analysis, value analysis tests, value engineering idea generation check list, Cost reduction through value engineering-case study, materials and process selection in value engineering.

UNIT-IV

MODERN APPROACHES TO PRODUCT DESIGN: Concurrent design, Quality function deployment (QFD), Rapid prototyping

PRODUCT DEVELOPMENT: A modern product development process, reverse engineering and redesign product development process, product life cycle, product development teams, Product development planning, Manufacturing & economic aspects of product development.

RECOMMENDED BOOKS:

- Kail T Ulrich and Steven D Eppinger, "Product Design and Development."
- AK Chitale and Gupta, "Product Design and Engineering"
- Niebel & Draper, "Product Design and Process Engineering"
- Kevin Otto & Kristin Wood, "Product Design-Techniques in reverse engineering and new product development"
- Middendorf Marcel Dekker, "Design of Systems and Devices"

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units). All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks.

Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (1st Sem.)
(INDUSTRIAL & PRODUCTION ENGINEERING)
MTIP–605 COMPUTER AIDED DESIGN AND MANUFACTURING

L	T	P	
4	0	-	

Sessional: 40
Theory: 60
Total: 100
Duration of Exam. : 3 Hrs.

UNIT I

Fundamentals of CAD: Introduction, Design Process, Application of computers in design, Creating manufacturing database, Benefits of CAD. Computer Hardware, Graphic input devices, display devices, Graphics output devices, Central processing unit (CPU).

Geometric transformations: 2D and 3D; transformations of geometric models like translation, scaling, rotation, reflection, shear; homogeneous representations, concatenated representation; Orthographic projections, Numerical Problems

UNIT II

Introduction to Manufacturing

Basic definitions, design activities for manufacturing systems, Planning and control activates for manufacturing system, Manufacturing control, Types of production – low, Medium and high quantity production.

Group Technology and Cellular Manufacturing

Part families, parts classifications and coding, Production flow Analysis, cellular Manufacturing- composite part concept, machine cell design, applications of group technology, Grouping parts and machines by Rank order clustering technique, Arranging machines in a G.T. cell.

UNIT III

Process Planning

Introduction, Manual process planning, Computer aided process planning – variant, generative, Decision logic- decision tables, decision trees, Introduction to Artificial intelligence.

Flexible Manufacturing

Introduction, FMS components, Flexibility in Manufacturing – machine, Product, Routing, Operation, types of FMS, FMS layouts, FMS planning and control issues, deadlock in FMS, FMS benefits and applications.

UNIT IV

CNC Basics and Part Programming

Introduction, Principle of CNC, Classification of CNC/NC – point to point and continuous path, positioning system- fixed zero and floating zero, Dimensioning- absolute and incremental, Coordinate system, Basic requirements of CNC machine control, CNC/NC words, Manual part programming, (G&M codes only) canned cycles, tool length and radius compensation.

RECOMMENDED BOOKS:

1. **Chris McMahon and Jimmie Browne**, CAD/CAM – Principle Practice and Manufacturing Management, Addison Wesley England, Second Edition, 2000.
2. **Ibrahim Zeid**, CAD/CAM theory and Practice, Tata McGraw Hill Publishing Co. Ltd., New Delhi, 1992.

3. **Ibrahim Zeid**, Mastering CAD/CAM, Tata McGraw Hill Publishing Co. Ltd., New Delhi.
4. **Rogers, D.F. and Adams, A**., Mathematical Elements for Computer Graphics, McGraw Hill Inc, NY, 1989
5. **P. Radhakrishnan, S. Subramanayan and V.Raju**, CAD/CAM/CIM, New Age International (P) Ltd., New Delhi.
6. **Groover M.P. and Zimmers E. W.**, CAD/CAM: Computer Aided Design and Manufacturing, Prentice Hall International, New Delhi, 1992.
7. **Dr. Sadhu Singh**, Computer Aided Design and Manufacturing, Khanna Publishers, New Delhi, Second Edition, 2000.
8. **M.P. Groover**, Automation, Productions systems and Computer-Integrated Manufacturing by Prentice – Hall
9. **Chang, Wang & Wysk** Computer Aided Manufacturing. Prentice Hall
10. **Kundra** &**Rao**, Numerical Control and Computer Aided Manufacturing by, Rao and Tiwari, Tata Mc-Graw Hill.
11. **Mattson**, CNC programming Principles and applications, Cengage Learning India Pvt. Ltd. Delhi

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).
All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (1st Sem.)
(INDUSTRIAL & PRODUCTION ENGINEERING)
MTIP–607 ADVANCED ENGINEERING MATERIAL

L	T	P	
4	0	-	Sessional: 40
			Theory: 60
			Total: 100
			Duration of Exam. : 3 Hrs.

UNIT-I

Piezoelectric materials (PZT): piezoelectric effect, Di-electric hysteresis, piezoelectric constants, hydrogen storage alloys, functionally gradient material (FGM).

Shape memory alloys (SMA): Shape memory effect and the metallurgical phenomenon of SMA, Temperature assisted shape memory effect,

UNIT-II

Electro rheological (ER) and magneto-rheological (MR) materials: Characteristics of ER and EM fluids. ER and EM materials.

Composite materials: Design and manufacturing of polymer matrix, metal matrix and ceramic matrix composites. Various forms and type of reinforcements, fillers and additives. Design of composites for structural, wear resistance and high temperature applications.

UNIT-III

Micro-electro-mechanical (MEMS) systems: Introduction, characteristics of silicon wafers and other materials for MEMS applications. Various manufacturing techniques of MEMS components,

Materials for high temperature applications: Ni-Cr alloys, ODS materials, Ni base and Co based super alloys, carbon-carbon composites. Diffusion bond coating of high temperature materials, Different types of Thermal spray coating for aero engines and gas turbines

UNIT-IV

Powder metallurgy: Introduction and feature of powder metallurgy processes. Advanced solidification techniques: directional solidification, single crystal growth and levitation melting.

Structural Materials: Porous matrix ceramics- composites, Metallic foam, Cellular Materials, Nano tubes, Functional Materials: Low dielectric constant materials, optoelectronic materials.
Glassy and Nano crystalline materials for soft and hard magnetic properties and their applications.

Recommended Books:

[1] Gandhi, M.V. and Thompson, B.S., Smart materials and Structures, Chapman & Hall, 1992.
[2] Otsuka, K. and Wayman, C. M., Shape memory materials, C.U.P, 1998
[3] Taylor, W., Pizoelectricity, George Gorden and Breach Sc. Pub., 1985
[4] Mallick, P.K., Fiber Reinforced Composites Materials, Manufacturing and Design. Marcel Dekker Inc, New York, 1993.
[5] Rama Rao, P. (ed.), Advances in Materials and their applications, Wiley Eastern Ltd.

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (1st Sem.)
(INDUSTRIAL & PRODUCTION ENGINEERING)

MTIP-609 RESEARCH METHODOLOGY AND OPTIMIZATION TECHNIQUES

L	T	P	
4	0	-	Sessional: 40
			Theory: 60
			Total: 100
			Duration of Exam. : 3 Hrs.

UNIT I

Introduction to research methodology, various types of techniques, alternative approaches to the study of the research problem and problem formulation, formulation of hypotheses, feasibility, preparation and presentation of research proposal.

Introduction to experimental design, Taguchi method, concept of orthogonal array, primary and secondary data collection, S/N ratio, validation, regression and correlation analysis, tests of significance based on normal, T and chi square distributions, analysis of variance.

UNIT II

Edition, tabulation & testing of hypotheses, interpolation of results, presentation, styles for figures, tables, text, quoting of reference and bibliography. Use of software for statistical analysis like SPSS, Minitab or MATLAB, Report writing, preparation of thesis, use of software like MS Office.

The course will include extensive use of software, reporting writing and seminars in tutorial class.

UNIT III

Integer linear programming methods and applications, Introduction to integer non-linear programming, Basics of geometric programming.

Multi-objective optimization methods and applications, Formulation of problems – Separable programming and stochastic programming.

UNIT IV

Introduction to Genetic algorithms, neural network based optimization and optimization of fuzzy systems, Evolutionary Algorithm and Ant Colony Optimization techniques.

Note: - Some of the algorithms are to be exercised using MAT LAB.

RECOMMENDED BOOKS:

1. C.R Kothari, Research Methodology, Wishwa Prakashan
2. P.G Triphati, Research Methodology, Sultan Chand & Sons, N.Delhi
3. Fisher, Design of Experiments, Hafner
4. Sadhu Singh, Research Methodology in Social Sciences, Himalya Publishers
5. Kalyanmoy Deb, Optimization for engineering design – algorithms and examples. PHI,New Delhi,1995.
6. SingiresuS.Rao, "Engineering optimization –Theory and practices", John Wiley & Sons
7. Garfinkel, R.S. and Nemhauser, G.L., Integer programming, John Wiley & Sons, 1972.

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (1st Sem.)
(INDUSTRIAL & PRODUCTION ENGINEERING)
MTIP–611 CAD/ CAM LAB

L	T	P	Sessional: 40
-	-	2	Theory: 60
			Total: 100
			Duration of Exam. : 2 Hrs.

List of Experiments:

The students will be required to carry out the following exercises or their equivalent tasks using a 3-D modeling software package (e.g. Solid-works/ Creo/ Ideas/ Solid Edge/UG/CATIA/ etc.). Practical must be performed on licensed version (Preferably the latest version) of any one of above mentioned software.

1 BASIC SOLID MODELING

Introduction & sketcher tools

a) CAD Tools and Applications: CAD - CAM - CAE
b) Parametric Feature Based Modelling and Parent-Child Relation
c) Design Intent and Associativity between 3 Modes
d) Modelling Software - Getting Started & Graphical User Interface
e) Sketch Entities and Tools
f) Dimensioning and Adding Relations to define the Sketch

Sketched Features (Boss / Base and Cut)

a) Base Features
b) Extrude & Revolve
c) Reference Geometry, Curves & 3D Sketch
d) Sweep & Loft

Editing & Refining Model

a) Editing Sketch, Sketch Plane and Editing Feature
b) Suppress / Un-Suppress Feature and Reordering Feature

2 ADVANCE FEATURES APPLIED FEATURES

a) Patterns & Mirror
b) Fillet/Round & Chamfer
c) Hole & Hole Wizard
d) Draft, Shell, Rib and Scale
e) Dome, Flex and Wrap

Multi Body

a) Indent Tool
b) Combine Bodies – Boolean Operations
c) Split, Move/Copy and Delete Bodies

Other Tools & Options

a) Design Table and Configurations
b) Adding Equations and Link Values
c) Tools - Measure and Mass Properties
d) Appearance - Edit Material, Colour and Texture
e) Options - System and Document Properties

3 SURFACING TECHNIQUES BASIC SURFACE CREATIONS

a) Extrude & Revolve
b) Sweep & Loft
c) Boundary Surface
d) Planar Surface

Other Derived Techniques

a) Offset Surface
b) Radiate Surface
c) Ruled Surface
d) Fill Surface
e) Mid Surface

Modify / Edit Surfaces

a) Fillet/Round
b) Extend
c) Trim & Untrim
d) Knit Surfaces
e) Delete and Patch

Surfaces for Hybrid Modelling

a) Thicken – Boss / Base and Cut
b) Replace face
c) End condition for Sketched feature - Up to Surface or Offset from Surface.
d) Solid body from closed surfaces

4 ASSEMBLY & MECHANISMS BOTTOM UP ASSEMBLY APPROACH

a) Inserting Components/Sub-Assemblies
b) Adding Mates - Standard & Advance
c) Editing Mates, Part and Replacing Components

Top down Approach & Mechanisms

a) Inserting New Part to Existing Assembly
b) Use of Layout Sketching
c) External References - In-context and Out-of-context, Locked and Broken

Assembly Features

a) Component Patterns & Mirrors
b) Cuts & Holes
c) Belt/Chain and Weld Bead

Representations of Assembly Components

a) Light Weight, Suppressed and Resolved
b) Hide, Transparency and Isolate
c) Exploded View

Assembly Check

a) Interference Detection,
b) Collision Detection and Physical Dynamics

Motion Study

c) Assembly Motion & Physical Simulation
d) Animation Wizard & Save as AVI file
e) Mechanism Analysis – Plot Displacement, Velocity and Acceleration Diagram

5 DETAILED DRAFTING

Introduction to Engineering Drawings

a) General Procedure for Drafting & Detailing
b) Inserting Drawing Views, Dimensioning and Adding Annotations
c) Drawing Templates & Sheet Format
d) Setting Options

Drawing Views

a) Model View & Standard 3 View
b) Projected View & Auxiliary View
c) Section & Aligned Section View
d) Detail View, Broken-out Section and Crop View.

Dimensioning

a) Standards, Rules and Guidelines
b) Dimension Insertion/Creation - Insert Model Items & Dimension tool

Annotations

a) Notes & Holes Callout
b) Datum & Geometric Tolerances
c) Surface Finish & Weld Symbols
d) Centre Mark & Centre line
e) BOM Balloon & Bill of Material

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (2nd Sem.)
(INDUSTRIAL & PRODUCTION ENGINEERING)
MTIP–602 MECHATRONICS

L	T	P	Sessional: 40
4	0	-	Theory: 60
			Total: 100

Duration of Exam. : 3Hrs.

UNIT-1

Introduction: The Mechatronics approach: A methodology for integrated design of Mechanical, Electronics and Electrical, Control, computer and Instrumentation

Fundamentals of Electronics and digital circuits: Number systems: Binary, Octal, Hexadecimal, Conversion from Binary to Decimal, Octal and Hexadecimal and vice–versa, Binary arithmetic: Addition, subtraction, Multiplication and division, Boolean Algebra: Laws, De-Morgan's laws, Logic Gates, Truth tables, Karnaugh maps and logic circuits. Generation of Boolean function from truth tables and simplification, Review of semiconductor devices, operational amplifier, Configurations: Inverting, summing, integrating and differentiating, Concepts of digital and analog systems, Digital to analog conversion (DAC): R-2R and summing Op-amp circuit, Analog to digital conversion (ADC): successive approximation method, Programs for DI, DO, DA and AD for PCL 208 card.

UNIT-II

HYDRAULIC SYSTEMS:

Direction Control Valves: Poppet Valve, Spool Valve, Sliding Spool type DCV, Check Valve, Pilot operated check valve, Restriction check valve, 2 Way vale, 3 way valve, 4 way valve, Manually actuated valve, Mechanically actuated valve, Pilot operated DCV, Solenoid Actuated valve, Rotary Valve, Centre flow path configurations for three position four way valve, Shuttle valve

Pressure Control Valve: Simple and compound pressure Relief Valve, Pressure Reducing Valve, Unloading valve, sequence valve, counterbalance valve, Brake Valve

Flow Control Valves: Fixed and non-adjustable valve, adjustable, throttling, non-pressure compensated pressure control valve, Pressure/temperature compensated flow control valve, Shuttle and Fast exhaust valve, Time delay valve, Flow Control Valves, Fluid Conditioners **Hydraulic Symbols (ANSI).**

Hydraulic Circuit design: Control of Single and double acting cylinders, double pump Hydraulic System

UNIT-III

PNEUMATIC SYSTEM:

Air Generation and distribution: Air compressors, Air Receiver, Filters, intercoolers, After-coolers, Relief Valve, Air dryers, Primary and secondary lines, Piping layouts, Air Filters, Air Regulators, Air Lubricator, Actuators and output devices, Direction control valves, Flow control valves, junction elements, Pneumatic circuits, Control of Single and double acting cylinders.

UNIT-IV

INTRODUCTION TO MICROCONTROLLER

8051 Architecture: Memory map - Addressing modes, I/O Ports -Counters and Timers – Serial data - I/O - Interrupts -Instruction set, Data transfer instructions, Arithmetic and Logical Instructions, Jump and Call Instructions, Assembly Language Programming tools. Interfacing applications

PROGRAMMABLE LOGIC CONTROLLERS

Introduction - Principles of operation - PLC Architecture and specifications - PLC hardware Components, Analog & digital I/O modules, CPU & memory module - Programming devices - PLC ladder diagram, Converting simple relay ladder diagram in to PLC relay ladder diagram. PLC programming Simple instructions - Manually operated switches - Mechanically operated Proximity switches - Latching relays, Applications of PLC.

Recommended Books:

1. Mechatronics by W. Bolton, Pearson Education.
2. Pneumatic system, Majumdar, TMH
3. Hydraulic and Pneumatic systems by Andrew Parr, TMH.
4. Automation, Production systems and computer integrated manufacturing by M.P. Groover, TMH.
5. Mechatronics system design by Shetty and Kolk, Thomson learning.
6. Mechatronics by Mahalik, TMH

Note: The paper will have a total of ***NINE*** *questions.* Question No. 1, which is compulsory, shall be **OBJECTIVE** Type and have contents from the entire syllabus (all Four Units).

All questions will have equal *weight of 12 marks.* The student will attempt a total of ***FIVE*** *questions*, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining/our questions by selecting only one question from each unit.*

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (2nd Sem.)
(INDUSTRIAL & PRODUCTION ENGINEERING)
MTIP–604 TOOL ENGINEERING

L	T	P
4	0	-

Sessional: 40
Theory: 60
Total: 100
Duration of Exam. : 3Hrs.

UNIT-I

Cutting Tool Materials: Introduction and desirable properties , Carbon and Medium-Alloy Steels , High-Speed Steels , Cast-Cobalt Alloys , Carbides , Coated Tools , Alumina-Based Ceramics , Cubic Boron Nitride , Silicon-Nitride Based Ceramics , Diamond , Reinforced Tool Materials , Cutting-Tool Reconditioning

Design of Cutting Tools Basic Requirements, Mechanics and Geometry of Chip Formation, General Considerations for Metal Cutting, Design of single point Cutting Tools, Design of Milling Cutters, Design of Drills and Drilling, Design of Reamers, Design of Taps, Design of Inserts, Determining Shank Size for Single-point Carbide Tools, Determining the Insert Thickness for Carbide Tools, Chip Breakers, Design of form tools

UNIT-II

Gages and Gage Design: Limits fits and tolerances, Geometrical tolerances-specification and measurement, Types of gages, Gage design, gage tolerances, Material for Gages.

Work Holding Devices: Basic requirements of work holding devices, Location: Principles, methods and devices, Clamping: Principles, methods and devices.

UNIT-III

Drill Jigs: Definition and types of Drill Jigs, Chip Formation in Drilling, General Considerations in the Design of Drill Jigs, Drill Bushings, Drill Jigs, and Modern Manufacturing

Design of Fixtures: Fixtures and Economics , Types of Fixtures , Milling Fixtures , Boring Fixtures, Broaching Fixtures, Lathe Fixtures, Grinding

UNIT-IV

Tool Design for Numerically Controlled Machine Tools: Fixture Design for Numerically Controlled Machine Tools, Cutting Tools for Numerical Control, Tool-holding Methods for Numerical Control

Recommended Books:

1. ASTME, “Fundamentals of Tool Design”, Prentice Hall of India, 1983.
2. Donaldson, “Tool Design”, Tata-McGraw Hill, 3rd Edition, 2000.
3. Joshi P.H., “Jigs and Fixtures”, Tata-McGraw Hill, 2010.

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (2nd Sem.)
(INDUSTRIAL & PRODUCTION ENGINEERING)
MTIP–606 ADVANCED METAL CASTING

L	T	P	
4	0	-	Sessional: 40 Theory: 60 Total: 100 Duration of Exam. : 3Hrs.

UNIT-I

Functional Requirement of Moulding Materials: Principal ingredients of moulding Sands; Different Types of Sands; Clays, Different types of Clay structures, ; Moisture; Bonding mechanism of silica –clay-water System, Hardened Mould or dry sand practice, The Requirement of core sands, Indian Foundry Industry and challenges.

Specification and testing of Moulding Sands

Grain Size, Grain Shape, Clay content, Moisture Content, Bulk Density and Specific Surface Area, ADV, Fines Content, Sintering Temperature, Mould hardness, Permeability, Strength, Deformation & toughness, Compactability, Mouldability, High Temperature Characteristics.

UNIT-II

Solidifications of Metals, Nucleation, free energy concept, critical radius of nucleus, Distribution coefficient and Constitutional Undercooling, Solidification in Pure Metals and Alloys, Directional Solidification, Casting Characteristics related to Solidification; Fluidity, Dendritic Growth, Dendritic coherency, Segregation, Inverse Segregation, Hot tearing, Hipping, Solidification under pressure.

Heat Transfer during casting process: Resistance to Heat Transfer, Centerline Feeding Resistance, Rate of solidification, Solidification of Large casting in an insulating mould, Solidification with predominant interface resistance, Solidification with constant casting surface temperature, Solidification with predominant resistance in mould and solidified Metal, Solidification Time and Chvorinov rule, Numerical Exercises.

UNIT-III

Gating System Design: Gating system defined, Types of Gating Systems, Types of Gates, Elements of Gating System, Gating System design, Factors involved in Gating design, Pouring time, Choke Area, Sprue design, Gating Ratio, Sprue runner gate ratio, Elimination of Slag and Dross, Filtration, Numerical exercises.

Riser Design: Need for riser, Basic requirements of an effective feeding system for a casting, Feeding Efficiency, Types of Risers, Effective feeding distances for simple and complex shapes. Use of chills, Directional solidification, Stresses in castings, Metal Mould reactions, Claine's Method, Modulus Method, Naval Research Laboratory (NRL) Method, Pouring rate and Temperature, Padding, Use of exothermic materials, Chills, Feeding Aids, Numerical exercises.

UNIT-IV

Special casting Processes: Shell Moulding, Investment Casting, Permanent Mould Casting, Diecasting, Centrifugal casting.

Inspection and testing of casting: Visual, Optical, Dimensional inspection, Laser Scanning, White light scanning, Radiographic Inspection, ultrasonic testing, Magnetic Particle Testing, dye penetration, Casting Defects; Classification, Causes and remedies.

RECOMMENDED BOOKS:

- H.F. Taylor, "Foundry Engineering", John Wiley and Sons.
- P.L. Jain, "Principles of Foundry Technology", Mc-Graw Hill.
- Mahi Sahoo and Sudhari Sahu, "Principles of Metal Casting.
- Amitabha Ghosh, " Manufacuring Science", Affliated East West Press.
- P.N Rao, "Manufacturing Technology: Foundry, Forming and Welding" TMH.
- K.P. Sinha,"Foundry Technology", Standard Publishers, Delhi.
- Flinn, "Fundamentals of Metals Casting", Addison Wesley.
- Heine Loper and Resenthal, "Principles of Metal Casting", Mc-Graw Hill.
- Hielel and Draper, "Product Design & Process Engineering", Mc-Graw Hill.
- Salman & Simans, "Foundry Practice", Issac Pitman.
- ASME, "Metals Handbook- Metal Casting."
- P.C. Mukharjee, Fundamentals of Metal casting Technology, Oxford, IBH.
- P.R.Beeley, Foundry Technology , Butterworth Heinmann

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).
All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (2nd Sem.)
(INDUSTRIAL & PRODUCTION ENGINEERING)
MTIP–608 ADVANCED WELDING PROCESSES

L	T	P	
4	0	-	

Sessional: 40
Theory: 60
Total: 100
Duration of Exam. : 3Hrs.

UNIT-I

WELDING METALLURGY: Introduction, Weld Metal Zone, Theory of solidification of metals and alloys, Homogeneous Nucleation, Heterogeneous Nucleation, Freezing of alloys, Epitaxial Solidification; Effect of Welding speed on Grain structure, Fusion boundary zone, Heat affected zone, Under bead zone, Grain Refined Zone, Partial transformed zone, Properties of HAZ

WELDING ARC: Definition of Arc, Structure and characteristics, Arc efficiency, arc blow, Electrical Characteristics of arc, Types of Welding Arcs, mechanism of arc initiation and maintenance, role of electrode polarity on arc behaviour and arc stability, analysis of the arc. Arc length regulation in mechanized welding processes.

UNIT-II

WELDING POWER SOURCES: Requirement of an Arc welding power sources, basic characteristics of power sources for various arc welding processes, duty cycles, Selection of a static Volt-Ampere characteristic for a welding process, AC/DC welding power source, DC rectifiers, thyristor controlled rectifiers, transistorized units, inverter systems, Mathematical Problems on Static volt ampere characteristics

UNIT-III

COATED ELECTRODES: Electrode coatings, classification of coatings of electrodes for SMAW, SAW fluxes, role of flux ingredients and shielding gases, classification of solid and flux code wires.

METAL TRANSFER & MELTING RATE: Mechanism and types of metal transfer, forces affecting metal transfer, modes of metal transfer, metal transfer in various welding processes, effective of polarity on metal transfer and melting rate.

UNIT-IV

SOLID STATE WELDING: Theory and mechanism of solid state welding. Techniques and scope of friction welding, diffusion welding, cold pressure welding and ultrasonic welding. High energy rate welding. Analysis of the Process.

WELDING TECHNIQUES: Technique, scope and application of the electron beam and laser welding processes. Under water welding - process & problem.

RECOMMENDED BOOKS:

1. Raymond Sacks, ―Welding: Principles & Practices‖ McGraw-Hill
2. R.S.Parmar, ―Welding processes & Technology‖, Khanna Publishers
3. R.S.Parmar, ―Welding Engineering & Technology‖, Khanna Publishers
4. S.V. Nandkarni, ―Modern Arc Welding Technology, Oxford & IBH publishing Co.
5. L.M.Gourd, ―Principles of Welding Technology‖, ELBS/ Edward Arnold.

6. Richard L. Little, ―Welding & Welding Technology‖, Mc-Graw Hill.
7. Cary, Howard, ―Modern Welding Technology‘, prentice Hall, 1998.
8. Rossi, ―Welding Technology‖, Mc-Graw Hill.

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All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (2nd Sem.)
(INDUSTRIAL & PRODUCTION ENGINEERING)
MTIP–610 MECHATRONICS LAB

L	T	P	
-	-	2	Sessional: 40 Theory: 60 Total: 100 Duration of Exam. : 2 Hrs.

List of Experiments

1. To study and conduct exercises on PLC Simulator.
2. Control of conveyor manually and through programming, also programming using sensors and conveyor.
3. Control of X-Y position table manually and through programming.
4. To study and conduct exercises on Robotic simulation software.
5. To study and conduct exercises on Pneumatic & Electro-Pneumatic Training System.
6. **Design and testing of hydraulic circuits such as**
   i) Pressure control
   ii) Flow control
   iii) Direction control
   iv) Design of circuit with programmed logic sequence, using an optional PLC in hydraulic
   Electro hydraulic Trainer.
7. **Design and testing of pneumatic circuits such as**
   i. Pressure control
   ii. Flow control
   iii. Direction control
   iv. Circuits with logic controls
   v. Circuits with timers
   vi. Circuits with multiple cylinder sequences in Pneumatic Electro pneumatic Trainer.
8. To perform exercises on Process control trainer

Note: At least eight experiments should be performed from the above list.

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (2nd Sem.)
(INDUSTRIAL & PRODUCTION ENGINEERING)
MTIP–612 ADVANCED METAL CUTTING

L	T	P	
4	0	-	Sessional: 40 Theory: 60 Total: 100 Duration of Exam. : 3Hrs.

UNIT-I

Introduction, system of Tool nomenclature, Tool Geometry, Mechanism of Chip formation and forces in orthogonal cutting, Merchant's force diagram.

Oblique Cutting: Normal chip reduction coefficient under oblique cutting, true shear angle, effective rake, influx region consideration for deformation, direction of maximum elongation, effect of cutting variables on chip reduction co-efficient, forces system in oblique cutting, effect of wear land on force system, force system in milling, effect of helix angle.

UNIT-II

Fundamentals of Dynamometry, Theoretical determination of forces, angle relations, heat and temperature during metal cutting; distribution, measurement, analysis, theoretical estimation of work piece temperature, hot machining

Fundamental factors, which effect tool forces: Correlation of standard mechanized test. (Abuladze –relation), nature of contact and stagnant phenomenon, rates of strains, shear strain and normal strain distributions, cutting variables on cutting forces.

UNIT-III

Cutting Tools: Tools materials analysis of plastic failure (from stability criterion), Analysis failure by brittle fracture, wear of cutting tools, criterion, flank and crater wear analysis, optimum tool life, tool life equations, (Taylor's woxen etc) Tool life test, machining optimization, predominant types of wear; abrasive, adhesive, diffusion wear models, wear measurements and techniques, theory of tool wear oxidative mathematical modelling for wear, test of machinability and influence of metallurgy on machinability. Economics of metal machining

UNIT-IV

Abrasive Machining: Mechanics of grinding, cutting action of grit, maximum grit chip thickness, energy and grit force temperature during grinding, wheel wear, grinding, process simulation, testing of grinding wheels, mechanics of lapping and honing, free body abrasion.

RECOMMENDED BOOKS:

- Principles of Machine tools by Sen & Bhattacharya by New Central Book Agency.
- Machining of Metals, by Brown; Prentice hall.
- Principles of Metal cutting by Shaw; Oxford I.B.H.
- Metal cutting theory & Cutting tool design by Arshimov & Alekree, MIR Publications.
- Machining Science & Application by Knowenberg Longman Press.

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units). All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (2nd Sem.)
(INDUSTRIAL & PRODUCTION ENGINEERING)
MTIP–614 COMPUTATIONAL METHODS IN ENGINEERING

L	T	P	
4	0	-	Sessional: 40
			Theory: 60
			Total: 100
			Duration of Exam. : 3Hrs.

UNIT – I

Error & approximation, Solution of transcendental equations, Interpolation, Splines.
Integration & differentiation, Solution to system of linear equations (Gauss elimination, LU decomposition, solution by iteration), Method of least squares.

UNIT – II

Matrix eigen value problems, Inclusion of matrix eigen values, Power method, tridiagonalization & QR-Factorization, methods for first order differential equations.

UNIT – III

Methods for systems & higher order differential equations, Methods for elliptic, parabolic & hyperbolic partial differential equations, Neumann & mixed problems.

UNIT-IV

Random variables, mean & variance of a distribution, normal distribution, Random sampling, Estimation of parameters.
Confidence intervals, Testing of Hypothesis, Decisions, Quality Control, Acceptance Sampling, Goodness of Fit. X2-test, Correlation analysis.

Recommended Books:

- Erwin Kreyszig, "Advanced Engineering Mathematics", John Wiley & Sons, Inc., 8th edition 2010.
- H. K. Dass, Higher Engineering Mathematics by S Chand & Co. Ltd., 15th edition 2006.
- Dr B. S. Grewal, Higher Engineering Mathematics by Khanna Publication, 40th edition 2007.
- S.S. Sastry, Introductory methods in Numerical Analysis by PHI,Latest Edition.

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (2nd Sem.)
(INDUSTRIAL & PRODUCTION ENGINEERING)
MTIP–616 DESIGN OF EXPERIMENTS

L	T	P	
4	0	-	

Sessional: 40
Theory: 60
Total: 100
Duration of Exam. : 3Hrs.

UNIT-I

Introduction: Strategy of experimentation, Some typical applications of experimental design, Basic principles, Guidelines for designing experiments, A brief history of statistical design, Using statistical design in experimentation Simple Comparative Experiments: Introduction, Basic statistical concepts, Sampling and sampling Distribution, Inferences about the Differences in means, randomized designs, Paired comparison Designs, Inferences about the Variances of Normal Distributions.

UNIT-II

Introduction To Factorial Design: Basic definition and principles, Advantages of factorials, The two factor factorial design, General factorial design, Fitting response curves and Surfaces, Blocking in a factorial design.

UNIT-III

Fitting Regression Models: Introduction, Linear regression models, Estimate of parameters in linear regression models, Hypothesis testing in multiple regression, Confidence intervals in multiple regression, Prediction of new response observations, Regression model diagnostics, Testing for lack of fit.

UNIT-IV

Taguchi Method Of Design Of Experiments: Concept design, Parameter design, Tolerance design, Quality loss function, Signal-to- Noise ratio, Orthogonal array experiments, Analysis of Mean (ANOM), Quality characteristics, Selection and testing of noise factors, Selection of control factors, Parameter optimization experiment, Parameter design case study Analysis of Variance (ANOVA): Introduction, Example of ANOVA process, Degrees of freedom, Error variance and pooling, Error variance and application, Error variance and utilizing empty columns, the F-test

Recommended Books:

- Design and Analysis of Experiments by Douglas C Montgomery, John Wiley
- Statistical Design and Analysis of Experiments by John P.W.M., John Wiley
- Introduction to Linear Regression Analysis by Montgomery D.C., Runger G. C., John Wiley
- Response Surface Methodology Process and Product Optimization Using Designed Experiments by Myres R.H. and Montgomery D. C. Wiley
- Introduction to Quality Engineering Taguchi , G UNIPUB, White Plains, New York.

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units). All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (2nd Sem.)
(INDUSTRIAL & PRODUCTION ENGINEERING)
MTIP–618 OPERATIONS MANAGEMENT

L	T	P	
4	0	-	

Sessional: 40
Theory: 60
Total: 100
Duration of Exam. : 3Hrs.

UNIT I

Basics of Production Management:
Types of production, life cycle approach to production system, Productivity and Productivity measures, types of productivity index, productivity improvement, production scheduling, MRP v/s JIT, requirements and problems in implementing JIT, Benefits of JIT, Introduction to JIT purchasing and JIT quality management

UNIT II

Supply chain management, its importance, objectives and applications. Tenabled supply chain supply chain drives concepts of stockless, VRM and CRM.

UNIT III

Business Process:
Re-engineering-characteristics, organizational support, responsibility of re-engineering, re-engineering opportunities, choosing the process to re-engineer, success factors and advantages.

UNIT IV

ERP:
Evolution of ERP, Characteristics, approaches, methodology for implementation, Success factors.
Waste Management:
Introduction, classification of waste, systematic approach to waste reduction, waste disposal.

RECOMMENDED BOOKS:
- Operation Research by D. S. Hira & P. K. Gupta,
- Introduction to Operation Research by Hiller & Liebeman
- Production and Operations Management by S.A.Chunawalla and D.R.Patel

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (2nd Sem.)
(INDUSTRIAL & PRODUCTION ENGINEERING)
MTIP–620 STRATEGIC ENTREPRENEURSHIP

L	T	P	
4	0	-	Sessional: 40 Theory: 60 Total: 100 Duration of Exam. : 3Hrs.

UNIT I

Small Scale Industries

Definition and types of SSI's; Role, scope and performance in national economy; Problems of small scale industries.

Industrial Sickness

Definition; Causes of sickness; Indian scenario, Government help; Management strategies; Need for trained entrepreneurs

UNIT II

Entrepreneurship Development Programmes

Introduction, Origin of EDP's , Organizations involved in EDP's, Objectives of EDPs, Implementation of EDP's, Short comings of EDP's, Role in entrepreneurship development.

Step: Introduction, Origin, Status in India, Success and failure factors, Govt. polices and incentives, future prospects in India.

UNIT III

Business Incubation

Introduction, Origin and development of business incubators in India and other countries, types of incubators, success parameters for a business incubator, Benefits to industries, institutes, government and society; future prospects. A few case studies (at least 2).

UNIT IV

Special Aspects of Entrepreneurship

Entrepreneurship, Social entrepreneurship, International entrepreneurship, Rural entrepreneurship, Community Development, Women entrepreneurship.

Network Marketing

Introduction, E-business, E-commerce, E-auction, A basic internet e-business architecture, A multi-tier e-business architecture.

RECOMMENDED BOOKS:

- Strategic Entrepreneurship by P.K. Gupta, (Everest Publishing House)
- Project Management –Strategic Design and Implementation by David Cleland McGraw Hill
- Entrepreneurship-New Venture Creation by David H Holl (Prentice Hall of India)
- Sustainable Strategic Management by Steed & Steed (Prentice Hall of India)
- Marketing Management by Kotler (Prentice Hall of India)
- Management of Technology by Tarek Khalil (McGraw Hill)
- Engineering Economic Principles by Henry Steiner (McGraw Hill)

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units). All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (3rd Sem.)

(INDUSTRIAL AND PRODUCTION ENGINEERING)

MTIP-613 SYNOPSIS OF DISSERTATION

L	T	P	Internal Sessional Marks: 100
-	-	-	

The students are required to initially work on Literature survey/ problem formulation / adopted methodology/ Industry selection/ etc. on some latest areas of Industrial and Production Engineering or related fields.

The students will be required to submit a progress report duly signed by their respective supervisors to the department, related to their dissertation work in the last week of September and November. The progress report will cover the following:

- The goal set for the month.
- Research papers studied.
- Methodology used in achieving the goal.
- The extent of fulfillment of the goal.

The progress report must be at least of 3-4 pages and the cover page should include the tentative topic, name of the candidate, name of the supervisor, period of progress report, signature of candidate and supervisor.

The students will be required to appear for comprehensive seminar & viva-voce and submit a synopsis report based on their progress related to the dissertation at the end of semester. The synopsis report will be submitted in the same format as that of the thesis and will contain the following:

- Introduction
- Literature Survey
- Gaps in Literature
- Objectives of the Proposed Work
- Methodology
- References

* Student will choose his/her guide in the end of second semester

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING
(INDUSTRIAL & PRODUCTION ENGINEERING)
MTIP–615 SUPPLY CHAIN MANAGEMENT

L	T	P	
4	0	-	Sessional 40 Theory: 60 Total: 100 Duration of Exam. : 3Hrs.

UNIT I

Introduction to Supply Chain Management (SCM): Concept of Logistics Management, Concept of supply management and SCM, Core competency, Value chain, Elements of supply chain efficiency, Flow in supply chains, Key issues in supply chain management

UNIT II

Supply chain performance: Competitive and supply chain strategies, Achieving Strategic Fit, Expanding Strategic Scope.

Supply chain driver and Metrices: Drivers of Supply chain performance, Frame work of Structuring drivers, facilities, Inventory, transportation, Information, Sourcing Pricing, Obstacles to achieving it

UNIT III

Introduction to Inventory Management: Selective Control Techniques, MUSIC-3D systems, Various costs. Deterministic Models, Quantity Discounts - all units, incremental price; Sensitivity, Make-or-buy decisions.

UNIT IV

Information Technology for Supply chain Management: Introduction, Goals of Supply chain Information Technology(IT), Standardization, IT Infrastructure, Electronic Commerce, SCM components, Integration of SCM technology.

Decision Support system in Supply chain: Introduction , Understanding decision support system, Supply chain decision support system, Selecting a supply chain DSS.

RECOMMENDED BOOKS:

1. Chopra, S., and Meindl, P., Supply chain Management: Strategy, Planning and Operations. Second Edition, Pearson Education (Singapore) Pte. Ltd, 2004.
2. Simchi-Levi, D., Kaminsky, P., and Simchi-Levi, E., Designing & Managing the Supply Chain: Concepts, Strategies & Case studies. Second Edition, Tata McGraw-Hill Edition, 2003.
3. Doebler, D.W. and Burt, D.N., Purchsing and Supply Chain Management: Text and Cases, McGraw-Hill Publishing Company Limited, New Delhi, 1996.

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

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MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (3rd Sem.)
(INDUSTRIAL & PRODUCTION ENGINEERING)
MTIP–617 FINITE ELEMENT METHODS

L	T	P	
4	0	-	Sessional: 40 Theory: 60 Total: 100 Duration of Exam. : 3Hrs.

UNIT-I

GENERAL PROCEDURE OF FINITE ELEMENT METHOD

Basic concept of FEM, Engineering applications, Comparison of FEM with other methods of analysis, Discretization of the domain-Basic element shapes, discretization process, Interpolation polynomials, Selection of the order of the interpolation polynomial, Convergence requirements, Linear interpolation polynomials in terms of global and local coordinates, Formulation of element characteristic matrices and vectors-Direct approach, variational approach, weighted residual approach, Assembly of element matrices and vectors and derivation of system equations together with their solution.

UNIT-II

HIGH-- ORDER AND ISO-PARAMETRIC ELEMENT FORMULATIONS

Introduction, Higher order one-dimensional element, Higher order elements in terms of natural coordinates and in terms of classical interpolation polynomials, Continuity conditions, Iso-parametric elements, Numerical integration in one, two and three-dimensions.

UNIT-III

SOLID AND STRUCTURAL MECHANICS

Introduction, Basic equations of solid mechanics, Static analysis-Formulation of equilibrium equations, analysis of trusses and frames, analysis of plates, analysis of three-dimensional problems, analysis of solids of revolution, Dynamic analysis-Dynamic equations of motion, consistent and lumped mass matrices, consistent mass matrices in global coordinate system, Dynamic response calculation using FEM

UNIT-IV

APPLICATIONS AND GENERALISATON OF THE FINITE ELEMENT METHOD

Energy balance and rate equations of heat transfer, Governing differential equation for the heat conduction in three-dimensional bodies, Derivation of finite element equations for one-dimensional, two-dimensional, unsteady state and radiation heat transfer problems and their solutions, Solution of Helmholtz equation and Reynolds equation, Least squares finite element approach.

RECOMMENDED BOOKS:

- The Finite Element Method in Engineering – S.S. Rao, Pub. - Pergamon Press.
- Numerical Methods in Finite Element Analysis-Klaus-Jurgen Bathe and Edwar L. Wilson, Pub.-PHI.
- The Finite Element Method – O.C. Zienkiewicz – McGraw-Hill
- The Finite Element Methods for Engineers – K.H. Huebner – Wiley, New York

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (3rd Sem.)
(INDUSTRIAL & PRODUCTION ENGINEERING)
MTIP–619 SEQUENCING AND SCHEDULING

L	T	P	
4	0	-	Sessional: 40 Theory: 60 Total: 100 Duration of Exam. : 3Hrs.

UNIT I

Single machine models - Scheduling function and theory – scheduling problem: objectives, constraints – pure sequencing – performance measures, sequencing theorems - SPT, EDD sequence – minimization of mean flow time, mean tardiness etc – branch and bound algorithm –assignment model.

UNIT II

Parallel machine models - Independent jobs, Minimizing make span.
Job shop models – dynamic job shop simulation.

UNIT III

Flow shop models - Johnson's problem – Extension of Johnsons's rule for 3 machine problem – Jackson's method – algorithm – Palmer's method.

UNIT IV

Other models - Scheduling of intermittent production: Resource smoothing – Giffler Thomson algorithm – Branch and Bound method – Scheduling of continuous production - Line balancing.

RECOMMENDED BOOKS:

1. Michael Pinedoo, Scheduling: theory, algorithms and systems, Prentice Hall, New Delhi, 1995.

2. King, J.R. Production planning and control, Pergamon International Library, 1975.

3. Kenneth R. Baker, Introduction to sequencing and scheduling, John Wiley and Sons, 1974.

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (3rd Sem.)
(INDUSTRIAL & PRODUCTION ENGINEERING)
MTIP–621 PRODUCTIVITY MANAGEMENT

L	T	P	
4	0	-	Sessional: 40
			Theory: 60
			Total: 100
			Duration of Exam. : 3Hrs.

UNIT I

Introduction: Productivity Basics

Concern and the Significance of Productivity Management, the Rationale of Productivity Measurement, Productivity: Some Perspectives, Productivity Measurement: A Case for Re-appraisal

UNIT II

Productivity Measurement: A Conceptual Framework

Objectives of Productivity Measurement, Management by Objectives (MBO) and Productivity Measurement, Systems Approach to Productivity Measurement, Performance Objectives – Productivity (PO-P): The Concept, PO-P: The Model, PO-P: The Methodology.

Productivity Measurements in Manufacturing Sector

Productivity Measurement in Manufacturing Sector, Productivity Measurement in a Medium Sized Organization, Productivity Measurement in a Large Sized Organization.

UNIT III

PO-P Application: Productivity Measurement in Service Sector

Need for measuring Productivity in Service Sector, Difficulties in measuring productivity, Productivity of an R&D System, Productivity of an Educational Institution.

Productivity Management: The Role of External Environment

External Environment and Organization, Impact of external Environment, External Environment: Its Sub-systems, Approaches to measure Impact of External Environment.

UNIT IV

Productivity Management and Implementation Strategies

Productivity Management System, Productivity Policy, Productivity: Organization& Planning, Productivity Measurement, Productivity Measurement Evaluation, Productivity Improvement Strategies, Productivity Audit and Control

RECOMMENDED BOOKS:

- Productivity Management by Prem Vrat, G.D.Sardana and B.S.Sahai
- Production and Operations Management by S.A.Chunawalla and D.R.Patel

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (3rd Sem.)
(INDUSTRIAL & PRODUCTION ENGINEERING)
MTIP–623 SIMULATION OF INDUSTRIAL SYSTEMS

L	T	P	
4	0	-	Sessional: 40 Theory: 60 Total: 100 Duration of Exam. : 3Hrs.

UNIT-I

Introduction and overview, concept of system, system environment, elements of system, system modeling, types of models, Monte Carlo method, system simulation, simulation - a management laboratory, advantages & limitations of system simulation, continuous and discrete systems.

Simulation of continuous systems: characteristics of a continuous system, comparison of numerical integration with continuous simulation system. Simulation of an integration formula.

UNIT-II

Simulation of discrete system: Time flow mechanisms, Discrete and continuous probability density functions. Generation of random numbers, testing of random numbers for randomness and for auto correlation, generation of random variates for discrete distribution, generation of random variates for continuous probability distributions-binomial, normal, exponential and beta distributions; combination of discrete event and continuous models.

Simulation of queuing systems: Concept of queuing theory, characteristic of queues, stationary and time dependent queues, queue discipline, time series analysis, measure of system performance,

Kendall's notation, auto covariance and auto correlation function, auto correlation effects in queuing systems, simulation of single server queues, multi-server queues, queues involving complex arrivals and service times with blanking and reneging.

UNIT-III

Simulation of inventory systems: Rudiments of inventory theory, MRP, in-process inventory. Necessity of simulation in inventory problems, forecasting and regression analysis, forecasting through simulation, generation of Poisson and Erlang variates, simulation of complex inventory situations.

Design of Simulation experiments: Length of run, elimination of initial bias, Variance, Variance reduction techniques, stratified sampling, antipathetic sampling, common random numbers, time series analysis, spectral analysis, model validation, optimization procedures, search methods, single variable deterministic case search, single variable non-deterministic case search, and regenerative technique.

UNIT-IV

Simulation of PERT: Simulation of - maintenance and replacement problems, capacity planning, production systems, reliability problems, computer time sharing problem, the elevator system.

Simulation Languages: Continuous and discrete simulation languages, block structured continuous languages, special purpose simulation languages, SIMSCRIPT, GPSS SIMULA importance and limitations of special purpose languages.

RECOMMENDED BOOKS:

- Simulation and Modelling Loffick - Tata McGraw Hill
- System Simulation with Digital Computer, Deo Narsingh- Prentice Hall
- System Simulation, Hira, D.S. - S. Chand & Co.
- Computer Simulation and Modelling Meelamkavil- John Willey
- System Simulation by Gorden - Prentice hall
- Jerry Banks and John, S. Carson II, 'Discrete – Event System Simulation', Prentice Hall Inc., NewJersey, 1984.
- Geoffrey Gordon, 'System simulation', Prentice Hall, NJ, 1978.
- Law, A.M. and W.D. Keltor, 'Simulation modelling analysis', McGraw Hill, 1982.9

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (3rd Sem.)
(INDUSTRIAL & PRODUCTION ENGINEERING)
MTIP–625 SMART MATERIALS

L	T	P	Sessional: 40
4	0	-	Theory: 60
			Total: 100
			Duration of Exam. : 3Hrs.

UNIT-I

Introduction to Smart Materials

Intelligence, AI Vs. embedded Intelligence, the role of Smart Materials in developing Intelligent Systems and Adaptive Structures.

Introduction to High bandwidth - Low strain generating (HBLS) Smart Materials

Piezoelectric Materials – constitutive relationship, electromechanical coupling coefficients, piezoelectric constants, piezo-ceramic materials, variation of coupling coefficients in hard and soft piezoceramics, polycrystalline vs single crystal piezoelectric materials, polyvinyldene fluoride, piezoelectric composites

UNIT-II

Magnetostrictive Materials–constitutive relationship, magneto-mechanical coupling coefficients, Joule Effect, Villari Effect, Matteuci Effect, Wiedemann effect, Giant magnetostriction in Terfenol-D, Terfenol-D particulate composites, Galfenol and Metglas materials.

Actuators based on HBLS Smart Materials – Current Trends for Actuators and Micromechatronics

UNIT-III

Introduction to Low bandwidth - High strain generating (LBHS) materials

Shape Memory Alloys (SMA) – Phase Transformations, Electro-active Polymers (EAP)

Actuators based on LBHS Smart Materials: Shape Memory Alloy based actuators for Shape Control, Electro-active Polymers for Work-Volume Generation, Sensors based on HBLS Smart Materials, Sensors based on LBHS Smart Materials

UNIT-IV

Integration of Smart Sensors and Actuators to Smart Structures – Finite Element Modelling, Optimal Placement of Sensors and Actuators, Design of Controller for Smart Structure, Case Studies to Advanced Smart Materials: Active Fibre Composites (AFC), Energy Harvesting Actuators and Energy Scavenging Sensors

Self-healing and Autophagous Smart Materials

RECOMMENDED BOOKS:

1. Smart Materials by Mel Schwartz, CRC Press, Taylor & Francis.
2. Smart Material Systems and MEMS by Vijay K. Vardhan, K. J. Vinoy, Wiley India

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (3rd Sem.)
(INDUSTRIAL & PRODUCTION ENGINEERING)
MTIP–627 MANUFACTURING OPTIMIZATION THROUGH INTELLIGENT TECHNIQUES

L	T	P	
4	0	-	Sessional: 40 Theory: 60 Total: 100 Duration of Exam. : 3Hrs

UNIT-I

Conventional Optimization Techniques for Manufacturing Applications:

Single Variable Techniques Suitable for Solving Various Manufacturing Optimization Problems (Direct Search Method)

Multivariable Techniques Suitable for Solving Various Manufacturing Optimization Problems (Direct Search Methods)

UNIT-II

Intelligent Optimization Techniques for Manufacturing Optimization Problems

Genetic Algorithm (GA), Simulated Annealing (SA), Ant Colony Optimization (ACO), Particle Swarm Optimization (PSO), Tabu Search (TS)

UNIT-III

Optimal Design of Mechanical Elements

Introduction, Gear Design Optimization, Design Optimization of Single-Point Cutting Tool

Optimization of Machining Tolerance Allocation

Dimensions and Tolerances, Tolerance Allocation of Welded Assembly, Tolerance Design of Over Running Clutch Assembly, Tolerance Design Optimization of Stepped Clone Pulley, Tolerance Design Optimization of Stepped-Block Assembly

UNIT-IV

Optimization of Operating Parameters for CNC Machine Tools

Optimization of Turning Process, Optimization of Multi-Pass Turning Process, Optimization of Face Milling Process, Surface Grinding Process Optimization.

Modern Manufacturing Applications

Implementation of Genetic Algorithm for Grouping of Part Families and Matching Cell, Application of Intelligent Techniques for Adaptive Control Optimization.

RECOMMENDED BOOKS:

1. Manufacturing Optimization through Intelligent Techniques by R. Saravanan, CRC press, Taylor & Francis Group.
2. Process Planning Optimization in Reconfigurable Manufacturing Systems by Farayi Musharavati.

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (3rd Sem.)
(INDUSTRIAL & PRODUCTION ENGINEERING)
MTIP–629 QUALITY ENGINEERING AND MANAGEMENT

L	T	P	
4	0	-	Sessional: 40 Theory: 60 Total: 100 Duration of Exam. : 3Hrs

Unit-I

Introduction: Statistical concepts in quality control, Graphical representation of ground data, Continuous & discrete probability distributions, central limit theorem, Chi-square test, Introduction to quality control, process control and product control, chance and assignable causes of quality variation, advantages of Shewart control charts, process control charts for variables, Fixation of control limits, Type I and Type II errors, Theory of runs, interpretation of out of control points, Probability limits, initiation of control charts, trial control limits, determination of aimed-at value of process setting, rational Method of sub grouping, control chart parameters, control limits and specifications limits, natural tolerance limits, relationship of process in control to upper and lower specifications limits, process capability studies.

Unit-II

Control charts: Special control charts for variables, Group control charts, Arithmetic moving X ad R charts, Geometric Moving charts, X control charts with reject limits, Steady trend in process average with cost dispersion, trend chart with sloping limits, variable subgroup size CUSUM or cumulative sum control chart.

Unit-III

Sampling plans: Probability theory, hyper-geometric, Binomial and Poisson distributions, Acceptance inspection 100% inspection, no Inspection and sampling inspection, Operating characteristic curve, effect of sample size and acceptance number. Type a and Type B O.C curves, single, Double and multiple sampling plans, Sequential sampling plans Acceptance/rejection ad acceptance/rectification plans, procedure's risk ad consumer's risk, difference quality level, Average outgoing quality curve, average outgoing quality limit, quality protection offered by a sampling plan, Average sample number, Design of single, double and sequential plans.

Unit-IV

Quality systems: Economics of product inspection, selection of economic sampling plans, Product quality and reliability, failure data analysis and life testing, elements of total quality control quality assurance, ISO9000 quality system.

RECOMMENDED BOOKS:

- Statistical Quality Control by Grant & Leaveworth, McGraw Hill
- Quality Control & Industrial Statistics by Duncan, Irwin Press
- Quality Control Handbook by Juran, McGraw Hill
- Quality Control by Hansen, Prentice Hall
- An Introduction to reliability & control by Thomason, Machinery Publishing
- Total Quality Control by A.V. Taylor, McGraw-Hill

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units). All questions will have equal ***weight of 12 marks.***

The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (3rd Sem.)
(INDUSTRIAL & PRODUCTION ENGINEERING)
MTIP–631 ENTERPRISE RESOURCE PLANNING

L	T	P	
4	0	-	

Sessional: 40
Theory: 60
Total: 100
Duration of Exam. : 3Hrs

UNIT I

ENTERPRISE RESOURCE PLANNING: Principle, ERP framework, Business Blue Print, Business Engineering vs Business process Re-Engineering , Tools , Languages , Value chain, Supply and Demand chain , Extended supply chain management, Dynamic Models , Process Models

UNIT II

TECHNOLOGY AND ARCHITECTURE: Client/Server architecture, Technology choices, Internet direction, Evaluation framework, CRM, CRM pricing, chain safety, Evaluation framework.

UNIT III

ERP SYSTEM PACKAGES: SAP, People soft, Baan and Oracle , Comparison , Integration of different ERP applications, ERP as sales force automation , Integration of ERP and Internet ,ERP Implementation strategies ,Organizational and social issues.

UNIT IV

Overview, Architecture, AIM, applications, Oracle SCM. SAP: Overview, Architecture, applications, before and after Y2K, critical issues, Training on various modules of IBCS ERP Package, Oracle ERP and MAXIMO, including ERP on the NET

ERP PROCUREMENT ISSUES: Market Trends – Outsourcing ERP – Economics – Hidden Cost Issues – ROI – Analysis of cases from five Indian Companies. TOTAL: 45 PERIODS

Recommended Books:

1. Sadagopan.S , ERP-A Managerial Perspective, Tata Mcgraw Hill, 1999.
2. Jose Antonio Fernandez , The SAP R/3 Handbook, Tata Mcgraw Hill, 1998.
3. Vinod Kumar Crag and N.K.Venkitakrishnan ,Enterprise Resource Planning –Concepts and Practice, Prentice Hall of India, 1998.
4. ERPWARE , ERP Implementation Framework, Garg&Venkitakrishnan, Prentice Hall, 1999.
5. Thomas E Vollmann and BeryWhybark , Manufacturing and Control Systems, Galgothia Publications, 1998.

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (3rd Sem.)
(INDUSTRIAL & PRODUCTION ENGINEERING)
MTIP–633 INTELLECTUAL PROPERTY RIGHTS AND PATENT LAWS

L	T	P	
4	0	-	Sessional: 40 Theory: 60 Total: 100 Duration of Exam. : 3Hrs

UNIT I

INTELLECTUAL PROPERTY (IP) FUNDAMENTALS: Introduction, Legal concept of Property, Kinds of properties, Movable Property, Immovable Property.
IP and Classification of IP, Industrial Designs, Copy Right, Trade Mark, Importance of IP and Terms of protection.

UNIT II

PATENTS: Purpose of a Patent, Recognized conditions for Patentability, Originality of Inventions, Novelty, Non-obviousness, Utility.
Exclusive rights conferred by a Patent, National Protection, International Protection. , Patent Filing Procedure and Prosecution, Infringement of Patents, Acquisition and Transfer of Patent Rights.

UNIT III

INDUSTRIAL DESIGNS: Subject matter of Industrial Designs, Requirements for obtaining protection for industrial Design, Differences between Patent protection and Industrial design Protection, benefits of Industrial Design protection, National and International Procedure for filing, Rights granted to Design holders.
INTELLECTUAL PROPERTY MANAGEMENT: Introduction to Intellectual Property Management (IPM), Need for IP management, Interrelationships between legal advocacy and IPM, Role of Legal Practioners, Role of Managers, IP Commercialization, IP Audit and its Importance.

UNIT IV

COPY RIGHT AND TRADEMARKS: Copyright subsists, Meaning of word 'Original', Fair dealing, Rights of Owners of Copy Rights, Procedures, Authorities and Institutions under the Copy Right Act, Infringement and remedies.
Trademarks (TM), Different types of Trademarks ,Service Mark , Classification Mark , Collective Mark, Importance of TM, Difference between registered TM and TM in use, Basic requirements for the registration of TM, Procedure for registration , Rights of registered TM owners , Infringement and remedies

Recommended Books:

1. G.B.Reddy, "Intellectual Property Rights and the Law",Gogia Law Agency, 7th Edition - Reprint, 2009.
2. N.R.Subbaram, "Demystifying Intellectual Property Rights",Lexis Nexis Butterworths Wadhwa, First Edition, 2009
3. N.R. Subbaram, "Patent law – Practices and Procedures", Wadhwa, Second Edition, 2007
4. N.S. Gopalakrishnan & T.G. Agitha, „Principles of Intellectual Property", Eastern Book Company, First Edition, 2009

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (4th Sem.)

(INDUSTRIAL AND PRODUCTION ENGINEERING)

MTIP-622 DISSERTATION (PHASE-II)

L	T	P	Internal Marks: 100
-	-	-	External Marks: 200
			Total: 300

The students are required to undertake Analytical/Experimental/computational investigations in the field of Industrial and Production Engg. or related fields which have been finalized in the third semester. They would be working under the supervision of a faculty member.

The students will be required to submit a progress report duly signed by their respective supervisors to the department, related to their dissertation work in the last week of February and April. The progress report will cover the following:

- The goal set for the month.
- Research papers studied.
- Methodology used in achieving the goal.
- The extent of fulfillment of the goal.
- References

The progress report must be at least of 3-4 pages and the cover page should include the tentative topic, name of the candidate, name of the supervisor, period of progress report, signature of candidate and supervisor.

The final dissertation will be submitted in the end of semester which will be evaluated by internal as well as external examiners based upon his/her research work. At least two publications are expected before final submission of the dissertation from every student in peer reviewed referred journals from the work done by them in their dissertation.

Every dissertation will be evaluated by the joint PG evaluation Committee of the respective college, guide, an expert from the university campus and another external expert from outside the University.

Each year the College running the course will send the list of eligible students along with the topic name to the Chairman, Board of studies in Mechanical Engg. for nominating external examiner and examiner from university campus.

The list should be sent at least before 20th Dec. each year so that the evaluation of the thesis could be done in time. Any delay caused due to late submission of the student list along with the topics name will be the responsibility of the respective Director of the Institute.

In the absence of any examiner, the Director of the institute can nominate the alternative names on his own from the university campus and outside the university.

KURUKSHETRA UNIVERSITY, KURUKSHETRA
("A" Grade NAAC Accredited University)
MASTER OF TECHNOLOGY
IN
MECHANICAL ENGINEERING
(With Specialization in Thermal Engineering)
(2015-16 onwards in phased Manner

SEMESTER-I	Subject	L	T	P	Total	Sessional Marks	Theory Marks	Duration
MTTH-901	Advanced Fluid Engineering	4	-	-	4	40	60	3
MTTH-903	Advanced Heat Transfer	4	-	-	4	40	60	3
MTTH-905	Advanced Refrigeration Engineering	4	-	-	4	40	60	3
MTTH-907	Design of Thermal System	4	-	-	4	40	60	3
MTME-809	Research Methodology and Optimization Techniques	4	-	-	4	40	60	3
MTTH-911	Advanced Heat Transfer Lab	-	-	2	2	40	60	2
					Total	**240**	**360**	
						600		

SEMESTER-II	Subject	L	T	P	Total	Sessional Marks	Theory Marks	Duration
MTTH-902	Computational Fluid Dynamics	4	-	-	4	40	60	3
MTTH-904	Advanced Internal	4	-	-	4	40	60	3
MTTH-906	Finite Element	4	-	-	4	40	60	3
MTTH-908	Solar Energy	4	-	-	4	40	60	3
	Elective-I	4	-	-	4	40	60	3
MTTH-910	Computational Fluid Dynamics	-	-	2	2	40	60	2
					Total	**240**	**360**	
						600		

List of Elective – I (Thermal Engg.) for 2nd Semester		
1.	MTTH-914	Advanced Thermodynamics
2.	MTTH-916	Renewable Energy & Energy Management
3.	MTTH-918	Convective Heat Transfer
4.	MTME-920	Measurements in Thermal Engineering
5.	MTTH-922	Design of Heat Transfer Equipments

SEMESTER-III	Subject	L	T	P	Total	Sessional Marks	Theory Marks	Duration
	Elective-II	4	-	-	4	40	60	3
	Elective-III	4	-	-	4	40	60	3
MTTH-913	Synopsis of dissertation	-	-	-	-	100	-	-
					Total	**180**	**120**	
						300		

LIST OF ELECTIVE – II (Thermal Engg.) for 3rd Semester		
1.	MTTH-915	Air Conditioning
2.	MTTH-917	Cryogenic Engineering
3.	MTTH-919	Combustion Engineering
4.	MTTH-921	Nuclear Engineering
5.	MTTH-923	Jet and Rocket Propulsion

LIST OF ELECTIVE – III (Thermal Engg.) for 3rd Semester		
1.	MTTH-925	Thermal Modeling and Analysis
2.	MTTH-927	Numerical & Optimization Methods
3.	MTTH-929	Advanced Computational Fluid Dynamics
4.	MTME-931	Gas Dynamics
5.	MTTH-933	Compressible Flow Machines

SEMESTER-IV		L	T	P	Total	Internal Marks	External Marks
MTTH-912	Dissertation	-	-	-	-	100	200
						100	**200**
					Total	**300**	

INSTRUCTIONS FOR PAPER SETTER

1. The question paper is to be attempted in **THREE Hours**.
2. Maximum Marks for the paper are **60.**
3. The syllabus for the course is divided into **FOUR units.**
4. The paper will have a total of **NINE questions.**
5. **Question No. 1,** which is compulsory, shall be OBJECTIVE Type **and have content from the entire syllabus (all Four Units).**

   Q. No. 2 & 3 from Unit I

   Q. No. 4 & 5 from Unit II

   Q. No. 6 & 7 from Unit III

   Q. No. 8 & 9 from Unit IV
6. All questions will have equal **weightage of 12 marks.**
7. The candidate will attempt a total of **FIVE questions**, each of 12 marks. Q. No. 1 is compulsory. The candidate shall attempt remaining **four** questions by selecting **only one question from each unit.**
8. A question may have any number of sections labeled as 1(a), 1(b), 1(c), 1(d), ----2(a), 2(b),-----. A section may further have any number of subsections labeled as (i), (ii), (iii),------.
9. **SPECIAL INSRUCTIONS FOR Q. No. 1 ONLY**

   Question No. 1, which is compulsory, shall be OBJECTIVE/ short answer type **and have content from the entire syllabus (all Four Units).**

   Emphasis is to be given on the basic concepts, analytical reasoning and understanding of the various topics in the subject. This question may have a number of parts and/or subparts. The short questions could be combination of following types:

   i. Multiple Choice
   ii. Yes/ No choice
   iii. Fill in Blanks type
   iv. Short numerical computations
   v. Short Definitions
   vi. Matching of Tables

The above mentioned question types is **only a Guideline**. Examiner could set the question as per the nature of the subject.

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (THERMAL)
MTTH–901 ADVANCED FLUID ENGINEERING

L	T	P	
4	0	-	Sessional : 40
			Theory : 60
			Total : 100
			Duration of Exam : 3 Hrs.

UNIT-1

Review of basic concepts.

Basic equations of fluid flow: Reynold's transport theorem, continuity, momentum and energy equations in integral form and their applications, differential form of these equations, Navier Stokes equation, Euler's equation, Bernoulli's equation.

Ideal flow: Kinematics of fluid flow; potential flow; sources, sinks and vortices; superimposition of uniform stream with above, doublets; Rankine ovals; flow around uniform cylinders with and without circulation; pressure distribution on the surface of these bodies and D'Alembert's paradox.

UNIT-2

Exact solution of N-S equations: plane Poiselle and Coutte flows; Hagen-Poiselle flow through pipes; flows with very low Reynold's numbers; Stokes flow around a sphere; elements of hydrodynamic theory of lubrication.

Boundary layer flows: elements of two dimensional boundary layer theory; displacement thickness and momentum thickness; skin friction; Blasius solution for boundary layer on a flat plate; Karman-Pohlhausen integral method for obtaining approximate solutions, boundary layer separation & control, integral method for non-zero pressure gradient flows, entry flow into a duct, transition from laminar to turbulent flows, Reynold's stresses, turbulent boundary layer equation, turbulent pipe flow, Prandtl's mixing length hypothesis

UNIT-3

Compressible flow: speed of sound and Mach number, basic equations for one dimensional compressible flow, isentropic relation, propagation of infinitesimal and finite disturbances, stagnation and critical conditions, effect of variable flow area, converging and converging-diverging nozzles and diffusers, normal shock waves, basic equations for a normal shock wave, normal shock flow functions for one dimensional flow of an ideal gas, Supersonic channel flow with shocks, Fanno line and Rayleigh line flows, oblique shock waves, isentropic expansion waves, Prandtl Meyer expansion waves.

UNIT-4

Vortex motion: definitions; vortex lines; surfaces and tubes; vorticity; circulation; Kelvin's circulation theorem; Helmholtz's vorticity theorem; Biot-Savart law for induced vorticity; system of vortex filaments; horse-shoe vortex filaments; ring vortices; vortices streets; Karman vortex street.

Reference/Text Books:

1. Fundamentals of Mechanics of Fluid by I.G. Currie, Mcgraw-Hill
2. Foundation of Fluid Mechanics, Yuan, Prentice Hall.
3. Introduction to Fluid Mechanics, R.W. Fox, P.J. Pritchard & A.T. McDonald, Wiley India.
4. Introduction to Fluid Mechanics and Fluid Machines by S.K. Som and G. Biswas, TMH.
5. Fluid Mechanics and its applications, Gupta and Gupta, Willey Easter

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (THERMAL)

MTTH–903 ADVANCED HEAT TRANSFER

L	T	P	
4	0	-	Sessional : 40
			Theory : 60
			Total : 100
			Duration of Exam : 3 Hrs

UNIT-1

Conductive Heat Transfer: Review of the basic laws of conduction, convection and radiation. General heat conduction equation in different co-ordinates. One dimensional steady state conduction with variable thermal conductivity and with internal distributed heat sources. Extended surfaces review, tapered fins, design considerations.

Two and three dimensional steady-state conduction, method of separation of variables, graphical method, relaxation technique.

Unsteady heat conduction: lumped capacitance method, validity of lumped capacitance method, general lumped capacitance analysis, spatial effects, plane wall with convection, radial systems with convection, semi-infinite solid, constant surface temperature and heat fluxes, periodic heating, solutions using Heisler's charts.

UNIT-2

Convective Heat Transfer: Introduction to convection boundary layers, local and average convection coefficients, laminar and turbulent flow, boundary layer equations, boundary layer similarity, boundary layer analogies – heat and mass transfer analogy, Reynold's and Colburn analogies.

Forced convection: external forced convection - empirical method, flat plate in parallel flow, cylinder in cross flow, flow over a sphere; internal forced convection – hydrodynamic and thermal considerations, energy balance, laminar flow in circular tubes, convection correlations.

Natural Convection: physical considerations, governing equations, laminar free convection on vertical surface, empirical correlations, free convection within parallel plate channels, empirical correlations, combined free and forced convection.

UNIT-3

Heat Transfer with Phase Change: dimensionless parameters in boiling and condensation, boiling modes, pool boiling, correlations, forced convection boiling, physical mechanism of condensation, laminar and turbulent film condensation, film condensation in tubes, dropwise condensation.

Heat Exchangers: Basic design methodologies – LMTD and effectiveness NTU methods, overall heat transfer coefficient, fouling of heat exchangers, classification of heat exchangers according to constructional features: tubular, plate type, extended surface heat exchanger, compact heat exchangers, design of double pipe heat exchangers, plate and heat pipe type, heat transfer enhancement - Passive and active techniques.

UNIT-4

Radiation Heat Transfer: Fundamental concepts, radiation intensity, irradiation, radiosity, black body radiation, Basic laws of radiation, emission from real surfaces, absorption, reflection and transmission by real surfaces, Kirchoff's law, Gray surface, radiative heat exchange between two or more surfaces, view factor, radiation exchange between opaque, diffuse, gray surface in an enclosure; net radiation exchange at a surface, radiation exchange between surfaces, blackbody radiation exchange, two-surface enclosure, radiation shields, multimode heat transfer, radiation exchange with participating media.

Mass Transfer: physical origins and rate equations, mixture composition, Fick's law of diffusion, mass transfer in stationary media, steady state diffusion through a plane membrane, equimolal diffusion, diffusion of water vapours through air, mass transfer coefficient, convective mass transfer, correlations.

Reference/Text Books:

1. Fundamentals of Heat and Mass Transfer by Incropera, Dewitt, Bergmann and Levine, Wiley India.
2. Heat Transfer by J.P. Holman, McGraw Hill.
3. Heat and Mass Transfer by Y.V.C. Rao, Universities Press.
4. Heat and Mass Transfer by D.S. Kumar, Katson Publication.
5. Principles of Heat Transfer by Kreith and Bohn, Thomson Learning.
6. Heat Exchangers Design and Theory by N.H. Afgan and Schliinder, MGH

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (THERMAL)
MTTH–905 ADVANCED REFRIGERATION ENGINEERING

L	T	P	
4	0	-	Sessional : 40
			Theory : 60
			Total : 100
			Duration of Exam. : 3 Hrs

UNIT-1

Air Refrigeration System: Reverse Carnot cycle, most efficient refrigerator, Bell-Coleman cycle, advantages and disadvantages of air refrigeration system, necessity of cooling the aeroplanes, simple cooling and simple evaporative type, Bootstrap and Bootstrap evaporative type, regenerative type, reduced ambient. Limitation, merits and comparison.

Simple vapour compression cycle: pressure-enthalpy diagram, Ewing's construction, Suction state for maximum COP. Standard rating cycle and effect of operating conditions, (Evaporator pressure, condenser pressure, suction vapour super heat, liquid sub cooling, liquid vapour regenerative heat exchanger) Deviation of actual vapour compression cycle with that of theoretical.

UNIT-2

Multi Temperature: Method of improving the COP, optimum inter state pressure for two stages refrigeration system, Multi stage or compound compression with flash inter cooler, single expansion valve and multi expansion valve. Multi evaporator system with single compressor, individual compressor with compound compression, single expansion valve and multi-expansion valve.

Production of Low Temperature: Limitations of simple vapour compression system, multistage system, cascade system, production of solid carbon dioxide, Joule-Thomson effect, liquification of gases, hydrogen, helium, application of low temperature, Cryogenic insulation.

UNIT-3

Vapour Absorption System: Simple vapour absorption system, Maximum co-efficient of performance, modification of simple vapour absorption system, actual vapour absorption cycle and its representation on Enthalpy –composition diagram, absorption system calculation. Rich and poor solution concentration. Lithium Bromide water system. Steam Jet Refrigeration

UNIT-4

Application: Manufacture and treatment of metal, industrial medical, civil engineering, solar refrigeration, ice manufacturing and food preservation.

Design consideration of compressors, condensers, expansion devices, evaporators. Properties of refrigerants and mixture of refrigerant.

Reference/Text Books:

1. Refrigeration and Air-conditioning by C.P. Arora.
2. Mechanical Refrigeration by Sporks and Diffio.
3. ASHARE Handbook (Fundamentals) by ASHARE.
4. Thermal Environment Engineering by Threlkeld.
5. Refrigeration and Air conditioning by Stocker, Mc-Graw Hill.

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (THERMAL)
MTTH–907 DESIGN OF THERMAL SYSTEM

L	T	P	
4	0	-	Sessional : 40
			Theory : 60
			Total : 100
			Duration of Exam : 3 Hrs

UNIT-1

Modeling of Thermal System, types of Models, mathematical Modeling, Curve Fitting, linear algebraic Systems, Numerical Model for a System, System Simulation, Methods of Numerical Simulation.

UNIT-2

Acceptable Design of Thermal System, Initial Design, Design Strategies, Design of System for Different Application Area, Additional Consideration for a Practical System,

UNIT-3

Economic Consideration, calculation of Interest, Worth of money as a function of time, series of payments, raising capital,. Taxes, economic factor in design consideration

UNIT-4

Problem Formulation For Optimization, Optimization Methods, Optimization of Thermal Systems, Practical Aspect in Optimal design, Lagrange Multipliers, Optimization of Constrained and Unconstrained Problems, applicability to thermal systems, search method, single variable problem, multi-variable constrained optimization, examples of thermal systems, geometric, linear and dynamic programming, knowledge–based design and additional considerations.

Reference/Text Books:

1. Y Jaluria, Design and Optimization of Thermal Systems, CRC Press-2007
2. N.V. Suryanarayana, Design and Simulation, MGH 2002
3. W.F.Stoecker, Design of Thermal Systems, TMH

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (THERMAL)
MTME–809 RESEARCH METHODOLOGY AND OPTIMIZATION TECHNIQUES

L	T	P	
4	0	-	Sessional : 40 Theory : 60 Total : 100 Duration of Exam. : 3 Hrs

UNIT I

Introduction to research methodology, various types of techniques, alternative approaches to the study of the research problem and problem formulation. formulation of hypotheses, feasibility, preparation and presentation of research proposal.

Introduction to experimental design, Taguchi method, concept of orthogonal array, primary and secondary data collection, S/N ratio, validation, regression and correlation analysis. tests of significance based on normal. T and chi square distributions. analysis of variance.

UNIT II

Edition, tabulation & testing of hypotheses, interpolation of results, presentation, styles for figures, tables, text, quoting of reference and bibliography. Use of software for statistical analysis like SPSS, Minitab or Matlab, Report writing, preparation of thesis, use of software like MS Office.

The course will include extensive use of software, reporting writing and seminars in tutorial class.

UNIT III

Integer linear programming methods and applications, Introduction to integernon-linear programming, Basics of geometric programming.

Multi-objective optimization methods and applications, Formulation of problems – Separable programming and stochastic programming.

UNIT IV

Introduction to Genetic algorithms, neural network based optimization and optimization of fuzzy systems, Evolutionary Algorithm and Ant Colony Optimization techniques.

Note: - Some of the algorithm is used to be exercised using MAT LAB

Reference/Text Books:

1. C.R Kothari, Research Methodology, WishwaPrakashan
2. P.G Triphati, Research Methodology, Sultan Chand & Sons, N.Delhi
3. Fisher, Design of Experiments, Hafner
4. Sadhu Singh, Research Methodology in Social Sciences, Himalya Publishers
5. Kalyanmoy Deb, Optimization for Engineering design – algorithms and examples. PHI,New Delhi,1995.
6. SingiresuS.Rao, "Engineering optimization –Theory and practices", John Wiley & Sons
7. Garfinkel, R.S. and Nemhauser, G.L., Integer programming, John Wiley & Sons, 1972.

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (THERMAL)
MTTH–911 ADVANCED HEAT TRANSFER LAB

L	T	P	Internal Marks : 40
-	-	2	External Marks : 60
			Total : 100

List of Experiments

1. Study of variation of emissivity of test plate with absolute temperature.
2. To demonstrate the super thermal conductivity of heat pipe.
3. To determine natural convective heat transfer coefficient and to calculate and to plot variation of natural convective heat transfer coefficient along the vertical tube.
4. To determine the LMTD, overall heat transfer coefficient and effectiveness of evaporative heat exchanger.
5. To find out heat transfer coefficient of drop wise and film wise condensation at various flow rates of water.
6. To study different types of heat enhancement techniques.
7. To determine the Biot number, Fourier number and heat transfer coefficient for unsteady heat transfer.
8. To calculate heat transfer coefficient of the fluidized bed.
9. To find out the overall heat transfer coefficient and LMTD of a finned tube heat exchanger.
10. To find out the overall heat transfer coefficient and LMTD of a plate type heat exchanger.
11. To find out the heat flux and temperature difference between metal & liquid in a two phase transfer unit.
12. To determine the overall heat transfer co-efficient under unsteady state conditions at different temperatures and heat transfer coefficient at boiling point.

Note: Total eight experiments are to be performed selecting at least six from the above list.

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (THERMAL)
MTTH–902 COMPUTATIONAL FLUID DYNAMICS

L	T	P	Sessional : 40
4	0	-	Theory : 60
			Total : 100
			Duration of Exam. : 3 Hrs

UNIT-1

Introduction: Introduction to C.F.D., comparison of the three basic approaches in engineering problem solving- analytical, experimental and computational; models of the flow, substantial derivative, governing equations – continuity equation, momentum equation, energy equation, Navier-Stokes equation; physical boundary conditions.

Mathematical behavior of governing equations: classification of quasi linear partial differential equations, general method of determining the classification of partial differential equations, general behavior of hyperbolic, parabolic, elliptic equations.

UNIT-2

Discretization: Introduction, finite difference method, difference equations, explicit and implicit approaches, error and stability analysis.

Simple CFD Techniques: Lax-Wendroff technique, MacCormack's technique, space marching, relaxation technique, pressure correction technique, SIMPLE algorithm.

UNIT-3

Heat Conduction: control volume formulation of one-dimensional steady state diffusion, unsteady one-dimensional diffusion, two and three dimensional diffusion problems, over and under relaxation.

Heat Convection & Diffusion: Steady one-dimensional convection and diffusion, central differencing scheme, upwind differencing scheme, exact solution, exponential, hybrid, and power law schemes, discretization equations for two dimensions & three dimensions.

UNIT-4

Fluid Flow: CFD solution of subsonic-supersonic isentropic nozzle flow, purely subsonic isentropic flow, viscous incompressible flow, solution of incompressible Couette flow problem by F.D.M., solution of Navier-Stokes equations for incompressible flows using MAC and SIMPLE methods.

Reference/Text Books:

1. Numerical Heat Transfer and Fluid Flow by Suhas V. Patankar, Taylor & Francis.
2. Computational fluid dynamics by John D.Anderson, Jr, McGraw Hill.
3. An Introduction to Computational Fluid Dynamics, H. Versteeg& W. Malalasekra, Pearson.
4. Computational Fluid Flow & Heat Transfer, K. Muralidhar& T. Sundararajan.
5. Introduction to Computational fluid dynamics by Anil W. Date

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (THERMAL)
MTTH–904 ADVANCED INTERNAL COMBUSTION ENGINES

L	T	P	
4	0	-	Sessional : 40
			Theory : 60
			Total : 100
			Duration of Exam. : 3 Hrs

UNIT-1

Cycle Analysis: Fuel-air cycles, variable specific heats, dissociation, effect of operating variables, comparison with air standard cycle. Actual cycles, time and heat loss factors, exhaust blow down, comparison of real engine cycle and fuel air cycle, availability analysis of engine processes.

Thermochemistry of fuel-air mixtures: composition of air and fuels, first law and second law applied to combustion, unburned mixture composition, combustion charts.

UNIT-2

Heat Transfer: Heat transfer and engine energy balance, parameters affecting heat transfer, convective and radiative heat transfer, measurement of instantaneous heat transfer rate, thermal loading.

Gas Exchange Processes: flow through valves and ports, exhaust gas flow rate, scavenging in two stroke engines, scavenging models, actual scavenging processes, supercharging and turbocharging, types and methods of supercharging, basic relationships, compressors, turbines, wave-compression devices, effects and limitations, charge cooling.

UNIT-3

Combustion: combustion in SI engines, thermodynamic analysis of SI engine combustion, burned and unburned mixture states, flame structure and speed, cycle variations, spark ignition, abnormal combustion, combustion in CI engines, types, CI engine combustion model, analysis of cylinder pressure data, fuel spray behavior, ignition delay, mixing controlled combustion.

UNIT-4

Fuel Injection: fuel injection systems, mechanism of spray formation, electronic injection systems, MPFI system, feedback systems, flow in intake manifolds, design requirements.

Pollution Formation and Control: trends in vehicle emission standards, unburned hydrocarbon emissions, nitrogen oxides, CO, particulate emissions, exhaust gas treatment, non-exhaust emissions.

Reference/Text Books:

1. Internal Combustion Engine Fundamentals by J.B. Heywood, McGraw Hill.
2. I.C. Engine Vol. 1 & II by C.P. Taylor, MIT press.
3. Internal Combustion Engines by V. Ganesan, Tata McGraw Hill.
4. Thermodynamics and Gas Dynamic of I.C. Engine, Vol. I & II by Horlock and Winterbone.
5. I.C. Engine, Vol. I & II by Benson and Whitehouse.
6. Thermodynamic Analysis of Combustion Engines, by Campbell.

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (THERMAL)

MTTH–906 FINITE ELEMENT METHODS

L	T	P	
4	0	-	Sessional : 40 Theory : 60 Total : 100 Duration of Exam. : 3 Hrs

UNIT-1

Basic Steps in FEM Formulation, General Applicability of the Method; Variational Functional, Ritz Method.

Variational FEM : Derivation of Elemental Equations, Assembly, Imposition of Boundary Conditions, Solution of the Equations.

UNIT-2

1-D Elements, Basis Functions and Shape Functions, Convergence Criteria, h and p Approximations.

Natural Coordinates, Numerical Integration, Gauss Elimination based Solvers. Computer implementation: Pre-processor, Processor, Post-processor.

UNIT-3

Alternate Formulation: Weighted Residual Method, Galerkin Method; Problems with C1 Continuity: Beam Bending, Connectivity and Assembly of C1 Continuity Elements.

Variational Functional; 2-D Elements (Triangles and Quadrilaterals) and Shape Functions. Natural Coordinates, Numerical Integration, Elemental Equations, .Connectivity and Assembly, Imposition of Boundary Conditions.

UNIT-4

Axisymmetric (Heat Conduction) Problem, Plane Strain and Plane Stress Solid Mechanics Problems.

Sub-parametric, Iso-parametric and Super-parametric Elements; Elements with C1 Continuity. Free Vibration Problems, Formulation of Eigen Value Problem, FEM Formulation. Time-dependent Problems, Combination of Galerkin FEM and FDM (Finite Difference Method), Convergence and Stability of FD Scheme.

Reference/Text Books:

1. C. S. Krishnamoorty, Finite element analysis, Tata McGraw Hill
2. J. N Reddy, An introduction to Finite element method, Tata Mc. Graw Hill
3. Y. M. Desai, Finite Element Method with applications in engineering, Pearson Education India
4. Nonlinear Finite Elements for Continua and Structures (Paperback) by Belytschko (shelved 1 time as *finite-elements*)
5. The Finite Element Method for Three-Dimensional Thermomechanical Applications (Hardcover) by Guido Dhondt (shelved 1 time as *finite-elements*)
6. Numerical Solution of Partial Differential Equations by the Finite Element Method (Paperback) by Claes Johnson (shelved 1 time as *finite-elements*)

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (THERMAL)
MTTH–908 SOLAR ENERGY

L	T	P	
4	0	-	Sessional : 40
			Theory : 60
			Total : 100
			Duration of Exam. : 3 Hrs

Unit-1

Solar Radiation: Characteristics, Earth-sun relation, Estimation on horizontal and tilted surfaces, Radiation characteristics of opaque and transparent material.

Flat Plate Collectors: Description, theory, Heat capacity effects, Time constant, Measurement of thermal performance, Air heaters.

Unit-2

Evacuated Tubular Collectors: One axis, Two axis, Solar tracking, Cylindrical, Spherical and Parabolic and Paraboloid concentrators. Composite collectors, Central receiver collectors.

Heat Storage: Sensible and latent heat storage, Chemical energy system, performance calculations.

Unit-3

Flow Systems: Natural and forced flow systems, Water heating systems for domestic, industrial and space heating requirements, Solar distillation.

Solar Heating and Cooling: Direct, indirect and isolated heating concepts, Cooling concepts, Load calculation methods, Performance evaluation methods.

Unit-4

Solar Thermal Power Generation: Introduction, Paraboloidal concentrating systems, Cylindrical concentrating systems, Central receiver system.

Solar Refrigeration and Air Conditioning Systems: Introduction, Solar refrigeration and air conditioning systems, Solar desiccant cooling.

Reference/Text Books:

1. Solar Thermal Engineering Process by Duffie and Beckman.
2. Advanced Solar Energy Technology by H.P. Garg.
3. Solar Energy by S.P. Sukhatme.
4. Solar Energy by J.S. Hsieh.
5. Solar Thermal Engineering by P.J. Lunde.

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (THERMAL)
MTTH–910 COMPUTATIONAL FLUID DYNAMICS LAB

L	T	P	Internal Marks : 40
-	-	2	External Marks : 60
			Total : 100

List of Experiments

1. To make and validate a computer programme for the one dimensional pin fin steady state heat conduction.
2. To make and validate a computer programme for the one dimensional transient heat conduction.
3. To make and validate a computer programme for the plate in two dimensions in steady state conduction.
4. To make and validate a computer programme for the plate in two dimensions in transient state.
5. To make and validate a computer programme for the comparison of explicit, implicit, semi- implicit method of computation of heat transfer equation.
6. To make and validate a computer programme for the fully developed laminar flow in circular pipe.
7. To make and validate a computer programme for the coutte flow.
8. To make and validate a computer programme to solve a model problem by stream function vorticity method.
9. To make a project by using MAC /SIMPLER method

Note: Total eight experiments are to be performed selecting at least six from the above list.

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (THERMAL)
MTTH-914 ADVANCED THERMODYNAMICS

L	T	P	Sessional : 40
4	0	-	Theory : 60
			Total : 100
			Duration of Exam. : 3 Hrs

UNIT-I

Review of basic thermodynamic principles; entropy; availability; irreversibility; first and second law analysis of steady and unsteady systems;

General thermodynamics relations; Fundamentals of partial derivatives; relations for specific heats; internal energy enthalpy and entropy; Joule - Thompson coefficient; Clapeyron equation.

UNIT-II

Multi component systems; Review of equation of state for ideal and real gases; thermodynamic surfaces; gaseous mixtures; fugacity; ideal solutions; dilute solutions; activity; non ideal liquid solutions.

Multi component phase equilibrium; Criteria of equilibrium; stability; heterogeneous equilibrium; binary vapour liquid systems; the nucleus of condensation and the behaviour of stream with formation of large and small drops; Gibbs Phase rule; higher order phase transitions.

UNIT-III

Thermodynamics of chemical reaction (combustion); internal energy and enthalpy - first law analysis and second law analysis; basic relations involving partial pressures; third law of thermodynamics; chemical equilibrium and chemical potential equilibrium constants; thermodynamics of low temperature.

UNIT-IV

Statistical mechanics - Maxwell - Boltzmann statistics; microstate and macrostates; thermodynamic probability; entropy and probability Bose Einstein statistics; Fermi Dirac statistics.

Elementary concepts of irreversible thermodynamics.

Reference/Text Books:

1. Thermodynamics, Kinetic Theory and Statistical Thermodynamics, F.W.Sears and G.L.Salinger, Narosa Publishing House, New Delhi
2. Engineering Thermodynamics, Zemansky, Mc Graw Hill.
3. Bejan, Advanced Engineering Thermodynamics, John Wiley and sons.
4. Engineering thermodynamics by G. Rogers and Y. Mayhow
5. Engineering Thermodynamics- a generalized approach by P.L Dhar, Elsevier publication.

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (THERMAL)
MTTH–916 RENEWABLE ENERGY & ENERGY MANAGEMENT

L	T	P	
4	0	-	Sessional : 40
			Theory : 60
			Total : 100
			Duration of Exam. : 3 Hrs

UNIT-1

Solar Energy: The sun as a perennial source of energy, direct solar energy utilization; solar thermal applications – water heating systems, space heating and cooling of buildings, solar cooking, solar ponds, solar green houses, solar thermal electric systems; solar photovoltaic power generation; solar production of hydrogen.

Energy from Oceans: Wave energy generation – energy from waves; wave energy conversion devices; advantages and disadvantages of wave energy; Tidal energy – basic principles; tidal power generation systems; estimation of energy and power; advantages and limitations of tidal power generation; ocean thermal energy conversion (OTEC); methods of ocean thermal electric power generation.

UNIT-2

Wind energy: Basic principles of wind energy conversion; design of windmills; wind data and energy estimation; site selection considerations.

Hydro power: Classification of small hydro power (SHP) stations; description of basic civil works design considerations; turbines and generators for SHP; advantages and limitations.

UNIT-3

Biomass and bio-fuels: Energy plantation; biogas generation; types of biogas plants; applications of biogas; energy from wastes.

UNIT-4

Geothermal energy: Origin and nature of geothermal energy; classification of geothermal resources; schematic of geothermal power plants; operational and environments problems.

Energy conservation management: The relevance of energy management profession; general principles of energy management and energy management planning; application of Pareto's model for energy management; obtaining management support; establishing energy data base; conducting energy audit; identifying, evaluating and implementing feasible energy conservation opportunities; energy audit report; monitoring, evaluating and following up energy saving measures/projects

Reference/Text Books:

1. 'Renewable energy resources'.John W Twidell and Anthony D Weir.
2. 'Renewable energy – power for sustainable future'.Edited by Godfrey Boyle. Oxford University Press in association with the Open University, 1996.
3. 'Renewable energy sources and their environmental impact'.S.A.Abbasi and NaseemaAbbasi.Prentice-Hall of India, 2001.
4. 'Non-conventional sources of energy'. G.D. Rai. Khanna Publishers, 2000.
5. 'Solar energy utilization'. G.D. Rai. Khanna Publishers, 2000.
6. 'Renewable and novel energy sources'.S.L.Sah.M.I. Publications, 1995.
7. 'Energy Technology'.S.Rao and B.B. Parulekar.Khanna Publishers, 1999.

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (THERMAL)
MTTH–918 CONVECTIVE HEAT TRANSFER

L	T	P	
4	0	-	Sessional : 40
			Theory : 60
			Total : 100
			Duration of Exam. : 3 Hrs

Unit-1

Fundamental Principles: Continuity, momentum and energy equations, Second law of thermodynamics, Rules of Scale analysis, Concept of Heat line visualization.

Laminar Forced Convection-External Flows: Boundary layer concept, velocity and thermal boundary layers, governing equations, similarity solutions, various wall heating conditions, Flow past a wedge and stagnation flow, blowing and suction, entropy generation minimization, heatlines in laminar boundary layer flow.

Laminar Forced Convection-Internal Flows: Fully developed laminar flow, heat transfer to fully developed duct flow, constant heat flux and constant wall temperature, heat transfer to developing flow, heatlines in fully developed duct flow.

.

Unit-2

External Natural Convection: Boundary layer equations, Scale analysis, Low and high Prandtl number fluids, integral solution, similarity solution, uniform heat wall flux, conjugate boundary layers, vertical channel flow, combined natural and forced convection, vertical walls, horizontal walls, inclined walls, horizontal and vertical cylinder, sphere.

Internal Natural Convection: transient heating from side, boundary layer regime, isothermal and constant heat flux side walls, partially divided and triangular enclosures, enclosures heated from below, inclined enclosures, annular space between horizontal cylinders and concentric spheres.

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Unit-3

Transition to Turbulence: empirical transition data, scaling laws of transition, buckling of inviscid streams, instability of inviscid flow.

Turbulent Boundary Layer Flow: Boundary layer equations, mixing length model, velocity distribution, heat transfer in boundary layer flow, flow over single cylinder, cross flow over array of cylinders, Natural convection along vertical walls.

Turbulent duct flow: velocity distribution, friction factor and pressure drop, heat transfer coefficient, isothermal wall, uniform wall heating, heatlines in turbulent flow near a wall, optimal channel spacing.

Unit-4

Convection with Change of Phase: Condensation, laminar and turbulent film on a vertical surface, film condensation, drop condensation, Boiling, pool boiling regimes, nucleate boiling, film boiling and flow boiling, contact melting and lubrication, melting by natural convection.

Convection in Porous Media: Mass conservation, Darcy and Forchheimer flow models, enclosed porous media heated from side, penetrative convection, enclosed porous media heated from below.

Reference/Text Books:

1. Convection Heat Transfer by A. Bejan, Wiley Publications.
2. Convective Heat Transfer by Louis C. Burmeister, Wiley Publications.
3. Convective Heat and Mass Transfer by W.M. Kays and M.E. Crawford, McGraw Hill.

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (THERMAL)

MTTH–920 MEASUREMENTS IN THERMAL ENGINEERING

L	T	P	Sessional : 40
4	0	-	Theory : 60
			Total : 100
			Duration of Exam : 3 Hrs

Unit-1

Basics of Measurements: Introduction, General measurement system, Signal flow diagram of measurement system, Inputs and their methods of correction.

Analysis of Experimental Data: Causes and types of errors in measurement, Propagation of errors, Uncertainty analysis, Regression analysis, Statistical analysis of Experimental data.

Sensing Devices: Transducers-LVDT, Capacitive, piezoelectric, photoelectric, photovoltaic, Ionization, Photoconductive, Hall-effect transducers, etc.

Unit-2

Pressure Measurement: Different pressure measurement instruments and their comparison, Transient response of pressure transducers, dead-weight tester, low-pressure measurement.

Thermometry: Overview of thermometry, temperature measurement by mechanical, electrical and radiation effects. Pyrometer, Thermocouple compensation, effect of heat transfer.

Flow Measurement: Flow obstruction methods, Magnetic flow meters, Interferometer, LDA, flow measurement by drag effects, pressure probes, other methods.

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Unit-3

Thermal and Transport Property Measurement: Measurement of thermal conductivity, diffusivity, viscosity, humidity, gas composition, pH, heat flux, calorimetry, etc.

Nuclear, Thermal Radiation Measurement: Measurement of reflectivity, transmissivity, emissivity, nuclear radiation, neutron detection, etc.

Other measurements: Basics in measurement of torque, strain.

Unit-4

Air-Pollution: Air-Pollution standards, general air-sampling techniques, opacity measurement, sulphur dioxide measurement, particulate sampling technique, combustion products measurement.

Advanced topics: Issues in measuring thermo physical properties of micro and Nano fluids.

Design of Experiments: Basic ideas of designing experiments, Experimental design protocols with some examples and DAS

Reference/Text Books:

1. Mechanical Measurements by Thomas G. Beckwith, Pearson Publications.
2. Measurement Systems by Ernest O. Doebelin, Tata McGraw Hill Publications.
3. Experimental Methods for Engineers by J.P. Holman, Tata McGraw Hill Publications.

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (THERMAL)
MTTH–922 DESIGN OF HEAT TRANSFER EQUIPMENTS

L	T	P	Sessional : 40
4	0	-	Theory : 60
			Total : 100
			Duration of Exam : 3 Hrs

Unit-1

Classification of Heat Exchangers: Introduction, Classification, Overview of Heat Exchanger Design Methodology, Process and Design Specifications, Thermal and Hydraulic Design, Mechanical Design, Optimum Design , Heat Exchanger Variables and Thermal Circuit, Assumptions, Basic Definitions, ε - NTU Method , The P-NTU Method , TEMA , Multi-pass Exchangers, LMTD, Heat Exchanger Arrays and Multi-passing, Sizing and Rating Problems, Kern Method, Bell Delaware Method, Numerical on Shell and tube HEX.

Solution Methods for Determining Exchanger Effectiveness: Exact Analytical Methods, Approximate Methods, Numerical Methods, Matrix Formalism, Chain Rule Methodology , Flow-Reversal Symmetry, Design Problems, Longitudinal Wall Heat Conduction Effects, Multipass Exchangers, Non-uniform Overall Heat Transfer Coefficients, Temperature - Length - Combined Effect

Unit-2

Heat Exchanger Pressure Drop Analysis: Importance of Pressure Drop, Devices, Extended Surface Heat Exchanger Pressure Drop, Tubular Heat Exchanger Pressure Drop, Tube Banks, Shell-and-Tube Exchangers, Plate Heat Exchanger Pressure Drop, Pipe Losses, Non-dimensional Presentation of Pressure Drop Data

Heat Transfer Characteristics: Dimensionless Surface Characteristics, Experimental Techniques for Determining Surface Characteristics, Steady-State Kays and London Technique, Wilson Plot Technique, Transient Test Techniques, Friction Factor Determination, Hydrodynamic ally Developing Flows, Thermally Developing Flows, Extended Reynolds Analogy, Heat Exchanger Surface Geometrical Characteristics, Selection of Heat Exchangers and Their Components, Temperature Difference Distributions

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Unit-3

Hair-Pin Heat Exchangers: Introduction to Counter-flow Double-pipe or Hair-Pin heat exchangers, Industrial versions of the same, Film coefficients in tubes and annuli, Pressure drop, Augmentation of performance of hair-pin heat exchangers, Series and Series-Parallel arrangements of hair-pin heat exchangers, Comprehensive Design Algorithm for hair-pin heat exchangers, Numerical Problems.

Cooling tower fundamentals: Types, Nomenclature, material for construction, Structural components in details, Mechanical components (Fan, Speed reducer, Valves, Safety), Electrical components, Thermal performance testing – conduction and evaluation.

Unit-4

Furnace: Furnace, Types, Parts used in furnace, Nozzles used, Heat transfer related design of systems, Insulations, Applications in process industries.

Thermal Devices: Heat pipe, Thermal interface material, use of nano particle in heat transfer equipments, Steam Trap, Electronics cooling systems, Thermal interface materials, Heat transfer augmentation techniques

Reference/Text Books:

1. Cooling Tower Fundamentals by John C. Hensley, SPX Cooling Technologies.
2. Heat Exchanger Selection, Rating and Thermal Design by Sadik Kakac, Hongtan Liu, Anchasa Pramunjanaroenkij, CRC Press.
3. Compact Heat Exchangers by W.M. Kays and A.L. London, McGraw Hill Publications.
4. Process Heat Transfer by D. Q. Kern, McGraw Hill Publications.
5. Process Heat Transfer – Principles and Applications by R.W. Serth, Academic Press.
6. Heat Pipes Theory, design and Applications by D.S. Steinberg, Wiley Publications.
7. Fundamentals of Heat Exchanger Design by Ramesh K. Shah, Dusan P. Skulic, Wiley Publications.

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (THERMAL)
MTTH-915 AIR CONDITIONING

L	T	P	
4	0	-	Sessional : 40
			Theory : 60
			Total : 100
			Duration of Exam. : 3 Hrs

UNIT-1

Introduction and Human Comfort

Psychometric and psychometric properties, psychometric relations and processes, adiabatic temperature, psychometric chart, summer and winter air-conditioning system, year-round air-conditioning, factors influencing-human comfort, effective temperature, factors governing optimum effective temperature.

UNIT-2

Cooling Load Calculations

Types of loads, building heat transmission, solar-radiation infiltration, occupants, electric lights, products load, other internal heat sources, fresh-air miscellaneous steams, design of air-conditioning systems.

Air Conditioning Systems

Central station, unitary, distinct, self-contained direct expansion, all water, all air, air-water system, arrangement of components, air-cleaning and air filters, humidifiers, dehumidifiers air-washers, fan and blowers, grills and registers.

UNIT-3

Air Conditioning Control System

Heating and cooling coils, basic principles of control system, temperature humidity, pre-heating and humidification, cooling and dehumidification, reheat and all-year conditioning control systems. Elements of control, Deflective element (bimetallic, bulbs and below, electrical resistance, electromagnetic sensitive and pressure sensitive, controlling room conditions at partial load (ON-OFF control), by pass control, reheat control and volume control).

UNIT-4

Miscellaneous

Evaporative cooling, heating system, ventilation and ventilation standards, thermal insulation duct design and air-distribution system, noise and noise control, solar air-conditioning. Transport air conditioning, air conditioning of special type of buildings, air conditioning of textile industry, photographic industry, theatre auditorium, hospitals etc.

Reference/Text Books:

1. Refrigeration and air conditioning by C.P. Arora.
2. Refrigeration and air conditioning by Jordan and Priester
3. Refrigeration and air conditioning by William
4. ASHARAE Hand Book (Fundamentals) ASHARAE
5. Elementary Refrigeration and air conditioning Stoecjer McGraw Hill
6. Air Conditioning Engineering Jones Arnold.

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (THERMAL)
MTTH-917 CRYOGENIC ENGINEERING

L	T	P	
4	0	-	Sessional : 40
			Theory : 60
			Total : 100
			Duration of Exam. : 3 Hrs

UNIT-1

Gas liquefaction systems, thermodynamically ideal systems, Joule Thomson effect, adiabatic expansion; liquefaction system for air, Neon, hydrogen and helium, effect of component efficiencies on system performance.

UNIT-2

Gas separation and purification – principles, plant calculation, air, hydrogen, and helium separation systems.

UNIT-3

Cryogenic refrigeration systems, ideal and practical systems, cryogenic temperature measurement; cryogenic fluid storage and transfer systems, storage vessels and insulation, two-phase flow in cryogenics transfer systems, cool down process.

UNIT-4

Introduction to vacuum technology, low temperature properties of materials, pump down time, application of cryogenic systems, super-conductive devices, rocket and space simulation, cryogenics in biology and medicine, cryo-pumping.

Reference/Text Books:

1. Barron, R., Cryogenic Systems, McGraw-Hill, 1966.
2. Timmerhaus, K. D. and Flynn, T. M., Cryogenic Process Engineering, Plenum Press, 1989.
3. Scott, R. B., Cryogenic Engineering, D'Van-Nostrand, 1962.
4. Vance, R. W. and Duke, W. M., Applied Cryogenic Engineering, John Wiley, 1962.
5. Sitting, M. Cryogenic, D' Van-Nostrand, 1963.

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (THERMAL)
MTTH–919 COMBUSTION ENGINEERING

L	T	P	Sessional : 40
4	0	-	Theory : 60
			Total : 100
			Duration of Exam. : 3 Hrs

UNIT-1

Introduction: Importance of combustion; Combustion equipments, Hostile fire problems, pollution problems arising from combustion.

Thermodynamics of Combustion: Enthalpy of formation; Enthalpy of reaction; Heating values; First & second laws; Analysis of reaction system, Chemical equilibrium, Equilibrium composition; Adiabatic & equilibrium, Flame temperature.

UNIT-2

Kinetics of Combustion: Law of mass action; Reacting rate; Simple and complex reaction; Reaction order & molecularity, Arhenius laws; Activation Energy; Chain reaction; Steady rate & Partial equilibrium approximation; chain explosion; Explosion limit and oxidation characteristics of hydrogen, Carbon monoxide, Hydrocarbons.

Burning of Condensed Phase: General mass burning considerations, Combustion of fuels, droplet in a quiescent and convective environment, Introduction to combustion of fuel sprays.

UNIT-3

Flames: Remixed flame structure & propagation of flames in homogeneous mixtures; Simplified Rankine Hugoniot relation, Properties of Hugoniot curve, analysis of Deflagration &detonation branches, Properties of Chapmen Jouguet wave, Laminar flame structure; Theories of flame propagation & calculation of flame speed measurements.

Stability limits of laminar flames; Flammability limits & quenching distant, Burner design, Mechanism of flame stablization in laminar & turbulent flows, Flame quenching, Diffusion flames; Comparison of diffusion with premixed flame, combustion of gaseous fuel, jets burke & Schumann development.

UNIT-4

Ignition: Concept of ignition, Chain ignition, Thermal spontaneous ignition, Forced ignition.

Combustion Generated Pollution & its Control: Introduction, Nitrogen oxide, Thermal fixation of atmospheric nitrogen prompts, NO, Thermal NOx & control in combustors. Fuel NOx & control, post combustion destruction of NOx, Nitrogen dioxide, carbon monoxide Oxidation-Quenching, Hydrocarbons, Sulphur oxide.

Reference/Text Books:

1. Internal Combustion Engines: Applied Thermo Sciences by Ferguson Colin R, John Wiley.
2. Engineering Fundamentals of the Internal Combustion Engine, Pulkrabek, Pearson Education India.
3. Instrumentation for Combustion and Flow in Engines, Durao D. F.G., Kluwer Aca.
4. Energy from Biomass: A review of Combustion and Gasification Technologies, Quaak Peter.

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (THERMAL)
MTTH-921 NUCLEAR ENGINEERING

L	T	P	
4	0	-	Sessional : 40
			Theory : 60
			Total : 100
			Duration of Exam. : 3 Hrs

UNIT-1

Concepts of Nuclear Physics
The atom, structure, the nucleus, nuclear structure, atomic transmutation of elements, detection of radio-activity, particle accelerator, decay, natural of elements, nucleus interactions, decay rates, half-life, transuranic elements.

Neutorn Interaction
Advantages of using neutron, neutron moderation, fission chain reaction, thermalisation of neutrons, fast neutrons, prompt and delayed neutrons, fissionproducts.

UNIT-2

Energy Release
Mass energy equivalence, mass defect, binding energy, energy release in fission & fusion, thermonuclear reaction, fusion bomb.

Reactor Materials
Fissile & fertile materials, cladding & shielding materials, moderators, coolants.

UNIT-3

Reactor Technology
Basic principles, fuel assembly, neutron balance, reactor kinetics, reactor coefficients, reactor stability, excess reactivity, Xenon poisoning, burnable absorbers, reactivity control, heat balance, production& transfer of heat to the coolant, structural considerations.

Nuclear Reactors
Types of nuclear reactors, pressurized water reactors, boiling water reactors, CANDU type reactors, gas cooled & liquid metal cooled reactors, fast breeder reactors.

UNIT-4

Safety Considerations & Waste Disposal
Hazards, plant site selection, safety measures incorporated in; plant design, accident control, disposal of nuclear waste.

Health Physics & Radio-isotopes
Radiation: units, hazards, prevention, preparation of radio-isotopes & their use in medicine, agriculture & industry.

Reference/Text Books:

1. Nuclear Power Engineering by M.M. El-Wakel
2. Nuclear Power Plant by Taylor
3. Introduction to Nuclear Engineering by Stephenson.

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (THERMAL)
MTTH–923 JET AND ROCKET PROPULSION

L	T	P	
4	0	-	Sessional : 40
			Theory : 60
			Total : 100
			Duration of Exam : 3 Hrs

UNIT-1

Motion in Space: Requirement for Orbit: Motion of Bodies in space, Parameters describing motion of bodies, Newton's Laws of motion, Universal law of gravitational force, Gravitational field, Requirements of motion in space, Geosynchronous and geostationary orbits, Eccentricity and inclination of orbits, Energy and velocity requirements to reach a particular orbit, Escape velocity, Freely falling bodies, Means of providing the required velocities.

UNIT-2

Theory of Rocket Propulsion: Illustration by example of motion of sled initially at rest, Motion of giant squid in deep seas, Rocket principle and rocket equation, Mass ratio of rocket, Desirable parameters of rocket, Rocket having small propellant mass fraction, Propulsive efficiency of rocket, Performance parameters of rocket, Staging and clustering of rockets, Classification of rockets.

Rocket nozzle and Performance: Expansion of gas from a high pressure chamber, Shape of the nozzle, Nozzle area ratio, Performance loss in conical nozzle, Flow separation in nozzles, Contour or bell nozzles, Unconventional nozzles, Mass flow rates and characteristics velocity, Thrust developed by a rocket; Thrust coefficient, Efficiencies, Specific impulse and correlation with C* and CF, General Trends.

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UNIT-3

Chemical Propellants: Small value of molecular mass and specific heat ratio, energy release during combustion of products, Criterion for choices of propellants, Solid propellants, Liquid propellants, Hybrid propellants.

Solid Propellants Rockets: Mechanism of burning and burn rate, Choice of index n for stable operation of solid propellant rockets, Propellant grain configuration, Ignition of solid propellant rockets, Pressure decay in chamber after propellant burnout, Action time and burn time, Factors influencing burn rate, Components of a solid propellant rocket.

UNIT-4

Liquid Propellant Rockets: Propellant feed system, Thrust chamber, Performance and choice of feed system cycle, Turbo pumps, Gas requirements for draining of propellants from storage tanks, Draining under microgravity condition, Trends in development of liquid propellant rockets.

Hybrid Rockets: Working principle, Choice of fuels and oxidizer, Future of hybrid rockets

Reference/Text Books:

1. Rocket Propulsion by M. Barrere, Elsevier Publications.
2. Rocket Propulsion Elements by G.P. Sutton, John Wiley Publications.
3. Rocket Propulsion by K. Ramamurthi, Macmillan Publishers.

4. Introduction to Rocket Technology by V.I. Feedesiev and G.B. Siniarev, Academic Press.
5. Gas Turbine Theory by H.I.H. Sarvanamuttoo, G.F.C. Rogers and H. Cohen, Pearson Prentice Hall.

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (THERMAL)

MTTH-925 THERMAL MODELING AND ANALYSIS

L	T	P	
4	0	-	Sessional : 40
			Theory : 60
			Total : 100
			Duration of Exam. : 3 Hrs

UNIT-I

Design of Thermal System: Design Principles, Workable systems, Optimal systems, Matching of system components, Economic analysis, Depreciation, Gradient present worth factor.

Mathematical Modeling: Equation fitting, Empirical equation, Regression analysis, Different modes of mathematical models, Selection, Computer programmes for models.

UNIT-2

Modeling Thermal Equipments: Modeling heat exchangers, Evaporators, Condensers, Absorption and rectification columns, Compressor, Pumps, Simulation studies, Information flow diagram, Solution procedures.

UNIT-3

Systems Optimization: Objective function formulation, Constraint equations, Mathematical formulation, Calculus method, Dynamic programming, Geometric programming, Linear programming methods, Solution procedures.

UNIT-4

Dynamic Behavior of Thermal System: Steady state simulation, Laplace transformation, Feedback control loops, Stability analysis, Non-linearties.

Reference/Text Books:

1. Hodge, B.K. and Taylor, R. P., Analysis and Design of Energy Systems, Prentice Hall (1999).
2. Bejan, A., Tsatsaronis, G. and Michel, M., Thermal Design and Optimization, John Wiley and Sons (1996).
3. Jaluria, Y., Design and Optimization of Thermal Systems, McGraw-Hill (1998).
4. Jaluria, Y., Design and Optimization of Thermal Systems, CRC Press (2008).
5. Ishigai, S., Steam Power Engineering Thermal and Hydraulic Design Principle, Cambridge University Press (1999).

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (THERMAL)
MTTH–927 NUMERICAL & OPTIMIZATION METHODS

L	T	P	
4	0	-	Sessional : 40 Theory : 60 Total : 100 Duration of Exam. : 3 Hrs

UNIT – I

Errors in Numerical Calculations: Introduction, Numbers and their accuracy, Absolute, relative and percentage errors and their analysis, General error formula.

Interpolation and Curve Fitting: Taylor series and calculation of functions, Introduction to interpolation, Lagrange approximation, Newton Polynomials, Chebyshev Polynomials, Least squares line, curve fitting, Interpolation by spline functions**.**

UNIT – II

Numerical Differentiation and Integration: Approximating the derivative, Numerical differentiation formulas, Introduction to Numerical quadrature, Newton-Cotes formula, Gaussion-Quadrature.

Solution of Linear Systems and Nonlinear Equations: Direct Methods, Gaussian elimination and pivoting, Matrix inversion, UV factorization, iterative methods for linear systems, Bracketing methods for locating a root, Initial approximations and convergence criteria, Newton-Raphson and Secant methods

UNIT – III

Solution of Differential Equations: Introduction to differential equations, Initial value problems, Euler's methods, Runge-Kutta methods, Taylor series method, Predictor- Corrector methods, Finite-difference method.

Partial Differential Equations, Eigen Values and Eigen Vectors: Solution of hyperbolic, parabolic and elliptic equations, eigen value problem, Power and inverse power methods, Jacobi's method for eigen value problems.

UNIT – IV

Optimization Methods: Optimal problem formulation, Engineering optimization problems; optimization algorithms: Single-variable optimization algorithms, optimality criteria, Bracketing methods, Region-elimination methods, Point estimation method.

Multi- Variable Optimization Algorithms: optimality criteria, Uni-directional search, Direct search methods: Evolutionary methods, Simplex search method, Gradient based methods: Cauchy's method, Newtons method, Application to Mechanical Engg. Problems, Non-traditional optimization algorithms, Genetic algorithms (GA), GA for constrained optimization, other GA operators, Multi objective Optimization, Concept of Pareto Optimality, Global optimization.

Reference/Text Books:

1. Numerical Methods for Mathematics, Science and Engineering by JohnH.Mathews, PHI New Delhi.
2. Applied Numerical Methods – Carnahan, B.H., Luthar, H.A. and Wilkes, J.O., Wiley, New York
3. Numerical Solution of Differential Equations, by M.K. Jain, Published by Wiley Eastern, New York.
4. Introductory Methods of Numerical Analysis by S.D. Sastry, Published by Prentice Hall of India.
5. Numerical Methods – Hornbeck, R.W., Pub.- Prentice Hall, Englewood Cliffs, N.J.
6. Optimization for Engineering Design : Algorithms and Examples by Kalyanmoy Deb, PHI new Delhi

7. Numerical Optimization Techniques for Engineering Design: With Applications by Garret N. Vanderplaats,Mcgraw Hill Series in Mechanical Engineering
8. Genetic Algorithms and Engineering Optimization by Mitsuo Gen, Runwei Cheng, John Wiley & Sons
9. Global Optimization in Engineering Design, by Ignacio E. Grossmann, Kluwer Academic Publisher
10. Optimization Concepts and Applications in Engineering, by Ashok D. Belegundu , Tirupathi R. Chandrupatla, Cambridge University Press, USA

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (THERMAL)
MTTH–929 ADVANCED COMPUTATIONAL FLUID DYNAMICS

L	T	P	
4	0	-	Sessional : 40
			Theory : 60
			Total : 100
			Duration of Exam : 3 Hrs

Unit-1

Introduction: Revision of pre-requisite courses, finite differences and finite volume methods.

Turbulence and its modeling: transition from laminar to turbulent flow, descriptors of turbulent flow, characteristics of turbulent flow, effect of turbulent fluctuations on mean flow, turbulent flow calculations, turbulence modeling, Large eddy simulation, Direct Numerical Simulation.

Unit-2

Finite volume method for convection-diffusion problems: Steady 1-D convection-diffusion, Conservativeness, Boundedness and Transportiveness, Central, Upwind, Hybrid and Power law schemes, QUICK and TVD schemes.

Pressure - velocity coupling in steady flows: Staggered grid, SIMPLE algorithm, Assembly of a complete method, SIMPLER, SIMPLEC and PISO algorithms, Worked examples of the above algorithms.

Finite volume method for unsteady flows: 1-D unsteady heat conduction, Explicit, Crank-Nicolson and fully implicit schemes, Transient problems with QUICK, SIMPLE schemes.

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Unit-3

Implementation of boundary conditions: Inlet, Outlet, and Wall boundary conditions, Pressure boundary condition, Cyclic or Symmetric boundary condition.

Errors and uncertainty in CFD modeling: Errors and uncertainty in CFD, Numerical errors, Input uncertainty, Physical model uncertainty, Verification and validation, Guide lines for best practices in CFD, Reporting and documentation of CFD results.

Methods for Dealing with complex geometries: Introduction, body-fitted co-ordinate grids, curvilinear grids, block structured and unstructured grids, discretization in unstructured grids, diffusion and convective term, treatment of source term, assembly of discretized equations, pressure-velocity coupling, extension of face velocity interpolation method to unstructured meshes.

Unit-4

CFD modeling of combustion: Enthalpy of formation, Stoichiometry, Equivalence ratio, Adiabatic flame temperature, Equilibrium and dissociation, governing equations of combusting flows, modeling of a laminar diffusion flame, SCRC model for turbulent combustion, probability density function approach, eddy break up model.

CFD for radiation heat transfer: Governing equations for radiation heat transfer, Popular radiation calculation techniques using CFD, The Monte Carlo method, The discrete transfer method, Ray tracing, The discrete ordinates method.

Reference/Text Books:

1. An Introduction to Computational Fluid Dynamics, H. Versteeg & W. Malalasekra, Pearson.
2. Numerical Heat Transfer and Fluid Flow by Suhas V. Patankar, Taylor & Francis.
3. Computational Fluid Dynamics by J.C. Tannehill, D. A. Anderson and R.H. Pletcher, McGraw Hill.
4. Computational Fluid Dynamics: Principles and Applications, J. Blazek, Elsevier Science & Technology.
5. Computational Fluid Dynamics by T.J. Chung, Cambridge University Press.

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (THERMAL)
MTTH-931 GAS DYNAMICS

L	T	P	
4	0	-	Sessional : 40
			Theory : 60
			Total : 100
			Duration of Exam. : 3 Hrs

UNIT-1

General differential equations of continuity; momentum and energy applied to compressible inviscid fluids; sonic velocity; Mach number and propagation of disturbance in a fluid flow; isentropic flow and stagnation properties.

UNIT-2

Flow through nozzles and diffusers; Fanno, Rayleigh and isothermal flows through pipes.

UNIT-3

Shock Waves

Normal and oblique shocks; supersonic expansion by turning; Prandtle-Meyer function, Reflection, refraction and intersection of oblique sock waves; detached shocks.

UNIT-4

Supersonic and Subsonic Flow

Linearisation and small pertuburation theory; general solutions of supersonic flow; elements of supersonic thin airfoil theory; method of characteristics for solving non-linear equations; Hodograph method for mixed subsonic and supersonic flow. Wind tunnel and its instrumentation.

Reference/Text Books:

1. Gas Dynamics by E. Rathakrishnan
2. Fundamentals of Gas Dynamics by S.M. Yahya
3. Gas Dynamics by Cambell and Jennings
4. Gas Dynamics by Becker
5. Fundamentals of Gas Dynamics by R.D.Zucker
6. Fluid Mechanics by A.K. Mohanty

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (THERMAL)
MTTH–933 COMPRESSIBLE FLOW MACHINES

L	T	P	
4	0	-	Sessional : 40
			Theory : 60
			Total : 100
			Duration of Exam : 3 Hrs

Unit-1

Introduction*:* Introduction to Fluid Machines, Energy Transfer in Fluid Machines, Energy Transfer-impulse and Reaction Machines, efficiencies of Fluid Machines, Principles of Similarity in Fluid Machines, Concept of Specific Speed and introduction to Impulse Hydraulic Turbine.

Turbines: Analysis of Force on the Bucket of Pelton wheel and Power Generation, Specific Speed, Governing and Limitation of a Pelton Turbine, Introduction to reaction Type of Hydraulic Turbine- A Francis Turbine, Analysis of Force on Francis Runner and Power Generation, Axial Flow machine and Draft Tube, Governing of Reaction Turbine.

Unit-2

Pumps: Introduction to Rotodynamic Pumps, Flow and Energy Transfer in a Centrifugal Pump, Characteristics of a Centrifugal Pump, Matching of Pump and System Characteristics, Diffuser and Cavitation, Axial Flow Pump, Reciprocating Pump.

Unit-3

Compressors: Centrifugal and Axial Flow Compressor, their characteristics.

Flow through Diffusers: Classification of diffusers, internal compression subsonic diffusers, velocity gradient, effect of friction and area change, the conical internal-compression Subsonic diffusers, external compression subsonic diffusers, supersonic diffusers, Normal shock supersonic diffusers, the converging diverging supersonic diffusers.

Unit-4

Shock wave: Introduction to Compressible Flow, Thermodynamic Relations and Speed of Sound, Disturbance propagation, Stagnation and Sonic Properties, Effects of Area variation on Properties in an Isentropic Flow, choking in a Converging nozzle, Isentropic Flow Through Convergent-Divergent Duct, Normal Shock, Oblique Shock**,** Introduction to Expansion Wave and Prandtl Meyer Flow**.**

Reference/Text Books:

1. Fundamentals of Compressible Flow by S. M. Yahya, New Age International.
2. Turbines, Compressors and Fans by S.M. Yahya, Tata McGraw Hill.
3. Compressible Fluid Flow by P.H. Oosthvizen and W.E. Carscallen, McGraw Hill.

Note: The paper will have a total of ***NINE questions.*** **Question No. 1,** which is compulsory, shall be OBJECTIVE Type and have contents from the entire syllabus (all Four Units).

All questions will have equal ***weight of 12 marks.*** The student will attempt a total of ***FIVE questions***, each of 12 marks. Q. No. 1 is compulsory. *The student shall attempt remaining* ***four*** *questions by selecting* ***only one question from each unit.***

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (THERMAL)
MTTH-913 SYNOPSIS

L	T	P	Internal Marks: 100
-	-	-	

The students are required to initially work on Literature survey/ problem formulation / adopted methodology/ Industry selection/ etc. on some latest areas of Thermal Engineering or related fields.

The students will be required to submit a progress report related to their dissertation work by the end of October. The progress report will cover the following:

- The goal set for the period.
- Research papers studied.
- Methodology used in achieving the goal.
- The extent of fulfillment of the goal.

The progress report must be at least of 3-4 pages and the cover page should include the tentative topic, name of the candidate, name of the supervisor, period of progress report, signature of candidate and supervisor.

The students will be required to appear for comprehensive Seminar & Viva-voce and submit a synopsis report based on their progress related to the dissertation before 30th November. The synopsis report will be submitted in the same format as that of the thesis and will contain the following:

1. Introduction
2. Literature Survey
3. Gaps in Literature
4. Objectives of the Proposed Work
5. Methodology
6. References

* Student will choose his/her guide in the end of second semester

MASTER OF TECHNOLOGY IN MECHANICAL ENGINEERING (THERMAL)
MTTH-912 DISSERTATION (PHASE-II)

L	T	P	Internal Marks: 100
-	-	-	External Marks: 200
			Total: 300

The Students are required to undertake Analytical/Experimental/computational investigations in the field of Thermal Engg. or fields related to thermal / advanced topics etc. which have been finalized in the third semester. They would be working under the supervision of a faculty member.

The students will be required to submit a progress report duly signed by their respective supervisors to the department, related to their dissertation work in the last week of February and April. The progress report will cover the following:

- The goal set for the period.
- Research papers studied.
- Methodology used in achieving the goal.
- The extent of fulfillment of the goal.
- References

The progress report must be at least of 3-4 pages and the cover page should include the tentative topic, name of the candidate, name of the supervisor, period of progress report, signature of candidate and supervisor.

The final dissertation will be submitted in the end of semester which will be evaluated by internal as well as external examiners based upon his/her research work. At least two publications are expected before final submission of the dissertation from every student in peer reviewed referred journals from the work done by them in their dissertation.

Every dissertation will be evaluated by the joint PG evaluation Committee of the respective college, guide, an expert from the university campus and another external expert from outside the University.

Each year the College running the course will send the list of eligible students along with the topic name to the Chairman, Board of studies in Mechanical Engg. for nominating external examiner and examiner from university campus.

The list should be sent at least before 20th Dec. each year so that the evaluation of the thesis could be done in time. Any delay caused due to late submission of the student list along with the topics name will be the responsibility of the respective Director of the Institute.

In the absence of any examiner, the Director of the institute can nominate the alternative names on his own from the university campus and outside the university.

MBA PROGRAMME

The Master of Business Administration (MBA) is a Two Year Full Time Programme. The course structure of the programme is given hereunder

FIRST YEAR

SEMESTER-I

Course Code	Course Title	Division of Marks			Duration of Exams
		Ext.	Int.	Total	
CP-101	Principles and Practices of Management	70	30	100	3 Hrs.
CP-102	Business Statistics	70	30	100	3 Hrs.
CP-103	Managerial Economics	70	30	100	3 Hrs.
CP-104	Business Environment	70	30	100	3 Hrs.
CP-105	Business Communication	70	30	100	3 Hrs.
CP-106	Financial Accounting	70	30	100	3 Hrs.
CP-107	Fundamentals of Computer and E-Commerce	70	30*	100	3 Hrs.
CP-108	Seminar		50**	50	

T= Theory, P= Practical

* The Internal Assessment must be based on practical related to the subject.
**Topic for seminar relating to the contemporary business issues/practices comprising Indian ethos, values, current socio-economic and business context would be assigned by the teacher in advance. Evaluation of such seminar would be based on written assignment submitted and presentation given by the candidate.

SEMESTER-II

Course Code	Course Title	Division of Marks			Duration of Exams
		Ext.	Int.	Total	
CP-201	Management Science	70	30	100	3 Hrs.
CP-202	Marketing Management	70	30	100	3 Hrs.
CP-203	Human Resource Management	70	30	I00	3 Hrs.
CP-204	Financial Management	70	30	100	3 Hrs.
CP-205	Business Research Methodology	70	30	100	3 Hrs.
CP-206	Production and Operations Management	70	30	100	3 Hrs.
CP-207	Organizational Behavior	70	30	100	3 Hrs.
CP-208	Comprehensive Viva –Voce	50	-	50	

SUMMER TRAINING

At the end of second semester, all students will have to undergo summer training of 6—8 weeks with an industrial, business or service organisation by taking up a project study. The condition of successfully completing the programmes shall not be deemed to have been satisfied unless a student undergoes summer training under the supervision of the department in the organizations as approved by the Department/Faculty from tune to time. Each student will be required to submit a project report to the Department for the work undertaken during this period within one month of the commencement of the third semester for the purpose of evaluation in the third semester.

SECOND YEAR

During Second year, in addition to compulsory papers and project studies, students shall have to choose six optional papers in third and six in fourth semester from the list of optional papers announced at the beginning of each semester. The list of optional papers for third and fourth semesters shall confine to the availability of teachers. A student will specialize in two areas (One Major and other Minor) by opting at least four papers (in major area) two papers from (in minor area) in third and fourth semester.

SEMESTER—III

Course Code	Course Title	Division of Marks			Duration of Exams
		Ext.	Int.	Total	
CP-301	Strategic Management	70	30	100	3Hrs.
CP-302	Business Legislation	70	30	100	3Hrs.
CP-303	Summer Training Report	50	50*	100	

(In addition to these compulsory papers, a students is required to select four papers from major area of specialization and any two papers from minor area of specialization)

*Internal evaluation will be based on seminar presentation.

SEMESTER-IV

Course Code	Course Title	Division of Marks			Duration of Exams
		Ext.	Int.	Total	
CP-401	Entrepreneurship Development	70	30	100	3Hrs.
CP-402	Research Project	100		100	
CP-403	Comprehensive Viva Voce (including viva-voce on research project)	50	-	50	

(In addition to these compulsory papers, a students is required to select four papers from major area of specialization and any two papers from minor area of specialization)

List of Optional Papers of various specializations

FINANCE

3rd Semester

FM—301	Financial Decisions Analysis
FM—302	Foreign Exchange Management
FM—303	Risk Management
FM—304	Working Capital Management
FM—305	Management of Financial Institutions
FM—306	Security Analysis and Investment Management

4th Semester

FM-401	Principles of Insurance and Banking
FM-402	International Financial Management
FM-403	Financial Derivatives
FM-404	Management of Financial Services
FM-405	Project Management
FM-406	Portfolio Management

MARKETING

3rd Semester

MM-301	Advertising Management
MM-302	Sales and Distribution Management
MM-303	Brand Management
MM-304	Consumer Behavior
MM-305	Retail Marketing
MM-306	Marketing Research

4th Semester

MM-401	International Marketing
MM-402	Industrial Marketing
MM-403	Service Marketing
MM-404	Strategic Marketing
MM-405	Rural and Agricultural Marketing
MM-406	Marketing Communication Strategy

HRM

3rd Semester

HRM-301	Management of Industrial Relations
HRM-302	Legal Framework Governing Human Relations
HRM-303	Managing Interpersonal and Group Processes
HRM-304	Organizational Change and Intervention Strategies
HRM-305	Manpower Development for Technological Change
HRM-306	Global Human Resource Management

4th Semester

HRM-401	Management Training and Development
HRM-402	Human Resource Planning and Development
HRM-403	Human Resource Development: Strategies and Systems
HRM-404	Counseling Skills for Managers
HRM-405	Compensation Management
HRM-406	Performance Management and Managerial Effectiveness

INTERNATIONAL BUSINESS

3rd Semester

IB-301	International Accounting
IB-302	Foreign Exchange Management
IB-303	Export-Import Procedures and Documentation
IB-304	India's Foreign Trade and Policy
IB-305	International Business Environment
IB-306	International Logistics

4th Semester

IB-401	International Financial Markets
IB-402	International Marketing
IB-403	International Financial Management
IB-404	International Strategic Management
IB-405	Cross-cultural and Global Management
IB-406	Regional Economic Blocks

INFORMATION TECHNOLOGY

3rd Semester

ITM-301	Internet and Web Designing
ITM-302	Relational Database Management Systems
ITM-303	Practical based on ITM-301 and ITM-302
ITM-304	Software Designing
ITM-305	System Analysis and Design
ITM-306	Management Support Systems

4th Semester

ITM-401	Data Warehousing and Data Mining
ITM-402	eCRM
ITM-403	Practical based on ITM-401 and ITM-402
ITM-404	Cryptography and Security System
ITM-405	Introduction to Computer Networks
ITM-406	Enterprise Resource Planning

PRODUCTION AND OPERATIONS MANAGEMENT

3rd Semester

POM-301	Purchasing and Materials Management
POM-302	Total Quality Management
POM-303	Production Planning and Control
POM-304	Logistics Management
POM-305	Service Operations Management
POM-306	Technology Acquisition and Diffusion

4th Semester

POM-401	Applied Operations Research
POM-402	Goal Programming in Management
POM-403	Transportation Management
POM-404	Technology Forecasting
POM-405	R&D Management
POM-406	Programme Management

CP-107: Fundamentals of Computer and E-Commerce

Max. Marks: 100
External: 70
Practical Based Internal Assessment: 30
Time 3 Hours

Note: The Examiner will set the question paper in two parts encompassing the entire syllabus. Part A will comprise 6 short answer type questions of 5 marks each. Part B will comprise of 5 questions of 10 marks each. A student is required to attempt any four questions from the part A and any 3 questions from part B.

Objectives: The objective of the course is to acquaint the students with computers and concepts of E—Commerce.

Course Contents

Computer fundamentals: An introduction; Elements of Computer system; Generations of Computers, Computer languages; Compiler, Interpreter and Assembler, Number system, Components of systems: - Input-Output devices, Types of Memory. An Introduction to Operating System, Hardware and software, Computer Network: Analog and Digital Signals, Band width, Network Topology, Network Applications. Introduction to MS-Office: - MS-Word, MS-Excel, MS-Power Point and MS-Access.

Introduction to E-Commerce, Benefits, Impact of E-Commerce, Classification of E-Commerce, Application of E-Commerce Technology, Business Models, Framework of E-Commerce., Business to Business, Business to Customer, Customer to Customer.
Electronic Payment Systems: Online Electronic Payment Systems, Prepaid and Post Paid Electronic Payment Systems. Inter-organizational commerce & intra—organizational commerce, EDI, value-added network, digital library.

Suggested Readings:

I. Kienam : Managing Your E-Commerce Business, Prentice Hall of India, N. Delhi.
2. Kosiur: Understanding E—Commerce, Prentice Hall of India, N. Delhi.
3. Kalakota, Whinston, Frontiers of Electronic Commerce, Addison Wesley.
4. Schneider P. Grey, Perry T. James : E—Commerce, Thomson Learning, Bombay.
5. Shurety : E-business with Net Commerce (with CD), Addison Wesley.
6. Napier: Creating a Winning E-business, Vikas Publishing House, New Delhi.
7. Didar Singh : E-Commerce for Manager, Vikas Publishing House, New Delhi.
8. Whitely David : Electronic Commerce, TMH, N Delhi.
9. Electronic Commerce -Framework, technologies and Applications - Bharat Bhasker TMH Publications.

The list of cases and specific references including recent articles will be announced in the class.

SYLLABI OF B.Ed.-2Yr.

AS PER

NCTE CURRICULUM FRAMEWORK, 2014

KURUKSHETRA UNIVERSITY

KURUKSHETRA

2015-16

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KURUKSHETRA UNIVERSITY, KURUKSHETRA
SCHEME OF EXAMINATION AND SYLLABUS FOR B.ED TWO YEAR
REGULAR COURSES TO BE IMPLEMENTED FROM THE SESSION 2015-16

Year -1								
paper	nomenclature	Maximum Marks			Periods per week**	Exam Hour	Hours per Year	Credits
		Total	External	Internal/ Practicum				
Course 1	Childhood and Growing Up	100	80	20	6	3hrs.	137.6	10
Course 2	Contemporary India and Education	100	80	20	6	3hrs.	137.6	10
Course 3	Learning and Teaching	100	80	20	6	3hrs.	137.6	10
Course 4(A)	Language across curriculum	50	40	10	3	1:30hrs	68.8	5
Course 4(B)	Understanding, Disciplines and subjects	50	40	10	3	1:30hrs	68.8	5
Course 5	Gender, School and Society	50	40	10	3	1:30hrs	68.8	5
Course 6	Pedagogy of a School Subjects- I	100	80	20	6	3hrs.	137.6	10
Course 7	Pedagogy of a School Subjects- I	100	80	20	6	3hrs.	137.6	10
Course EPC 1	Reading and Reflecting on Text	50	40	10	3	1:30hrs	68.8	5
Course EPC 2	Drama and Art in Education	50	40	10	3	1:30hrs	68.8	5
	School Internship							
	Total	750	600	150				75

***Engagement with the field: Tasks and assignments for Courses 1-7.**
****One period is of 45 minutes.**

Year -2								
paper	nomenclature	Maximum Marks			Periods per week**	Exam Hour	Hours per Year	Credits
		Total	External	Internal/ Practicum				
Course 8	Knowledge and Curriculum	100	80	20	12	3hrs.	156	10
Course 9	Assessment for Learning	100	80	20	12	3hrs.	156	10
Course 10	Creating an Inclusive School	50	40	10	6	1:30hrs	78	5
Course 11	**Optional Course**	**(Any one of the following)**						
i	Environment Education	50	40	10	6	1:30hrs	78	5
ii	Health and Physical Education	50	40	10	6	1:30hrs	78	5
iii	Peace Education	50	40	10	6	1:30hrs	78	5
iv	Guidance and Counselling	50	40	10	6	1:30hrs	78	5
Course EPC 3	Critical Understanding of ICT	50	40	10	6	1:30hrs	78	5
Course EPC 4	Understanding the Self	50	40	10	6	1:30hrs	78	5
	***School Internship	250	200	50				25
	Total	650	520	130				65

***Engagement with the field: Tasks and assignments for Courses 8-11.**
****One period is of 45 minutes.**

Course 1

CHILDHOOD AND GROWING UP

Max. Marks: 100

Time: 3 Hours **(Theory: 80, Internal: 20)**

NOTE FOR PAPER SETTER

i. **Paper setter will set nine questions in all, out of which students will be required to attempt five questions.**
ii. **Q.No 1 will be compulsory and will carry 16 marks. There will be four short - answer type Questions of 4 marks each to be selected from the entire syllabus.**
iii. **Two long answer type questions will be set from each of the four units, out of which the student will be required to attempt one question from each unit. Long- answer type questions will carry 16 marks each.**

Rationale:

The course on "Childhood and Growing Up" offers an introduction to the study of childhood, child development and adolescence from diverse socio-economic and cultural backgrounds. The main focus in the course would be to enable student teachers to arrive at an understanding of how different socio-political realities construct different childhoods within children's lived context: family, schools and community**.**

Learning Outcomes

After transaction of the course, student teachers will be able to:

- Explain the concept of growth & development in relation to characteristics of various stages of growth & development.
- Become familiar with theories of child development and their educational implications.
- Understand the role of family, school, society in child development.
- Describe the role of contemporary issues (issue of marginalization: class, poverty, gender, issues of urbanization and economic change) in child development.
- Describe the role of media in deconstruction of significant events.

Course Contents

Unit-I

1. Child Development

- Growth & Development:- Concept, Principle, Factors, & Stages.
- Characteristics of stages of development with special reference to Childhood and Adolescence.
- Adolescents: Understanding their needs and Problems in Indian context.

Unit-II

2. Theories of Child Development

- Theory of Cognitive Development by Piaget: Concept, Stages and Implications with special reference to Indian Context.
- Theory of Social & Emotional Development by Erickson: Concept, Stages and Implications with special reference to Indian Context.
- Kohlberg theory of Moral Development: Concept, Stages and Implications with special reference to Indian Context.

Unit-III

3. Social Contexts of Development

- Agencies of Socialization: Family, School, Society and their role in Child Development.
- Social and Cultural Change and their Impact on child development.
- Economic Change :Impact of urbanization and Economic change on child development

Unit-IV

4. Contemporary Issues

- Marginalization & Stereotyping with special reference to Gender, Social Class, Poverty.
- Impact of marginalization & Stereotyping on child development and related outcomes.
- Role of media in constructing & deconstructing perceptions & ways of dealing with above issues.

Practicum/ Sessionals

Any one of the following:

i. Case-study of an adolescent: Problems and Needs.
ii. Seminar/ Presentation on educational implications of One Learning theory of child development.
iii. Survey report on impact of socio-economic status of a family on child.
iv. Content Analysis of Media coverage on the following:
    a. Child labour.
    b. Gender bias.
    c. About Disability.

Suggested Readings:

Aggarwal, J.C. (1995). *Essentials of Educational Psychology*, New Delhi: Vikas Publishing House Private Limited,

Allport, G.W. (1961). *Pattern and Growth in Personality*:New York.
Chauhan, S.S. (2002). *Advanced Educational Psychology*. New Delhi: Vikas Publishing
Gore, M.S.(1984). *Education and Modernization in India*. Jaipur:Rawat Publishers.
H.Havighurtst, R. et al.(1995). *Society and Education.* Baston: Allyen ad Bacon
H.P.BWheldall, K. (2006). *Developments in Educatonal psychology*. New York: Routledg
Kamat, A.R.(1985). *Education and Social Change in India*. Bombay: Samaiya Publishing Co.
Bhatia, K.K. (2008). *Basis of Educational Psychology*.Ludhiana:Kalyani Publishers.
Sharma, K.N. (1990). *Systems, Theories and Modern Trends in Psychology*.Agra:
Woolfork, A (2004). *Educational Psychology: Reason Education (Singapore)*. New Delhi: Indian Branch.

Course: 2
CONTEMPORARY INDIA AND EDUCATION

Max. Marks: 100
Time: 3 Hours **(Theory:80,Internal: 20)**

NOTE FOR PAPER SETTER

i. **Paper setter will set nine questions in all, out of which students will be required to attempt five questions.**
ii. **Q.No 1 will be compulsory and will carry 16 marks. There will be four short - answer type Questions of 4 marks each to be selected from the entire syllabus.**
iii. **Two long answer type question will be set from each of the four units, out of which the student will be required to attempt one question from each unit. Long- answer type questions will carry 16 marks each.**

Rationale

The course on "Contemporary India and Education" shall develop a conceptual understanding about issues of diversity, inequality and marginalization in Indian society and the implication for education with analyses of significant policy debates in Indian education.

Learning Outcomes

After the transaction of the course, student teachers will be able to:

- understand emerging societal issues and their implication for education
- understand various provision concerning education in Indian Consitution.
- identify the concerns related to socially disadvantaged segments of the society.
- understand the policies on education before and after independence related to secondary education programmes.
- evaluate the govt. policies in the context of Universalisation of school education.

Course Contents

Unit – I

1. Indian Constitution and Status of Education:

- Equality of opportunities in education: Article 28, 29, 350 and 351 and their issues.
- Education and Fundamental Rights and Duties: Article 14, 15, 16, 21-A,30 and 51A.
- Directive Principles of state policies

2. Diversity in Society and Implications for Education:

- Social diversities based on Castes, Languages, Religions and Regions,.
- Status of Education of Socially disadvantaged segments namely SC, ST, OBC, Women, PWD'S and minorities.
- Right to Education Act 2009: right of children to free and compulsory education

Unit – II

3. Educational Committees and Commission before independence with special reference to:

- Maculay's minutes: Its features and recommendations
- Adam's Report: features and its recommendations.
- Woods Despatch of 1854: Recommendations Merits and demerits
- Basic Scheme of Education 1937: objective, merits and demerits.

Unit – III

4. Educational Committees and Commission after independence with special reference to:

- Secondary Education Commission (1952-53): objectives and recommendations.
- Indian Education Commission (1964-66): objectives and recommendations.
- National policy on Education (1986)): objectives and recommendations
- Revised National Policy 1992
- POA: Major features.

Unit – IV

5. Contemporary Issues in Indian Education

- Universalization of school Education and DPEP,SSA,MDM, SSA, RMSA and IEDSS
- Vocationalization of Secondary Education: need and implications.
- Emotional Integration and international understanding in the context of globalization.
- Modernization: Concept, merits and demerits.

Practicum/Sessional:

Any one of the following:

i. Revisiting educational policies framed for the education of different sections of the society SC/ BC/Minorities/ Women.
ii. Prepare a report on problems of secondary education.
iii. Review educational policies for vocational education.
iv. Review of Policies related to universalization of school education.

Suggested Readings:

Bhattacharya & Sriniwas. (1977). *Society and Education,* Calcutta: Academic Publications.
Deshpande, S.(2004). *Contemporary India: A sociological view.* New Delhi: penguin.Dubey, S.C. (2001). *Indian Society,* New Delhi: National Book trust.
Government of India (GOI) (2009). *Right to education Act.* New Delhi: MHRD.
Ghanta, R. & Dash, B. N. (2005). *Foundations of Education,* Hyderadbad: Neelkamal Publications.

Kashyap, S.C. (2009). *The constitution of India,* New Delhi: National Book latest edition.
Mishra, B.K. & Mohanty, R.K. (2003). *Trends and issues in India Education,* Meerut: Surya publications.
Ministry of Human Resource Development of India (1986).*National policy on education.*
NCERT,91964-1966). Educational and national Development: report of the education commission, New Delhi: NCERT.
Rajput, J.S. (1994). *Universalisation of Elementary Education*, New Delhi: Vikas Publishing House.
Right to education Act, (2009). *Gazette.* Notification of central Government.
Sachdeva,M.S. et.al (2011). *Philosophical, Sociological and Economic bases of Education,* Patiala: Twenty First Century Publications.
Shankar Mukharji. (2007*). Contemporly issues in modern Indian education,* Authors Press.
Stormquist, Nelly P.(2002). *Education in a Globalised world.* New York: Rowman & Little field publishers.
Walia,J.S.(1979). *Modern Indian Education and its Problems,* Jalandhar City: Paul Publishers, Gopal Nagar.
Walia,J.S(2014). *Philosophical, Sociological and Economic Bases of Education.* Jalandhar: Ahim Paul Publishers.
http:/www.gandhi-manibhawan.org/gandhicomsalive/speech8.html
http:/www.mkgandhi.org/speeches/speech Main.html

Course 3
LEARNING & TEACHING

Max. Marks :100
Time: 3 Hours **(Theory: 80,Internal: 20)**

NOTE FOR PAPER SETTER

i. **Paper setter will set nine questions in all, out of which students will be required to attempt five questions.**
ii. **Q.No 1 will be compulsory and will carry 16 marks. There will be four short - answer type Questions of 4 marks each to be selected from the entire syllabus.**
iii. **Two long answer type question will be set from each of the four units, out of which the student will be required to attempt one question from each unit. Long- answer type questions will carry 16 marks each.**

Rationale:
Teaching & Learning will focus on aspects of social & emotional development; self & identity, cognition & learning. It offers a site for perspective teachers to reflect on and critique notions of learning & teaching

Learning Outcomes

After transaction of the course, student teachers will be able to:

- Understand the Concept of learning.
- Explain the strategies and paradigms of learning.
- To identify the individual differences among the learners.
- To describe the educational implications of different theories of learning.
- Understand the Concept of teaching.
- To differentiate the relation with the modalities & variables in the teaching Process.
- To describe the phases & models of teaching.
- To understand the Strategies of Teaching.

Course Contents

Unit-I

1. **Understanding Learning**

- Learning : Concept, Nature, types of learning & Factors influencing learning,.
- Learning strategies : Co-operative learning, peer-tutoring & collaborative & group learning;
  Role of Teacher & School in relation to learning strategies.
- Individual Differences: Concept, Types, Causes & Educational implications.

Unit-II

2. **Learning Paradigm**

- Theories of Learning :

- Connectionism theory (Trial & Error: Thorndike), concept, laws of learning & Educational Implications.
- Conditioning theories: Classical conditioning (Pavlov) & Operant Conditioning (Skinner): Concept, characteristics and Educational Implications.
- Social constructivist theory (Vygotsky & Bandura): Concept, nature & Educational Implications.

Unit-III

3. Understanding Teaching

- Teaching: Concept, characteristic, features and levels of teaching.
- Related concepts of Teaching (Training, conditioning, instruction & indoctrination)
- Variables in the Teaching Process: The Learning task (Instructional Objectives), Learning Behaviour (Entry behaviours & Learner's characteristics) Teacher Behaviour: (Competence, Personality, Teaching Style).
- Social-constructivist approach in teaching (Applications of Bruner, Ausubel & Vygotsky's ideas in teaching).

Unit-IV

4. Phase & Models of Teaching

- Phase of Teaching: Pre-active, Interactive and Post-active.
- Models of Teaching: Meaning, Need & Elements, Basic Teaching Model (Glaser), Concept Attainment Model (Bruner).
- Teaching Strategies: Brain-Storming, Simulation, Role-playing, Gaming, Remedial teaching & Enrichment Programme.

Practicum/ Sessional

Any one of the following

i. Group Projects: Observation report on Teaching-learning transaction process in School teaching practice.
ii. Seminar/ Presentation on learning theories.
iii. Application of teaching strategies (Brain-Storming, Simulation, Role-playing, Gaming, Remedial teaching) on any current/ social issue.
iv. Case-study on Individual differences.

Suggested Readings:

Chauhan, S.S. (2014). "*Innovations in Teaching Learning Process*", Noida: Vikas Publishing House Private Ltd.

Dececco, J.P. (1988) "*The Psychology of Learning and Instruction*", New Delhi: Prentice Hall.

Gagne, R.M. (1977). "*The conditions of learning*", New York, Chicago: Holt, Rinchart and Winston.

Joyce, B. & Weil, M. (1992). "*Models of Teaching*", New Delhi, Prentice Hall.

Kulkarni, S.S. (1986). "*Introduction to Educational Technology*", New Delhi: oxford & IBH Publishing Company.

Pandey, K.P.(1983). "*Dynamics of Teaching Behaviour*", Ghaziabad: Amitash Parkashan.

Pandey, K.P. (1980). "*A First Course in Instructional Technology*", Delhi: Amitash Parkashan.
Skinner, B.F.(1968). "*The Technology of teaching*", New York: Appleton Century Crofts.
Sharma, R.A. (1991). "*Technology of Teaching"*, Meerut: R. Lall Book Depot.
Sharma, S.K. (2005). "*Learning and Teaching: Learning process*", Delhi: Gyan Books Private Ltd.
Srivastava, D.S. and Kumari, S. (2005). "*Education: Understanding the learner*", Delhi: Gyan Books Private Ltd.
Walia, J.S. (2011). "*Technology of Teaching"*, Jalandhar: Ahim Paul Publishers.
Walia, J.S. (2012). "*Teaching Learning Process*", Jalandhar: Ahim Paul Publishers.

Course – 4(A)

LANGUAGE ACROSS THE CURRICULUM

Max. Marks :50

Time: 1.30 Hours **(Theory: 40,Internal: 10)**

NOTE FOR PAPER SETTER

i. **Paper setter will set five questions in all, out of which students will be required to attempt three questions.**
ii. **Q.No 1 will be compulsory and will carry 8 marks. There will be two short - answer type Questions of 4 marks each to be selected from the entire syllabus.**
iii. **Two long answer type question will be set from each of the two units, out of which the student will be required to attempt one question from each unit. Long- answer type questions will carry 16 marks each.**

Rationale

The course on "Language across the curriculum" will focus on the language background of the students and know how the oral and written language can be used in the classroom to ensure optimal learning of the subject area.

Learning Outcomes:

After transaction of the course, student teachers will be able to:

- Know the concept of language.
- Learn about communicative approach.
- Understand the ways of integrating speaking with other skills.
- Understand the nature of classroom discourse and develop strategies for using oral language i.e. discussion, questioning etc.
- Understand the nature of reading in different subjects.
- Familiarize with different types of writing that would be useful for learners.

Course Contents

UNIT-I

1. **Language** : Meaning, nature and linguistic principles
2. **Functions of language:**
    - Communicative functions of language & its basic assumptions
    - Learning language and learning through language
3. **Development of Listening skill:**
    - Characteristics of good listening material,
    - Different kind of listening materials and activities.
4. **Development of Speaking skill:**
    - Need and objectives of developing speaking skills,
    - Techniques of learning speaking skills-conversational/oral skills,

- Importance of group work in developing oral work and role of teacher.

UNIT-II

5. **Development of Reading skill**:
    - Meaning, need and importance of developing reading skill,
    - Reading mechanics and process of reading.
    - Stages of reading, types of reading, reading problems of learners.
6. **Development of Writing skill**:
    - Types of writing skill & writing scripts
    - Importance and need of developing writing skill,
    - Characteristics of good handwriting and techniques of improving handwriting.
7. **Language in Education and Curriculum**

Practicum/Sessionals

Any one of the following:

i. Subject wise group discussion, preparation of report and presentation before the group.

ii. Prepare and present a report on Introduction of yourself to other in different situations i.e. facing interviews, in the class room etc..

Suggested Readings:

Agnihotri, R.K. (1995). *Multilingualism as a classroom resource*. In K. Heugh, A. Siegruhn, & P. Pluddemann (Eds.*), Multilingual Education for South Africa* (pp. 3-7), Heinemann Education Groups.

Freedman, S.W. & Dyson, A.H. (2003). *Handbook of Research on Teaching English language Arts*. Lawreuel Erlbaum Associates Inclave, USA: New Jersey.

Government of india. (1986). *National Policy on Education*. GOI.

Grellet, F. (1981) *Developing Reading Skills: A practical guide to Reading Comprehension exercises*. Cambridge University Press.

Kumar, Krishna. (2007). *The child's language and the Teacher*. New Delhi: National Book.

Mangal, U.(2010). *Teaching of Hindi*, New Delhi: Arya Book Depot.

National Curriculum Framework (2005), New Delhi: NCERT.

Sachdeva, M.S. (2013). *Teaching of English*. Patiala: Twenty First Century Publications.

Safaya, Raghunath. *Methods of Teaching of Hindi*. Jalandhar :Punjab Book Depot.

Sinha, S. (2009). *Roseublatt's Theory of Reading.* Explaining Literature contemporary education dialogue. 6(2), PP223-237.

Sullivan, M. (2008). *Lessons for Guided writing*. scholastic. National curriculum framework. (2005).

www.ncert.nic.in.

http://www.usingenglish.com/handouts/

Course- 4(B)
UNDERSTANDING DISCIPLINES AND SUBJECTS

Max. Marks :50
Time: 1.30 Hours **(Theory: 40,Internal: 10)**

NOTE FOR PAPER SETTER

i. **Paper setter will set five questions in all, out of which students will be required to attempt five questions.**
ii. **Q.No 1 will be compulsory and will carry 8 marks. There will be two short - answer type Questions of 4 marks each to be selected from the entire syllabus.**
iii. **Two long answer type question will be set from each of the two units, out of which the student will be required to attempt one question from each unit. Long- answer type questions will carry 16 marks each.**

Learning Outcomes

After the transaction of the course, student teachers will be able to:

- Analyse and evaluate changes in the perspectives in school curriculum, text books and syllabus on socio-cultural basis.
- Compare and evaluate the perspective of NCERT on the required changes in knowledge base in school subjects- Mathematics, science, languages and social science.

Course Content

Unit-I

1. **Socio-cultural perspectives of disciples and school subjects (theory of school content)**
   - Evolution of socio –cultural perspectives in school level knowledge base;
   - Social history of school contents
   - Emergence of school subjects and disciplines from social, political and intellectual contexts;
   - History of emergence of methods of methods of teaching;
   - NCERT Position paper on change in curriculum, syllabus and textbooks.

Unit-II

2. **Changes in theory of content in school education after independence in India**
   - Needed changes in discipline –oriented school textbooks;
   - Steps needed to redesign text books for school education
     a) Focus on drawing upon the experiences of children;
     b) Focus on the diverse community background of students;

c) Focus on natural curiosities of students Focus on learner –centred methods of teaching-constructivist approach;

- Paradigm shift in teaching of social science in schools
- Paradigm shift in teaching of science in schools
- Paradigm shift in teaching of Mathematics in schools
- Paradigm shift in teaching of Indian languages in schools

Suggested Readings:

NCERT(2006). Position paper national focus group on curriculum, syllabus and textbooks. New Delhi: author. Available from http://www.ncert.nic.in/new_ncert/ncert/rightside/links/pdf/focus_group/cst_final.pdf

NCERT (2006). Position paper national focus group on teaching of social sciences. New Delhi: Author

Retrieved on April 21, 2015 from http://www.ncert.nic.in/new_ncert/ncert/rightside/links/pdf/focus_group/social_sciencel.pdf

NCERT(2006). Position paper national focus group on teaching of Indian languages. New Delhi: Author Available from

http://www.ncert.nic.in/new_ncert/ncert/rightside/links/pdf/focus_group/Indian_Languages.pdf

NCERT (2006). Position paper national focus group on teaching of mathematics. New Delhi: Author Available from

http://www.ncert.nic.in/new_ncert/ncert/rightside/links/pdf/focus_group/math.pdf

NCERT(2006). Position paper national focus group on teaching of science. New deli: Author.

Available from http://www.ncert.nic.in/new_ncert/ncert/rightside/links/pdf/focus_group/science.pdf

Course-5
GENDER, SCHOOL AND SOCIETY

Max. Marks :50
Time: 1.30 Hours **(Theory: 40,Internal: 10)**

NOTE FOR PAPER SETTER

i. **Paper setter will set five questions in all, out of which students will be required to attempt five questions.**
ii. **Q.No 1 will be compulsory and will carry 8 marks. There will be two short - answer type Questions of 4 marks each to be selected from the entire syllabus.**
iii. **Two long answer type question will be set from each of the two units, out of which the student will be required to attempt one question from each unit. Long- answer type questions will carry 16 marks each.**

Rationale

The course on "Gender, School and Society" will focus on the gendered roles in society, through a variety of institutions such as family, caste, religion, culture, the media and popular culture (films, advertisements, songs etc.), law and the state.

Learning Outcomes

After the transaction of the course, student teachers will be able to:

- Understand the basic terms, concepts used in gender studies**.**
- To describe equity and equality in relation with different aspects of society.
- To understand psychological and sociological perspectives of sex and gender.
- To understand paradigm shift under gender studies.
- To become aware about gender inequalities in school.
- To explain the issues related to gender.

Unit – I

1. Gender Studies: Paradigm Shift

- Meaning of gender equality, need & importance
- Paradigm shift from women studies from gender studies: Some land marks from social reform 19^{th} to 21^{st} studies

2. Gender Issues

- Concept of gender: Issue of muscularity and familiarity
- Equity and equality: Psychological and sociological perspective
- Emergence of gender specific roles, cross cultural perspective

Unit – II

3. Gender Inequalities and strategies for change

- Gender Inequality in School: School curriculum, Text book, classroom processes, and student teacher interaction
- Strategies for change: policy and management in the school

4. Social construction of gender

- Philosophical and sociological theories of gender
- Gender identity, family, media gender role and stereo types
- Social construction of gender during late childhood and adolescence

Practicum/Sessionals

Any one of the following

i. Identify at least two students (Boys/Girls) having gender bias attitude and develop strategies for gender sensitization.
ii. Analysis of selected ideas, trends, and problems in the study of gender across academic disciplines.

Suggested readings:

Bordia, A. (2007). *Education for gender equity*: The Lok Jumbish experience, p 313-329

Chatterji, S. A. (1993). *The Indian Women in perspective,* New Delhi: Vikas Publishing

Devendra, K. (1994). *Changing status of women in India,* New Delhi: Vikas Publishing House

Gupta, A. K. (1986). *Women and Society*, New Delhi: Sterling Publications

Ministry of Education (1959). *Report of National Committtee of Women's Education.* New Delhi: ME

Ruhela, S. (1988). *Understanding the Indian Women today*; Delhi: Indian Publishers Distributors

Thakur, H. K. (1988). *Women and Development planning* (Case study of Nauhatta Block), New Delhi: Vikas Publishing House

Course-6 & 7 Pedagogy of Teaching Subjects

Group-I: Pedagogy of Sciences

(i) PEDAGOGY OF SCIENCE

Max. Marks :100

Time: 3 Hours **(Theory: 80,Internal: 20)**

NOTE FOR PAPER SETTER

i. **Paper setter will set nine questions in all, out of which students will be required to attempt five questions.**
ii. **Q.No 1 will be compulsory and will carry 16 marks. There will be four short -answer type Questions of 4 marks each to be selected from the entire syllabus.**
iii. **Two long answer type question will be set from each of the four units, out of which the student will be required to attempt one question from each unit. Long- answer type questions will carry 16 marks each.**

Learning Outcomes:

After completion of this course the students teacher will be able to:

- understand the Nature & Scope of Science.
- understand Aim and objectives of Teaching Science.
- adopt suitable approaches, methods, different resources to teach Science.
- appreciate the importance of planning for Science.
- applying e-sources in Science.
- develop a skill of conducting experiments to demonstrate Science concepts.
- develop a skill of planning lesson plan based on various approaches.
- understand the concept of continuous and comprehensive evaluation.

COURSE CONTENTS

UNIT – I

1. **Nature & Scope of Science**
   - Meaning, Nature and Scope with reference to Science & its branches.
   - History of science and contribution of Indian Scientists.
   - Need & importance Science in secondary school & its values in the present context.
   - Correlation of science with other school subjects
   - Aim & objectives of Science.
   - Bloom's Taxonomy of instructional objectives.

- Science in the service of human welfare – Agriculture, Medicine, Industry & Conservation of Environment.

UNIT – II

2. Content & Its Pedagogical Analysis

- Content –
  - Matter in our Surroundings
  - Atom & Molecules
  - Motion
  - Force
  - Gravitation
  - Work and Energy
  - Tissues
  - Diversity in Living Organism
  - Life Process
  - Reproduction
  - Micro-organism
- **Pedagogical Analysis :**

  Following points should be followed for pedagogical analysis on topics covered in the syllabus

  a)Identification of concept, b)Listing behavioural outcomes, c)Listing activities and experiments, d)Listing evaluation techniques

- Concept, Need & Importance of Unit Planning & Lesson Planning

UNIT – III

3. Teaching Learning Resources & Procedures

- Meaning, Principles & Steps of Curriculum construction in Science
- Critical Analysis of Present Secondary School Text-Book with Reference to Haryana State
- Teaching Skills:-
  - Skill of Introducing the Lesson
  - Skill of Illustrate with the help of Examples
  - Skill of Explaining
  - Skill of Stimulus Variation
  - Skill of Black-Board Writing
- Science Laboratory – Importance, Planning, Designing, Equipping, Maintenance of Science equipment & Records
- Audio-Visual Aids: Chart, Models, Film Strip, Radio, Projectors.
- E-learning Resources – Use of Multimedia & Computers, PPT, Internet, Website, Teleconferences.

- Improvised Apparatus – Meaning, Importance & Steps
- Professional Growth of Science Teacher in Service Programme, Orientation Programme, Refresher Courses, Seminars, Symposium, Workshop, Science Fair, Science Exhibition, Projects.

UNIT – IV

4. APPROACHES AND EVALUATION IN TEACHING

- Science Inductive – deductive Approach, Critical Inquiry Approach, Maier's Problem Solving Approach.
- Methods of Teaching Science
  - Lecture-cum-Demonstration
  - Project Method
  - Laboratory Method
- Continuous & Comprehensive Evaluation (CCE) in Science
- Construction & Use of Achievement Test in Science
- Construction & Use of Diagnostic Test in Science, Preparation of Diagnostic Chart,
  Identification of Difficulties & Remedial Teaching.
- Meaning & Advantages of Task Analysis and Question Bank.

Praticum/Sessional

Any one of the following

i. Development of Five Demonstration Experiments on the Topics Covered in the Syllabus from Science Test-books at the Lower Secondary Level in Haryana State.
ii. Improvisation of Apparatus/Equipment
iii. Seminar Presentation on any Topics given in the Syllabus.

Suggested Readings

Adams, G.S. (1964). Measurement & Evaluation in Education, Psychology & Guidance, New York: Halt, Rinehart & Winston.

Aggarwal, J.C. (2005). Essential of Examination System. New Delhi: Vikas Publishing House Pvt. Ltd.

Allen, D.W. and Eve, A.W. (1968). Micro Teaching in Theory to Practices. Vol. 70, pp. 181-185.

Bloom, B.S. et al. (1956). Taxonomy of Educational Objectives: The Cognitive Domain, New York: Longum's Green.

CBSE (2009). Teacher Manual on CCE. New Delhi: CBSE.

Das, R.C. (1985). Science Teaching in Schools, New Delhi.Sterling Publication Private Ltd.,

Harrow, A.J.A. (1972). Taxonomy of Motor Domain, New York: Mckay.

Kherwadkal, Anjali (2003). Teaching of Chemistry by Modern Method, New Delhi Sarup & Sons..

Kilpatrick, W.H. (1987). The Project Method, Columbia. Teachers College Record.

Krathwohl, D.R., Bloom, B.S. and Maria, B.B. (1964). Taxonomy of Educational Objectives,

Hand-book II, Affective Domain, New York: David Mckay.

Mager, R.F. (1962). Preparing Instructional Objectives, California: Fearon.

Miller, David F. and Blaydes (1962). Methods & Materials for Teaching Biological Science, New York McGraw Hill Book Co.,

Sharma, R.C. (1995). Modern Science & Teaching, New Delhi.

Dhanpat Rai & Sons. Siddique and SIddique (1998), Teaching of Science, New Delhi. Doaba House,

Vishwanth, Pandey and Kisor Valicha (1984). Science Technology & Development, New Delhi: McMillan India Ltd.

Venkataih, S. (2001). Science Education in 21st Century, New Delhi Anmol Publishers,.

Wadhwa, Shalni (2001). Modern Methods of Teaching Physics. New Delhi:Saroop & Sons.

Group-I: Pedagogy of Sciences

(ii) PEDAGOGY OF BIOLOGICAL SCIENCE

Max. Marks :100

Time: 3 Hours **(Theory: 80,Internal: 20)**

NOTE FOR PAPER SETTER

i. **Paper setter will set nine questions in all, out of which students will be required to attempt five questions.**
ii. **Q.No 1 will be compulsory and will carry 16 marks. There will be four short - answer type Questions of 4 marks each to be selected from the entire syllabus.**
iii. **Two long answer type question will be set from each of the four units, out of which the student will be required to attempt one question from each unit. Long- answer type questions will carry 16 marks each.**

LEARNING OUTCOMES

After completion of this course the students teacher will be able to :

- Understand Nature & Scope of Biological Science
- Understand objectives of Teaching biological Science
- Adopt suitable approaches, methods, different resources to teach biological science.
- Appreciate the importance of planning and organizing the extension activities.
- Applying e-resources in teaching biological science.
- Develop a skill of conducting experiments to demonstrate biological concepts.
- Develop a skill of lesson planning based on various approaches.
- Understand the concept of continues and comprehensive evaluation.\

COURSE CONTENTS

UNIT – I

1. NATURE AND SCOPE OF BIOLOGICAL SCIENCE

- Meaning, Nature and Scope with reference to Biological science and its branches.
- History of Biological science and contribution of Indian Biologist.
- Need and Importance of Biological in secondary schools and its values in the present context.
- Correlation of Biological science with other school subject.
- Aim and Objectives of Teaching Biological science.
- Bloom's Taxonomy of educational objectives.
- Formulation of specific objectives in Behavioural terms.

- Biology in the service of human welfare-Agriculture, Medicine, Industry & Conservation of Environment.

UNIT – II

2. CONTENT AND ITS PEDAGOGICAL ANALYSIS

- **Content**
  - Tissues
  - Diversity in living organism
  - Diseases
  - Natural Resources
  - Improvement in Food
  - Life Process
  - Reproduction
  - Heredity
  - Control and Co-ordination
  - Micro-organism
  - Photosynthesis
- **Pedagogical Analysis :** Following points should be followed for pedagogical analysis on topics covered in the syllabus
  a) Identification of concept) Listing behavioural outcomes) Listing activities and experiments, d) Listing evaluation techniques.
- Teaching Skills
  - Skill of introducing the lesson
  - Skill of illustrate with the help of examples.
  - Skill of explaining
  - Skill of stimulus variation
  - Skill of using black board
- Concept, Need and Importance of unit planning and lesson planning.

UNIT – III

3. TEACHING LEARNING RESOURCES AND PROCESSES

- Meaning, Principles and steps of curriculum construction in Biological Sciences.
- Critical Analysis of Present secondary school text book with reference to Haryana State.
- Biological Science Laboratory. Impotence, Planning, Designing, equipping, maintenance of biological equipment and records.
- Visual Aids: - Chart, Model, Specimen.
- E-learning Resources: Use of Multimedia and Computers in Biological Science, e-learning, PPT, Internet, Website, Teleconferencing.
- Professional growth of Biological science teacher in service programme, orientation programme, refresher courses, seminar, symposium, workshop, projects, science museum, science fair and science exhibition.

UNIT – IV

4. APPROACHES AND EVALUATION IN TEACHING

- Approaches of Teaching Biological Science.
  - Inductive – deductive approach
  - Critical inquiry approach
  - Maier's Problem solving approach
- Methods of Teaching Biological Science;
  - Lecture cum demonstration method
  - Project Method
  - Laboratory method
- Continuous and Comprehensive Evaluation (CCE) in Biological Science.
- Construction and use of achievement test in Biological Science.
- Construct and Use of diagnostic Test in Biological science, preparation of diagnostic chart, identification of difficulties and remedial teaching.
- Task Analysis, meaning and advantages
- Question Bank, meaning and advantages

Praticum/Sessional

Any one of the following

i. Prepare a working model on Biological secondary school standard topics.
ii. Collect and preserve any five biological specimen and write a report
iii. Critically analyse secondary school state syllabus science text-book.
iv. Preparation of Biological science wall magazine in every month
v. A case study of any senior secondary lab and prepare report

Suggested Readings:

Adams G.S., (1964). *Measurement and evaluation in education, psychology and guidance*, New York : Halt, Rinehart and Winston.

Aggarwal, J.C. (2005). *Essentials of examination system.* New Delhi : Vikas Publishing house Pvt. Ltd.

Allen, D.W, and Eve, A.W. (1968). *Microteaching in theory to practices* Vd. 70, pp. 181-185.

Ameetha P (2004). *Methods of Teaching Biological Science*. New Delhi :Neelkamal Publications,

Bloom, B.S. et. Al. (1956). *Taxonomy of Educational objectives : the cognitive domain,* New York: Lagan's Green.

CBSE (2009). *Teacher's manual on CCE*. New Delhi : CBSE.

Das, R.C. (1985). *Science teaching in schools*. New Delhi: Sterling Publication Private Ltd.

Green T.N. (1971). Teaching of Biology in tropical schools, Oxford University Press London.

Harrow, A.J.A. (1972); Taxonomy of Motor Domain, New York : McKay.
Karmer, L.M.J. (1975). Teaching of Life Science, McMillan India Ltd. New Delhi.
Kilpatrick, W.H. (1918); the project method, Columbia: Teachers College Record.
Krathwohl, D.R., Bloom B.S. and Maria B.B. (1964) Taxonomy of Educational objectives, Handbook II, Affective Domain, New York : David McKay.
Mager, R.F. (1962); Preparing Instructional objectives, California : Fearon.
Miller, David F. and Blaydes (1962); Methods and materials for teaching Biological Science, M.C. Grow Hill Book Co; New York.
Sharma, R.C. (1995). Modern Science & Teaching, Dhanpat Rai and Sons, New Delhi.
Sood J.K. (1987). Teaching of Life Science, Kholi Publisher, Chandigarh.
Vishwanth, Pandeny & Kishore, Valicha (1984). Science Technology and Development, Mc Millan Indian Ltd. New Delhi.

Group-I: Pedagogy of Sciences

(iii) PEDAGOGY OF COMPUTER SCIENCE

Time: 3 Hours **Max. Marks: 100**
(Theory: 80, Internal: 20)

NOTE FOR PAPER SETTER

i. **Paper setter will set nine questions in all, out of which students will be required to attempt five questions.**
ii. **Q.No 1 will be compulsory and will carry 16 marks. There will be four short -answer type Questions of 4 marks each to be selected from the entire syllabus.**
iii. **Two long answer type question will be set from each of the four units, out of which the student will be required to attempt one question from each unit. Long- answer type questions will carry 16 marks each.**

Learning Outcomes

After the transaction of the course, student teachers will be able to:

- emphasize the need and importance of computer science as a subject.
- acquaint with the aims and objectives of teaching computer science in secondary and higher secondary schools and help them to plan learning activities according to those objectives.
- perform Pedagogical Analysis of various concepts in computer science.
- underline the need and importance of lesson planning and unit planning.
- understand the principles of curriculum construction.
- discuss the importance of computer textbooks.
- teach the proper computer laboratory planning and managing
- acquire skills relating to planning lessons and presenting them effectively.
- familiarize with the various methods that can be employed for the teaching of computer science.
- develop competencies and skill for effective evaluation in computer science.

COURSE CONTENT

Unit-I

1. **Nature and Scope**
   - Meaning, Nature and Scope of Computer Science.
   - Significance of Computer Science in school curriculum.
   - Place of Computer Science at different stages of school.
   - Aims and Objectives of Teaching Computer Science at different stages of school.
   - Blooms Taxonomy of educational objectives.
   - Formulation of specific objectives in behavioural terms.

Unit-II

2. **Content and Pedagogical Analysis: C**oncept, need and importance of Pedagogical Analysis.

- **Content:**
– Computer System
– Computer Software
– Networking
– MS-Windows
– MS-Office
– Operating System
- **Pedagogical Analysis:**
Following point should be followed for pedagogical analysis:-

a) Identification of concept.
b) Enlisting behavioural outcomes.
c) Enlisting activities and experiments.
d) Enlisting evaluation techniques.

- **Lesson Planning:** Concept, Need and Importance of unit planning and lesson planning

Unit-III

3. **Teaching Learning Resources and Processes**
    - Development and designing of computer science curriculum.
    - Development of text-books
    - Development of self instructional material
    - Designing and managing Computer Laboratory.

Teaching Skills

– Skill of Introducing the lesson
– Skill of Probing Questions
– Skill of illustration with examples.
– Skill of Stimulus Variations
– Skill of Explaining

Unit-IV

4. **Approaches and Evaluation**

- **Teaching Methods:**

– Lecture-cum-Demonstration method.
– Project method.
– Computer Assisted Instruction method.
– Laboratory Method.

– Mobile learning, and Online learning

- **Evaluation**

– Meaning and importance of evaluation
– Types and techniques
– Achievement Test
– Characteristics of a good test in Computer Science.
– Preparing, reporting and evaluating the results.
– Comprehensive and Continuous Evaluation.

Practicum/ Sessional

Do Any one of the following:

i. Critical analysis of course content of Computer science of secondary school curriculum.
ii. Prepare an achievement test of course content of Computer science of secondary school curriculum.
iii. Internet based project: Form a group on internet and share educational information with atleast one link to audio/video material and prepare the project using ppt.

Suggested Readings

Agarwal J. C. (2006). *Essential of educational technology, Teaching and learning.* New Delhi: Vikas Publishing House Pvt. Ltd.

Sharma, R. A. (2008). *Technological foundation of education.* Meerut: R.Lall Books Depot.

Sharma, R. N. (2008). *Principles and Techniques of Education.* Delhi: Surjeet Publications.

Singh, Arjinder. *Teaching of Computer Education.* Jalandhar: Modern Publisher

Sinha, P.K. & Sinha, P. *Computer Fundamentals,* BPB
Singh,Y. K. (2009). *Teaching Practice*. New Delhi: APH Publishing Corporation.

Group-I: Pedagogy of Sciences

(iv) PEDAGOGY OF HOME SCIENCE

Max. Marks :100

Time: 3 Hours **(Theory: 80,Internal: 20)**

NOTE FOR PAPER SETTER

i. **Paper setter will set nine questions in all, out of which students will be required to attempt five questions.**
ii. **Q.No 1 will be compulsory and will carry 16 marks. There will be four short -answer type Questions of 4 marks each to be selected from the entire syllabus.**
iii. **Two long answer type question will be set from each of the four units, out of which the student will be required to attempt one question from each unit. Long- answer type questions will carry 16 marks each.**

Learning Outcomes : After completion of this course the students teacher will be able to :

- Understand Nature & Scope of Home Science
- Understand objectives of Teaching Home Science
- Adopt suitable approaches, methods, different resources to teach biological science.
- Appreciate the importance of planning and organizing extension activities.
- Applying e-resources in teaching Home Science.
- Develop skills of lesson planning based on various approaches.
- Understand the concept of continues and comprehensive evaluation.

UNIT – I

1. **Concept, Objectives and Importance**
   - Meaning, Nature and Scope of Home Science
   - Need and Importance of Home science in secondary schools in the present context
   - Correlation of Home Science with other school subjects
   - Aims and objectives of teaching Home Science
   - Blooms Taxonomy of educational objectives
   - Formulation of specific objectives in Behavioural terms.

UNIT – II

2. **Content, Pedagogical Analysis and Teaching Skills**

- **Content**
  - Food, Nutrition and Health
  - Child Care
  - Fiber and Fabric

- Home Management
- Health and sanitation

- **Pedagogical Analysis :**

  Following points should be followed for pedagogical analysis on topics

  a) Identification of concept
  b) Listing behavioural outcomes
  c) Listing activities and experiments.
  d) Listing evaluation techniques.

- **Teaching Skills**
  - Skill of introducing the lesson
  - Skill of illustrate with the help of examples.
  - Skill of explaining
  - Skill of stimulus variation
  - Skill of using black board
- **Concept, Need and Importance of unit planning and lesson planning**.

UNIT – III

3. TEACHING LEARNING RESOURCES AND PROCESSES

- Meaning, Principles and steps of curriculum construction in Home Sciences.
- Development and Characteristics of a good Textbooks. Critical analysis of current Home Science Text Books in secondary schools of Haryana State.
- Planning of space and equipment of Home Science Laboratory
- Classification and importance of Teaching Aids, (Visual Aids :- Chart, Model, Specimen).
- E-learning Resources: Use of Multimedia and Computers in Home Science, e-learning, PPT, Internet.
- Qualities of a good Home Science Teacher. Professional growth of Home Science Teacher

UNIT – IV

4. APPROACHES , Methods AND EVALUATION IN TEACHING

- **Methods of Teaching:**
  Lecture-cum- Demonstration; Project Method; Discussion Method; Practical and Individual Method
- **Activity Based Learning:**
  Learning by doing : Experimentation; observation ; games, quiz; puzzles; Field visits and excursions
- **Approaches of Teaching Home Science** : Inductive – deductive approach ;Maier's Problem solving approach
- Continuous and Comprehensive Evaluation (CCE) in Biological Science.
- Construction and use of achievement test and diagnostic test in Home Science.
- Task Analysis, meaning and advantages
- Question Bank, meaning and advantages

PRACTICUM/SESSIONALS:

Any one of the following:

i. A course of ten practical by the Pupil-teacher in the following:
   - Cooking
   - Stitching/Embroidery/knitting
   - Home Management

ii. Preparation of online test

iii. Preparation of objective type test, short answer type test, essay type test

iv. Organize a quiz competition in Home Science and analyze the response of students

v. Plan a field visit of Home Science students

vi. Prepare one remedial Teaching Programme for a Home Science student

vii. Writing of project report in extension education.

SUGGESTED READING

Chandra, Shah & Joshi. *Fundamental of Teaching of Home Science,* New Delhi: Sterling Publishers Pvt. Ltd

Dass & Ray. *Teaching of Home Science*, New Delhi: Sterling Publishers Pvt. Ltd

Devdass, R. P. *Method of Teaching of Home Science*, New Delhi: NCERT.

Devdass, R. P. *Teaching of Home Science in Secondary School.* A handbook of Suggestion for Teachers, New Delhi: NCERT

Spafford, I. *Fundamental in Teaching of Home Science,* New York: John Wiley & Sons

CBSE (2009); *Teacher's manual on CCE*. New Delhi : CBSE

Group-I: Pedagogy of Sciences

(v) PEDAGOGY OF PHYSICAL SCIENCE

Max. Marks :100

Time: 3 Hours **(Theory: 80,Internal: 20)**

NOTE FOR PAPER SETTER

i. **Paper setter will set nine questions in all, out of which students will be required to attempt five questions.**
ii. **Q.No 1 will be compulsory and will carry 16 marks. There will be four short -answer type Questions of 4 marks each to be selected from the entire syllabus.**
iii. **Two long answer type question will be set from each of the four units, out of which the student will be required to attempt one question from each unit. Long- answer type questions will carry 16 marks each.**

Learning Outcomes:

After completion of this course the student teacher will be able to:

- Understand the Nature & Scope of Physical Science.
- Understand Aim and objectives of Teaching Physical Science.
- Adopt suitable approaches, methods, different resources to teach Physical Science.
- Appreciate the importance of planning for Teaching Physical Science.
- Applying e-sources in Teaching Physical Science.
- Develop a skill of conducting experiments to demonstrate Physical Science concepts.
- Develop a skill of planning lesson plan based on various approaches.
- Understand the concept of continuous and comprehensive evaluation.

COURSE CONTENTS

UNIT – I

1. **NATURE AND SCOPE OF BIOLOGICAL SCIENCE**
   - Meaning, Nature and Scope with reference to Physical Science & its branches.
   - History of Physical science and contribution of Indian Scientists in the field of Physics & Chemistry.
   - Need & importance Physical Science in secondary school & its values in the present context.
   - Correlation of Physical science with other school subjects.
   - Aim & objectives of Physical Science.

- Bloom's Taxonomy of instructional objectives.
- Physical Science in the service of human welfare – Agriculture, Medicine, Industry & Conservation of Environment.

UNIT – II

2. CONTENT AND ITS PEDAGOGICAL ANALYSIS

- Content –
  - Matter in our Surroundings
  - Atom & Molecules
  - Motion
  - Force & Law of Motion
  - Gravitation
  - Work and Energy
  - Sound
  - Acid Bases & Salt
  - Metal & Non-metal
  - Light
  - Electricity
- **Pedagogical Analysis** – Following points should be used for Pedagogical Analysis.

Following points should be followed for pedagogical analysis on topics covered in the syllabus

- Identification of concept ,b)Listing behavioural outcomes ,c)Listing activities and experiments, d)Listing evaluation techniques
- Concept, Need & Importance of Unit Planning & Lesson Planning

UNIT – III

3. TEACHING LEARNING RESOURCES AND PROCESSES

- Meaning, Principles & Steps of Curriculum construction in Physical Science
- Critical Analysis of Present Secondary School Text-Book with Reference to Haryana

State

- Teaching Skills:-
  - Skill of Introducing the Lesson
  - Skill of Illustrate with the help of Examples
  - Skill of Explaining
  - Skill of Stimulus Variation
  - Skill of Black-Board Writing
- Physical Science Laboratory – Importance, Planning, Designing, Equipping, Maintenance of Physical Science equipment & Records

- Audio-Visual Aids: Chart, Models, Film Strip, Radio, Projectors.
- E-learning Resources – Use of Multimedia & Computers, PPT, Internet, Website, Teleconferences.

- Improvised Apparatus – Meaning, Importance & Steps
- Professional Growth of Physical Science Teacher in Service Programme, Orientation Programme, Refresher Courses, Seminars, Symposium, Workshop, Science Fair, Science Exhibition, Projects.

UNIT – IV

4. APPROACHES AND EVALUATION IN TEACHING

- Physical Science Inductive – deductive Approach, Critical Inquiry Approach, Maier's Problem Solving Approach.
- Methods of Teaching Physical Science
  - Lecture-cum-Demonstration
  - Project Method
  - Laboratory Method
- Continuous & Comprehensive Evaluation (CCE) in Physical Science
- Construction & Use of Achievement Test in Physical Science
- Construction & Use of Diagnostic Test in Physical Science, Preparation of Diagnostic Chart, Identification of Difficulties & Remedial Teaching.
- Meaning & Advantages of Task Analysis and Question Bank.

Praticum/Sessional

Any one of the following

i. Development of Five Demonstration Experiments on the Topics Covered in the Syllabus from Physical Science Test-books at the Lower Secondary Level in Haryana State.
ii. Improvisation of Apparatus/Equipment
iii. Seminar Presentation on any Topics given in the Syllabus.

Suggested Readings

Adams, G.S. (1964). *Measurement & Evaluation in Education, Psychology & Guidance*, New York: Halt, Rinehart & Winston.

Aggarwal, J.C. (2005). *Essential of Examination System.* New Delhi: Vikas Publishing House

Pvt. Ltd.

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CBSE (2009). *Teacher Manual on CCE*. New Delhi: CBSE.

Das, R.C. (1985). *Science Teaching in Schools*, New Delhi: Sterling Publication Private Ltd.

Harrow, A.J.A. (1972). *Taxonomy of Motor Domain*, New York: Mckay.

Kherwadkal, Anjali (2003). *Teaching of Chemistry by Modern Method*, New Delhi: Sarup & Sons.

Kilpatrick, W.H. (1987). *The Project Method*, Columbia. Teachers College Record.

Krathwohl, D.R., Bloom, B.S. and Maria, B.B. (1964). *Taxonomy of Educational Objectives, Hand-book II, Affective Domain*, New York: David Mckay.

Mager, R.F. (1962). *Preparing Instructional Objectives*, California: Fearon.

Miller, David F. and Blaydes (1962). *Methods & Materials for Teaching Biological Science*, New York: McGraw Hill Book Co.

Sharma, R.C. (1995). *Modern Science & Teaching*, New Delhi: Dhanpat Rai & Sons.

Siddique and SIddique (1998).*Teaching of Science*, New Delhi: Doaba House.

Vishwanth, Pandey and Kisor Valicha (1984). *Science Technology & Development*, New Delhi: McMillan India Ltd.

Venkataih, S. (2001). *Science Education* in 21st Century, New Delhi:Anmol Publishers.

Wadhwa, Shalni (2001). *Modern Methods of Teaching Physics*. New Delhi: Saroop & Sons.

http://www.scienceworld.wolfram.com/physics.html.

http://www.nobel.se/physics/laureates.html.

Group-II: Pedagogy of Social-Sciences

(i) PEDAGOGY OF SOCIAL SCIENCE

Time: 3 Hours **Max. Marks: 100**
(Theory: 80, Internal: 20)

NOTE FOR PAPER SETTER

i) **Paper setters will set 9 questions in all, out of which students will be required to attempt 5 questions.**

ii) **Q. No. 1 will be compulsory and will carry 16 marks. There will be 4 short-answer type questions of 4 marks each to be selected from the entire syllabus.**

iii) **Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. Long-answer type questions will carry 16 marks each.**

Learning Outcomes

After completion of this course the student –teachers will be able to :

- understand the foundation of teaching Social Science.
- acquaint with different strategies for teaching Social Science at secondary and higher secondary level.
- to provide familiarization with Resources for teaching/learning Social science
- to develop an understanding of methods and approaches of teaching Social Science .
- to enable students to organize co-curricular activities through the Social Science Club.
- prepare achievement test in Social Science at secondary and higher secondary level.
- prepare lesson plans in Social Science for instructional purposes.
- conduct pedagogical analysis of content for teaching in the classroom.
- acquire competence in preparing tools of evaluation Social Science learning.
- acquire skills of analyzing text book in Social Science.

COURSE CONTENTS

UNIT 1

1. **Nature & Scope of Teaching of Social Science**
   - Meaning, Nature and Scope of Social Sciences as a school subject.
   - Aims and Objectives of teaching Social Sciences at School level.
   - Values of Teaching Social Sciences
   - Taxonomy and behavioural Objectives in Social Sciences.

- Relationship of Social Science with other subjects and within the subject .

UNIT-2

2. Contents and its pedagogical analysis and Lesson planning

- Understanding terminology of Social Sciences: Social structure, social stratification, community, state, region, market
- Meaning, importance and Steps of Pedagogical Analysis.
- Pedagogical Analysis on the following topics:
  - Constitution of India
  - Physical features of India
  - Indain Freedom Movement
  - Population
  - Democracy in the contemporary world
  - Disaster Management
- Lesson planning in Social Sciences: Need & Importance, Basic Elements & its Preparation

UNIT 3

3. Teaching learning resources and process

- Meaning, Importance and Principles of designing a good Curriculum of Social Sciences; Critical Appraisal of the Existing Curriculum in Social Sciences, Suggestions for improvement; Approaches of organizing social sciences curriculum- logical, concentric, spiral, chronological.
- Teaching Learning Material: Textbook & Reference Books, Documentaries, News Papers, Maps, Community, Atlas, and E-resources (Blog, World Wide Web, and Social Networking.)
- Skills of teaching Social Studies: Skill of Explaining. Skill of Illustration with Examples, Skill of Reinforcement, Skill of Questioning and Skill of Stimulus Variation

UNIT 4

4. Approaches and Evaluation in Teaching

- Classroom Processes: Discovery method, Discussion method, Source method, Survey Method, Concept Mapping and Story Telling. Concept Attainment, Inquiry Training Model.
- Social Science Club- Meaning, Importance and Organization(Club activities, Exhibitions, Field Trips, Quiz Competitions)
- Meaning, Importance and Types of Evaluation in Social Sciences.
- New approaches to Assessment – Question bank, Open Book Examination, Grading & Credit System.
- Construction of Achievement Test – Concept and Steps.

Praticum/Sessional

Any one of the following:

i. Explore how cartoons, stamps, currency, magazines, globes and so on be used in teaching of social science.

ii. Make an Observation of a place of historical interest/monument nearer to your residence and prepare a report on it/ Prepare a List of Places of Cultural/Historical// Geographical/Economic/ political/scientific interest of your locality

iii. Conduct a quiz competition in the class on a day of national importance/Prepare questions for a quiz programme/Prepare an action plan for social science club

iv. Prepare a list 10 of books/Journals in social sciences with all bibliographic details for purchasing to the classroom library/Prepare a Text book Material for a Particular Topic.

v. Draw different types of maps of World, India, and locality /Create a comparative timeline
of events in India and world of Modern age/prepare a plan based on any one Model of Teaching.

vi. Prepare a sample of Different Types of Test items on different objectives/ Select a concept in Social Science prepare a diagnostic test

vii. Prepare a sample Content analysis /Prepare instructional objectives/Learning Activity/Learning Experience of a Topic from standard 6th or 10^{th}

Suggested Readings

Agarwal, J.C. (1993). Teaching of Social Studies- A Practical Approach, Second Revised Edition, Vikas Publishing House.

Batra, P.(ed) (2010) *Social Science Learning in Schools: Perspective and Challenges*, New Delhi, Sage

Dhamija, N. (1993). *Multimedia Approaches in Teaching Social Studies*, New Delhi: Harman Publishing House

Eklavya (1994) *Samajik Adhyayan Shikshan*: Ek Prayog, Hoshangabad: Eklavya.

George, A. and Madan, A.(2009) *Teaching Social Science in Schools*, NCERT's New

Textbook, New Delhi: Sage

Gupta Rainu (2013) *Teaching of Social Science*, New Delhi, Doaba Publications.

Gupta Rainu (2012) *Samajik Vigyan Shikshan*, New Delhi :Doaba Publications.

Khan, S. U. (1998). *History Teaching-Problems: Prospective and Prospect*, New Delhi: Heera Publications

Kochhar, S.K.(1998).*Teaching of Social Studies*, New Delhi: Sterling Publishers Pvt, Ltd New Delhi.

NCERT (2006). *Position Paper National Focus Group on Teaching of Social Sciences*, New Delhi: NCERT

NCERT Social Science Textbooks for classes VI-X, New Delhi: NCERT.

Group-II: Pedagogy of Social-Sciences

(ii) PEDAGOGY OF COMMERCE

Time: 3 Hours **Max. Marks: 100**
(Theory: 80, Internal: 20)

NOTE FOR PAPER SETTER

i) **Paper setter will set nine questions in all, out of which students will be required to attempt five questions.**
ii) **Q.No 1 will be compulsory and will carry 16 marks. There will be four short -answer type Questions of 4 marks each to be selected from the entire syllabus.**
iii) **Two long answer type question will be set from each of the four units, out of which the student will be required to attempt one question from each unit. Long- answer type questions will carry 16 marks each.**

Learning Outcomes

After completion of this course the student-teachers will be able to:

- understand meaning, nature and scope of commerce.
- understand aims, objectives and values of teaching commerce.
- Get familiar with the relationship of commerce with other disciplines.
- analyse the content, text-book and curriculum of commerce.
- develop the lesson plan for teaching in classroom.
- develop skills in teaching of commerce.
- acquaint with the various teaching learning resource and methods.
- develop insight into current trends of teaching commerce.
- equip themselves with practices of evaluation.
- develop a research perspective in the field of commerce.

Course content

UNIT-I

1. **Concept of Commerce and Instructional Objectives**
   - Meaning nature and scope of Accountancy and Business studies.

- Aims, Objectives and Values of teaching Commerce.
- Need and Importance of Commerce in school curriculum at higher secondary level.
- Blooms Taxonomy of Objectives (statement of objectives in behavioural terms).
- Relationship of Commerce with other Disciplines: Economics, Law, Mathematics, Sociology, Psychology, Statistics.

UNIT-II

2. Content Analysis and lesson planning

- Pedagogical_Analysis: Identification of concept, Listing behavioural outcomes, Listing activities and experiments, Listing evaluation techniques. Content for Pedagogical_Analysis:
  - Final A/Cs
  - Sources of Business finance.
  - Marketing Mix.
  - Social Responsibility of Business
  - Consumer protection
  - E-commerce
- Development of lesson plan: Utility, steps in lesson planning, qualities of a good lesson plan

UNIT-III

3. Teaching learning resources and Processes

- Commerce curriculum: Principles followed in development of commerce curriculum. Critical appraisal of the existing curriculum in Commerce. Suggestion for improvement
- Analysis of prescribed text- book of commerce (XI &XII)
- Teaching learning resources: Meaning, Importance and use of Teaching learning resources
- Traditional Instructional Material: Charts , Graphs and Specimens
- Mass media: Television , Newspaper , Journals

- E- resources: Blog , World wide Web , Social Networking
- Skills in Teaching
  - Skill of Introducing
  - Skill of Explaining
  - Skill of Probing Questions
  - Skills of Illustrating with examples
  - Skill of Stimulus variation

UNIT-IV

4. Approaches and Evaluation in teaching

- Methods of teaching:
  - Lecture cum Discussion Method
  - Project Method
  - E-Tutoring
  - Role playing
- Concept Attainment Model, Advanced organizer Model and Inquiry Training Model in Teaching commerce
- Evaluation: Meaning, Importance , Types and Techniques.
- Preparation of Blue print and construction of Achievement Test

Practicum/ Sessionals

Any two of the following:

i. Participation in discussion (class level) in any recent development in the area of commerce and prepare a report

ii. Make a report on activities performed by a company regarding its social responsibility

iii. Review at least two research articles on commerce

iv. Make a report of E-Commerce operations of a company

v. Field visit to any one (bank , factory , consumer forum).Prepare a report on functions performed

Suggested Readings

Bruce, J.M and Roger Ottewill (2001). *Effective learning & teaching in business and management.* London: Routledge

Chopra, H.K and Sharma, H. (2007). *Teaching of Commerce*, Kalyani Publishers Ludhiana

Dalal, D.C and Dalal V.C (2008). *Teaching of Commerce* (Hindi Version). Patiala: Twenty First Century Publications

Gupta Rainu (2009). *Teaching of Commerce* New Delhi, Shipra Publications

Kaur, Ravdeep (2012). *Teaching of Commerce* Gurusar Sadhar: GBD Publications

Kumar, Mahesh (2004). *Modern Teaching of Commerce*. New Delhi: Anmol Publications Pvt. Ltd.

Monga Vinty (2009). *Teaching of Commerce Patiala*: Twenty first century publications

Peter Davies, Jacek Brant (2006). *Business, Economics and enterprises*: Teaching School Subjects 11-19. London: Kogan Rage

Rao Seema (2002). *Teaching of Commerce,* New Delhi: Anmol Publicatons Pvt. Ltd.

Shankar T. (2007). *Methods of Teaching of Commerce*, New Delhi: Crecent VIII

Group-II: Pedagogy of Social-Sciences

(iii) PEDAGOGY OF ECONOMICS

Time: 3 Hours **Max. Marks: 100**
(Theory: 80, Internal: 20)

NOTE FOR PAPER SETTER

i. **Paper setter will set nine questions in all, out of which students will be required to attempt five questions.**
ii. **Q.No 1 will be compulsory and will carry 16 marks. There will be four short -answer type Questions of 4 marks each to be selected from the entire syllabus.**
iii. **Two long answer type question will be set from each of the four units, out of which the student will be required to attempt one question from each unit. Long- answer type questions will carry 16 marks each.**

Learning Outcomes

After completion of this course the student –teachers will be able to :

- understand the foundation of teaching Economics.
- apply knowledge of Economic in understanding current socio- economic- political issues for human interests and building future economics activities in the light of past.
- conduct pedagogical analysis of content for teaching in the classroom.
- prepare lesson plans in Economics for instructional purposes
- familiarize with different strategies for teaching Economics at secondary and higher secondary level.
- acquire skills of analyzing text book in Economics.
- develop an understanding of methods and approaches of teaching Economics.
- enable students to organize co-curricular activities through the Economics Club.
- prepare achievement test in Economics at secondary and higher secondary level.
- acquire competence in preparing tools of evaluation Economics learning.

COURSE CONTENT
Unit -I

1. **Nature & Scope of Teaching of Economics**
   - Meaning, Nature and Scope of Economics as a school subject.
   - Aims and Objectives of teaching Economics at School level
   - Values of Teaching Economics in present scenario.
   - Taxonomy and behavioural Objectives in Economics.

- Correlation of Economics with Public Finance, Commerce, Law, Geography, Mathematics, Natural Science and Sociology.

Unit- II

2. Contents and its pedagogical analysis and Lesson planning

- Understanding terminology of Economics: Micro Economics, Macro Economics, Market, Production, Business Economics and Budgeting.
- Meaning, Importance and Steps of Pedagogical Analysis.Pedagogical Analysis on the following topics:
  - Poverty as Challenge facing India
  - Indian economy
  - Globalization
  - Inflation& Deflation
  - Employment
- lesson planning in Economics: Need & Importance, Basic Elements & its Preparation

Unit-III

3. Teaching learning resources and process

- Meaning, Importance and Principles of designing a good Curriculum of Economics, Critical Appraisal of the Existing Curriculum in Economics, Suggestions for improvement. Approaches of organizing the curriculum of Economics.
- Teaching Learning Material: Textbook & Reference Books, Documentaries, Graphs, Tables, News Papers, Library and E-resources (Blog, World Wide Web, and Social Networking.)
- Skills of teaching Economics: Skill of Explaining. Skill of Illustration with Examples, Skill of Probing Questions and Skill of Stimulus Variation

Unit-IV

4. Approaches and Evaluation in Teaching

- Teaching Economics through concept mapping, Inquiry Training model, Advance Organizer model, Project method, dramatization, Survey and field visit.
- Meaning & Importance of Co-curricular activities. Economics Club – meaning, importance and organization.
- Meaning, Importance and Types of Evaluation in Economics.
- Continuous and Comprehensive Evaluation: Meaning, importance & Process.
- Construction of Achievement Test – Concept and Steps.

Praticum/Sessional

Any one of the following:

i. Explore how cartoons, advertisements, graphs, currency, pictures can be used for teaching Economics.

ii. Content Analysis and preparation of instructional material related to any unit
iii. Prepare ten (10) slides related to economics teaching content at senior secondary level.
iv. Critical appraisal of economics text books at senior secondary level.
v. Field Visits (Banks, Small-Scale Industries, Consumer Cells)

Suggested Readings:

Aggarwal J.C(2009). *Teaching Of Economics, A Practical Approach*. Agra-2: Vinod Pustak Mandir.

Bhatia & Bhatia (1994). *The Principles & Methods of Teaching*.Delhi:Doaba house.

Gupta Rainu (2003) *Teaching of Economics*.New Delhi: Jagdamba Publications.

Gupta Rainu (2004) *Arthshastra Shikshan*. New Delhi;Jagdamba Publications.

Joyce, B. & Weil. M (1979). *Models of Teaching*. New Jersey: Hall Inc.

Kanwar, B.S(1970). *Teaching of Economics*. Ludhiana : Educational Publishers.

Knoph, J.H.(1965)*Teaching of Elementary Economics*. New York: Holt Rinehart and Winston.

Mustafa M, (2005) *Teaching of Economics New Trends and Challenges*. New Delhi: Deep & Deep Publications.

Natarajan S. (1993).*Introduction to Economics of education*, New Delhi: sterling publications Private Limited.

Oliver, J.M.(1975). *The Principles of Teaching Economics*. New Delhi: Heinmann Educational Books Ltd.

Pal, H.R.(2000).*Methodologies of Teaching & Training in Higher Education*. Delhi: Directorate of Hindi Implementation, Delhi University.

Rai B.C. (1991). *Techniques of Teaching*. Luckhnow: Prakashan Kendra

Saxena, Mishra, Mahonty (2004) *Teaching of Economics*. Meerut: Surya Publication.

Tyagi, G.D.(1981). *Arthshastra Shikshan*. Agra: Vinod Pustak Mandir.

Yadav Amita (1999).*Teaching of Economics*. New Delhi:Anmol Publications Pvt. Ltd.

Group-II: Pedagogy of Social-Sciences

(iv) PEDAGOGY OF ART

Time: 3 Hours **Max. Marks: 100**
(Theory: 80, Internal: 20)

NOTE FOR PAPER SETTER

i. **Paper setter will set nine questions in all, out of which students will be required to attempt five questions.**
ii. **Q.No 1 will be compulsory and will carry 16 marks. There will be four short -answer type Questions of 4 marks each to be selected from the entire syllabus.**
iii. **Two long answer type question will be set from each of the four units, out of which the student will be required to attempt one question from each unit. Long- answer type questions will carry 16 marks each.**

Learning Outcomes

After the transaction of the course, student teachers will be able to:

- understand the foundation of teaching Art
- develop an awareness of various art forms and their cultural bases.
- familiarize with different strategies for teaching Art secondary and higher secondary level.
- develop skill in use of various art tools and instruments
- develop a perspective and appreciation of art, nature, human existence relationship
- develop an understanding of methods and approaches of teaching Art

Course content

Unit-I

1. **Foundation and Context of Economics**
   - Meaning, nature, and scope of Arts
   - Aims and objectives of teaching Fine Arts
   - Importance and place of Fine Arts in Education
   - Construction of syllabus of Fine Arts at Secondary Education
   - Relationship of Fine Arts with other school subjects
   - Elements of Art (Colour, Form, Space, Texture, Light and Shade)
   - Principles of Art (Balance, Rhythm, Harmony, Unity, Proportion, Dominance)
   - Social and cultural importance of Art

Unit-II

2. **Methods of Teaching , Lesson Planning and use of teaching aids**
   - Lecture-cum-demonstration Method
   - Project Method

- Observation Method
- Excursion Method (field trips and tours)

- Preparation of lesson plan from 6th to 12th class
- Use of charts, flash cards and real objects
- Use of ICT

Unit-III

3. Skill Development

- Skill of Art appreciation
- Skill of observation
- Skill of Imagination
- Skill of Visual communication
- Skill of handling the colours, brushes etc.
- Skill of Art development in child at different stages

Unit-IV

4. Professional Efficiency, Measurement and Evaluation

- Professional qualities of a good teacher in Art
- Creativity in Art and Art teacher
- Organizing Art Exhibition and decorating the classroom
- Meaning, importance and need of measurement and evaluation
- Types of evaluation techniques

Practicum/Sessionals

Any one of the following

i. Design
ii. Greeting Cards
iii. Composition
iv. Landscape
v. Collage
vi. Poster

Suggested Readings

Gupta, Arvind (2003). *Kabad se Jugad: Little Science*. Bhopal: Eklavya.

Khanna, S. and NBT (1992). *Joy of Making Indian Toys, Popular Science*. NewDelhi: NBT.

Prasad, Devi (1998). Art as the Basis of Education, New Delhi: NBT,.

Sahi, Jane and Sahi, R(2009).*Learning Through Art*, Eklavya,

Group-II: Pedagogy of Social-Sciences

(v) PEDAGOGY OF HISTORY

Max. Marks :100

Time: 3 Hours **(Theory: 80,Internal: 20)**

NOTE FOR PAPER SETTER

i. **Paper setter will set nine questions in all, out of which students will be required to attempt five questions.**
ii. **Q.No 1 will be compulsory and will carry 16 marks. There will be four short - answer type Questions of 4 marks each to be selected from the entire syllabus.**
iii. **Two long answer type question will be set from each of the four units, out of which the student will be required to attempt one question from each unit. Long- answer type questions will carry 16 marks each.**

Learning Outcomes

After transaction of the course, student teachers will be able to:

- Understand the concept and aims of history as a school subject
- Develop skills and competence to analyse content chronologically for using different methods of teaching history.
- Prepare appropriate test and evaluation techniques to measure the knowledge of history.
- Apply knowledge of history in understanding current socio-economic-political issues for human interests and building future society in the light of past.
- Deduce the logical from the facts of history to be applied for a healthy social life.

COURSE CONTENT

UNIT – I

1. **NATURE, SCOPE, AIMS, AND OBJECTIVES OF HISTORY**
   - Meaning, Nature, Scope of history. Importance of time & space in history
   - Place of history in secondary and senior secondary level school curriculum
   - Aims, objectives and values of teaching history
   - Bloom's taxonomy to formulate objectives in behavioural terms
   - Co-relation of history with other school subjects. Relation of history with present.
   - Classification of history according to geographical boundaries, period and circumstances.

UNIT – II

2. PEDAGOGICAL ANALYSIS OF CONTENT AND LESSON PLANNING

- Meaning and importance of pedagogical analysis
- Points followed for pedagogical analysis: (i) Identification of concept (ii) Listing behavioural outcomes (iii) Listing activities & Experiments (iv) Listing evaluation techniques.
- Some content for pedagogical analysis:

a) Indus valley civilization b) Ashoka The Great c) Mughal dynesty

d) First war of independence (1857 A.D.) , e) Freedom movement and modern India

- Lesson planning: Need and importance, steps involved in lesson planning, features of a good lesson planning.
- Development of self-instructional material (SIM) for secondary and senior secondary level students.

UNIT – III

3. TEACHING-LEARNING RESOURSES AND HELPING MATERIALS

- Curriculum and instructional material: Need for development and designing curriculum in history.
- Principles of curriculum construction, organization of content in history curriculum according to stages of education.
- Development of history text-book, characteristics of a good text book, need of text-book for teaching history.
- Identifying controversial points of history, analytical teaching of such points.
- Meaning, importance and use of helping material, types of helping material
- Selection of helping material: Maps, time lines, flow charts, battle plans, pictures, film-strips, models, computer & internet, radio, T.V. etc.

UNIT – IV

4. APPROACHES AND EVALUATION

- Approaches, methods and techniques of teaching history – need and importance, selection of method to teach specific content.
- Various methods of teaching history: source method, discussion method, lecture-cum-story telling method, dramatization, project method, teaching through field trips and excursions.
- Use of various techniques, tactics and maxims of teaching
- Meaning, objectives and importance of evaluation
- Evaluation techniques and devices, characteristics of a good test in history.
- Preparing, reporting and evaluating the results.

Practicum/ Sessionals

Any one of the following

i. Preparation of time line, flow chart, battle plan, map showing boundaries of any specific dynasty or king or specific period (Individual activity)
ii. Organize trip to historical place/monuments.
iii. Prepare skit/drama from history-events (Group-activity)

Suggested Readings:

Chaudhary, K.P. (1975). The effective teaching of History in India. New Delhi: NCERT.

Dhamija, N. (1993). Multimedia Approaches in teaching of Social studies. New Delhi: Harman Publishing House.

Khan, S.U. (1998). History teaching problems, prospectives & prospect. New Delhi: Heera.

Gunnin, D. (1978). The teaching of History. London: Goom Helm Ltd.

Group-III: Pedagogy of Languages

(i) PEDAGOGY OF ENGLISH

Max. Marks :100

Time: 3 Hours **(Theory: 80,Internal: 20)**

NOTE FOR PAPER SETTER

i. **Paper setter will set nine questions in all, out of which students will be required to attempt five questions.**
ii. **Q.No 1 will be compulsory and will carry 16 marks. There will be four short -answer type Questions of 4 marks each to be selected from the entire syllabus.**
iii. **Two long answer type question will be set from each of the four units, out of which the student will be required to attempt one question from each unit. Long- answer type questions will carry 16 marks each.**

LEARNING OUTCOMES

After transaction of the course, student teachers will be able to:

- Familiarize with the elements of English language.
- develop linguistic skills among their pupils.
- conduct pedagogical analysis of the content in English language and develop teaching skills.
- make effective use of introduction aids in teaching of English.
- evaluate the performance of the students.
- explain various teaching methods of English.

Course Content

Unit-1

1. **Nature, Scope and Concept of Language**
   - Importance of teaching English at National and International Scenario.
   - Social history of English language Teaching in India
   - Aims and objectives of teaching English
   - Pedagogical analysis of Prose, Poetry, Grammar, Composition: Objectives and Lesson Planning.

Unit-II

2. **Development of Linguistic Skills, Methods and Approaches of Teaching**
   - Strategies for developing language skills : Listening and Speaking.
   - Developing Reading Skills & reading comprehension : Intensive and Extensive Reading, silent and loud reading.
   - Developing Writing Skills : Characteristics and Techniques for improvement.

- Teaching grammar – Deductive and Inductive Approach.
- Methods and Approaches of Teaching: Direct, Bilingual, Interactive Communicative Approach, Co-operative learning approach.

Unit-III

3. Teaching Learning Resources & Processes

- Features of English Pronunciation : Stress, juncture and intonation.
- Co-curricular activities in English classroom : Language games, quiz, debates, group discussions.
- Importance of Instructional material and their effective use : 1. Charts, 2. Pictures, 3. Chalk board 4. Models, 5. Real Objects, 6. Use of ICT including internet.

UNIV-IV

4. Development of Professional Efficiency & Evaluation Techniques

- Qualities of a good teacher of English
- Difference between measurement and evaluation
- Meaning and significance of Comprehensive and continuous evaluation in English.
- Development of good test items in English (Objective- type, essay - type and short answer type)

Praticum/Sessional

Any one of the following:

i. Preparation of Diagnostic Test, Achievement Test and reading comprehension test.
ii. Preparation of Instructional Material:
    a. Preparing PPT's
    b. Preparation of Charts and Models
iii. Prepare a Remedial programme for a child having English Spelling errors.

Suggested Readings

Bansal, R.K. and Harrison,J.B. (1972) : *Spoken English for Indian*, Madras: Orient Longman Ltd.

Baruag, T.C. (1985): *The English Teacher's Handbook*, New Delhi Starling publishing Pvt.Ltd.

Brumfit,C.J. (1984): *Communicative Methodology in Language Teaching* . Cambridge: C.U.P.

Chadha, S.C. (2004). *Arts and Science of Teaching English* (2nd ed.). Meerut : Surya Publication .

Freeman D.L. (2000). *Techniques and Principles in Language Teaching* ,Oxford: CUP.

Gimson A.C. (1980). *An Introduction to the Pronunciation of English* London: Edward Arnold.

Hornby, A.S. (1968): *A Guide to Patterns and Usage in English,* Oxford: OUP
Kochar, Shasi, Rama Chandran Jyothy (2001). *Teaching of English.* New Delhi.
Lado, Robert (1971). *Language Teaching,* New Delhi: Tata McGraw Hill Publishing House Co. Ltd.
Mendonca, Lawrence, (2002). *Applied English Grammar and Composition.* New Delh: Nav Publications.
NCERT (2005) *Position Paper National Focus Group on Teaching of English,* New Delhi, NCERT.
Paliwal,A.K., (1988): *English Language Teaching*, Jaipur: Surbhi Publication

Rai, Geeta (2009). *Teaching of English,* Meerut : Vinay Rakheja
Sawhney, K.K. & Sharma, K.R. (2004). *Teaching of English,* Jammu : Educational Publishers.
Sharma, Praveen (2008). *Teaching of English Language,* Delhi : Shipra Publications.
Sharma, R.A. (2004). *Fundamentals of Teaching English,* Meerut : R.Lall Book Depot.
Wilkins, D.A. (1983), *Linguistics in English Teaching,* London : Edward Arnold
ELBS Edition.

Group-III: Pedagogy of Languages

(ii) fgUnh f'k{k.k

Maximum Marks :- 100

Time: 3 Hours **(Theory: 80, Internal- 20)**

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- ekrHkk"kk fgUnh dh idfr ,o egRo d ckj e 0;k[;k dj ldxA
- fon'kk e fgUnh Hkk"kk d egRo dk Li"V dj ldxA
- ikB;p;k d mifo"k;k dk f'k{kk&'kkL=h; fo'y"k.k d :i e 0;k[;k dj ldxA
- Hkk"kk d vk/kkjHkr dk'kyk d f'k{k.k dk vH;k l dj ldxA
- fgUnh f'k{k.k dh fofHkUu fof/k;k dk oxhdj.k dj ldxA
- vf/kxe llk/kuk dh igpku dj ldxA
- eY;kdu ifd;k dk ifriknu dj ldxA
- Cy fiV cukdj i'ui= dk fuek.k dj ldxA
- ikB;de d fuek.k d fl)kUrk dh lph cuk ldxA
- ikB;iLrd dh fo'k"krkvk dk ifjHkkf"kr dj ldxA

- mPpkj.k ,o v{kj foU;kl lEcU/kh =fV;k dk fuokj.k dj ldxA

bdkb&1

¼1½ **fgUnh Hkk"kk dh Hkfedk**

- ekr Hkk"kk fgUnh dk lEiR;;] idfr ,o {k=
- lfo/kku e fgUnh Hkk"kk dh fLFkfr ,o o'ohdj.k d lUnHk e fgUnh Hkk"kk dk egRoA
- Cye }kjk fu/kkfjr mnn'; dk 0;ogkfjd i;kx A
- fgUnh e mPpkj.k f'k{k.k] v{kj&foU;kl ¼& mPpkj.k vkj v{kj&foU;kl lEcfU/kr =fV;k d fuokj.k ,o l'kk/ku e Hkk"kk;h i;kx'kkyk dk egRoA

bdkb&2

¼2½ **Hkk"kkb dk'ky ,o f'k{kk 'kkL=h; fo'y"k.k%**

¼d½ Hkk"kkb dk'ky dk lkekU; Kku%

1- Jo.k dk'ky 3- Hkk"k.k dk'ky

2- iBu dk'ky 4- y[ku dk'ky

bu dk'yk dk fodflr dju e lgk;d v/;;u llk/kuk dk i;kxA

¼[k½ fo|ky; ikB;p;k ij vk/kkfjr f'k{kk 'kkL=h; fo'y"k.k%

x| vkj i| d fdlh nk mifo"k;k dk f'k{kk 'kkL=h; fo'y"k.k ¼6 l 10 rd d ikB;p;k l½

- f'k{kk 'kkL=h; fo'y"k.k

&lEiR;; dh igpku] mnn'; j[kkdu] i;kxkRed fd;kvk dk lphc) djuk] eY;kdu rduhd fu/kkj.k

bdkb&3

- ikB ;ktuk dk vFk] egRo] :ij[kk ,o fuek.k ¼dEi;Vjhdr ,o lpuk rduhdh d lg;kx l½
- fgUnh Hkk"kk f'k{k.k dh fof/k;k ,o vH;kl dk;A

&x| f'k{k.k ¼fofHkUu fo/kkvk d :i e½

&i| f'k{k.k

&0;kdj.k f'k{k.k

&jpuk f'k{k.k ¼dgkuh] i= ,o fucU/k d :i e½

bdkb&4

- ikB;de fuek.k ,o leh{kk

- ikB; iLrd dh fo'k"krk, ,o ek/;fed Lrj dh fgUnh ikB; iLrd dh leh{kkA
- f'k{kkFkh mUu;u eY;kdu ¼vk/kfud eY;kdu rduhd vk/kkfjr½
- i'ui= dk fuek.k ¼mnn';okj] i'uokj] idj.kokj vd foHkktu ,o Cy fiV dk fuek.k rFkk i'ui= dk fo'y"k.kA½

i;kZoj.k fd;k,¡

fuEufyf[kr e l fdlh ,d ij ifj;ktuk dk; r;kj djA

- fgUnh d lkfgR;dkjk e l fdlh ,d lkfgR;dkj dh fdlh ,d fo/kk dk vkykpukRed v/;;uA
- fgUnh f'k{k.k e eukjtukRed fd;kvk¡ 'kCn vUrk{kjh] nkgk vUrk{kjh] igfydk dk vk;ktuA
- fgUnh f'k{kd d fy, okfNr ;kX;rk,¡ ,o 0;olkf;d n{krk vkj lEHkkfor dk;{k= dk KkuA

lnHk xUFk lph¡

1- mek] exy- ¼2008½- *fgUnh f'k{k.k*] ub fnYyh¡ vk; cd fMik
2- d';i] j.k- ¼2001½- *^jktHkk"kk fgUnh dk Lo:i* fo'y"k.k*] iVuk¡ ftKklk idk'ku] >ye vikVeV
3- dekj] ;kx'k- ¼2004½- *vk/kfud fgUnh f'k{k.k** ub fnYyh¡ ,-ih- ,p- ifCyf'kx dkjikj'ku
4- ik.M;] jke'kdy- ¼2004½- *^uru fgUnh f'k{k.k** vkxjk¡ foukn iLrd efUnj
5- ikjhd] eerk- ¼2006½- *^fgUnh f'k{k.k t;ij ¡ dYiuk ifCyd'kUl pkniky cktkj]*
6- HkkfV;k] dyk'kpun ,o ekrhyky pronh- ¼2001½- *^fgUnh Hkk"kk fodkl vkj Lo:i*] ub fnYyh ¡ xFk vdkneh]*
7- 0;kl Hkxorhyky ,o on idk'k- ¼2004½- *fgUnh f'k{k.k d u; vk;ke¡* vkxjk ¡ jk/kk idk'ku efUnj
8- flg] fujtu dekj- ¼2006½- *^ek/;fed fo|ky;k e fgUnh f'k{k.k** jktLFkku¡ fgUnh xUFk vdkneh] fryduxj

Group-III: Pedagogy of Languages

(iii) PEDAGOGY OF PUNJABI

Time: 3 Hours **Max. Marks: 100**
(Theory: 80, Internal: 20)

NOTE FOR PAPER SETTER

i. **Paper setter will set nine questions in all, out of which students will be required to attempt five questions.**
ii. **Q.No 1 will be compulsory and will carry 16 marks. There will be four short -answer type Questions of 4 marks each to be selected from the entire syllabus.**
iii. **Two long answer type question will be set from each of the four units, out of which the student will be required to attempt one question from each unit. Long- answer type questions will carry 16 marks each.**

Learning Outcomes

After the transaction of the course, student teachers will be able to:

- Explain the need and principles of Punjabi Language.
- Develop awareness about basic concepts related to teaching of Punjabi at the secondary level.
- Define linguistic skills and process of development among pupils.
- Conduct pedagogical analysis and develop teaching skills.
- Explain the concept of evaluation and methods of evaluating the performance of students.
- Demonstrate language competencies.

Course content

Unit -1

1. **Nature & Scope of Teaching of Punjabi**
    - Language & its development
        - Meaning
        - importance
        - Nature
    - Formulation of Instructional objectives in teaching of Punjabi
        - Meaning of Instructional objectives
        - Taxonomy of Instructional objectives
        - writing objectives in behavioral terms
    - Correlation
        - Inter correlation of Punjabi language with other languages(Hindi, English, Sanskrit)
        - Intra correlation of Punjabi language (Prose, Poetry, Grammar, Composition)

Unit- 2

2. **Contents and its pedagogical analysis**
    - Pedagogical Analysis- Objectives and lesson planning

  - Teaching of Prose
  - Teaching of Poetry
  - Teaching of Grammar
  - Teaching of Composition
- Development of Language skills
  - Listening
  - speaking
  - Reading
  - Writing
- Teaching skills
  - Skill of Questioning
  - Skill of Explaining
  - Skill of Technology enthusiast
  - Skill of chalk board writing

Unit-3

3. Teaching learning resources and process

- Instructional Material
  - Concept
  - components
  - Importance / use
- Use of Language laboratory and latest techniques
- Curriculum of Punjabi Language
- Text Books of Punjabi Language

Unit-IV

4. Approaches and Evaluation on Teaching

- Remedial Teaching
  - Meaning and significance of remedial teaching
  - Common errors in Punjabi language and their removal
- Evaluation
  - Concept of test measurement and evaluation
  - Place of Evaluation in the process of teaching learning

Practicum/Sessionals

Select anyone of the following:

i. Preparation of a Diagnostic /Achievement Test.
ii. Organize a quiz competition in Punjabi and analyze the responses of students.
iii. ICT Based presentation on any topic of your choice.
iv. Seminar presentation on any topic given in the syllabus.

Suggested Readings

Singh,G.B.(1981). *Gurumukhi Lipi Da Janam Te Vikas,* Chandigarh: Punjab University Publication Bureau

Singh, G.(1971). *Gurumukhi Lipi Bare,* Ludhinana : Lahore Book Shop

Singh, H.(1966), *Punjabi Bare*, Patiala: Punjabi University

Sekhon, S.S. & Singh, P.P.(1961). *Punjabi Boli Da Itihaas*, Punhabi Bhasha Vibhag

Group-III: Pedagogy of Languages

(iv) lLdr f'k{k.k

le;% 3 ?k.V **dy vad% 100**

ckg; vad% 80 **vkUrfjd vad % 20**

i'u i= fuekrk gr fun'k&

lEi.k ikB;Øe l uk i'u fn, tk,xA tk lHkh lkyg vdk d gkxA iFke i'u vfuok; gkxk tk pkj&pkj vdk d pkj y?k i'uk d :i e lEi.k ikB;Øe l fy;k tk,xkA

mí';%

1- ek/;fed Lrj ij fo/kkfFk;k e lLdr&f'k{k.k mí';k d ckj e tkx:d djukA

2- li"k.k dk'ky d egRo dh le> dk fodflr djuk

3- lLdr f'k{k.k dh fof/k;k l ifjfpr djokukA

4- lLdr f'k{k.k d fy, vun'kkRed lkexh dk r;kj djuk vkj ml iHkko'kkyh <x l i;kxkRed dk'ky fodflr djukA

5- fo|kfFk;k dk lLdr f'k{k.k ,o vf/kxe d fofHkUu igyvk l ifjfpr djkukA

6- lLdr f'k{k.k e funkukRed o mipkjkRed dk'ky dk fodflr djukA

bdkb&1

- lLdr Hkk"kk ,o lkfgR; dk egRo o bldk vU; fo"k;k l vUrlc/kA
- lLdr Hkk"kk dk vU; Hkk"kkvk l lc/kA
- vk/kfud ikB;Øe e lLdr dk LFkkuA

- f=Hkk"kk l= ,o vU; 'kkldh; ifronuk dk lLdr f'k{k.k ij iHkkoA
- lLdr vk;kx d ifronu vkj mld vudj.k dk; lkj foe'kA
- lLdr Hkk"kk dk fo'o Hkk"kkvk d lkFk lgl EcU/k rFkk v/;;u dh ikIfxdrkA
- lLdr f'k{k.k d y{;] mí'; vkj budk foHkktuA
- pkjk ey Hkk"kkb dk'kyk dk lLdr d lnHk e Kku ,o vH;kl

bdkb&2

- lLdr Hkk"kk f'k{k.k dh ijEijkxr vkj vk/kfud fof/k;k dk ifjp;
- ikB'kkyk ¼l=½ fof/k
- Hk.Mkjdj ¼0;kdj.k vuokn½ fof/k
- ikB;iLrd fof/k
- iR;{k ,o ekf[kd fof/k
- ljpukRed mikxe
- vfeØfer vun'ku
- lLdr f'k{k.kkFk lpuk rduhdh d vk/kfud lk/kuk dk Kku ,o i;kx dk vH;kl

bdkb&3

- lLdr Hkk"kk dh fofHkUu fo/kkvk dk f'k{k.k
- lLdr 0;kdj.k f'k{k.k mí';] egRo] ifØ;k ,o ikB ;ktuk
- lLdr i| f'k{k.k mí';] egRo] ifØ;k ,o ikB ;ktuk

- lLdr x| f'k{k.k mí';] egRo] ifØ;k ,o ikB ;ktuk
- lLdr jpuk f'k{k.k mí';] egRo] ifØ;k ,o ikB ;ktuk
- lLdr vuokn f'k{k.k mí';] egRo] ifØ;k ,o ikB ;ktuk
- lLdr f'k{k.k e vH;kl dk; fu;ktu rFkk l'kk/ku ifØ;k

bdkb&4

- lLdr Hkk"kk dh ikB;lgxkeh fØ;kvk&'ykdkPpkj.k] Hkk"k.k] vfHku;hdj.k] jpuk d vk;ktu dk f'k{k.k
- lLdr e ekf[kd dk; e 'k)rk dk egRo] mPpkj.k v'kf);k d dkj.k] idkj rFkk mipkj
- lLdr y[ku e v{kj foU;kl rFkk y[kuxr =fV;k d dkj.k] idkj rFkk mipkj
- lLdr ikB;iLrd fuek.k ,o leh{kk]
- lLdr Hkk"kk f'k{k.k d eY;kdu dh ikphu ,o vokphu fof/k;k dk f'k{k.k

ik;kfxd dk;Z&

- Nk=k/;kid lLdr eY;kdu gr ek/;fed Lrj d ikB;Øe e l oLrfu"B y?kÙkjkRed rFkk fucU/kkRed i'ui=k dk fuek.k lLdr ek/;e e djxA
- ek/;fed Lrj dh lLdr ikB;iLrd dh leh{kk djxA
- ,d ikB; iLrd d iR;d ikB l nl&nl 'kCnk dk in ifjp; ikoj lokbV d i;kx }kjk r;kj djx A

- d{kk d le o fo"ke vuØekd oky Nk= Øe'k% xhrk d iFke vkj vfUre v/;k; dk 'kkL=h; fo'y"k.k] 0;k[;k vkj l{kihdj.k viu 'kCnk e djxA

lUnHk xFk lph%

vkIV] Mh- th- ,oe Mkxj ¼1980½- *Vhfpx vkQ lLdr bu ld.Mjh Ldy]* cMknk% vkpk; cd fMikA

dky] ,e-vkj- gk;j lLdr xkej xoueUV vkQ bf.M;k% *fjikV vkQ lLdr* deh'kuA

ik.M] vkj-,l- ¼2000½- *lLdr f'k{k.k]* vkxjk% foukn iLrd efUnj

ik.M;] jke'kDy *lLdr f'k{k.k]* vkxjk% foukn iLrd efUnjA

feÙky] lUrk"k *lLdr f'k{k.k]* ejB% vkj yky cd fMik

feJ] iHkk'kdj lLdr&f'k{k.k A

ckfdy ,oe ikjlfud , U; ,ijkp V *lLdr*] iuk% ykd lxg illA

lQk;k] j?kukFk *lLdr&f'k{k.k]* p.Mhx<% gfj;k.kk lkfgR; vdkneh

flg] ,l-Mh- ,oe 'kek ¼1999½- *lLdr f'k{k.k]* vkxjk% jk/kk idk'ku eMhA

'kkL=h ,oe 'kkL=h *lLdr f'k{k.k]* t;ij% jktLFkku idk'kuA

gQjdj *n ikCYe vkQ Vhfpx vkQ lLdr*

Group-IV: Pedagogy of Mathematics
PEDAGOGY OF MATHEMATICS

Time: 3 Hours **Max. Marks: 100**
(Theory: 80, Internal: 20)

NOTE FOR PAPER SETTER

i. **Paper setters will set nine questions in all, out of which students will be required to attempt five questions.**
ii. **Q. No. 1 will be compulsory and will carry 16 marks. There will be four short-answer type questions of 4 marks each to be selected from the entire syllabus.**
iii. **Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. Long-answer type questions will carry 16 marks each.**
iv. **All questions will carry equal marks.**

Learning Outcomes

After the transaction of the course, student teachers will be able to:

- understand the nature of mathematics
- develop an understanding of the correlation of mathematics with external subjects
- teach the concepts and principles of mathematics.
- select appropriate methods of teaching to teach mathematics.
- develop an understanding of innovative trends in teaching of Mathematics
- develop achievement test in mathematics;
- understand preparation and use of diagnostic test and organize remedial teaching;
- understand the application of appropriate evaluation techniques in mathematics

COURSE CONTENT

Unit-I

1. **Nature & Scope of Teaching of Mathematics**
   - Meaning, nature and scope of mathematics
   - History of Mathematics and Contribution of Indian mathematician with special reference to Bhaskaracharya, Aryabhatta and Ramanujam
   - Relationship of Mathematics with other school subjects
   - Aims and objectives of Mathematics teaching
   - Behavioural objectives: meaning and importance of behavioural objectives, writing instructional objectives for teaching of mathematics (Bloom's Taxonomy of Instructional Objectives).

Unit-II

2. **Pedagogical Analysis and Lesson Planning**
   Meaning and importance of Pedagogical Analysis

- **Points followed for Pedagogical Analysis:** Identification of concept, listing behavioral outcome, listing activity & experiments, listing evaluation techniques
- **Contents for Pedagogical Analysis:**
  - Arithmetic (Number Systems, Fractions, Ratio and Proportion, Profit and Loss, Simple and Compound Interest)
  - Algebra (Polynomials, Linear equations, Quadratic equations Arithmetic Progressions)
  - Geometry (Congruent and Similar triangles, Constructions and Circles),
  - Trigonometry (t-ratios, Heights and Distances)
  - Statistics (Measures of Central Tendency and Graphical Representation of Data)
  - Menstruation (Areas, Surface areas and volumes of solid figures)
- Skills of teaching mathematics: Skill of Introduction, Skill of Questioning, Skill of Reinforcement, Skill of Illustration with examples and Skill of Stimulus variation
- Lesson planning: Need and importance, steps involved in lesson planning, features of a good lesson plan.

Unit-III

3. Teaching Learning Resources and Processes

- Meaning, Importance and Principles of designing a good curriculum of Mathematics
- Textbooks: Meaning and importance of textbooks in mathematics, qualities of a good textbook inMathematics
- Applications of ICT in teaching of mathematics
- Meaning and importance and preparation of audio-visual aids in teaching mathematics
- Problems in teaching and learning of mathematics
- Importance and organization of Mathematics Club
- Recreational activities of Mathematics Club
  - Quiz
  - Games
  - Puzzles
  - Mathematics exhibition

Unit-IV

4. Approaches and Evaluation in Teaching of Mathematics

- **Methods of teaching Mathematics**
  - Lecture cum demonstration method
  - Analytic-Synthetic
  - Laboratory

  - Inductive-Deductive
  - Problem Solving
  - Project Method
- **Techniques of teaching Mathematics**
  - Oral work
  - Written work
  - Drill work,
  - Brain Storming,
  - Home Assignment
- Evaluation**:** Meaning, importance and types of evaluation**.**
- Preparation of diagnostic and achievement test.

Praticum/Sessional

Any one of the following

i. Critical study of mathematics text book of secondary school.
ii. Prepare any one self-made teaching aid for teaching of Mathematics in secondary school
iii. Prepare an achievement test of mathematics
iv. Prepare a diagnostic tests of mathematics
v. Prepare slides using MS Power point on any one topic of mathematics

Suggested Readings:

Aggarwal, J. C. (2008). *Teaching of mathematics.* UP: Vikas Publishing House Pvt Ltd.

Bagyanathan, D. (2007). Teaching of mathematics. Chennai: Tamil Nadu Text Book Society.

Bhatia, K. K. (2001). Foundations of teaching learning process. Ludhiana: Tandon

CFAI. (2004). Methodology of teaching mathematics. Hyderabad: ICFAI University Press.

Ediger, M., & Bhaskara Rao, D. B. (2004). *Teaching mathematics successfully*. New Delhi: Discovery Publishing House.

Ediger, M., & Rao, D.B. (2000). *Teaching mathematics successfully*. New Delhi: Discovery Publishing House.

Goel, Amit. (2006). *Learn and teach mathematics.* Delhi: Authors Press.

ICFAI. (2004). *Methodology of teaching mathematics.* Hyderabad: ICFAI University Press.

James Anice (2005); *Teaching of Mathematics*, Neelkamal Publication.

Joyce., & Well., (2004). *Models of teaching.* U.K: Prentice hall of India.

Kapoor, S. K. (2006). *The teaching of vedic mathematics.* New Delhi: Lotus Press.

Kapur S. K. (2005); Learn and Teach Vedic Mathematics; Lotus Publication

Kapur, J. N. (2002). Suggested experiments in school mathematics. New delhi: Arya Book Depot.

Kulshreshtha, A. K. (2008). *Teaching of Mathematics.* Meerut: R.Lall Books Depot.

Nalikar, J. V., & Narlikar, M. (2001). *Fun and fundamentals of mathematics.* Hyderabad: Universities Press.

Ploker, Kim (2009), *Mathematics in India*: 500 BCE–1800 CE, Princeton, NJ: Princeton University Press,

Pratap, N. (2008). Teaching of Mathematics. Meerut: R.Lall Books Depot. Publications.

Reymond, B. (2000). Math-tricks, puzzles and games. New Delhi: Orient Paperbacks.

Schwartz, S. L. (2007). *Teaching young children mathematics.* London: Atlantic Publishers & Distributors (P) Ltd.

Sharan, R., & Sharma, M. (2006). Teaching of Mathematics. New delhi: A.P.H. Publishing Corporation.

Sharma, R. A. (2008). *Technological foundation of education.* Meerut: R.Lall Books Depot.

Siddizui, M. H. (2005). *Teaching of mathematics.* New Delhi: A.P.H. Publishing Corporation.

Sidhu, K. S. (2006). *The teaching of mathematics.* New Delhi: Sterling Publishers private ltd.

Singh, M. (2006). *Modern teaching of mathematics.* New Delhi: Anmol Publications Pvt.Ltd.

Tyagi, S.K. (2004); *Teaching of Arithmetic*; Commonwealth Publications

Wadhwa, S. (2008). *Modern methods of teaching mathematics.* New Delhi: Karan Papers Backs.

Course EPC-1

Reading And Reflecting On Text.

Max. Marks :50

Time: 3 Hours **(External: 40,Internal: 10)**

Learning Outcomes

After the transaction of the course, student teachers will be able to:

- Engage with the readings inter-actively individually and in small groups.
- Read and response to a variety of texts in different ways.
- Learn to think together, depending on the text and the purpose of reading.
- Enables to effective communication skills.
- Develop an insight into the exposing reading, writing, thinking and communication in the language of instruction.

COURSE CONTENT

Unit 1

- **General Orientation**
  - Communication- concept and type of communication, overcoming barriers of communication.
  - Identifying and describe some differences in dhonemic system of language spoken by learners (in first and second language).
  - a. Engaging with narrative and descriptive accounts. The selected text could include stories or chapter from fiction, dramatic incidence, vivid descriptive accounts, or even well produced trip stories.

Suggested Activities:

i. Exposure (native speaker) to give students by using ICT followed by discussion.
ii. Narrating/describing a related account from one's life experience (in front of a smaller group) by student -teacher.
iii. Re-telling the account – in one's own words/from different points of view (talking turns in a smaller group).
iv. Discussion of chapter character and situation sharing interpretation and points of view (in a small group)
v. Writing based on text, e. g. summary of scene, extrapolation of a story, converting a situation into a dialogue, etc. (individual text).

Unit II

- Engaging with popular subject- based expository writing (educational and writing) Spelling and punctuation.

- The selected text could include articles, Essays and biographical writing with themes that are drawn from the subject area of the students, teachers (various sciences, Mathematics, social sciences, language.)

Suggested Activities:

i. Attending the writing style, subject specific, vocabulary and perspective or reference frame in which different topic are presented- (group discussion).
ii. Writing a review or a summary of the text, with comments and opinion.

- **Engaging with journalistic writing**
- Student teacher will select newspaper/magazine articles on topics of contemporary issues.
- Analyze the structure use of articles by identifying sub-heading, keywords, sequencing of ideas, use of concrete details and statistical representation.
- Articles on topics of interest for write collage magazine/wall.

Unit III

- **Engaging with subject – related reference books.**
  - **Sequence of Activities**
    i. Students teacher (in small group) will make a choice of a specific topic in their subject area which they could research from a set of available references books.
    ii. Search relevant references books from library/internet source and extract relevant information.
    iii. Makes notes on these ideas in some schemative from (flow diagram/mind map)
    iv. Plan a presentation with display and oral comments.
    v. Make presentation to whole group.

EPC-2
Drama and Art in Education

Max. Marks :50
Time: 3 Hours **(External: 40,Internal: 10)**

Learning Outcomes

After the transaction of the course, student teachers will be able to:

- develop aesthetic sensibilities in students to learn the use of art in teaching- learning.
- shape student consciousness through introspection and imagined collective experiences

1. **Drawing and Painting**
   - Representational Drawing and painting from nature – plants, foliage, flowers, birds and animals etc. (medium – pencil, pen & ink, crayon, water-colour- any two medium)
   - Perspective Drawing.
   - Still-life study (medium – pencil, pen & ink, crayon, water colour, oil-colour, acrylic colour – any two medium).
   - Composition Painting – (Crayon, Water-colour, Oil-colour – any two medium).
   - Arrangement printing with leaf, finger, cork, stamps, cardboard, jute and bandage texture– any two medium.
   - Monotype surface-printing, Thread-print, Stencil-print, spray-print, Simple block making and print – Potato-cut-print, vegetable print with lady finger, Simple block making and print – Potato-cut-print, vegetable print with lady finger, – any two medium.
2. **Creative Art /Drama**
   - Creative pictorial or geometrical design – Water colour / Pastel colour.
   - Surface design – Floor decoration (Alpana, Rangoli), Wall decoration.
   - Poster-Design (Monochrome / multi-colour).
   - Simple lettering for communication, calligraphy.
   - developing narratives in visuals, composition of an imagined situation
   - telling a story through comic strips, creating a collage using images, bits cut-out from old magazines, news paper etc.
   - Collecting and arranging rare photographs, photo print on various theme.
   - Understanding the Drama as a medium of instructions and its role in effective teaching. It should be based on the lesson from particular subjects of teaching: One Act Play, Skit, Mono Acting, Voice Play, Storey Board etc. should be implemented as one of the effective teaching aid.
   - The prospective teacher will prepare minimum TWO lessons through drama. The contents will be from or based on the lesson to teach in the class.

Course 8
KNOWLEDGE AND CURRICULUM

Max. Marks :100
Time: 3 Hours **(Theory: 80,Internal: 20)**

NOTE FOR PAPER SETTER

i. **Paper setter will set nine questions in all, out of which students will be required to attempt five questions.**
ii. **Q.No 1 will be compulsory and will carry 16 marks. There will be four short - answer type Questions of 4 marks each to be selected from the entire syllabus.**
iii. **Two long answer type question will be set from each of the four units, out of which the student will be required to attempt one question from each unit. Long- answer type questions will carry 16 marks each.**

Rationale:

The course "Knowledge and Curriculum" addresses the theoretical foundations of school knowledge from historical, philosophical and sociological perspectives, with critical analysis of curricular aims and contexts, and the relationship between curriculum, policy and learning to shape the educational and pedagogic practice with greater awareness.

Learning Outcomes

After the transaction of the course, student teachers will be able to:

- To understand and explore the concept of education
- To develop understanding of philosophical, sociological and historical dimensions of education
- Analyze the philosophical reflections and educational thoughts of great Educational thinkers
- Understand the nature of knowledge in Education and its contribution to status of
- Education as a discipline and interdisciplinary in nature
- Realize the need and importance of equity and equality in education
- Examine the concerns and issues related to curriculum.

Course Contents

Unit-I

1. **Knowledge Basis of Education**
   - Basic concepts of Education: Teaching, Training, Learning, Skill, Beliefs and Education.
   - Contribution of Gandhi & Tagore in relation to child-centered education (activity, Discovery, Dialogue)
   - Concept, sources & types of Knowledge

Unit-II

2. Social Basis of Education

- Basic concepts of Society: Socialization, Equity and Equality, Modernity with reference to industrialization, democracy and individual Autonomy.
- The role of culture, economy and historical forces in shaping the aims of education.
- Individual opportunity, social justice and dignity in context of democratic education.
- A study of Secularism, Nationalism and Universalism and their interrelationship with education.

Unit-III

3. Curriculum Development

- Concept of Curriculum and Syllabus: Dimensions of Curriculum and their relationship with aims of education.
- Curriculum at different levels- National, State and School.
- Determinants of curriculum: Philosophical, Psychological, Sociological, Political, Culture and Economic.
- Basic considerations in Curriculum Development.

Unit-IV

4. Curriculum Practices

- Teachers' experiences and concerns: Laboratory work, Library and References, Field Survey, Group Discussion.
- Nature of learner and learning process and subject matter.
- Knowledge and ideology in relation to curriculum and text books.
- National curriculum framework: Concept need and process of development.

Practicum/ Sessionals

Any two of the following:

i. Socio-economic educational survey of near by village/ urban settings.

ii. Role of education in empowerment of weaker sections of society**.**

iii. To analyze and prepare a report on the present curriculum of Haryana School Education Board/ CBSE in the light of various determinates of curriculum development.

iv. Filed survey on impact of present system of education on:

a) Socialization of child

b) Modernization with reference to industrialization and individual autonomy.

v. To survey and prepare a project report on how far the present system of education is able to inculcate secularism, nationalism, and universalism.

Suggested Readings

Butchvarov, P. (1970), *The Concept of Knowledge*, Evanston, Illinois: North Western University Press.

Chomsky, N (1986). *Knowledge of Language*, New York : Prager.

Cole Luella (1950). *A History of Education: Socrates to Montessori*, NewYork: Holt, Rinehart & Winston.

Datta, D.M. (1972). *Six ways of Knowing*. Calcultta.: Calcultta University Press,

Dewey, J.(1997.)My Pedagogic Creed', in D.J. Flinders and S.J. Thorton(eds.) The Curriculum Studies Reader, New York: Routledge.

Dewey, J (1997) *Experience and Education*, Touchstone, New York

Dewey, J (1956). *The Child and the Curriculum and School and Society*, University of Chicago Press, U.S.A. Chicago, Illinois.

Krishna M. J. (1947) *On Education*, New Delhi: Orient Longman.

Kumar K. (1996*). Learning From Conflict*, New Delhi: Orient Longman.

Lakshmi, T.K.S. & Yadav M.S.(1992). Education: Its Evolving Characteristics, in *New Frontiers in Education*, Vol. XXII, No.4, Oct-Dec.

Margaret, K.T.(1999.) *The open Classroom*, Orient Longman: New Delhi: Hirst. Paul, Knowledge and curriculum.

Peters, R.S.(1967) *The Concept of Education*, UK: Routledge.

Power, E, J., M (1962). *Currents in the History of Education*, New York. : McGraw Hill Book Co. Inc.

Prema C. (2001). *Teaching & Learning: The Culture of pedagogy*, NewDelhi: Sage Publication.

Course -9

ASSESSMENT FOR LEARNING

Max. Marks :100

Time: 3 Hours **(Theory: 80,Internal: 20)**

NOTE FOR PAPER SETTER

i. **Paper setter will set nine questions in all, out of which students will be required to attempt five questions.**
ii. **Q.No 1 will be compulsory and will carry 16 marks. There will be four short - answer type Questions of 4 marks each to be selected from the entire syllabus.**
iii. **Two long answer type question will be set from each of the four units, out of which the student will be required to attempt one question from each unit. Long- answer type questions will carry 16 marks each.**

Rationale:

The course "Assessment for Learning" aims to develop a critical understanding of issues in assessment and explore realistic, comprehensions and dynamic assessment processes which are culturally responsive for use in classroom.

Learning Outcomes

After the transaction of the course, student teachers will be able to:

- Understand the nature of assessment and evaluation and their role in teaching-learning process.
- Understand the importance of assessment in continuous and comprehensive manner
- Develop assessment tasks and tools to assess learner's competence and performance
- Devise marking, scoring and grading procedures,
- Devise ways of reporting on student performance
- Analyse, manage and interpret assessment data.
- Develop the habit of reflecting-on and self-critiquing to improve performance.

Course Contents

Unit I

1. **Introduction to Assessment & Evaluation**
   - Concept of Assessment & Evaluation and their inter relationships.
   - Purposes and objectives of assessment for placement, providing feedbacks, grading promotion, certification, diagnostic of learning difficulties.
   - Critical review of current evaluation practices:
     a) Formative and summative evaluation
     b) Prognostic and diagnostic
     c) Norm referenced test and Criterion referenced test
     d) Quantitative and Qualitative

Unit II

2. Assessment of Learning

- Concept of Cognitive, Affective, Psychomotor domain of learning (Revised taxonomy of objectives (2001)
- Constructing table of specifications & writing different forms of questions – (VSA, SA, ET & objective type, situation based)
- Construction of achievement tests- steps, procedure and uses
- Construction of diagnostic test – Steps, uses & limitation
- Kinds of tasks: projects, assignments, performances

Unit III

3. **Assessment Process & tools**

- Need for CCE its importance and problems faced by teachers
- Meaning & Construction of process-oriented tools – observation schedule; check-list; rating scale; anecdotal record;
- Assessment of group processes – Nature of group dynamics; Socio-metric techniques; steps for formation of groups, criteria for assessing tasks; Criteria's for assessment of social skills in collaborative or cooperative learning situations.
- Portfolio assessment – meaning, scope & uses; developing & assessing portfolio; development of Rubrics.

Unit IV

4. **Construction Interpretation and Reporting of student's performance**

- Interpreting student's performance :
  a) Descriptive statistics (measures of central tendency & measures of variability, percentages)
  b) Graphical representation (Histogram, Frequency Curves)
  c) NPC – percentile.
  d) Grading – Meaning, types, and its uses
- Role of feedback to stake holders (Students, Parents, Teachers) and to improve teaching – learning process; Identifying the strengths & weakness of learners.
- Reporting student's performance – Progress reports, cumulative records, profiles and their uses, Portfolios.

Practicum/ Sessionals

Any one of the following:

i. Construction of unit test, using table of specifications and administering it to target group and
interpreting the result.
ii. Construction of any one of the process oriented tools and administering it to group of students & interpreting it.
iii. Analysis of question papers (teacher made)
iv. Writing self appraisal/ create portfolio.
v. Planning and organizing student's portfolio.

vi. Writing a report on the evaluation and learner practice of school education.
vii. Examine and reflect upon the problems and issues involved in assessment practice of school evaluation.

Suggested Readings

Bransford, J., Brown, A.L., & Cocking, R.R. (Eds.). (2000). How people learn: Brain, mind, experience, and school. Washington, DC: National Academy Press.

Burke, K. (2005). How to assess authentic learning (4th Ed.). Thousand Oaks, CA: Corwin.

Burke, K., Fogarty, R., & Belgrad, S (2002). The portfolio connection: Student work linked to standards (2nd Ed.) Thousand Oaks, CA: Corwin.

Carr, J.F., & Harris, D.E. (2001). Succeeding with standards: Linking curriculum, assessment, and action planning. Alexandria, VA: Association for Supervision and Curriculum Development.

Danielson, C. (2002). Enhancing student achievement: A framework for school improvement. Alexandria, VA: Association for Supervision and Curriculum Development.

Gentile, J.R. & Lalley, J.P. (2003). Standards and mastery learning: Aligning teaching and assessment so all children can learn. Thousand Oaks, CA: Corwin.

Guskey, T.R., & Bailey, J.M. (2001). Developing grading and reporting systems for student learning. Thousand Oaks, CA. Corwin.

Linn, Robert and Norman E Gronland (2000); Measurement and Assessment in teaching, 8th edition, by Prentice Hall, Inc, Pearson Education, Printed in USA.

Natrajan V.and Kulshreshta SP(1983). Assessing non-Scholastic Aspects-Learners Behaviour, New Delhi: Association of Indian Universities.

NCERT(1985). Curriculum and Evaluation, New Delhi:NCERT

Newman, F.M. (1996). Authentic achievement: Restructuring schools for intellectual quality. San Francisco, CA: Jossey-Bass.

Nitko, A.J. (2001). Educational assessment of students (3rd ed.). Upper Saddle River, NJ: Prentice Hall.

Norris N.(1990) Understanding Educational Evaluation, Kogan Page Ltd.

Rao, Manjula (1998): Training material on continuous and comprehensive evaluation (monograph) Mysore: Regional Institute of Education (NCERT).

Rao, Manjula (2004): Evaluation in schools – a training package (monograph), Mysore: Regional Institute of Education (NCERT).

Singh H.S.(1974) Modern Educational Testing. New Delhi: Sterling Publication.

Ved Prakash, et.al. (2000): Grading in schools, NCERT, Published at the publication Division by the secretary, NCERT, New Delhi: Sri Aurobindo Marg.

Course 10
CREATING AN INCLUSIVE SCHOOL

Max. Marks :50
Time: 1.30 Hours **(Theory: 40,Internal: 10)**

NOTE FOR PAPER SETTER

i. **Paper setter will set five questions in all, out of which students will be required to attempt three questions.**
ii. **Q.No 1 will be compulsory and will carry 8 marks. There will be two short - answer type Questions of 4 marks each to be selected from the entire syllabus.**
iii. **Two long answer type question will be set from each of the two units, out of which the student will be required to attempt one question from each unit. Long- answer type questions will carry 16 marks each.**

Rationale

The course "Creating an inclusive school" aims to develop an understanding of the cultures, Policies and Practices that need to be addressed in order to create an inclusive school.

Learning Outcomes

After the transaction of the course, student teachers will be able to:

- To define the concept of Disability, Inclusion, Psychosocial construct of disability and identity.
- The course aims to develop an understanding of the Cultures, Policies and Practices that need to be addressed in order to create an inclusive school.
- To analyze the policy and Programme initiatives in the area of inclusion and barrier to learning and participation while formulating a policy of good practice and review.
- To understand how barriers of learning arise from various discriminatory practices, curriculum, teaching approaches, school organization, and various other social and cultural factors.
- To study the role of children, Parents, Community, Teachers, Administrators and Policy Makers in terms of inclusion.
- To explore and understand the possibility of change through inclusive education

Course Contents

Unit I

1. **Inclusive education:**
   - Meaning, nature, need and philosophy of inclusive education.
     a) Models of inclusion,
     b) Barriers to learning and participation.
     c) Implementation and strategies for inclusion in society and school.
   - Constitutional provisions-Govt. policies and practices:
     a) National Policy of Persons with Disabilities Act 2006,

b) Sarva Shiksha Abhiyan in terms of Inclusive Education.

- Psycho-social and educational characteristics, functional limitations, role of family and community participation with reference to-Loco motor Impairment, Hearing Impairment, Visual Impairment, Learning Impairment and Mental retardation

Unit-II

2. Inclusive practices in classrooms

- School readiness and support services for inclusive education.
- Teacher competencies, role of class teachers and resource teachers in inclusive education.
- Guidance and counseling in inclusive education.
- Teaching learning strategies in inclusive education: co- operative learning, peer tutoring, social learning, multisensory learning.
- Individual Educational Programme (IEP) and use of emerging technologies.

Practicum/ Sessionals

Any one of the following:

i. Preparation of status report on school education of children with diverse needs.
ii. Evaluation of text books from the perspective of differently abled children.
iii. Field visit to school/institutions promoting inclusive practices and discussion with teachers and observation and analysis of teaching learning practices.
iv. Analysis of policy document (national, international) related to diversity.
v. Planning and conducting multi level teaching in the local school.
vi. Critical review of policy and practice and panel discussion by a group of students.
vii. Make a list of existing resources in the local area and discuss their use and limitations based on survey of five inclusive schools.

Suggested Readings

Alur Mithu and Michael Bach, (2009), *The Journey For Inclusive Education In The Indian Sub-Continent.* UK: Routledge

Dettmer, p., Dyck,N.and Thurston, L.P.(1999). Consultation collaboration and teamwork for students with special needs, Needham Heyats, M.a Allyn &Bacon

Epstein, C. (1984) *Special Children in Regular Classrooms.* Virginia: Reston Publishing Company, Inc

Frostig, M, and, P. Maslow (1973) *Learning Problems in the Classroom: Prevention and Remediation.* New York: Grune & Stratton.

Jorgensea, C.M.ed(1998). R restructuring High Schools for all Students: Taking inclusion to the next level, Baltimore: Paul H. brookes.

Hallahan, D & Kauffman, J.M. (1991). Exceptional Children: Introduction to special Education, Englewood, NJ: Prentice Hall.

COURSE 11 (Optional)

(i) ENVIRONMENT EDUCATION

Max. Marks :50

Time: 1.30 Hours **(Theory: 40,Internal: 10)**

NOTE FOR PAPER SETTER

i. **Paper setter will set five questions in all, out of which students will be required to attempt three questions.**
ii. **Q.No 1 will be compulsory and will carry 8 marks. There will be two short -answer type Questions of 4 marks each to be selected from the entire syllabus.**
iii. **Two long answer type question will be set from each of the two units, out of which the student will be required to attempt one question from each unit. Long- answer type questions will carry 16 marks each.**

Learning Outcomes

After the transaction of the course, student teachers will be able to:

- acquaint the concept , need ,scope and objectives of Environmental Education.
- sensitize the global environmental problem.
- explain teaching-learning strategies & evaluation techniques in Environmental Education.
- understand the curriculum development of environmental education.
- understand the role of Media & internet in environmental Issues.
- sensitize toward Environmental disasters**.**

Course Content

Unit-I

1. **Concept of Environmental Education:**
   - Meaning, need and scope of environmental education.
   - Evolution and development of environmental education.
   - Stock Holm conference, Thelisi conference and Earth Summit.
   - Objective of environmental education.
2. **Environmental problems and policies**:
   - Acid rain, Ozone depletion, effect of urbanization, industrialization and deforestation.
   - Global warming and Kyoto Conference.
   - Pollution and its types.
   - Policies related with environmental problems.
   - Sustainable development
   - Environmental legislation in India.
   - Concept of healthy environment
   - Eco club: Meaning, Characteristics & Importance.

Unit-II

3. **Curriculum development and environmental education**:
   - Teaching learning strategies and evaluation techniques in environmental education.
   - Planning of environmental education in school, colleges and universities.
   - Role of electronic media, mass media and computers in environmental education.
   - Curriculum development: India explainer, formal and non-formal approach.
4. **Managing environmental disasters:**
   - Meaning, types, causes and effects of different disasters.
   - Managing environmental disaster at community and individual level
   - Rescue from disaster: Principles governing rescue, rescue process
   - Relief for disaster: preparatory phase of relief ,planning immediate relief, execution of relief.

Practicum/Sessionals

Any one of the following:

i. Prepare a scrap file along with suggestion of pupil-teacher related to environmental articles and news.
ii. Project report on local environmental problem.
iii. Conducting discussion (class level)on disaster management and prepare a report on it.

Suggested Readings:

Ali Khan,S.&Sterling,(1998). *Sustainable development education*: Teacher education specification, London, Education for sustainable development Panel.
Allaby,M.(1996).*Basics of Environmental Science*. New York: Routledge.
Aptekar.Lewis (1914). *Environmental Disasters in Global perspective.* New York :G.K.Hall; Toronto: Maxwell macmillan.
Burton , Ian , Robert W.Kares and Gilbert F.white(.1993). *The environmental as Hazard*. New York: the Guildford press.
Dani, H.M.(1996). *Environmental Education* .Chandigarh: Punjab University Publication Bureau.
Huckle,J. & Sterling, S.(eds)(1996). *Education for sustainability*, London: Earthscan.
Kaur,T.N.(1999), *Environmental Concerns & Strategies,* New Delhi: Ashish Publication House.
Laeeq Futehally (1994) *Our Environment*. India: National Book Trust
Lambert, P.R.(2000). *Education for sustainable development : a new role for subject association, education in science* ,208.pp.8-9
Pankaj Shrivastava & D.P. Singh (2002). *Environment Education,* Anmol publication Pvt. Ltd.
Pelling, Mark (ed.)(2003).*Natural Disasters & development in a globalizing world* . London: New York; Routledge.
Trivedi, P.R.(2000). *Encyclopedia of environmental Pollution Planning & Conservation*; New Delhi: A.P.H.Co.
Verma V.A. (1972). *Textbook of Plant Ecology,* Delhi: Euolcary Publication.
Warburton D.(ed.)(1998). *Community & Sustainable Development*, London, Earthscan.
Yogendra N.Srivastava (2012). *Environmental Pollution* . New Delhi: PPH Publishing Corporation.

Course-11(optional)
(iii) HEALTH, PHYSICAL AND YOGA EDUCATION

Max. Marks :50
Time: 1.30 Hours **(Theory: 40,Internal: 10)**

NOTE FOR PAPER SETTER

i. **Paper setter will set five questions in all, out of which students will be required to attempt three questions.**
ii. **Q.No 1 will be compulsory and will carry 8 marks. There will be two short - answer type Questions of 4 marks each to be selected from the entire syllabus.**
iii. **Two long answer type question will be set from each of the two units, out of which the student will be required to attempt one question from each unit. Long- answer type questions will carry 16 marks each.**

Learning Outcomes:-

After the transaction of the course, student teachers will be able to:

- explain the concept of Health, Physical and Yoga Education along with their roles for a healthy Individual.
- under stands the basis of Diet and Nutrition.
- acquaint themselves with ways and means to protect pollution and Global Warming.
- understand correct posture
- understand and apply various ways and means for the safety and security of the child.

Course Contents

Unit-I

1. **Health ,Yoga and Physical Education**:
    - Concept of Health and factors affecting Health
    - Concept and types of Yoga.
    - Physical Education and its objectives.
    - Role of School and society in developing a healthy individual through the programmes of Health, Yoga and Physical Education.
2. **Food and Nutrition:**
    - Diet, Food, nutrition
    - Balanced diet, its functions and components.
    - Types of food according to Yogis and Yogic Diet
    - Malnutrition –causes and prevention

Unit-II

3. **Safety and Security**
    - Communicable diseases- modes, Prevention and control.
    - First Aid in case of Wounds, Hammerages, Fracture, Dislocations, Sprain, Strain and Bites

- Health Hazards
- Pollution: Types, causes and prevention
- Water conservation, management and recycling
- Global warming
- Personal and Environmental Hygiene

4. posture and Physical Fitness:

- Postural deformities and their Management through Yogic and other exercises
- Physical Fitness –Elements, importance.

Practicum/Sessionals

Any one of the following:

1. A) Prepare a Medical report of a school student.
   B) Report of common first aid emergencies in school.
2. Performing & Reporting any five advance yoga asana.

References:

Anderson, C.R. *Your guide to health.*

Bucher, C.A. (1964) *Foundations of Physical Education, New York: Mosby and company.*

Catharine Ross Benjamin Caralleso, Robert, J. Cousino (2009). *Modern Nutrition in health and diseases.*

Holmes, A.C. *Health in developing countries.*

Kang Gurpreet singh & Deol NishanSingh.(2013). *An Introduction to Health and Physical Education,*21st century publications,India.

Piper, B. (1999). *Diet and Nutrition: A guide for students and practitioners.*

Course-11 (optional)
(ii) PEACE EDUCATION

Max. Marks :50

Time: 1.30 Hours **(Theory: 40, Internal: 10)**

NOTE FOR PAPER SETTER

iv. Paper setter will set five questions in all, out of which students will be required to attempt three questions.

v. Q.No 1 will be compulsory and will carry 8 marks. There will be two short - answer type Questions of 4 marks each to be selected from the entire syllabus.

vi. Two long answer type question will be set from each of the two units, out of which the student will be required to attempt one question from each unit. Long- answer type questions will carry 16 marks each.

Learning Outcomes

After the transaction of the course, student teachers will be able to:

- to understand the concept of peace education.
- to acquire the knowledge about peaceful mind makes peaceful world.
- to understand the philosophical thoughts for peace.
- understand the nature of conflicts and their resolution.
- to develop the ability to use various methods and techniques for teaching peace education.
- adopt peace education in the curriculum.
- imbibe the knowledge, attitude and skills needed to achieve and sustain a global culture of peace.
- understand the dynamics of transformation of violence into peace.

Course Contents

Unit -1

1. **Introduction of Peace Education**
   - Meaning, Concept and need of Peace Education.
   - As a universal value
   - Aims and Objectives of Peace Education.
   - Role of Social Agencies: Family, Religion, Mass Media, Community, School, NGO's, Government Agencies in promoting peace education.
   - Current Status of Peace Education at Global Scenario.

Unit-2

2. **Peace In The Indian Context**
   - Role of Religion in propagation of Peace. Mother-Theresa, Vivekananda, Gandhian Philosophy in promoting Peace Education. Role of Great personalities in promoting Peace.

- Challenges to Peace- Stress, Conflict, Crimes, Terrorism, Violence and Modernization.
- Strategies and Methods of teaching Peace Education- Meditation, Yoga, Dramatization ,
  Debate and etc.
- Democracy and Peace, Secularism and Peace, Culture and Peace.

Practicum/Sessionals

Any one of the following:

i. Prepare a Role Play of Great Personalities who worked/ contributed towards Peace.
ii. Organize an activity in schools to promote Peace.
iii. Write a report on Gandhi and Peace.
iv. Write about the contribution of any two Noble prize winners for Peace.
v. Prepare an album of Indian Philosophers and write their thoughts on peace.

References

Adams.D (Ed) (1997). *UNESCO and a culture of Peace: Promoting a Global Movement*.

Paris UNESCO.

Taj.H. (2005). *National Concerns and Education*, Neelkamal Publications.pvt.Ltd

Taj.H (2005). *Current challenges in Education*, Neelkamal Publications.pvt.Ltd

Bhargava.M. & Taj.H (2006). *Glimpses of Higher Education*. Agra-2: Rakhi Prakashan,

http://www.un.org/cyberschoolbus/peace/content.html.

COURSE 11 (Optional)

(iv) GUIDANCE AND COUNSELLING

Max. Marks :50

Time: 1.30 Hours **(Theory: 40,Internal: 10)**

NOTE FOR PAPER SETTER

i. **Paper setter will set five questions in all, out of which students will be required to attempt three questions.**
ii. **Q.No 1 will be compulsory and will carry 8 marks. There will be two short - answer type Questions of 4 marks each to be selected from the entire syllabus.**
iii. **Two long answer type question will be set from each of the two units, out of which the student will be required to attempt one question from each unit. Long- answer type questions will carry 16 marks each.**

Rationale

The course on "Guidance and Counselling" is designed to introduce the student teacher to the study of concept of Guidance and Counselling, assessing an individual with testing and non testing techniques of guidance and organization of guidance services in the schools.

Learning Outcomes

After transaction of the course, student teachers will be able to:

- explain the concepts of guidance and counseling.
- describe educational, vocational and personal guidance.
- understand the need of assessing an individual.
- familiarize with testing and non-testing devices of guidance.
- get aware of the organization of guidance services in the schools.

Course Content

UNIT-I

1. INTRODUCTION TO GUIDANCE

- Meaning, Nature and Scope
- Principles of Guidance
- Types of Guidance : Educational, Vocational and Personal Guidance (Meaning, Need and Importance, Objectives)

2. COUNSELING

- Concept of Counselling, Need & Importance of Counselling
- Types of Counselling : Directive, Non-Directive and Eclectic
- Meaning and Characteristics
- Process of Counselling

UNIT-II

3. STUDYING AN INDIVIDUAL

- Need and importance of Studying an individual
- Testing and Non-testing devices for the study of an individual
- Testing : Interest Inventories and aptitude tests
- Non-Testing : Interview, Questionnaire Cumulative record card, Anecdotal record, Rating scale

4. GUIDANCE SERVICES AND THEIR ORGANIZATION IN THE SCHOOLS:

- Types of Guidance services
- Role of School personnel in organizing guidance services
- Role of Teacher as a counselor.

Practicum/Sessionals

Any one of the following

i. Make a study of a guidance centre. Prepare a report.
ii. Prepare a cumulative record card of a student studying at secondary level.
iii. Prepare a report on the guidance services organized by school personnel.

Suggested Readings:

Bhatia K.K (2002). *Principles of Guidance and counseling*, Ludhiana : Kalyani Publishers.

Gibren, R.h and Mitchell, M.H (2003). *Introduction to counseling and guidance*, New Delhi: Pearson Educaiton.

Pandey, K.P (2000). *Educational and Vocational Guidance in India*, Varanasi: Vishwa VidyalayaPrakashan.

Robinson (2005). *Principles and Procedures in Students counseling*, New York : Harper & Row.

Sharma, R.A (2008). *Fundamental of Guidance and counseling*, Meerut: R LalI Book Depot.

Sidhu, H.S (2005). *Guidance and Counselling*, Patiala : Twenty First Century.

Strong, R. (2005). *Counselling Techniques in colleges and secondary school.* New York: Harper.

Course EPC 3

Critical Understanding of ICT

Max. Marks :50

Time: 3 Hours **(External: 40,Internal: 10)**

Learning Outcomes

After the transaction of the course, student teachers will be able to:

- acquire knowledge of computers, its accessories and software.
- acquire the skills of operating a computer in multifarious activities and integrate technology into classroom teaching learning strategies.
- demonstrate the use of MS Windows
- develop skill in using MS-Word, Power points and Spread sheets.
- acquire skill in accessing world wide web and Internet and global accessing of information.
- Interact with ICT and its integration in education.
- select and use effectively ICT tools and relevant software applications for specific purpose in teaching learning process.

COURSE CONTENTS

1. **ORIENTATION TO ICT**

- **ICT:** Meaning, Importance and Tools of ICT
- **Computer Fundamentals:** Basic anatomy, types and applications, Input-Output devices, Storage devices.
- **MS-Windows**: Basic components of Windows, Control Panel, Program Manager, File Manager, Accessories, Paint Brush, notepad.
- **MS Word:** Concept of word processing, Entering Text, Selecting and Inserting text, editing text, Making paragraph, Getting help, moving and copying, searching and replacing, formatting character and paragraph, handling multiple documents, Manipulation of tables and foot notes, table of contents and index, sorting, formatting sections and documents.
- **MS Excel:** Basics of Spreadsheet, creating and saving a worksheet, Manipulation of cells, Columns and Rows, editing and formatting a worksheet, embedding charts, use of simple statistical functions, sort and filter.
- **MS Power point:** Basics of power point, creating a presentation, the slide manager, preparation of different types of slides, slide design, transition and animation and presentation of slides, printing the slides and handouts.
- **Multimedia:** Components of Multimedia, Textual Information, Animation, Digital Audio, Digital Video, MS-Publisher, Photo Draw.

2. DIGITAL SHARING AND EXCHANGE OF INFORMATION

- **Internet:** the world-wide web, websites and web browsers, Internet connectivity, browsing software, URL addresses, Search engines, Exploring websites and downloading materials from websites, E- mail – Sending, receiving and storing mail, handle attachments, Chatting, social networks, participate in discussion forum and blogging.

3. ICT TOOLS AND ITS INTEGRATION IN EDUCATION

- Over-head Projector
- LCD Projector
- T.V.
- Camera
- Visualizer
- Interactive Boards
- CD/DVD Player

Hands On Training:

i. Administrative use – Letter correspondence and E-Mail
ii. Construction of a Portfolio and Question paper of teaching subjects
iii. Creating learning materials – handouts
iv. Data processing, storing and retrieving simple financial transactions of the school such as school budget and accounting.
v. Tabulation of Bio data of staff and students of the school in which the student teacher is attached for practice teaching.
vi. Students progress record – Tabulation and graphical representation of results of an academic test.
vii. Multimedia presentation on a topic relevant to the Optional Subjects
viii. Prepare transparencies on a topic relevant to the Optional Subjects

A softcopy of above activities should be presented at the time of external examination**.**

Suggested Readings

1. Copestake, S. (2004). Excel 2002. New Delhi: Drem Tech Press.
2. Hahn, H. (1998). The internet- complete reference. New Delhi: Tata McGrow Hill Publication.
3. Intel Education & NCTE. (2007). Hand book for teacher educators. Bangalore: NCTE.
4. Leon, A. M. (2001). Computer for every one. New Delhi: Vikas Publishing house.
5. Petzold, C. (1998). Programming windows. USA: Microsoft Press.
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List of Contributors

Development of Draft Syllabi - B.Ed -2 year course as per NCTE curriculum frame work 2014

K.U.K

Sr. No.	NAME
1.	Prof. Puran Singh, Chairman, Department of Education, KUK.
2.	Dr. Taruna.C.Dhall, Principal (Off)- Associate. Prof., University College of Edu., KUK.
3.	Dr. B.S.Yadav, Associate Prof. University College of Edu., KUK.
4	Dr. Amisha Singh, Associate Prof. University College of Edu., KUK.
5.	Dr. Rajvir Singh, Department of Education, KUK.
5	Dr. Vivek Kohli, Principal, S.L.DAV. College of Education, Ambala City.
6	Dr. Narender Kaushik, Associate Prof. , SLDAV, College of Education, Ambala City
7	Dr. Sushma Gupta, Associate Prof. , SLDAV, College of Education, Ambala City
8	Dr. Neelam Luthra, Associate Prof. , SLDAV, College of Education, Ambala City
9	Dr.Satnam Kaur, Associate Prof. , SLDAV, College of Education, Ambala City
10	Dr. Renu Arora, Associate Prof. , SLDAV, College of Education, Ambala City
11	Dr. Nirmala Devi, Principal, C.R. College of Education, Hissar.
12	Dr. Ramesh Sandhu, Associate Prof., C.R.College of Education, Hissar.
13	Dr. Chander Prabha, Associate Professor, C.R.College of Education, Hissar.
14	Dr. Ajit Singh, Assitant Professor, C.R.College of Education, Hissar.
15	Dr. Purnima, Assistant Professor , C.R.College of Education, Hissar.
16	Dr. Rakesh Sandhu, Principal (Off) Dr.G.D.D.A.V.COE for Women, Karnal.
17	Dr. Saroj Sobti, Assistant Prof., Dr. G.D.D.A.V.College of Edu. for Women, Karnal.
18	Prof. V.K.Gupta, Principal (Rtd), UCEK, KUK.
19	Dr. Anju Walia, Principal, SNS College of Education, Yamuna Nagar.
20	Dr. Kamlesh Sandhu, Principal, RKSD. College of Education, Kaithal.
21	Dr. Mrinalini Somnath, Principal, Ch.I.S.M. COE, Pundri.
22	Dr. Rita Grover, Associate Prof. (Rtd), University College of Edu., KUK.
23	Dr. Pinki Malik, Assistant Prof. (on contract), University College of Edu., KUK.
24	Dr. Rajwinder Kaur, Assistant Prof. (on contract), University College of Edu., KUK.
25	Dr. Rohini, Assistant Professo (on contract), University College of Edu., KUK.
26	Mrs. Kanwal Preet Kaur, Assistant Prof.(on contract), University College of Edu., KUK.
27	Mr. Digvijay Singh, Assistant Prof. (on contract), University College of Edu., KUK.
28	Mrs. Rita Saini, Assistant Professor (on contract), University College of Edu., KUK.
29	Mrs. Reena Yadav, Assistant Prof.(on contract), University College of Edu., KUK.
30	Dr. Mamta Chawla, Assistant Prof. (on contract), University College of Edu., KUK.
31	Ms. Puja Saini, Assistant Prof. (on contract), University College of Edu., KUK.

KURUKSHETRA UNIVERSITY
KURUKSHETRA

(Established by the State Legislature Act-X-II of 1956)
("A" Grade by NAAC Accredited)

M.Ed. (2-Years)

(Four Semesters)

SYLLABUS

DEPARTMENT OF EDUCATION

2015-16

M.Ed. (2-Years)

(As per Curriculum Framework: Two-Year M.Ed. Programme, as approved in the NCTE Recognition Norms and Procedures, 2014)

The duration of the course leading to the Degree of Masters of Education (M.Ed.) will be two academic years i.e. four semesters.

(Detailed Scheme) (Total: 77 Pages)

Paper No.	Nomenclature of the paper	Credit	Total Marks	Ext. Ass.	Int. Ass.
Semester - I					
I	**Psychology of Learning & Development**	4	100	70	30
II	History and Political Economy of Education	4	100	70	30
III	Education Studies	4	100	70	30
IV	Introduction to Research Methods	4	100	70	30
V	Communication Skills & Expository Writing	1	25	25 (Ext-10 & Int-15) (joint evaluation by internal & external examiner)	
VI	Self Development	1	25	25 (Ext-10 & Int-15) (joint evaluation by internal & external examiner)	

Semester - II					
VII	Philosophy of Education	4	100	70	30
VIII	Sociology of Education	4	100	70	30
IX	Curriculum Studies.	4	100	70	30
X	Teacher Education: Pre-service & In-Service	4	100	70	30
XI	Dissertation	2	50	50 (Ext-15 & Int-35) (joint evaluation by internal & external examiner)	
XII	Internship in a TEI	4	100	100 (Ext-30 & Int-70) (joint evaluation by internal & external examiner)	
Semester - III					
XIII	Specialization Course – I (Stage specific) (student can opt any one stage in Paper XIII & XIV) (A) Elementary Education (B) Secondary & Senior Secondary Education	4	100	70	30

XIV	Specialization course –II (Stage specific) (student can opt any one stage in Paper XIII & XIV) (A) Elementary Education (B) Secondary & Senior Secondary Education		100	70	30
XV	Advanced Educational Research.	4	100	70	30
XVI	Teacher Education: Perspective, Research and issues in Teacher Education.	4	100	70	30
XVII	Internship	4	100	100 (Ext-30 & Int-70) (joint evaluation by internal & external examiner)	
XVIII	Dissertation	2	50	50 (Ext-15 & Int-35) (joint evaluation by internal & external examiner)	
XIX	Academic Writing.	2	50	50 (Ext-15 & Int-35) (joint evaluation by internal & external examiner)	

Semester - IV					
XX	**Specialization Courses (Student can opt any three)**				
	(A) (i) Education: Policy, Economics and Planning (at primary level)	4	100	70	30
	(A)(ii) Education: Policy, Economics and Planning (at secondary level)	4	100	70	30
	(B)(i) Management & Administration of Education (at primary level)	4	100	70	30
	(B)(ii) Management & Administration of Education (at secondary level)	4	100	70	30
	(C) (i) Inclusive Education (at primary level)	4	100	70	30
	(C)(ii) Inclusive Education (at secondary level)	4	100	70	30
	(D) (i) Education Technology (at primary level)	4	100	70	30
	(D)(ii) Education Technology (at secondary level)	4	100	70	30
	(E) (i) Educational Measurement and Evaluation (at primary level)	4	100	70	30
	(E)(ii) Educational Measurement and Evaluation (at secondary level)	4	100	70	30

	(F) (i) Comparative Education (at primary level)	4	100	70	30
	(F)(ii) Comparative Education (at secondary level)	4	100	70	30
	(G) (i) Guidance and Counseling (at primary level)	4	100	70	30
	(G) (ii) Guidance and Counseling (at secondary level)	4	100	70	30
XXI	Dissertation	4	100	100 (Ext-30 & Int-70) (joint evaluation by internal & external examiner)	

DURATION: Each credit in a taught course is equated to one hour of teaching or two hours of seminars/ group work/ tutorial/ laboratory work/ field work/ workshop per week for 16 weeks. Thus, a 4-credit course entails 4 hours of regular teaching per week or as much as 8 hours of teaching and other programme activities.

M. Ed. (Semester-I)

PAPER-I: PSYCHOLOGY OF LEARNING AND DEVELOPMENT

Time- 3 Hrs. Max. Marks-100

Credit-4 Ext. -70: Int. – 30

NOTE: Paper setter will set 9 questions in all, out of which students will be required to attempt only 5 questions. Question No. 1 will be compulsory, comprising of 4 short answer type notes of 3.5 marks each to be selected from the entire syllabus. Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. All questions carry equal i.e. 14 marks.

COURSE OBJECTIVES

To enable the student to

1. Understand concepts and principles of Educational Psychology as an applied science.
2. Outline the scope of educational psychology.
3. Describe the process of growth and development.
4. Understand different theories of learning.
5. Explain the process of Motivation.
6. Understand the concept of personality.
7. Understand the methods of personality assessment.

COURSE CONTENTS

UNIT-I

1. **Concept of Educational Psychology**
   - · Relationship of Education & Psychology
   - · Meaning & Concept of Educational Psychology.
   - · Scope of Educational Psychology

2. **Concept of Growth and Development**
   - · General Principles of Growth and Development.
   - · Physical Development in Adolescence.
   - · Social Development in Adolescence.
   - · Emotional Development in Adolescence.
   - · Intellectual Development in Adolescence.

UNIT-II

3. **Individual Differences**
   - · Meaning and Areas
   - · Determinants: Role of Heredity and Environment in Developing Individual Differences.
   - · Implications of Individual Differences for Organizing Educational Programmes.
4. **Personality**
   - · Meaning and Determinants

- Types and Trait Theories
- Assessment of Personality by Subjective and Projective Methods.

UNIT-III

6. Intelligence

- Meaning
- Theories: Two Factory theory (Spearman); Multi Factor Theory, Guilford Model of Intellect.
- Measurement of Intelligence (two verbal and two non verbal tests)

7. Learning

- Meaning, Factors Influencing Learning
- Theories of Learning
- Pavlov's Classical Conditioning
- Skinner's Operant Conditioning

UNIT-IV

9. **Hull's Reinforcement Theory**

- Learning by insight.
- Gagne's Hierarchy of Learning Types

10. **Motivation**

- Concept of Motivation.
- Factors affecting Motivation.
- Theories of Motivation:
- Physiological Theory
- Murray's Need Theory.
- Maslow's Theory of Hierarchy of Needs.

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M. Ed. (Semester-I)

Paper-II: HISTORY AND POLITICAL ECONOMY OF EDUCATION

Time- 3 Hrs. Max. Marks-100
Credit-4 Ext. -70: Int. – 30

NOTE: Paper setter will set 9 questions in all, out of which students will be required to attempt only 5 questions. Question No. 1 will be compulsory, comprising of 4 short answer type notes of 3.5 marks each to be selected from the entire syllabus. Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. All questions carry equal i.e. 14 marks.

Course objectives:

To enable the students to

1. Get a historical insight into the development of education in Vedic, Buddhist and Medieval period.
2. Get the knowledge of the development of education in pre-Independent and post-Independent India.
3. Explain in detail the constitutional provisions for Education in India.
4. Understand the relationship of education with democracy, National integration and International understanding.
5. Get the knowledge of contemporary in Indian Education in global perspectives.

Unit-I

1. Education in India during
    - Vedic
    - Buddhist
    - Medieval period
2. Education in British period
    - Macaulay Minutes
    - Wood's Dispatch of 1854
    - Lord Curzen's Educational policy.

Unit-II

3. Education commissions in pre-Independent and post-Independent India
    - Sadler Commission Report-1917
    - Wardha Scheme of Education-1937
    - University Education Commission- 1948-49

- Secondary Education Commission-1952-53
- Indian Education Commission-1964-66
- NPE-1986

UNIT-III

4. Education in relation to:
    - Democracy
    - Constitutional provisions
    - National values as enshrined in Indian Constitution
    - Nationalism & National integration
    - International Understanding.

Unit-IV

5. Education as related to:
    - Economic growth and investment.
    - Socially and economically disadvantaged sections of the society with special references to scheduled castes, scheduled tribes, women and rural population.
    - Equality of Educational opportunities.
    - Local and global perspectives: implication of globalization for system of Education.

SELECTED READINGS

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- Blaug, M.: Economics of Education, The English Language Book Society and Penguin Books, England, 1972.
- Bertrand, Oliver : Planning Human Resources : Methods, Experiences and Practices, Sterling Publishers, New Delhi, 1992.
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- M.H.R.D. National policy on Education (1986), Ministry of Education, Govt. of India, New Delhi.
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- Tiwari, D.D. (1975). Education at the Cross Roads, Chugh Publication, Allahbad.
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M. Ed. (Semester-I)

Paper-III: EDUCATIONAL STUDIES

Time- 3 Hrs. Max. Marks-100
Credit-4 Ext. -70: Int. – 30

NOTE: Paper setter will set 9 questions in all, out of which students will be required to attempt only 5 questions. Question No. 1 will be compulsory, comprising of 4 short answer type notes of 3.5 marks each to be selected from the entire syllabus. Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. All questions carry equal i.e. 14 marks.

COURSE OBJECTIVES

Students will be able to
-Understand and appreciate education a social phenomenon, practice and field of study
-Acquainted with documented related to educational policies and educational programmes.
-Understand educational structure, institution and system.
-Understand and reflect or various issues and concerns in education.

UNIT- I Nature of Education

1. Education as a phenomenon
2. Education as a practice
3. Education as a field of study

UNIT- II Educational Institutions and Educational Structure

4. UNESCO,UGC,NCERT,NCTE,CBSE,SCERT(s) & DIET(s)
5. Higher, Secondary and Elementary education system
6. Educational Structure at central, state, district, block and village level

UNIT- III National Programmes and Policies in Education

7. National policy of Education 1986 and Programme of Action 1992
8. NCF & NCFTE
9. RTE Act 2010
10. SSA,RAMSA & RUSA

UNIT- IV National Issues and Concerns in Education

11. Universalization of Elementary Education
12. Globalization of Education
13. Liberalization of Education
14. Expansion of Secondary and Higher Education

15. Issues related to equity, equality and quality of Education
16. Education of the disadvantaged
17.

SELECTED READINGS

Cole, M.(2011). Education, equality and human rights: Issues of gender, race, sexuality, disability and social class. NY: Routledge.

Govinda, R. & Diwan, R. (2003). Community participation and empowerment in primary education. New Delhi: Sage Publication.

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Yazail, J. (2003). *Globalization and challenges of education.* New Delhi: Shipra Publication.

M.Ed. (Semester-I)

Paper- IV: INTRODUCTION TO RESEARCH METHODS.

Time- 3 Hrs. Max. Marks-100
Credit-4 Ext. -70: Int. – 30

NOTE: Paper setter will set 9 questions in all, out of which students will be required to attempt only 5 questions. Question No. 1 will be compulsory, comprising of 4 short answer type notes of 3.5 marks each to be selected from the entire syllabus. Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. All questions carry equal i.e. 14 marks.

Unit-I

1. **Educational research**
   Meaning Nature & Sources of Knowledge
   Meaning, Nature, Need & Scope of Educational Research
   Types of Research: Fundamental, Applied & Action.
2. Formulation of Research Problem
   Criteria & Sources of identifying research problem.
   Delineating & operationalizing variables.
   Review of related literature- importance & Sources

Unit-II

3. Hypothesis
   Meaning Characteristics, Sources & types of hypothesis.
4. Sampling
   Concept of population & Sample
   Characteristics of a good sample.
   Need of Sampling
   Probability sampling
   Non probability sampling.
   Sampling errors & ways to reduce them.

Unit-III

5. Descriptive Statistics.
   Nature of Educational Data
   Scales of Measurement
   Measurement of Central tendency.
   Measurement of dispersion.
   Percentile & percentile Rank
6. NPC- its Characterstics
   Applications of NPC

Unit-IV

7. Skewness & kurtosis
   Meaning, uses & applications.
8. Non-Parametric statistics:
   Chi-square test
   Hypothesis of equality.
   Hypothesis of independence.

SELECTED READINGS

1. Aggarwal, Y.P. (1998), Statistical Methods, Sterling, New Delhi.
2. Aggarwal, Y.P. (1998), The Science of Educational Research: A Source book, Nirmal, Kurukshetra
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M.Ed. (Semester-I)

Paper- V: COMMUNICATION SKILL & EXPOSITORY WRITING

Credit-1 M. Marks- 25 (Ext-10 & Int-15)
(joint evaluation by internal & external examiner)

Suggested activities

- Writing essay/articles on any issue relating to education.
- Seminar presentation with PPT (on any one topic).
- Student's discussion (panel/group).
- Content analysis & reporting any one event/ news (from electronic/ print media) related to field of education.

M.Ed. (Semester-I)

Paper- VI: SELF DEVELOPMENT

Credit-1 M. Marks- 25 (Ext-10 & Int-15)
(joint evaluation by internal & external examiner)

Activities may be organised in the following given areas (any one); and students are required to prepare and submit a report of the same.

- Gender issues
- Inclusive education
- Health & phy.Edu
- Mental hygiene
- Yoga & well being
- Socio-environmental issues

M.Ed. (Semester-II)

Paper VII: PHILOSOPHY OF EDUCATION

Time- 3 Hrs. Max. Marks-100
Credit-4 Ext. -70: Int. – 30

NOTE: Paper setter will set 9 questions in all, out of which students will be required to attempt only 5 questions. Question No. 1 will be compulsory, comprising of 4 short answer type notes of 3.5 marks each to be selected from the entire syllabus. Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. All questions carry equal i.e. 14 marks.

COURSE OBJECTIVES

This paper aims at developing the following competencies:

1. Undertaking the nature and functions of philosophy of education.
2. Writing a critical note on the nature of knowledge and knowledge getting process.
3. Understanding the Contribution of various Indian and Western Schools of Philosophy in the field of Education.
4. Critical appraisal of contributions made to education by prominent educational Thinkers
5. Logical analysis, interpretation and synthesis of various concepts, proposition and Philosophical assumption about educational phenomena.

COURSE CONTENTS

UNIT –I

- Relationship of Education and Philosophy.
- Meaning of Educational Philosophy.
- Functions of Educational Philosophy.
- Meaning and Nature of Knowledge.
- Types and Source of Knowledge.
- Methods of Acquiring Knowledge.

UNIT-II

Indian Schools of Philosophy-

- Vedanta
- Sankhya,
- Buddhism

Islamic traditions with special references to the concept of reality, knowledge and values and their educational implications.

UNIT – III

Western schools of Philosophy:

- Idealism
- Realism
- Naturalism
- Pragmatism

- Existentialism with special reference to the concepts of reality, knowledge and values, their educational implications for aims, contents and methods of Education.

UNIT-IV

Contributions of Indian Thinkers: - Vivekananda, Aurobindo, Tagore and Gandhi.
Modern Concept of Philosophy:-

- Logical analysis
- logical empiricism and
- Logical Positivism.

SELECTED READINGS

1. Baskin, Wade, Classics in Education, Vision Press London, 1966.
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9. Pandey, R.S. An Introduction to Major Philosphies of Education, Vinod Pustak Mandir, Agra, 1982.
10. M.H.R.D. Towards an Enlightened and Human Society, Department of Education, New Delhi, 1990.
11. Maslow, A.H. (Ed.) New Knowledge in Human Values. Harper and Row, New York, 1959.
12. Narvane, V.S. Modern Indian Thought. Orient Longmans Ltd., New York, 1978.
13. Mukerjee, R.K. Ancient Indian Education, Motilal Banarsidas, Varanasi, 1969.

M.Ed (Semester-II)

Paper-VIII: SOCIOLOGY OF EDUCATION

Time- 3 Hrs. Max. Marks-100
Credit-4 Ext. -70: Int. – 30

NOTE: Paper setter will set 9 questions in all, out of which students will be required to attempt only 5 questions. Question No. 1 will be compulsory, comprising of 4 short answer type notes of 3.5 marks each to be selected from the entire syllabus. Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. All questions carry equal i.e. 14 marks.

Course objectives-

The students will be able to:

1. Define the meaning and concept of educational sociology.
2. Explain the concept of social organization and factor affecting it.
3. Illustrate Education as a process of social system and socialization.
4. Critically appropriate the issues related to social change, determinate of social change, equity and equality of education opportunities.
5. Explain the important issues like social stratification and social mobility.

Unit-I

- Concept and nature of educational sociology and sociology of Education, relationship of Sociology and Education.
- Social organization- meaning and concept, factor influencing social organization folkways, mores, institution and vales.

Unit-II

- Socialization: meaning and concept of socialization.
  Agencies of socialization: family, school, society and community.
  Role of Education in Socialization.
- Culture: meaning and nature of Culture.
  Issues related to culture (Sanskritization, Westernization and Modrenization)
  Education and Culture.

Unit-III

- Value education: meaning and concept of values and its nature.
  Role of Education regarding values of Education.
- Education and Social Change: meaning and nature.

Factor determining social change.

Constraints of social change in India.

Caste, Ethnicity, Class and Language.

Religion and regionalism.

Unit-IV

- Social stratification: meaning, concept and its Educational implications.
- Social mobility: meaning, types, constraints on mobility and its educational implications.

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2. Havighurst, Robert et al. Society and Education. Allyen and Bacon, Baston, 1995.
3. Gore, M.S. Education and Modernization in India, Rawat Publication, Jaipur, 1984.
4. Kamat, A.R. Education and Social Change In India. Samaiya Publishing co., Bombay, 1985.
5. Maunheim, K. et al. An Introduction to Sociology of Education Routledged and Kegan Paul , London, 1962.
6. M.H.R.D. Towards an Enlightened and Human Society, Department f Education, New Delhi, 1990.
7. Inkeles, Alex, What is Sociology? Prentice Hall of India, New Delhi, 1987.
8. Maslow, A.H. (Ed.) New Knowledge in Human Values. Harper and Row, New York, 1959.
9. Mossish, loor, Sociology of Education: An Introduction, George Allen and Unwin, London, 1972.
10. Narvane, V.S. Modern Indian Thought. Orient Longmans Ltd., New York, 1978.
11. Mossish, loor, Sociology of Education : An Introduction, George Allen and Unwin, London, 1972
12. Mukerjee, R.K. Ancient Indian Education, Motilal Banarsidas, Varanasi, 1969.

M.Ed. (Semester-II)

Paper – IX: CURRICULUM STUDIES

Time: 3 Hours | Max. Marks: 100
Credit - 4 | (External: 70; Internal: 30)

NOTE: Paper setter will set 9 questions in all, out of which students will be required to attempt only 5 questions. Question No. 1 will be compulsory, comprising of 4 short answer type notes of 3.5 marks each to be selected from the entire syllabus. Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. All questions carry equal i.e. 14 marks.

UNIT – I

Concept of 'Curriculum' and 'Syllabus' and their scope
Process of curriculum development
Bases of curriculum
Principles of curriculum development
Factors affecting curriculum development
Curriculum and cognitive development of child
- Social reconstruction
- Self-actualization
- Academic rationalization
- Children with special needs

UNIT – II

Types of curriculum - Knowledge based, Activity based, Skill based and Experienced based
Approaches in Curriculum Development - Developmental approach, Functional approach and
- Eclectic approach

Curricular trends
- Lifelong learning
- Futuristic education
- Collaborative curriculum, core curriculum and collateral curriculum

Impact of media, technology and contemporary issues
Models of curriculum development and planning

UNIT – III

Curriculum planning and designing
Assessment of need with respect to individual and environment
Situational analysis
Selection of content and method
Concept of school readiness
Basic curricular skills
- Curricular skills related to cognitive domain
- Curricular skills related to conative domain
- Curricular skills related to affective domain

Classroom planning, preparation and specific teaching strategies with examination considerations in context of curriculum development

UNIT – IV

Curriculum transaction and its evaluation
Formative and summative evaluation
Methods of curriculum evaluation and models of curriculum evaluation
Role of teacher in curriculum evaluation
Role of organisations like NCERT, SCERTs, UGC and NCTE in curriculum designing
NCF, 2005 and NCFTE, 2009
Recent developments and research trends in curriculum designing

SELECTED READINGS

Bobbitt, F. (1918).*The Curriculum*. Boston: Houghton Miffilin. Co.

Denis, L. (1986). *Social Curriculum Planning.* Sydney: Hodder&Stonghton, London.

Edward, A. K. (1960). *The Secondary School Curriculum*. New York: Harper and Row Publishers.

Gakhar, S. C. (2008). *Curriculum Development*.Panipat: N. M. Publishers.

Goodland, J. (1979). *Curriculum Enquiry – The Study of Curriculum Practices*. New York: McGraw Hill.

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Hass, G. (1991). *Curriculum Planning: A New Approach*. Boston: Allyn Bacon.

Hooer, R. (1971). *Curriculum: Context, Design and Development*. New York: Longmans.

Lewy, A. (1977). *Handbook of Curriculum Evaluation*. New York: Longman, Inc.

Lewy, A. (1977).*Studying Curriculum*. Buckingham: Open University Press.

Oliver, A. (1977). *Curriculum Improvement – A Guide to Problems, Principles and Processes*. New York: Harper and Row.

Payne, D. A. (1973).*Curriculum Evaluation: Commentaries on Purpose, Process and Product*. Boston: D. C. Heath.

Pratt, D. (1980). *Curriculum Design and Development*. New York: Harcourt, Brace and Jovanvich.

Saylor, J. G. & Alexander, W. M. (1960).*Curriculum Planning*. New York: Holt, Rinehart and Winston.

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Taba, H. (1962). *Curriculum Development: Theory and Practice*. New York: Harcourt Brace and World Inc.

Tanner, D. & Tanner, L. (1980).*Curriculum Development: Theory into Practice*. Chicago: University of Chicago Press.

Tyler, R. S. (1976). *Curriculum Principles and Foundations.* London: Harper and Row Publishers.

M.Ed (Semester-II)

Paper-X: TEACHER EDUCATION- PRE-SERVICE & IN-SERVICE

Time- 3 Hrs. Max. Marks-100
Credit-4 Ext. -70: Int. – 30

NOTE: Paper setter will set 9 questions in all, out of which students will be required to attempt only 5 questions. Question No. 1 will be compulsory, comprising of 4 short answer type notes of 3.5 marks each to be selected from the entire syllabus. Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. All questions carry equal i.e. 14 marks.

Course Objectives-

To enable the students to understand about the:

1. Meaning and concept of teacher education in India.
2. Objectives of teacher education at various levels.
3. Teaching profession and types of teacher education programme.

Course Contents

Unit-I

1. Teacher Education: concept, need and importance.
2. Objectives of teacher education at various level
    - Primary
    - Secondary
    - College Level

Unit-II

3. Pre-Service: concept, objectives, need and importance.
4. Objectives and organization of practice teaching.
5. Current problems of teacher education and practicing schools.

Unit-III

6. In-service: concept, objectives, need & importance.
7. Various agencies for in-service teacher education.
8. Teacher education through distance mode for in-service education.

Unit-IV

9. Teacher education for adult and non-formal education.
10. Professional growth of teachers:

- Orientation
- Refresher
- Workshop
- Seminar
- Panel discussion

Selected Readings

1. CABE,(1992). Report of the CABE committee on policy perspectives Govt. of India. MHRD, New Delhi.
2. Dunkin, J. Michal (1987) the International Encyclopedia of Teaching and Teacher Education, Pergamon Press.
3. Husen, Tosten & Postlethwaite(eds.)(1994). The International Encyclopedia of Education, New York. Vol. 1-12, Pergamon Press.
4. Mangla, Sheela(2000). Teacher Education: Trends & strategies, New Delhi, Radha Publishing.
5. Ministry of Education(1964-66), Education and National Development Report of Indian Education Commission, Govt. of India.
6. MHRD (1986) National Policy on Education and Programme of Action. Govt. of India, New Delhi.
7. MHRD (1992) Programme of Action, Department of Education, Govt. of India, New Delhi.
8. Singh, L.C.(ed.)(1990) Teacher Education in India, Source Book NCERT, New Delhi.
9. Smith, E.R.(ed.)(1962) Teacher Education: A Reappraisal, New York, Harper & Row Publishers.
10. Soder, R.(1991). "The ethics of the rhetoric of Teacher Professionalism". Teaching and Teacher Education, 7(3).
11. Stiles, L.J. and Parker, R.(1969) "Teacher Education Programme". Encyclopedia of Educational Research 4th Edition, New York, Macmillan.

M. Ed. (Semester-II)

Paper-XI: DISSERTATION

Credit-2 50 (Ext-15 & Int-35)

(joint evaluation by internal & external examiner)

- Writing synopsis (with review of related literature)

  and its presentation.

M.Ed. (Semester-II)

Paper-XII: INTERNSHIP IN A TEI

Credit – 4

M. Marks: 100 (Ext-30 & Int-70)

(joint evaluation by internal & external examiner)

- Teaching one unit of teacher education curriculum.
- Designing training material/ teaching learning material.
- Involvement in various activities of TEI.
- Records submitted on reflections during internship.

(Evaluation by Mentor Teacher Educator)

M.Ed. (Semester-III)
Paper –XIII: SPECIALISATION COURSE - I
(Stage Specific)

Time- 3 Hrs. Max. Marks-100
Credit-4 Ext. -70: Int. – 30

NOTE: Paper setter will set 9 questions in all, out of which students will be required to attempt only 5 questions. Question No. 1 will be compulsory, comprising of 4 short answer type notes of 3.5 marks each to be selected from the entire syllabus. Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. All questions carry equal i.e. 14 marks.

UNIT- I

1. Aims and objectives of school education (at that Stage)
2. Historical perspective
3. Present status

UNIT – II

1. School – concept, need & their role
2. Institutions, systems and structures of school education
3. Control & finance of institutions & their management
4. School education-global perspective

UNIT- III

1. Curriculum (at that specific stage) and its critical analysis
2. Activities – Curricular

Co- Curricular

Extra- Curricular

UNIT- IV

1. Methods of teaching (stage specific)
2. Use of ICT in teaching
3. Teaching aids- need &significance
4. Role of teacher as facilitator of teaching – learning environment

M.Ed. (Semester-III)

Paper- XIV: SPECIALISATION COURSE- II

(Stage Specific)

Time- 3 Hrs. Max. Marks-100
Credit-4 Ext. -70: Int. – 30

NOTE: Paper setter will set 9 questions in all, out of which students will be required to attempt only 5 questions. Question No. 1 will be compulsory, comprising of 4 short answer type notes of 3.5 marks each to be selected from the entire syllabus. Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. All questions carry equal i.e. 14 marks.

UNIT-I

- Class- room interaction
- Management of class room in terms of available resources
- Class - room interaction analysis

UNIT – II

- School administration
- Duties of Head/ Principal, teacher and class teacher
- Maintaining records
- Time- table
- Managing resources

UNIT- III

- Evaluation of outcomes
- Types of evaluation
- Methods/ tools of evaluation
- CCE

UNIT- IV

- Issues and concerns -
    - Indiscipline & unrest among students
    - Moral development of students
    - Problems in schools
    - School Management Committees
    - Addressing children with special needs
    - Action research

M. Ed (Semester-III)
Paper-XV: ADVANCED EDUCATIONAL RESEARCH

Time- 3 Hrs. Max. Marks-100
Credit-4 Ext. -70: Int. – 30

NOTE: Paper setter will set 9 questions in all, out of which students will be required to attempt only 5 questions. Question No. 1 will be compulsory, comprising of 4 short answer type notes of 3.5 marks each to be selected from the entire syllabus. Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. All questions carry equal i.e. 14 marks.

Unit- I

Tools **&** Techniques

1. Characteristics of a good research tool.
   Questionnaire- characteristics, types and uses.
   Rating scales- likert & thurstone scale.

2. Approaches to research
   - Historical research
   - Descriptive research
   - Scientific research

Unit-II

3. Experimental research & its design
4. Research report
   Development of research proposal (synopsis)
   Research Report- dissertation & thesis.
   - Characteristics & steps.

Unit-III

5. Correlation
   - Product Moment
   - Rank Difference

6. Regression & prediction
   Concept, uses, assumptions & computations of linear regression equation.
   Standard error of measurement.

Unit-IV

7. Differentials
   - Tests of significance ‘t’ test.
   - Concept of Null hypothesis

- Standard error
- Type I & Type II error.
- One Tail & Two Tail test.

b. Significance of statistics & significance of difference between means (independent sample, percentage & properties.)

8. ANOVA- One Way
   - Meaning, assumptions, computations & uses.

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1. Aggarwal, Y.P. (1998), Statistical Methods, Sterling, New Delhi.
2. Aggarwal, Y.P. (1998), The Science of Educational Research: A Source book, Nirmal, Kurukshetra
3. Best, John W. and Kahn James V (1995), Research in Education, Prentice Hall, New Delhi
4. Burns, R.B. (1991), Introduction to Research in Education, Prentice Hall, New Delhi.
5. Edward, Allen L (1968), Experimental Designs in Psychological Research, Holt, Rinehart and Winston, New York.
6. Forguson,George A (1976), Statistics Analysis in Psychology and Education, MeGraw Hill, New York.
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11. Koul, Lokesh (1988), Methodology of Educational Research, Vikas, New Delhi.
12. Kurtz, A.K. and Mayo S.T. (1980), Statistical Methods in Education and Psychology, Narola, New Delhi.
13. Mcmillion, James H. and Schumarcher, S. (1989), Research in Education: A Conceptual Introduction, Harper and Collins, New York.
14. Mouly, A.J. (1963), The Science of Educational Research, Eurosia, New Delhi.
15. Neuman, W.L. (1997), Social Research Methods: Qualitative and Quantitative Approaches, Allyn and Bacon, Boston.
16. Siegel, S. (1986). Non-parametric Statistic, Mc Graw Hill, New York.
17. Travers, R,M.W. (1978), An Introduction to Educational Research, Macmillan, New York.
18. Van Delen, D.B. (1962), Understanding Educational Research, Me Graw Hill, New York.
19. Young, P.V. (1960), Scientific Social Surveys and Research, Prentice Hall, New Delhi

M. Ed (Semester-III)
Paper-XVI: PERSPECTIVES, RESEARCH AND ISSUES IN TEACHER EDUCATION

Time- 3 Hrs. Max. Marks-100
Credit-4 Ext. -70: Int. – 30

NOTE: Paper setter will set 9 questions in all, out of which students will be required to attempt only 5 questions. Question No. 1 will be compulsory, comprising of 4 short answer type notes of 3.5 marks each to be selected from the entire syllabus. Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. All questions carry equal i.e. 14 marks.

Course Objectives-

1. Aims and objectives of teacher Education in India with its historical perspectives.
2. Different competencies essential for a teacher for effective transaction.
3. Research in various areas of teacher education.

Course Contents

Unit-I

1. Historical development of teacher education.
2. Recommendation of various commissions on teacher education with special emphasis on-
   - University Education Commission(1948-49)
   - Mudalior Commission(1952-53)
   - Kothari Commission
   - NPE 1986
   - Programme of Action 1992.

Unit-II

3. Teaching as a profession
4. Aims and Objectives of Teacher Organization.
5. Need of Professional Organization.
6. Faculty improvement programme.

Unit-III

7. Professional ethics.
8. Performance appraisal

9. Problems of admission to teacher education.

Unit-IV

Areas of research in teacher education

10. Teacher effectiveness
11. Modification of teacher behavior
12. School effectiveness.

Selected Readings

1. CABE,(1992). Report of the CABE committee on policy perspectives Govt. of India. MHRD, New Delhi.
2. Dunkin, J. Michal (1987) the International Encyclopedia of Teaching and Teacher Education, Pergamon Press.
3. Husen, Tosten & Postlethwaite(eds.)(1994). The International Encyclopedia of Education, New York. Vol. 1-12, Pergamon Press.
4. Mangla, Sheela(2000). Teacher Education: Trends & strategies, New Delhi, Radha Publishing.
5. Ministry of Education(1964-66), Education and National Development Report of Indian Education Commission, Govt. of India.
6. MHRD (1986) National Policy on Education and Programme of Action. Govt. of India, New Delhi.
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10. Soder, R. (1991). "The ethics of the rhetoric of Teacher Professionalism". Teaching and Teacher Education, 7(3).
11. Stiles, L.J. and Parker, R. (1969) "Teacher Education Programme". Encyclopedia of Educational Research 4th Edition, New York, Macmillan.

M.Ed. (Semester-III)

Paper-XVII: INTERNSHIP

(Stage specific in concerned area of specialization)

Credits-4

M.Marks-100 (Ext-30 & Int-70)

(joint evaluation by internal & external examiner)

M.Ed. (Semester-III)
Paper-XVIII: DISSERTATION

Credits-2
M.Marks-50 (Ext-15 & Int-35)
(joint evaluation by internal & external examiner)

- Comprehensive review of related literature, selection/ development of research tool & collection of data
- Submission & presentation of progress report of research work (including all above mentioned items)

M.Ed.(semester-III)
Paper-XIX: Academic Writing

Credit-2
M. Marks- 50 (Ext-15 & Int-35)
(joint evaluation by internal & external examiner)

- Book review and review of 2 research articles.
- Writing research article/paper.

- Critical reflections on any 05 current events/news related to field of education.

M.Ed. (Semester-IV)
Paper XX (A) (i): EDUCATION POLICY, ECONOMICS AND PLANNING
(At Elementary Level)

Time- 3 Hrs. Max. Marks-100
Credit-4 Ext. -70: Int. – 30

NOTE: Paper setter will set 9 questions in all, out of which students will be required to attempt only 5 questions. Question No. 1 will be compulsory, comprising of 4 short answer type notes of 3.5 marks each to be selected from the entire syllabus. Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. All questions carry equal i.e. 14 marks.

Unit – 1

Economics of education.

- Meaning
- Aims
- Scope
- Significance

Education as consumption or investment

- Education as consumption
- Education as investment
- Difficulties on teaching education as investment or consumption.

Unit –II

Cost of education

- Components of education cost
- Methods of determining cost
- Problems arsing in the application of the concept of cost in education.

Benefits of education

- Concept of cost benefit analysing
- Concept of private and social relevance rate of return analysing and its limitations
- Limitations of cost benefit analysis

Unit – III

Education and economic development

- concept of growth and development
- education and economic development
- factor effecting contribution to economic growth development

- Growth producing capacities difficulties involvement in calculation of contributions of education to economic growth
  Human capital
- Meaning
- Education as industry
- Issues of economics of education
- Residual approach
- Criticism against human capital theory

Unit –IV

Manpower requirement

- Meaning
- Manpower forecasting
- Difference in forecasting and projection
- Rational of manpower forecasting
- Limitation of forecasting
- Approach of forecasting
  Educated unemployment
- Causes.
- Problems
- Effects of unemployment on economy and their remedies.
- Linking of education with job apprehension
- Self employment.

SELECTED READINGS

Alex, V. ALexender : Human Capital Approach to Economic Development, Metropolitan Book Co., New Delhi, July, 1983.

Blaug, M.: Economics of Education, The English Language Book Society and Penguin Books, England, 1972.

Bertrand, Oliver : Planning Human Resources : Methods, Experiences and Practices, Sterling Publishers, New Delhi, 1992.

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Natarajan, S.: Introduction to Economics of Education, Sterling Publishers Pvt. Ltd. New Delhi, 1990.
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Raza, Moonis: Educational Planning: A long Term Perspective, Concept Publishing Company, New Delhi, 1986.
Singh, Baljit: Economics of Indian Education, Meenakshi Prakashan, New Delhi, 1992.
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Tilak, J.B.G. Educational Planning at Grass Roots, Ashish Publishing House, New Delhi, 1992.
Vaizey, J.: Costs of Education, London :Feber , 1962.
UNESCO: Readings in the Economics of Education, Paris, UNESCO Publications, 1968.

M.Ed. (Semester-IV)
Paper XX (A) (ii): EDUCATION POLICY, ECONOMICS AND PLANNING
(At Secondary Level)

Time- 3 Hrs. Max. Marks-100
Credit-4 Ext. -70: Int. – 30

NOTE: Paper setter will set 9 questions in all, out of which students will be required to attempt only 5 questions. Question No. 1 will be compulsory, comprising of 4 short answer type notes of 3.5 marks each to be selected from the entire syllabus. Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. All questions carry equal i.e. 14 marks.

Unit – 1

Economics of education.

- Meaning
- Aims
- Scope
- Significance

Education as consumption or investment

- Education as consumption
- Education as investment
- Difficulties on teaching education as investment or consumption.

Unit –II

Cost of education

- Components of education cost
- Methods of determining cost
- Problems arsing in the application of the concept of cost in education.

Benefits of education

- Concept of cost benefit analysing
- Concept of private and social relevance rate of return analysing and its limitations
- Limitations of cost benefit analysis

Unit – III

Education and economic development

- concept of growth and development
- education and economic development
- factor effecting contribution to economic growth development

- Growth producing capacities difficulties involvement in calculation of contributions of education to economic growth

  Human capital
- Meaning
- Education as industry
- Issues of economics of education
- Residual approach
- Criticism against human capital theory

Unit –IV

Manpower requirement

- Meaning
- Manpower forecasting
- Difference in forecasting and projection
- Rational of manpower forecasting
- Limitation of forecasting
- Approach of forecasting

  Educated unemployment
- Causes.
- Problems
- Effects of unemployment on economy and their remedies.
- Linking of education with job apprehension
- Self employment.

SELECTED READINGS

Alex, V. ALexender : Human Capital Approach to Economic Development, Metropolitan Book Co., New Delhi, July, 1983.

Blaug, M.: Economics of Education, The English Language Book Society and Penguin Books, England, 1972.

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Natarajan, S.: Introduction to Economics of Education, Sterling Publishers Pvt. Ltd. New Delhi, 1990.

Pandit, H.N.: Measurement of Cost Productivity and Efficiency of Education, NCERT, 1969.
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Raza, Moonis: Educational Planning: A long Term Perspective, Concept Publishing Company, New Delhi, 1986.
Singh, Baljit: Economics of Indian Education, Meenakshi Prakashan, New Delhi, 1992.
Sodhi, T.S.: Economics of Education, New Delhi, Vikas, 1990.
Tilak, J.B.G. Educational Planning at Grass Roots, Ashish Publishing House, New Delhi, 1992.
Vaizey, J.: Costs of Education, London :Feber , 1962.
UNESCO: Readings in the Economics of Education, Paris, UNESCO Publications, 1968.

M.Ed. (Semester-IV)

Paper XX (B)(i): MANAGEMENT AND ADMINISTRATION OF EDUCATION

(At Elementary Level)

Time- 3 Hrs. Max. Marks-100

Credit-4 Ext. -70: Int. – 30

NOTE: Paper setter will set 9 questions in all, out of which students will be required to attempt only 5 questions. Question No. 1 will be compulsory, comprising of 4 short answer type notes of 3.5 marks each to be selected from the entire syllabus. Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. All questions carry equal i.e. 14 marks.

COURSE OBJECTIVES

1. To acquaint the students with changing concepts of educational management along with their significance.
2. To help the students to understand educational management as a process at elementary level.
3. To develop an understanding in students about education and problems of trends in educational management and administration.
4. To help the students to understand various approaches and problems of educational planning.
5. To assist the students to plan,organize and implement supervisory programmes in educational institutions.

COURSE CONTENTS

UNIT-I

1. Meaning, Nature and Scope of Educational Administration, Relationship among management, administration, supervision and planning.
2. Development of modern Concept of Educational Administration from 1900 to present day.
   - Taylorism
   - Administration as a process.
   - Human relations approach to Administration.
3. Meeting the Psychological Needs of Employees.

UNIT-II

4. Specific Trends in Educational Administration:-
   - Decision Making
   - Organizational Development
   - Conflict Management
   - PERT
5. (a) Meaning and Nature of Leadership
   (b) Theories of Leadership
6. (a) Styles of Leadership
   (b) Measurements of Leadership

UNIT-III

7. (a) Meaning and Nature of Educational Planning.
   (b) Approaches to Educational Planning
8. (a) Perspective Planning
   (b) Institutional Planning
9. Administrative Sructure of Elementary education at central, state, district, block, cluster and village level.

UNIT-IV

10..Meaning and Nature of Educational Supervision, Supervision as a :

(a) Service Activity
(b) Process
(c) Function

11.(a) Modern Supervision and Functions of Supervision.
   (b) Planning, Organizing and Implementing Supervisory Programmes.

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M.Ed. (Semester-IV)

Paper XX (B)(ii): MANAGEMENT AND ADMINISTRATION OF EDUCATION

(At Secondary Level)

Time- 3 Hrs. Max. Marks-100

Credit-4 Ext. -70: Int. – 30

NOTE: Paper setter will set 9 questions in all, out of which students will be required to attempt only 5 questions. Question No. 1 will be compulsory, comprising of 4 short answer type notes of 3.5 marks each to be selected from the entire syllabus. Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. All questions carry equal i.e. 14 marks.

COURSE OBJECTIVES

1. To acquaint the students with changing concepts of educational management along with their significance.
2. To help the students to understand educational management as a process at secondary level.
3. To develop an understanding in students about education and problems of trends in educational management and administration.
4. To help the students to understand various approaches and problems of educational planning.
5. To assist the students to plan,organize and implement supervisory programmes in educational institutions.

COURSE CONTENTS

UNIT-I

1. Meaning, Nature and Scope of Educational Administration, Relationship among management, administration, supervision and planning.
2. Development of modern Concept of Educational Administration from 1900 to present day.
   Taylorism
   Administration as a process.
   Human relations approach to Administration.
3. Meeting the Psychological Needs of Employees.

UNIT-II

4. Specific Trends in Educational Administration:-
   - Decision Making
   - Organizational Development
   - Conflict Management
   - PERT
5. (a) Meaning and Nature of Leadership
   (b) Theories of Leadership
6. (a) Styles of Leadership
   (b) Measurements of Leadership

UNIT-III

8. (a) Meaning and Nature of Educational Planning.
   (b) Approaches to Educational Planning
8. (a) Perspective Planning
   (b) Institutional Planning
10. Administrative Sructure of Secondary education at central, state, district, block, cluster and village level.

UNIT-IV

10..Meaning and Nature of Educational Supervision, Supervision as a :
   (a). Service Activity
   (b). Process
   (c). Function
11.(a) Modern Supervision and Functions of Supervision.
   (b) Planning, Organizing and Implementing Supervisory Programmes.

SELECTED READINGS

Bhatnagar, R.P. & Aggarwal, V. (2004). *Educational administration supervision, planning and financing.* Meerut: R. Lall Book Depot.

Burgers, D. & Newton, P. (2014). Educational administration and leadership. New York : Routledge.

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M.Ed. (Semester-IV)

Paper– XX (C)(i): INCLUSIVE EDUCATION (At Elementary Level)

Time- 3 Hrs. Max. Marks-100
Credit-4 Ext. -70: Int. – 30

NOTE: Paper setter will set 9 questions in all, out of which students will be required to attempt only 5 questions. Question No. 1 will be compulsory, comprising of 4 short answer type notes of 3.5 marks each to be selected from the entire syllabus. Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. All questions carry equal i.e. 14 marks.

Course Objectives

After studying this paper, the prospective teacher educators will be able to-

- Differentiate among mainstreaming, integrated education and inclusive education.
- Describe the Provisions of PWD Act-1995 and National Trust 1999
- Explain the barriers to inclusive education.
- Explain the concept of curricular adaptations and its needs and importance.
- Explain the roles and responsibilities of stakeholders for inclusive education of CWSN

COURSE CONTENTS

Unit 1: Introduction to Inclusive Education

- Marginalization vs Inclusive education – Meaning and definition.
- Historical perspectives on education of children with diverse needs.
- Difference – Mainstreaming, Integrated education and Inclusive education.
- Intervention and Models of inclusive education
- Advantages of inclusive education.

Unit 2: policies, programmes and legislative provisions with reference to children with special needs (CWSN)

- NPE 1986, POA 1992; SSA and RMSA

- Persons With Disabilities Act (EO,PR, & FP), 1995 and the Draft Rights of Persons with Disabilities Bill – 2012 and subsequent amendments.
- RCI Act, 1992 and National Trust for Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disability Act, 1999 & Rules, 2014
- National Policy for Persons with Disabilities - 2006
- UNCRPD – 2007

Unit 3 : Building Inclusive Schools

- Identifying and addressing barriers to Inclusive education – Attitudinal, Physical and Instructional.
- Ensuring Physical, Academic and Social Access.
- Leadership and teachers as change agents.
- Index for Inclusion – Indian and Global
- Assistive technology for CWSN

Unit 4: Curricular Adaptations and Accommodations

- Meaning, Difference, and Need.
- Specifics for children with Sensory disabilities (VI and HI)
- Specifics for children with Neuro-developmental disabilities.
- Specifics for children with Locomotor disabilities and Multiple disabilities.
- Engaging gifted children.

Unit 5 : Supports and Collaboration for Inclusive Education

- Stakeholders of Inclusive Education.
- Advocacy for the rights of CWSN – Meaning and importance.
- Family support & involvement for inclusive education
- Community involvement for inclusive education
- Resource mobilization for inclusive education.

Field engagement/ Practical (Any one of the following)

- Visit an inclusive schools and write an observation report highlighting pedagogy and CWSN interaction in the classroom**.**
- **Prepare a checklist for accessibility in inclusive school with reference to architectural barriers.**
- **Prepare a lesion plan for teaching any topic of your choice using any instructional strategy.**
- **Design a poster and slogan on Inclusive Education.**

Suggested Readings

Ahuja, A & Jangira, N.K. (2002.) Effective teacher training: Cooperative learning based approach. New Delhi: National Publishing House.

Ashman, A & Elkinsa, J. (2002) Educating children with special needs. French Forest, NSW: prentice Hall.

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Jangira, N.K. & mani, M.N.G. (1977) Integrated education of the visually handicapped: Management Perspectives: Gurgaon: Academic Press.

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Muricken, Jose S.J. & Kareparampil, G (1995). Persons with disabilities in society: Trivandrum: Kerala Federation of the Blind.

MSJ & E(1995). Persons with Disabilities Act- 1995, New Delhi: Government of India

http//socialjustice.nicin/policiesacts.

M.Ed. (Semester-IV)

Paper– XX (C)(ii): INCLUSIVE EDUCATION
(At Secondary Level)

Time- 3 Hrs. Max. Marks-100
Credit-4 Ext. -70: Int. – 30

NOTE: Paper setter will set 9 questions in all, out of which students will be required to attempt only 5 questions. Question No. 1 will be compulsory, comprising of 4 short answer type notes of 3.5 marks each to be selected from the entire syllabus. Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. All questions carry equal i.e. 14 marks.

Course Objectives

After studying this paper, the prospective teacher educators will be able to-

- Differentiate among mainstreaming, integrated education and inclusive education.
- Describe the Provisions of PWD Act-1995 and National Trust 1999
- Explain the barriers to inclusive education.
- Explain the concept of curricular adaptations and its needs and importance.
- Explain the roles and responsibilities of stakeholders for inclusive education of CWSN

COURSE CONTENTS

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- National Policy for Persons with Disabilities - 2006
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Unit 3 : Building Inclusive Schools

- Identifying and addressing barriers to Inclusive education – Attitudinal, Physical and Instructional.
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GOI (1992). Scheme of Integrated Education for the disabled. 1992: New Delhi: MHRD

Evans, P & Verma, V (Eds) (1990) Special education: Past, present and future. London: The Falmer Press

Harely, R.K. & Lawrence, G.A. (1977) Vishal impairment in the school. Springfield. IL Charles C. Thomas.

Jangira, N.K. & mani, M.N.G. (1977) Integrated education of the visually handicapped: Management Perspectives: Gurgaon: Academic Press.

Mohapatra, C.S. (Ed) (2004). Disability management in India: Challenges and commitments Secunderabad: NIMH

Longone, B (1990). Teaching retarded Learners: curriculum and methods for improving instruction. Boston: Allyn and Bacon.

Mani, M.N. G. (1992). Technique of teaching blind children New Delhi: Sterling for effective instruction. New Delhi: Merrill.

Muricken, Jose S.J. & Kareparampil, G (1995). Persons with disabilities in society: Trivandrum: Kerala Federation of the Blind.

MSJ & E(1995). Persons with Disabilities Act- 1995, New Delhi: Government of India

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M.Ed. (Semester-IV)
Paper– XX (D)(i): EDUCATIONAL TECHNOLOGY
(At Elementary Level)

Time- 3 Hrs. Max. Marks-100

Credit-4 Ext. -70: Int. – 30

NOTE: Paper setter will set 9 questions in all, out of which students will be required to attempt only 5 questions. Question No. 1 will be compulsory, comprising of 4 short answer type notes of 3.5 marks each to be selected from the entire syllabus. Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. All questions carry equal i.e. 14 marks.

COURSE OBJECTIVES

1. To develop the understanding of concept, origin and characteristics of educational Technology.
2. To enable the students to differentiate between hardware and software.
3. To acquaint the students with skill of farming educational objectives.
4. To develop the skills of designing instructional system.
5. To enable the students to understand Programme Learning.
6. To enable the students to use educational technology for improving teacher's behaviour.

UNIT CONTENTS

UNIT –I

1. Meaning and Scope of Educational Technology: System approach to Education and its Characteristic, Components of educational Technology – Software and Hardware.
2. Multimedia approach in Educational Technology.

UNIT –II

3. Modalities of teaching – Teaching as different from Indoctrination, instructions, conditioning and training.
4. Stages of Teaching – Pre-active, Interactive and Post active.
5. Teaching as different levels – Memory, understanding and reflective levels of organizing teaching and learning.
6. Programmed Instruction : Origin, Principles and characteristics
7. Types: Linear, Branching and Mathetics.
8. Development of a Programme: Preparation, Writing, Try out and Evaluation

UNIT –III

9. Modification of Teaching Behavior, Micro-teaching, Flanders Interaction Analyses, Simulation.
10. Communication Process: Concept of Communication, Principles, Modes and Barriers to communication, class-room communication (Interaction, Verbal and Non-verbal), Models of Communication:- Shannon and Weaver Model of Communication, Berlo's Model of Communication.
11. Models of Teaching: Concept, Different families of Teaching Models.

UNIT –IV

12. Designing Instructional System: Formulation of instructional objectives, Task Analysis, Designing of Instructional strategies: Lecture, Team Teaching, Discussion, Seminars, Tutorials and Brainstorming sessions.
13. Development of Evaluation Tools: Norm Referenced Tests and Criterion Referenced Tests.
14. Application of Educational Technology in Distance Education: Concept of Distance Education; Distance and open Learning system; Student Support Services: Evaluation strategies in Distance Education; Counseling in Distance Education.

SELECTED READING

1. Davies, I.K., "The Management of Learning," London: Me Graw Hill, 1971
2. Dececco, J.P., "The Psychology of Learning and Instruction", New Delhi, Prentice Hall, 1988.
3. Kulkarni, S.S., "Introduction to Educational Technology", Mew Delhi: Oxford & IBH Publishing Company, 1986.
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M.Ed. (Semester-IV)
Paper– XX (D)(ii): EDUCATIONAL TECHNOLOGY
(At Secondary Level)

Time- 3 Hrs. Max. Marks-100

Credit-4 Ext. -70: Int. – 30

NOTE: Paper setter will set 9 questions in all, out of which students will be required to attempt only 5 questions. Question No. 1 will be compulsory, comprising of 4 short answer type notes of 3.5 marks each to be selected from the entire syllabus. Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. All questions carry equal i.e. 14 marks.

COURSE OBJECTIVES

1. To develop the understanding of concept, origin and characteristics of educational Technology.
2. To enable the students to differentiate between hardware and software.
3. To acquaint the students with skill of farming educational objectives.
4. To develop the skills of designing instructional system.
5. To enable the students to understand Programme Learning.
6. To enable the students to use educational technology for improving teacher's behaviour.

UNIT CONTENTS

UNIT –I

1. Meaning and Scope of Educational Technology: System approach to Education and its Characteristic, Components of educational Technology – Software and Hardware.
2. Multimedia approach in Educational Technology.

UNIT –II

1. Modalities of teaching – Teaching as different from Indoctrination, instructions, conditioning and training.
2. Stages of Teaching – Pre-active, Interactive and Post active.
3. Teaching as different levels – Memory, understanding and reflective levels of organizing teaching and learning.
4. Programmed Instruction : Origin, Principles and characteristics
5. Types: Linear, Branching and Mathetics.
6. Development of a Programme: Preparation, Writing, Try out and Evaluation

UNIT –III

1. Modification of Teaching Behavior, Micro-teaching, Flanders Interaction Analyses, Simulation.
2. Communication Process: Concept of Communication, Principles, Modes and Barriers to communication, class-room communication (Interaction, Verbal and Non-verbal), Models of Communication:- Shannon and Weaver Model of

Communication, Berlo's Model of Communication.

3. Models of Teaching: Concept, Different families of Teaching Models.

UNIT –IV

1. Designing Instructional System: Formulation of instructional objectives, Task Analysis, Designing of Instructional strategies: Lecture, Team Teaching, Discussion, Seminars, Tutorials and Brainstorming sessions.
2. Development of Evaluation Tools: Norm Referenced Tests and Criterion Referenced Tests.
3. Application of Educational Technology in Distance Education: Concept of Distance Education; Distance and open Learning system; Student Support Services: Evaluation strategies in Distance Education; Counseling in Distance Education.

SELECTED READING

1. Davies, I.K., "The Management of Learning," London: Me Graw Hill, 1971
2. Dececco, J.P., "The Psychology of Learning and Instruction", New Delhi, Prentice Hall, 1988.
3. Kulkarni, S.S., "Introduction to Educational Technology", Mew Delhi: Oxford & IBH Publishing Company, 1986.
4. Kumar, K.L., "Educational Technology", New Delhi : New Age International Publisher, 1996.
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14. Schneider, Arnold E., Donaghy, William C., Newman, Pamela Jane "Organizational Communication"
15. Skinner, B.F., "The Technology of teaching", New York: Appleton Century Crofts, 1968.
16. Vedanayagam, E.G., "Teaching Technology for College Teacher:, New Delhi: Sterling Publisher, 1988

M.Ed. (Semester-IV)
Paper-XX (Opt-E)(i): Educational Measurement & Evaluation
(At Elementary Level)

Time- 3 Hrs. Max. Marks-100
Credit-4 Ext. -70: Int. – 30

NOTE: Paper setter will set 9 questions in all, out of which students will be required to attempt only 5 questions. Question No. 1 will be compulsory, comprising of 4 short answer type notes of 3.5 marks each to be selected from the entire syllabus. Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. All questions carry equal i.e. 14 marks.

UNIT-I

1. Measurement in Education at primary level
   Meaning, Kinds, Difference between Mental & Physical Measurement.
   Nature ,Need and Scope of Measurement.
   Levels of Measurement.
2. Evaluation in Education.
   Concept, Need,process. purpose, and uses of Evaluation.
   Funcations and principles of evaluation
   Types of evaluation procedure
   Interrelationship & Difference between Measurement & Evaluation

UNIT –II

3. Taxonomy of educational objectives
   need and functions of instruction objectives
   relationship between educational and instructional objective
   classification of educational objevtive
   utility of taxonomical classification
   principles for the statement of instructional objecive
4. Appraisal of existing system of evaluation
   grading system V/s Marking system.

Semester system V/s Annual system.

Continuous and comprehensive evaluation.

UNIT-III

Text construction

5. Characteristics of good test

   Teacher made tests Vs Standardized test-Similarities and differences

   Steps of preparing standardized test

   Norms referenced & criterion referenced test

6. Concept and measurement of the following

   Intelligence test

   Attitude test

   Aptitudes test

   Interest inventory

UNIT-IV

7. Correlation

   Concept computation and significance of partial

   Multiple biserial

   point biserial

   tetrachoric

   phi.

8. Analysis of variance

   ANOVA upto two way with and without replication

   Concept , assumptions, computions and use.

SELECTED READINGS

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- Aggarwal, Y.P. (1998), The Science of Educational Research: A Source book, Nirmal, Kurukshetra
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M.Ed. (Semester-IV)
Paper-XX (Opt-E)(ii): Educational Measurement & Evaluation
(At Secondary Level)

Time- 3 Hrs. Max. Marks-100
Credit-4 Ext. -70: Int. – 30

NOTE: Paper setter will set 9 questions in all, out of which students will be required to attempt only 5 questions. Question No. 1 will be compulsory, comprising of 4 short answer type notes of 3.5 marks each to be selected from the entire syllabus. Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. All questions carry equal i.e. 14 marks.

UNIT-I

1. Measurement in Education at primary level
   Meaning, Kinds, Difference between Mental & Physical Measurement.
   Nature, Need and Scope of Measurement.
   Levels of Measurement.
2. Evaluation in Education.
   Concept, Need,process. purpose, and uses of Evaluation.
   Funcations and principles of evaluation
   Types of evaluation procedure
   Interrelationship & Difference between Measurement & Evaluation

UNIT –II

3. Taxonomy of educational objectives
   need and functions of instruction objectives
   relationship between educational and instructional objective
   classification of educational objectives
   utility of taxonomical classification
   principles for the statement of instructional objective
4. Appraisal of existing system of evaluation
   grading system V/s Marking system.

Semester system V/s Annual system.

Continuous and comprehensive evaluation.

UNIT-III

5. Text construction

Characteristics of good test

Teacher made tests Vs Standardized test-Similarities and differences

Steps of preparing standardized test

Norms referenced & criterion referenced test

6. Concept and measurement of the following

Intelligence test

Attitude test

Aptitudes test

Interest inventory

UNIT-IV

7. Correlation

Concept computation and significance of partial

Multiple biserial

point biserial

tetrachoric

phi.

8. Analysis of variance

ANOVA upto two way with and without replication

Concept , assumptions, computions and use.

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- Aggarwal, Y.P. (1998), Statistical Methods, Sterling, New Delhi.
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- Koul, Lokesh (1988), Methodology of Educational Research, Vikas, New Delhi.
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- Van Delen, D.B. (1962), Understanding Educational Research, Me Graw Hill, New York.
- Young, P.V. (1960), Scientific Social Surveys and Research, Prentice Hall, New York.

M.Ed. (Semester-IV)
Paper-XX (Opt-F)(i): Comparative Education
(At Elementary Level)

Time- 3 Hrs. Max. Marks-100
Credit-4 Ext. -70: Int. – 30

NOTE: Paper setter will set 9 questions in all, out of which students will be required to attempt only 5 questions. Question No. 1 will be compulsory, comprising of 4 short answer type notes of 3.5 marks each to be selected from the entire syllabus. Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. All questions carry equal i.e. 14 marks.

COURSE OBJECTIVES

- To develop understanding among students regarding concept of Comparative Education, its Aims, Purposes and Importance.
- To develop understanding in students regarding the factors Influencing Educational Systems of Different Countries.
- To acquaint the students regarding Approaches to study Internal Systems of Different Countries.
- To acquaint the students regarding Educational System of India as well as other Countries like UK, USA, and Australia.
- To help students in developing understanding regarding Problems, Issues and Existing Provisions and Programmes of the Country in the Context of Educational Systems of Other Countries.

COURSE CONTENTS

UNIT-I

1. Concept, Aims and Scope of Comparative Education.
2. Factors influencing Education System.
3. Approaches to Comparative Education: Historical, Philosophical, Sociological and Problem Approach.

UNIT-II

1. Elementary Education: Concept of Universalization of Elementary Education in India, National Policy of Education (NPE-1986) and Primary Education, District Primary Education Programme (DPEP), Sarva Shiksha Abhiyan (SSA) and RTE Act-2009.

UNIT-III

1. Primary Education in UK & USA (Aims, Pattern, Curriculum, Methods of Instruction & Evaluation System)

UNIT-IV

1. Secondary Education in India, UK & USA.

SELECTED READINGS

Arnove, Robert F. & Alberto, Torres Carlos. (2007*). Comparative Education: The Dialectic of the Global and Local*. U.S.A: Rowman and Little field Publisher.

Bereday G.Z.F. (1967). *Comparative Methods in Education*, New Delhi: Oxford and IBH Publishing Co.

Chaube, S.P. & Chaube, A. (2007). *Comparative Education*. Noida: Vikas Publishing House.

Chaubey S.P.(1969). *Comparative Education*, Agra: Ram Prasad and sons Publishers

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Kubow, Patriva K., & Fossum, Paul R. (2007). *Comparative Education: Exploring Issues in International Context*. U. S. A.: Pearson/Merrill/Prentice Hall Publishers.

Mundy, Karen. ,Bickmore, Kothy. ,Hayhoe Ruth. ,Madden, Meggan. & Madjidi, Katherine. (2008). *Comparative and International Education: Issues for Teachers.* U.S.A.: Teacher College Press.

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NUEPA. *Elementary Education in India- Where do we Stand?* New Delhi :State and District Report Cards (Yearly Publication)

Shrivastava, S.K. (2005). *Comparative Education*. New Delhi: Anmol Publications Pvt. Ltd.

Sodhi,T.S. (2005). A Text Book of Comparative Education-Philosophy, Patterns and Problems of
National Systems, New Delhi. Vikas Publishing House Pvt. Ltd.

Sodhi, T.S. (2007). Textbook of Comparative Education. Noida: Vikas Publishing House.

Reddy R.S. The methods of analysis and enquiry publisher, Ajay Verma, Common wealth
publisher 4378/4B, Mutali Lal Street, Ansari Road, New Delhi.

Yadav, Rajender Singh (2006). Community Participation in Education: Role of Village Education Committee. Ambala Cantt: The Associated Publishers.

M.Ed. (Semester-IV)
Paper-XX (Opt-F)(ii): Comparative Education
(At Secondary Level)

Time- 3 Hrs. Max. Marks-100
Credit-4 Ext. -70: Int. – 30

NOTE: Paper setter will set 9 questions in all, out of which students will be required to attempt only 5 questions. Question No. 1 will be compulsory, comprising of 4 short answer type notes of 3.5 marks each to be selected from the entire syllabus. Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. All questions carry equal i.e. 14 marks.

COURSE OBJECTIVES

- To develop understanding among students regarding concept of Comparative Education, its Aims, Purposes and Importance.
- To develop understanding in students regarding the Factors Influencing Educational Systems of Different Countries.
- To acquaint the students regarding Approaches to Study Internal Systems of Different Countries.
- To acquaint the students regarding Educational System of India as well as Other Countries like UK, USA, and Australia.
- To help students in developing understanding regarding Problems, Issues and Existing Provisions and Programmes of the Country in the Context of Educational Systems of Other Countries.

COURSE CONTENTS

UNIT-I

1. Concept, Aims and Scope of Comparative Education.
2. Factors influencing Education System.
3. Approaches to Comparative Education: Historical, Philosophical, Sociological and Problem Approach.

UNIT-II

1. Primary/Elementary Education in India: Concept of Universalization of Elementary Education in India, National Policy of Education (NPE-1986) and Primary Education, District Primary Education Programme (DPEP), Sarva Shiksha Abhiyan (SSA) and RTE Act-2009.
2. Secondary Education in India, UK and USA. Vocationalization of Secondary Education in India, UK and Russia.

UNIT-III

1. Higher Education in India, UK and USA.

UNIT-IV

1. Distance Education: its Needs and Various Concepts with Reference to India, UK and Australia.
2. Educational Administration in India, U.K. and U.S.A.

SELECTED READINGS

Arnove, Robert F. & Alberto, Torres Carlos. (2007*). Comparative Education: The Dialectic of the Global and Local*. U.S.A: Rowman and Little field Publisher.

Bereday G.Z.F. (1967). *Comparative Methods in Education*, New Delhi: Oxford and IBH Publishing Co.

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M.Ed. (Semester-IV)
Paper-XX (Opt-G)(i): Educational and Vocational Guidance
(At Elementary Level)

Time- 3 Hrs. Max. Marks-100
Credit-4 Ext. -70: Int. – 30

NOTE: Paper setter will set 9 questions in all, out of which students will be required to attempt only 5 questions. Question No. 1 will be compulsory, comprising of 4 short answer type notes of 3.5 marks each to be selected from the entire syllabus. Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. All questions carry equal i.e. 14 marks.

Course Objective

- To develop understanding among students regarding importance of guidance services at Primary School Stage.
- To acquaint then regarding various Guidance Programmes and Activities which can be Organized at School Level
- To develop understanding among students regarding the concepts, Aims, Process, Procedure of various Guidance Services and Counseling.
- To acquaint the students regarding the Roles & Responsibilities of Guidance Workers, Teachers, Heads of the Schools and Counselors.
- To appraise the students regarding the Worth of Understanding and Assessing the Individual correctly.

Course Contents

UNIT-I

1. Meaning, Principal, Need, Importance and Type of Guidance- Educational Guidance, Vocational Guidance and Personal Guidance.
2. Organization of Guidance Services in Elementary School: Type of Guidance Services, Importance at Elementary School Level.
3. Occupational Information at Elementary School Level - Meaning and its Needs & Methods of Imparting Occupational Information.

UNIT-II

4. Group Guidance at Elementary School Level - Meaning, Advantages, Principles and Kind of Group Guidance.
5. Guidance of Students with Special Needs at Elementary School Level.

UNIT-III

6. Placement Service at Elementary School Level - Meaning, Functions and Principles.
7. Follow-up Service at Elementary School Level - Meaning, Purpose and Characteristics.

UNIT-IV

8. **Study of the Individual, Data Collection Techniques of Information**- Standardization and Non-Standardized Techniques: Anecdotal Records, Biographies, Rating Scale, Case Study, Sociometry, Questionnaire, Observation and Interview and Cumulative Records.
9. **Counseling at Elementary School Level - Meaning, Need and Principles.**

- Directive Counseling: Concept, Procedure, Advantage and Limitations.
- Non-Directive Counseling: Concept, Procedure, Advantage and Limitations.
- Eclectic Counseling: Concept, Procedure, Advantage and Limitations.

SELECTED READINGS

1. Bernard, Harold W & Fullmer Daniel W. Principles of Guidance, Second Edition, New York- Thomas Y. Crowell Company, 1977.
2. Jones, J.A : Principles of Guidance, Bombay, Tata. New York. McGraw Hill, 1970.
3. Myres, G.E: Principles and Techniques of Vocational Guidance, New York, Mc Graw Hill.
4. Granz, F.M: Foundation and Principles of Guidance, Bostaon, Allyn and Bacon.
5. Miller, F.W: Guidance Principles and Services, Columbia Ohio, Merrill, 1961.
6. Pandy, K.P., Educational and Vocational Guidance in India – Vishwa Vidyalaya Prakashan Chowk, Varanasi, 2000.
7. McGowan, J.P. chmidt : Counselling : Reading in Theory and Practice, New York Holt, Rinehard and Winston, 1962.
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12. Super, D.E., Schmdt: Apprasing Vocational Fitness by Means of Psychological Testing, New York: Haper and Row, 1962.

M.Ed. (Semester-IV)
Paper-XX (Opt-G)(ii): Educational and Vocational Guidance (At Secondary Level)

Time- 3 Hrs. Max. Marks-100
Credit-4 Ext. -70: Int. – 30

NOTE: Paper setter will set 9 questions in all, out of which students will be required to attempt only 5 questions. Question No. 1 will be compulsory, comprising of 4 short answer type notes of 3.5 marks each to be selected from the entire syllabus. Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. All questions carry equal i.e. 14 marks.

Course Objective

- To develop understanding among students regarding importance of Guidance Services at Secondary School Stage.
- To acquaint then regarding various Guidance Programmes and Activities which can be Organized at School Level.
- To develop understanding among students regarding the Concepts, Aims, Process, Procedure of various Guidance Services and Counseling.
- To acquaint the students regarding the Roles & Responsibilities of Guidance Workers, Teachers, Heads of the Schools and Counselors.
- To appraise the students regarding the Worth of Understanding and Assessing the Individual correctly.

Course Contents

UNIT-I

1. Concept, Importance and Areas of Guidance- Educational Guidance, Vocational Guidance and Personal Guidance.
2. Organization of Guidance Services in Secondary Schools.
3. Occupational Information at Secondary School Level. Sources of Occupational Material in India.

UNIT-II

1. Group Guidance- Meaning, Advantages, Principles and Kind of Group Guidance.
2. Guidance of Students with Special Needs at Secondary School Level.

UNIT-III

1. Job Analysis- Meaning, Type and Purpose of Job Analysis.
2. Placement Service- Meaning, Functions and Principles.
3. Follow-up Service- Meaning, Purpose and Characteristics.

UNIT-IV

1. **Study of the Individual, Data Collection Techniques of Information**- Standardization and Non-Standardized Techniques: Anecdotal Records, Biographies, Rating Scale, Case Study, Sociometry, Questionnaire, Observation and Interview and Cumulative Records.
2. **Counseling at Secondary School Level- Meaning, Need and Principles**.

- Directive Counseling: Concept, Procedure, Advantage and Limitations.
- Non-Directive Counseling: Concept, Procedure, Advantage and Limitations.
- Eclectic Counseling: Concept, Procedure, Advantage and Limitations.

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11. Robinson: Principles and Procedures in student Counselling, New York, Harper & Roe.

12. Super, D.E., Schmdt: Apprasing Vocational Fitness by Means of Psychological Testing, New York: Haper and Row, 1962.

M.Ed.(Semester- IV)

Paper- XXI : DISSERTATION

4-credits
M.Marks-100 (Ext-30 & Int-70)
(joint evaluation by internal & external examiner)

- Submission of dissertation & viva-voce.

LIST OF CONTRIBUTORS

Development of Syllabus for M.Ed. (2 Years)/ (IV – Semesters) Course, K.U.K
(As per Curriculum Framework: Two-Year M.Ed. Programme, as approved in the NCTE Recognition Norms and Procedures, 2014)

Sr. No.	NAME
1.	Prof. Puran Singh, Chairman, Department of Education, KUK.(Convener)
2.	Dr. Rajvir Singh, Assistant Professor, Department of Education, KUK.(Coordinator)
3.	Prof. Sushama Sharma, Department of Education, KUK.
4.	Prof. Rajender Singh Yadav, Department of Education, KUK.
5.	Prof. Ramana Sood, Department of Education, KUK.
6.	Prof. Sangeeta, Department of Education, KUK.
7.	Prof. Rita Chopra, Department of Education, KUK.
8.	Prof. Sushil Kumar, Department of Education, KUK.
9.	Dr. Jyoti Khajuria, Department of Education, KUK.
10.	Dr. Sushma Gupta, Department of Education, KUK.

KURUKSHETRA UNIVERSITY
KURUKSHETRA

(Established by the State Legislature Act XII of 1956)

("A" Grade, NAAC Accredited)

SCHEME, SYLLABUS AND COURSES OF READING

(Modified w.e.f. Academic Session : 2015-2016)

FOR

M. A. SANSKRIT (PREVIOUS)

SEMESTERS : I & II

Semester – I Examination : December, 2015

Semester – II Examination : May, 2016

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(1956 तम-वर्षगत-राज्यविधायिका-अधिनियम-XII-द्वारा स्थापित:)

("ए" श्रेणी, नाक-प्रत्यायित:)

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एम० ए० संस्कृतम् (प्रथमं वर्षम्), प्रथमद्वितीयसत्रात्मकम्

M. A. Sanskrit (Previous), Semesters : I & II

योजना, पाठ्यक्रम:, पाठचर्या च

(**2015-2016** 'kS{kd l =k% laks/kre~)

SCHEME, SYLLABUS AND COURSES OF READING

(Modified w.e.f. Academic Session : 2015-2016)

एम० ए० (संस्कृतम्)-कक्ष्यायाः प्रथमवर्षीयपाठ्यक्रमः (शैक्षिकसत्रम् 2015-2016) सत्रद्वये (प्रथमसत्रे, द्वितीयसत्रे च) विभक्तः वर्तते। तत्र प्रथमे सत्रे पञ्च (5) अनिवार्यपत्राणि निर्धारितानि सन्ति। एवमेव द्वितीयसत्रे पञ्च (5) अनिवार्यपत्राणि निर्धारितानि सन्ति। प्रत्येकं लिखितपत्राय अशीति (80) अङ्काः विद्यन्ते। परीक्षासमय: प्रतिपत्रं 3 होरा: भविष्यति। एतदतिरिक्तं प्रतिपत्रं विंशतिः (20) अङ्काः आन्तरिकमूल्याङ्कनाय अधोनिर्दिष्टरूपेण निर्धारिताः –

(i)	प्रतिपत्रम् एका परीक्षा संगोष्ठी वा	:	50% = 10 अङ्काः
(ii)	एका कक्ष्यापरीक्षा (प्रतिपत्रम् एककक्ष्याकालावधिका परीक्षा)	:	25% = 05 अङ्काः
(iii)	कक्ष्या-उपस्थिति:	:	25% = 05 अङ्काः

कक्ष्या-उपस्थितिभ्य: अधोलिखितरीत्या अङ्काः प्रदास्यन्ते-

(1)	91% तोऽग्रे	:	5 अङ्काः
(2)	81% त: 90% पर्यन्तम्~	:	4 अङ्काः
(3)	75% त: 80% पर्यन्तम्~	:	3 अङ्काः
(4)	70% त: 74% पर्यन्तम्~	:	2 अङ्काः
(5)	65% त: 69% पर्यन्तम्~	:	1 अङ्क:

The syllabus of M.A. Sanskrit (Previous) class is bifurcated into two semesters, namely, Semester-I and Semester-II, with effect from the Academic Session 2011-2012. There are five (5) compulsory papers prescribed for Semester-I. In the same way there are five (5) compulsory papers prescribed for Semester-II.

Each written paper carries Eighty (80) marks. The time for examination in each paper will be three (3) hours. Besides, each paper has been assigned Twenty (20) marks for Internal Assessment as per scheme noted below:

(i) One test/Seminar for each paper : 50% = 10 Marks

(ii) One Class test (one period duration) : 25% = 05 Marks

(iii) Attendance : 25% = 05 Marks

Marks for Attendance will be given as under:

(1) 91% onwards : 5 Marks

(2) 81% to 90% : 4 Marks

(3) 75% to 80% : 3 Marks

(4) 70% to 74% : 2 Marks

(5) 65% to 69% : 1 Mark

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KURUKSHETRA UNIVERSITY

SYLLABUS (M. A. SANSKRIT, SEMESTER-I & II)

(Modified w.e.f. Session 2015-2016)

ikBÔØeL; : ij§kk (Outlines of the Syllabus)

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M. A. Sanskrit, First Semester

i=l[;k **Paper No.**	i=&uke **Nomenclature of Paper**	iw.kkZÄ% **Max. Marks**	vkUrfjdewY;kÄuka'k% **Marks of Internal Assessment**	le;% **Time**
çFkei=e Paper-I	lafgrksifu"kr~p Samhita Upanisat Cha	80	20	3 gksjk% 3 Hours
f}rh;i=e~ Paper-II	O;kdj.ke~Hkk"kkfoKkue~p (1) Vyakaranam Bhasavijnanam Cha (1)	80	20	3 gksjk% 3 Hours
r`rh;i=e~ Paper-III	Hkkjrh;n'kZue~(1) Bharatiyadarshanam (1)	80	20	3 gksjk% 3 Hours
prqFkZi=e~ Paper-IV	dkO;e~ukVde~p Kavyam Natakam Cha	80	20	3 gksjk% 3 Hours
iape i=e~ Paper-V	/keZrU=kxe%(1) Dharmatantragamah (1)	80	20	3 gksjk% 3 Hours

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M. A. Sanskrit, Second Semester

i=l[;k **Paper No.**	i=&uke **Nomenclature of Paper**	iw.kkZÄ% **Max. Marks**	vkUrfjdewY;kÄuka'k% **Marks of Internal Assessment**	le;% **Time**
"k"Bi=e~ Paper-VI	czkã.ke~osnkÄkfu p Brahmanam Vedangani Cha	80	20	3 gksjk% 3 Hours
lIrei=e~ Paper-VII	O;kdj.ke~Hkk"kkfoKkue~p (2) Vyakaranam Bhasavijnana Cha (2)	80	20	3 gksjk% 3 Hours
v"Vei=e~ Paper-VIII	Hkkjrh;n'kZue~(2) Bharatiyadarshanam (2)	80	20	3 gksjk% 3 Hours
uoei=e Paper-IX	dkO;e~dkO;'kkL=e~p Kavyam Kavyashastram Cha	80	20	3 gksjk% 3 Hours
n'kei=e~ Paper-X	/keZrU=kxe%(2) Dharmatantragamah (2)	80	20	3 gksjk% 3 Hours

KURUKSHETRA UNIVERSITY

SYLLABUS (M. A. SANSKRIT, SEMESTER-I & II)

(Modified w.e.f. Session 2015-2016)

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M. A. SANSKRIT (PREVIOUS), FIRST SEMESTER

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(**2015-2016** 'kSf{kd l=r% l'kksf/kr%)

Detailed Syllabus for written papers

(Modified w.e.f. Academic Session 2015-2016)

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Paper-I : Samhita Upanisat Cha

i w.kkZÄ% **80**
vkUrfjde Y;kÄuk Ä% **20**
le;% **3** gk sjk% **(3 Hours)**

?kVde&û% fuEufyf[kr lwDrkuka ikBÿ:EfjD;k vk/kfuD;k vkykspukRedi¼fr;k p xgue~ vè;;ue~µ 16 vÄ%

Í Xosn% µ vfXu% (1-1) _ lfork (1-35) _ fo".kq% (1-54) _ bUnz% (2-12) _
#æ% (2-33) _ cgLifr% (4-50) _ m"kk% (5-80) _ o#.k% (7-88) _ Lkks e% (9-80) A

?kVde&ü% fuEufyf[kr lwDrkuka ikBÿ:EfjD;k vk/kfuD;k vkykspukRedi¼fr;k p xgue~ vè;;ue~
(laLÑrekè;esu) µ 16 vÄ%

Í Xosn% µ i#"k% (10-90) _ fgj.;xHkZ% (10-121) _ ukl nh;e~ (10-129) _ Okkd~ (10-125) _
i#jok&moZ'kh (10-95) _ ;e&;eh&lEokn (10-10) _ ljek&if.k&laokn% (10-108) _
fo'okfe=&unh&lEokne~ (3-33) A

?kVde&ý% fuEufyf[kr lwDrkuka ikBÿ:EfjD;k vk/kfuD;k vkykspukRedi¼fr;k p xgue~ vè;;ue~
(laLÑrekè;esu) µ 16 vÄ%

;tqosZn% µ f'kol ladYi lwDre~ (34-1µ6) _ vFkoZosn% ('kkSud%) µ Hkwfe lwDre~ (12-1-1µ30) A

?kVde&þ% dBksifu"kn~ (;tqosZn;% pRokfj 'kk% vè;k;k%) fo'knÚ;k[;kekèke~ (laLÑrekè;esu) A 16 vÄ%

fVIi.;% %

(d) ç'ui=s i×p (ÿ) vfuok;kZ ç'uk% Hkfo";fUr A r= çFkeç'us ?kVd prq"V;xrikB~ÿØekèkkfjr; pRokj% fodYi jfgrk% (vfuok;kZ%) lf{kIrksÙkjç'uk% çnkL;Urs A vU;s ç'uk% Øe'k% çFke&f}rh;&rr̀h;&prqFkZ?kVd lEc¼k% Hkfo";fUr A

([k) Ø;k[;kRed ç'usq 50% vad% vkykspukRed ç'usq p 100% vad% o Sf'kY;d% HkosrA

(x) ?kVdprq"V;xrikB~ÿØekèkkfjr% çFke% ç'u% (çFke?kVdkèkkfjr% f}rh;'p ç'u% laLÑr@fgUnh@vkÄ~XyHkk"kkekè;ekuka dsukfi ,dsu ekè;esu lek/kkrO;'pD;rs] ijUrq f}rh;&rr̀h;&prqFkZ?kVdkèkkfjrk% vU;s ç'uk% laLÑrekè;esu ,o lek/ks;k% vU;Fkk lo Zk vÄgkfu% Hkfo";fr A

ç'ui=kfuekZ.kfof/ %

1. ç'ui=k.L; fuekZ.ka lafgrkekè;esu Hkfo";frA
2. ç'ui=ks i×p (5) vfuok;kZ% ç'uk% Hkfo";fUrA
3. ç'ukuke~ vÄ~dkuka p foHkktue~ v/kksfyf[kr: isk Hkfo";fr µ
   - I. çFke% ç'u% µ v;a (çFke%) ç'u% ?kVdprq"V; xrikBÔØeekfJR; Hkfo";frA vfLeu~ ç'us pRokj% (p) fodYi jfgrk% (vfuok;kZ%) y?kqÙkjkRed% ç'uk% çnkL;UrsA (4x4=16 vÄ~dk%)
   - II. f}rh;% ç'u% (çFke?kVdkfJr%) µ ikjEifjD;k vk/kqfuD;k vkykspukRedi¼R;k p eU=k.k~;a O;k[;k.ke~ çFke?kVdkS;rlw@rs;rs;% eU=k.k; açnkL;rsA (2x8=16 vÄ~dk%)
   - III. r`rh;% ç'u% (f}rh;?kVdkfJr%) µ
     - (d) ikjEifjD;k vk/kqfuD;k vkykspukRedi¼R;k p eU=k.k~;a lafgrkekè;esu O;k[;k.ke~ f}rh;?kVdkS;rlw@rs;rs;% eU=k.k; açnkL;rsA (2x5=10 vÄ~dk%)
     - ([k) ;FkkfufnZ"V/lw@r lEc¼a oSfnd nsfo"k;d e~, d e~ vkykspukRed a ç'ua lafgrkekè;esu lek/kkra ç'u}; a çnkL;rsA (6 vÄ~dk%)
   - IV. prqFkZ% ç'u% (r`rh;?kVdkfJr%) µ ikjEifjD;k vk/kqfuD;k vkykspukRedi¼R;k p eU=kprq"V; a lafgrkekè;esu O;k[;k.ke~ ;FkkfufnZ"V/lw@r}; k.k~ 'kV~ eU=kk% çnkL;UrsA (4x4=16 vÄ~dk%)
   - V. i×pe% ç'u% (prqFkZ?kVdkfJr%) µ eU=k}; L; lafgrkekè;esu fo'kn O;k[;k;k; S; FkkfufnZ"Vxzl=kk.k~ eU=kk.k; açnkL;rsA (2x8=16 vÄ~dk%)

vuq'kaflrxzUFkk%

1. The New Vedic Selection, Part I & II (Revised and Enlarged Edition), Braj Bihari Chaubey, Bharatiya Vidya Prakashan, Delhi-7.
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3. ½Xosn] lk;.kHkk";lfgrA
4. mOoV&egh/kjÑr 'kqDy;tqosZnHkk";A
5. lqcksHkk"; %nkekksnj ikn lkroysdj] ikjMhA
6. Hymns of the Atharvaveda – M. Bloomfield, Motilal Banarsidass, Delhi.
7. bZ'kkokL;ksifu"kn~ ('kkÄ~djHkk";)] xhrk çsl] xksj[kiqjA
8. ½Dlw@rlaxzg] Ñ".k dqekj, oa gfjnÙk 'kkL=kh] lkfgR; HkaMkj] esjBA
9. ½Xosnh; lw@rlaxzg] MkW0 oslçdk'k mikè;k;] vuqjkx çdk'ku] bykgkcknA

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KURUKSHETRA UNIVERSITY

SYLLABUS (M. A. SANSKRIT, SEMESTER-I & II)

(Modified w.e.f. Session 2015-2016)

f}rh; i=ke~%O;kdj.ke~ Hkk"kkfoKkue~ p (1)

Paper-II : Vyakaranam Bhasavijnanam Cha (1)

iw.kkZad% **80**

vkUrfjd ewY;kÄ~dukÄ~d% **20**

le; % **3** gkSjk% **(3 Hours)**

?kVde&û% Hkk"kkfoKkue~ — 16 vÄ~d%

Hkk"kkfoKkuL; ifjHkk"kk {ks=ap A Hkk"kk;k% ifjHkk"kk oSf'k"V~;kfu p A Hkk"kkxrifjorZua rnHksnk'p A Hkk"kkifjorZuL; dkj.kkfu A Hkk"kkifjokjk% (: ij§kkek=e~) A Hkkjksih;ifjokjL; Hkk"kkxrçe[kq"kk{kk% rkl kaoSf'k"V~;kfu p (: ij§kkek=e~) A b.MkSbjkfu;u&Hkk"kkxrçe[kq"kk{kk% rkl kaoSf'k"V~;kfu p (: ij§kkek=e~) A Hkk"kk.kka oxhZdj.ke~ (ifjokjewyde~ vkÑfrewyda p) A

?kVde&ü% ojnjkt %]y?kqfl¼kUrdkSeqnh (lafÑrekè;esu) — 16 vÄ~d%

v/kksfyf[krçdj.kk Ec¼ Hkk"kkka lafÑrekè;esu lkekuaj.kaO;k[;k[;k çe[kq"kk vkYkksp;§kiwo.kZa : ifl f¼çfØ;k pµ

(d) l×Kkçdj.ke~ ([k) lfU/kçdj.ke~ (vp~-fU/kçdj.kr% folxZlfU/kçdj.ki;ZUre~) A

?kVde&ý% ojnjkt %]y?kqfl¼kUrdkSeqnh (lafÑrekè;esu) — 16 vÄ~d%

v/kksfyf[krçdj.kk Ec¼ Hkk"kkka lafÑrekè;esu lkekuaj.kaO;k[;k[;k çe[kq"kk vkYkksp;§kiwo.kZa : ifl f¼çfØ;k pµ

lqcUrçdj.ke~ %µ

(d) vtUrif¡Yy;Äçdj.ke~µ jke] lo"kZ] gfj] lf[k] xkS A

([k) vtUrL=hfyÄçdj.ke~µ jek] lokZ] efr] L=h A

(x) vtUrui qaldfyÄçdj.ke~µ Kku] okfj] nf/] e/q A

(?k) gyUrif¡Yy;Äçdj.ke~µ fo'ookg~] e?kou~] jktu~] ifFku~] fo}l~] rn~] ;'kn~] vLen~ A

?kVde&þ% ojnjkt %]y?kqfl¼kUrdkSeqnh (lafÑrekè;esu) — 16 vÄ~d%

v/kksfyf[krçdj.kk Ec¼ Hkk"kkka lafÑrekè;esu lkekuaj.kaO;k[;k[;k çe[kq"kk vkYkksp;§kiwo.kZa : ifl f¼çfØ;k pµ

(d) frÄUrsHokfnçdj.ke& √Hkw] √,/ A

([k) iwoZÑnUrçdj.ke~ A

fVIi.; %%µ

(d) ç'ui=s i×p (ÿ) vfuok;kZ% ç'uk% Hkfo";fUr A r= ç'Fkeç'us ?kVdprq"V;xrikB~ÔØeeklUR; pRokj% fodYi jfgrk% (vfuok;kZ%) l{kIrks¾kjç'uk% çnkL;fUr A vU;s ç'uk% Øe'k% ç'Fke&f}rh;&r`rh;&prqFkZ?kVdlEc¼k% Hkfo";fUr A

([k) O;k[;kRed ç'ukuka 50% vad% vkyksp ukRed ç'ukuka p 100% vad% oSfYid%Hkosr~ A

(x) ?kVdprq"V;xrikBÔØekfJr%çFke%ç'u%] çFke?kVdkfJr%f}rh;'p ç'u%lanHkZr@guhe@kÃ-Xykh'kkekè;ekuka dsokfi ,ds ekè;es lek/kkra'kD;rs§ ijUrqf}rh;&rrh;&prqFkZ?kVdkfJrk%vU;sç'uk%dlanHkZrekè;esu ,o lek/ks;k% vU;Fkk loZFkk vÄgkfu%Hkfo";frA

ç'ui=kfuekZ.kfof/%

1. ç'ui=kL; fuekZ.ka lanHkZrekè;esu HkfoR;rsA
2. ç'ui=ks i×p (5) vfuok;kZ%ç'uk%Hkfo";fUrA
3. ç'ukuke~vÄfoHkktua foHkktue~v/kksfyf[kr:isk Hkfo";frµ
   I. çFke% ç'u% µv;a (çFke% ç'u% ?kVdprq"V;xrikBÔØeekfJR; HkfoR;rsA vfLeu~ç'us pRokj% (þ) fodYirjfgrk%(vfuok;kZ%) lf{kIrksÙkjkk%ç'uk%çnkL;UrsA (4x4³⁄₁₆vÄk%)
   II. f}rh;%ç'u%(çFke?kVdkfJr%)µ çFke?kVdkUrxZrikBÔØel Ec¼a leh{kkRedka ç'u}; a lek/kkra ç'uprq"V;a çnkL;rsA (2x8³⁄₁₆vÄk%)
   III. rrh;%ç'u%(f}rh;?kVdkfJr%)µ
      (d) f}rh;?kVdkUrçdj.kl Ec¼a l¨=k};a lanHkZrekè;esu lkskgj.ka O;k[;kra ;FkkfufnZ'V/kkrqHkk"~ l¨=kprq"V;a çnkL;rsA (2x4³⁄₈vÄk%)
      ([k) f}rh;?kVdkUrçdj.kl Ec¼L; in};L; çe[kk ¥kkSy§kivnka :ifl f¼çfØ;ka lanHkZrekè;esu fyf[kra ;FkkfufnZ'V/kkrHkk"~inprq"V;açnkL;rsA (2x4³⁄₈vÄk%)
   IV. prqFkZ%ç'u%(rrh;?kVdkfJr%)µ
      (d) rrh;?kVdkUrçdj.kl Ec¼al¨=k};al anHkZrekè;esu lkskgj.kaO;k[;kra;FkkfufnZ'V/kkrqHkk"~l¨=kprq"V;açnkL;rsA (2x4³⁄₈vÄk%)
      ([k) rrh;?kVdkUrçdj.kl Ec¼L; in};L; çe[kk ¥kkSy§kivnka :ifl f¼çfØ;ka lanHkZrekè;esu fyf[kra ;FkkfufnZ'V/kkrHkk"~inprq"V;açnkL;rsA (2x4³⁄₈vÄk%)
   V. i×pe%ç'u%(prqFkZ?kVdkfJr%)µ
      (d) prqFkZ?kVdkUrçdj.kl Ec¼al¨=k};al anHkZrekè;esu lkskgj.kaO;k[;kra;FkkfufnZ'V/kkrqHkk"~l¨=kprq"V;açnkL;rsA (2x4³⁄₈vÄk%)
      ([k) prqFkZ?kVdkUrçdj.kl Ec¼L; in};L; çe[kk ¥kkSy§kivnka :ifl f¼çfØ;ka lanHkZrekè;esu fyf[kra ;FkkfufnZ'V/kkrHkk"~inprq"V;açnkL;rsA (2x4³⁄₈vÄk%)

vuq'kaflr xzUFkk%

1. y?kq¼kUrdkSeqnh] O;k[;kdkj Jh/kjkuUn 'kkL=kh f?kfYM;ky] eksrhyky cukjlhnkl] fnYyhA
2. y?kq¼kUrdkSeqnh] ojnjkt] O;k[;kdkj Hkhelsu 'kkL=kh] HkSeh çdk'ku] fnYyhA
3. y?kq¼kUrdkSeqnh] O;k[;kdkj vk[;kçlkn feJ] v{k;oV çdk'ku] bykgkcknA
4. Hkk"kk vkSj Hkk"kkdh] nsosUæukFk 'kekZ] fgUnh /kk lkfgR;] vdkneh] p.Mhx<A
5. ininkFkZ ehekalk] cyno flag] dq:{ks= fo'ofo|ky;] dq:{ks=A
6. lkekU; Hkk"kkfoKku] ckcqjke lDlsukA
7. Introduction to Comparative Philology, P.D. Gune, Pune.
8. Transformational Grammar, Ratford, A., Cambridge Univ. Press, 1988.
9. Introduction to Linguistics, Ratford, A. *et. al.,* Cambridge Univ. Press, 1999.
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11. Linguistic Semantics, Lyons, John, Cambridge Univ. Press, 1995
12. General Linguistics, An Introductory Survey-Robins, R. H., Indiana Press, Bloomington, 1964.
13. Introduction to Government and Binding Theory, Haegaman, L., Basil Balckwell, 1994.
14. Principles and Parameters, Culicover, P.W., Oxford Univ. Press, 1997.
15. An Introduction to Language, Fromkin, V. and R. Rodman, New York etc. Harcourt, Brace Jovenovich College Publishers, 1988, 1992.
16. Linguistics, An Introduction to Language and Communication-Akmaijan, A.R. Demers and R. Hamish, Cambridge Mass, MIT Press, 1979.

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rr̀h; i=e~%Hkkjrh; n'kZue~ **(1)**

Paper-III : Bharatiyadarshanam (1)

iw.kkZÄd%**80**
vkUrfjdewY;kÄudk³d%**20**
le; %**3** gksjk%**(3 Hours)**

?kVde&û%d'kkofeJ%]rdZHkk"kk %vkjEHkr%çekk.k;okni;ZUre~&fucU/kkRedk%ç'ukA	16 vÄd%
?kVde&ü%d'kkofeJ%]rdZHkk"kk (laÑrek/;esu) %vkjEHkr%çekk.k;okni;ZUre~&if|O;k[;kA	16 vÄd%
?kVde&ý%bZ'ojÑ".k%]lka[;dkfjdk (laÑrek/;esu) %rÙodkSeqnhlfgrk&fucU/kkRedk%ç'ukA	16 vÄd%
?kVde&þ%bZ'ojÑ".k%]lka[;dkfjdk (laÑrek/;esu) %rÙodkSeqnhlfgrk&dkfjdkO;k[;kA	16 vÄd%

fVIi.;%%µ

(d) ç'ui=s i×p (ÿ) vfuok;kZ% ç'uk% Hkfo";fUrA r= çFke% ç'us ?kVdprq"V;xrikBÔØekfJR; pRokj% fodYijfgrk% (vfuok;kZ%) l{kIrksÙkjç'uk% çnkL;UrsA vU;s ç'uk% Øe'k% çFke&f}rh;&rr̀h;&prqFkZ?kVdlEc¼k% Hkfo";fUrA

([k) O;k[;kRed ç'usq 50% v'ak%vkykspukRed ç'usq 100% v'ak% oSdfYid%Hkosr~A

(x) ?kVdprq"V;xrikBÔØekfJr%çFke%ç'u%] çFke?kVdkfJr%f}rh;'p ç'u%laÑr@fgUnh@vÄ~XyHkk"kkekè;ekuka dsukfi ,dsu ekè;esu lek/kkra'kD;rs]ijUrqf}rh;&rr̀h;&prqFkZ?kVdkfJrk% vU;s ç'uk% laÑrekè;esu ,o lek/ks;k% vU;Fkk lokZ.k vÄdkfu%Hkfo";frA

ç'ui=fuekZ.kfof/%

1. ç'ui=L; fuekZ.ka laÑrekè;esu HkosrA
2. ç'ui=s i×p (5) vfuok;kZ% ç'uk% Hkfo";fUrA
3. ç'ukuke~vÄdkuka p foHkktue~v/kksfyf[kr:isk Hkfo";frµ
   I. çFke% ç'u%µv;a (çFke%) ç'u% ?kVdprq"V;xrikBÔØekfJR; HkosrA vfLeu~ ç'us pRokj% (þ) fodYijfgrk% (vfuok;kZ%) l{kIrksÙkjç'uk% çnkL;UrsA (4x4³⁄16vÄd%)
   II. f}rh;% ç'u% (çFke?kVdkfJr%)µ ;Fkkfunf'kZ/xzUFke~vkfJR; ,d afucU/a fyf[kr{ku fucU/}; açnkL;rsA (16vÄd%)

III. rr̀h; %ç'u%(f}rh; ?kVdkfJr%)µ lçl Äãi f} ; a lalÑrekè;eu Ø;k[;k ,oa Fkkfufn"V/xzUFkk~i f=k; açnkL;rsA
(2x8¾16 vÄ%)

IV. prqFkZ%ç'u%(rr̀h; ?kVdkfJr%)µ ;FkkfufnZ"V/xzUFke~ vkfJR; ,da fucU/a lalÑrekè;eu fyf[krO;a fucU/}; a çnkL;rsA (16 vÄ%)

V. i×pe%ç'u%(prqFkZ?kVdkfJr%)µ lçl Äãdkfjdk}; a lalÑrekè;eu Ø;k[;k ,oa ;FkkfufnZ"V/xzUFkk~ dkfjdk=k; a çnkL;rsA (2x8¾16 vÄ%)

vuqeksfnrxzUFkk%

1. rdZHkk"kk] Ø;k[;kñ Jhfuokl 'kkL=kh] lkfgR; HkkMkj] esjBA
2. rdZHkk"kk] Ø;k[;kñ cnjhukFk 'kqDy] eksrhyky cukjlhnkl] fnYyhA
3. rdZHkk"kk] Ø;k[;kñ xtkuu 'kkL=kh eqlyxkodj] pkS[kEck] okjk.klhA
4. Tarkabhāṣā, Eng. Tr. S.R. Iyer, Varanasi.
5. Tarkabhāṣā, Eng. Tr. A.B. Gajendragadkar.
6. lka[;rÙodkSeqnh] lEikñ rFkk Ø;k[;kñ vk|kizlkn feJ] v{k;oV çdk'ku] bykgkcknA
7. lka[;dkfjdk] lEikñ rFkk Ø;k[;kñ xtkuu'kkL=kh eqlyxkodj] pkS[kEck] okjk.klhA
8. Sāṃkhyakārikā, Eng. Tr. Wilson, Delhi.

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prqFkZ i=ke~%dkO;e~ ukVde~ p

Paper-IV : Kavyam Natakam Cha

i w.kkZÄ%**80**
vkUrfjd ewY;kÄ ukÄ%**20**
le; %**3 gksjk%** **(3 Hours)**

?kVde&û%ek?k%) f'k'kqikyo/e~ (çFke% lxZ%)% lçl Äã NUnksy Äkjfun'kiwoZda 'ykdO;k[;kA	16 vÄ%
?kVde&ü%HkoHkwfr%) mÙkjjkepfjre~ (lalÑrekè;eu) %lçl Äãdk;O lkSUn;ZofunZ'kiwoZda 'ykdO;k[;kA	16 vÄ%
?kVde&ý%HkoHkwfr%) mÙkjjkepfjre~ (lalÑrekè;eu) %vkykspukRedk%ç'ukA	16 vÄ%
?kVde&þ%dkfynkl%) es?knwre~µ iwoZe?k%) 'ykdk%1µ33 (lalÑrekè;eu) % ykdO;k[;kA	16 vÄ%

fVIi .; %%

(d) ç'ui=ks i×p (ÿ) vfuok;kZ% ç'uk% Hkfo";fUrA r=k çFkeç'us ?kVdprq"V;xrikBîØeefJR; pRokj% fodYiZjfgrk% (vfuok;kZ%) l{kIrksÙkjç'uk% çnkL;UrsA vU;s ç'uk% Øe'k% çFke&f}rh;&rr̀h;&prqFkZ?kVdlEc¼k% Hkfo";fUrA

([k) Ø;k[;kRedç'usq 50% vads% vkykspukRedç'usqp 100% vads% oSdfYid% HkosrA

(x) ?kVdprq"V;xrikBîØekfJr% çFke% ç'u%) çFke?kVdkfJr%f}rh;'p ç'u% lalÑr@fgUnh@vkÄ~Xyk"kkekè;ekuka dsukfi ,dsu ekè;eu lek/krO;'kD;rs}ijUrqf}rh;&rr̀h;&prqFkZ?kVdkfJrk% vU;s ç'uk% lalÑrekè;eu ,o lek/k;sk% vU;Fkk lokZ.kk vÄgkfu% Hkfo";frA

ç'ui=kfuekZ.kfof/ %

1. ç'ui=L; fuekZ.ka laLÑrek/;eu Hkfo";fr A
2. ç'ui=s i×p (5) vfuok;Z ç'uk% Hkfo";fUr A
3. ç'ukuke~ vadfoHkktue~ v/kksfyf[kr: i s.k Hkfo";fr µ
   - I. çFke% ç'u% µ v;a (çFke%) ç'u% ?kVdprq"V; xrikBÔÞeekfJR; Hkfo";fr A vfLeu~ ç'us pRokj% (p) fodYikjfgrk% (vfuok;kZ%) lfFk ç'uk% çnkL;Urs A (4x4=16 vÄ%)
   - II. f}rh;% ç'u% (çFke?kVdkfJr%) µ lçlaxa NUnks·yÄkjfunsZ'kiwoZda 'yksd}; a O;k[;kra ; FkkfufnZ"VxzUFkkr~ 'yksd=;a çnkL;rs A (2x8=16 vÄ%)
   - III. r`rh;% ç'u% (f}rh;?kVdkfJr%) µ lçlaxa dkO;lkSUn;Z funsZ'kiwoZda 'yksd}; a laLÑrek/;eu O;k[;kra ; FkkfufnZ"VxzUFkkr~ 'yksd=;a çnkL;rs A (2x8=16 vÄ%)
   - IV. prqFkZ% ç'u% (r`rh;?kVdkfJr%) µ ; FkkfufnZ"VukVdaukVdkapa vkfJR; ,da ç'ua laLÑrek/;eu lek/kra~ vkykspukRedaç'u}; a çnkL;rs A (16 vÄ%)
   - V. i×pe% ç'u% (prqFkZ?kVdkfJr%) µ lçlaxa dkO;lkSUn;Z funsZ'kiwoZda 'yksd}; a laLÑrek/;eu O;k[;kra ; FkkfufnZ"VxzUFkkr~ 'yksd=;a çnkL;rs A (2x8=16 vÄ%)

vuqeksfnrxzUFk%

1. f'k'kqikyo/] O;k[;kdkj vkpk;Z 'kskjkt 'kekZ] okjk.klh A
2. mÙkjjkepfjr] O;k[;kdkj ohjjk?ko] okjk.klh A
3. f'k'kqikyo/ (ifje lxZ] O;k[;kdkj MkW0 /khfuokl 'kkL=h] lkfgR; HkaMkj] esjB A
4. Uttararāmacarita of Bhavabhūti, M.R. Kale.
5. mÙkjjkepfjr] lEiknd rkfj.kh'k >k A
6. laLÑr lkfgR; dk bfrgkl] ,ñ chñ dhFk] vuqñ eaxyno 'kkL=h] eksrhyky cukjlhnkl] fnYyh] 1978
7. laLÑr lkfgR; dk bfrgkl] cyno mik/;k;] 'kkjnk fudsru] okjk.klh] 1978
8. laLÑr ukVddkj] dkfUrfd'kksj Hkjfr;k] çdk'ku 'kk[kk] lwpuk foHkkx] mÙkjçns'k] 1959
9. laLÑr ukVd lek{kk] çksñ bUæikyflag ^bUæ*] lkfgR; fudsru] dkuiqj] 1960

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i×pe i=e~ % /eZrU=kxe% (1)

Paper-V : Dharmatantragamah (1)

iw.kkZÄ% **80**

vkUrfjd ewY;kÄ uk Ä% **20**

le; % **3** gksjk% **(3 Hours)**

?kVde&û% euqLe`fr% i¥pe/;k;% (dsoy ¯grh vuqoknL; eqY;kadua Hkfo";fr A)	16 vÄ%
?kVde&ü% euqLe`fr% f}rh;/;k;% (laLÑrek/;eu) (dsoy ¯grh vuqoknL; eqY;kadua Hkfo";fr A)	16 vÄ%
?kVde&ý% pk.kD;lw=kf.k 1&273 (laLÑrek/;eu) A	16 vÄ%
?kVde&þ% pk.kD;lw=kf.k 274&571 (laLÑrek/;eu) A	16 vÄ%

fVIi.; %&

(d) ç'ui=ks i×p (ÿ) vfuok;lÊo ç'uk% Hkfo";fUrA r=k çFkeç'us ?kVdprq"V;xrikBÔØeekfJR; pRokj% fodYi jfgrk% (vfuok;kZ%) l{kIrksÙkjç'uk% çnkL;UrsA vU;s ç'uk% Øe'k% çFke&f}rh;&rr̀h;&prqFkZ?kVdlEc¼k% Hkfo";fUrA

([k) Ç;k{;kFkZ d ç'uks q 50% v'ak% vkyksp ukFkZ d ç'uks op 100% v'ak% o§fYi d % HkorsA

(x) ?kVdprq"V;xrikBÔØekfJr% çFke% ç'u% çFke?kVdkfJr% f}rh;'p ç'u% lEcÑr@fgUnh@vka Xyka"kkk"kkelè;ekuka dsukfi ,dsu eke;esu lek/kra'kD;r§ ijUrq f}rh;&rr̀h;&prqFkZ?kVdkfJrk% vU;s ç'uk% lEcÑrekè;esu ,o lek/ks;k% vU;Fkk lo'Ekk vÄ~gkfu% Hkfo";frA

ç'ui=kfuekZ.kfof/%

1- ç'ui=kL; fuekZ.ka lEcÑrekè;esu HkorsA
2- ç'ui=ks i×p (5) vfuok;kZ ç'uk% Hkfo";fUrA
3- ç'ukuke~ vÄ~ØÙkuap foHkktue~ v/kksfyf[kr:isk Hkfo";frµ

I. çFke% ç'u% µ v;a (çFke%) ç'u% ?kVdprq"V;xrikBÔØeekfJR; HkorsA vfLeu~ ç'us pRokj% ([k) fodYi jfgrk% (vfuok;kZ%) l{kIrksÙkjç'uk% çnkL;UrsA (4x4=16 vÄ~k%)

II. f}rh;% ç'u% (çFke?kVdkfJr%) µ ;Fkkfufn"Vi kBÔØee~ vkfJR; ,da ç'ua lek/kra ç'u}; açnkL;rsA (16 vÄ~k%)

III. rr̀h;% ç'u% (f}rh;?kVdkfJr%) µ ;Fkkfufn"Vi kBÔØee~ vkfJR; ikBkak}; a lçl Äãa lEcÑrekè;esu Ç;k{;kra ikBka'ka; açnkL;rsA (2x8=16 vÄ~k%)

IV. prqFkZ ç'u% (rr̀h;?kVdkfJr%) µ ;Fkkfufn"Vi kBÔØee~ vkfJR; fucU/kkFkZ da ç'u}; aç{;rs;r% d'pu ,d% ç'u% lEcÑrekè;esu lek/ks;%A (16 vÄ~k%)

V. i×pe% ç'u% (prqFkZ?kVdkfJr%) µ ;Fkkfufn"Vi kBÔØee~ vkfJR; ikBkak}; a lçl Äãa lEcÑrekè;esu Ç;k{;kra ikBka'ka; açnkL;rsA (2x8=16 vÄ~k%)

vuq'kaflr xzUFkk%

1. euqLe`fr% eUoFkZeqDrkoyh fgrk{ lãoksl ep 'kekZ dk'khukFk j% fu.kZ; lkxj iSl] eqEcbZ 1909
2. euqLe`fr% es/kkfrfFk&euqHkk";&l eosk{ lEc Ñ xÄ~ukFk >k{ ifjey ifCyds'kUl] fnYyh] 1998
3. dkSfVyh; vFkZ'kkL=k{ vuq] mn;ohj 'kkL=kh] esgjpUn y{NeunkI] fnYyhA
4. Kauṭilya's Arthaśāstra, Tr. R. Shamasastry, Wesleyan Mission Press, Mysore

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,eñ ,ñ laLÑre~ (çFkea o"kZ) f}rh; lae~
('kSf{kd lae~ 2015-2016)

M. A. SANSKRIT (PREVIOUS), SECOND SEMESTER

(Academic Session : 2015-2016)

fyf[kr i=kk.kka foLr`r ikB~;Øe%

Detailed Syllabus for written papers

"k"Bi=ke~ % czkã.ke~ osnkÄkfu p

Paper-VI : Brahmanam Vedangani Cha

i w.kkZÄk% **80**
vkUrfjd ewY;kÄ~ukÄk% **20**
le; % **3** gks% **(3 Hours)**

?kVd&û% ,srjs;czkã.ke~ %vè;k; %33 ('kq%'ksi[;kue~) µ O;k[;k vkykspukRed %ç'u%pA 16 vÄk%

?kVd&ü% fu#Dre~ (laLÑrekè;ee~) µ 16 vÄk%
çFke%vè;k; %µ laLÑrekè;ee~ O;k[;k] vkykspukRed %ç'u%] fuoZpukfu pA

?kVd&ý% fu#Dre~ (laLÑrekè;ee~) µ 16 vÄk%
f}rh; %vè;k; % (1&5 ikn%) _lIre%vè;k; % (1&7 ikn%) µ laLÑrekè;ee~ O;k[;k] vkykspukRed %ç'u%] fuoZpukfu pA

?kVd&þ% oSfndaO;kdj.ke~ (laLÑrekè;ee~) µ 16 vÄk%
oSfndHkk"kk;k% Lo:ie~ oSfndykSfdHkk"k;ks% vUrje~ lfU/% inikB% oSfndLoj%
yV~ydkj% yS~ydkj%A çR;;k% µ 'k] 'kup] Dolq] dkup] rqequFkZdk%A

fMi.; %%µ

(d) ç'ui=ks ixp (ÿ) vfuok;kZ ç'uk% Hkfo";fUrA r=k çFkeç'us ?kVdprq"V;xrikB~;ØeekfJR; pRokj% fodYirjfgrk% (vfuok;kZ%) l{kIrksÙkjç'uk% çnkL;UrsA vU;s ç'uk% Øe'k% çFke&f}rh;&r`rh;&prqFkZ?kVdlEc¼k% Hkfo";fUrA

([k) O;k[;kRedç'usq 50% vad%vkykspukRedç'usq p 100% vad% oSfYid%HkosrA

(x) ?kVdprq"V;xrikB~;ØekfJr%çFke%ç'u% çFke?kVdkfJr%f}rh;'p ç'u% laLÑr@fgUnh@vkÄ~yHkk"kkekè;eku dsukfi ,dsu ekè;esu lek/kkrq'kD;rs] ijUrqf}rh;&r`rh;&prqFkZ?kVdkfJrk% vU;sç'uk% laLÑrekè;esu ,o lek/s;k% vU;Fkk loZFkk vÄ~dkfu%Hkfo";frA

KURUKSHETRA UNIVERSITY

SYLLABUS (M. A. SANSKRIT, SEMESTER-I & II)

(Modified w.e.f. Session 2015-2016)

ç'ui=kfuekZ.kfof/ %

1. ç'ui=L; fuekZ.ka lkÑreke;esu Hkfo";frA
2. ç'ui=s i×p (5) vfuok;Z ç'uk% Hkfo";fUrA
3. ç'ukuke~ vÄfoHkkxa p foHkkxkuke~ v/kksfyf[kr% iwoZ Hkfo";fr µ
   I. çFke% ç'u% µ v;a (çFke%) ç'u% ?kVdprq"V;xrikBîØeekfJR; Hkfo";fr A vfLeu~ ç'us pRokj% (4) fodYikjfgrk% (vfuok;Z%) lf{kIrkRedk% ç'uk% çnkL;UrsA (4x4=16 vÄk%)
   II. f}rh;% ç'u% (çFke ?kVdkfJr%) µ
   (d) ikBîka'k;a Oîk[;k;rke~ Hkkfunsf'k/xU/kkr~ ikBîka'k}; çnkL;rsA (2x4=8 vÄk%)
   ([k) ;FkkfunsZ'k/xU/kkr~ Ec)e~ ,de~ vkykspukRed ç'ua leh/kk;rke~ ç'u}; çnkL;rsA (8 vÄk%)
   III. r`rh;% ç'u% (f}rh; ?kVdkfJr%) µ
   (d) ikBîka'k;a lkÑreke;esu Oîk[;k;rke~ ;FkkfunsZ'k/xU/kkr~ ikBîka'k}; çnkL;rsA (2x4=8 vÄk%)
   ([k) ;FkkfunsZ'k/xU/kkr~ Ec)e~ ,de~ vkykspukRed ç'ua lkÑreke;esu leh/kk;rke~ ç'u}; çnkL;rsA (8 vÄk%)
   IV. prqFkZ% ç'u% (r`rh; ?kVdkfJr%) µ
   (d) ikBîka'k;a lkÑreke;esu Oîk[;k;rke~ ;FkkfunsZ'k/xU/kkr~ ikBîka'k}; çnkL;rsA (2x4=8 vÄk%)
   ([k) ;FkkfunsZ'k/xU/kkr~ Ec)e~ ,de~ vkykspukRed ç'ua lkÑreke;esu leh/kk;rke~ ç'u}; çnkL;rsA (8 vÄk%)
   V. i×pe% ç'u% (prqFkZ ?kVdkfJr%) µ
   prqFkZ?kVdkUrxZrikBîØel Ec)a ç'u}; lkÑreke;esu leh/kk;rke~ ç'u=; çnkL;rsA (2x8=16 vÄk%)

vuq'kaflrxzUFkk%

1. ,rjs;czkã.k (f}rh; Hkkx)] lk;.kHkk";lfgr] lEiknd ,oe~ vuqoknd MkW- lq/kkdj ekyoh;] rkjk çdk'ku] okjk.klh A
2. fu#Dr] fgUnh vuqokn] iafMr f'koukjk;.k 'kkL=h] b.Mksykftdy cqd gkÅl] fnYyhA
3. fu#Dr (Hkkx 1-2)] LdUn&egs'oj&Ñr fu#Dr Hkk";Vhdk lfgr] y{e.k Lo:i] çdk'kd ikf.kfu] ubZ fnYyhA
4. fu#Dr] mnk;ukpk;Z Ñr oÙkh lfgr] vkuUnkJe] iwukA
5. fu#Dr lEe'kZ% çksñ eqdqUn ifjoksk] oSfnd ;U=ky;] vtesjA
6. fgUnh fu#Dr (vè;k; 1] 2] 7)] Oîk[;kdkj dfiyno 'kkL=h] lkfgR; Hk.Mkj] esjBA
7. oSfnd Oîkdj.k (Hkkx 1&2)] jkexksiky] uSuhuy ifCyf'kx gkÅl] fnYyhA
8. A Vedic Grammar for Students, A.A. Macdonell, Motilal Banarsidass, Delhi.

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lIre i=e~ % Oîkdj.ke~ Hkk"kkfoKkue~ p (2)

Paper-VII : Vyakaranam Bhasavijnanam Cha (2)

i wkkZad% **80**

vkUrfjd ewY;kadu vad% **20**

le; % **3** ?k.Vs% **(3 Hours)**

?kVd e&1% HkkjrhofoKkue~ 16 vad%

laLd`r Hkk"kk (ofnd ,oa ykSfdd lfgr) vFkZofoKkue~ vFkZifjorZu ;ks dkj.kkfu fn'kk'p

èofufoKkue~ mPpkj.k ;ks ok ·'kkL=sok dky;kssi_ è ouhuka oxhZdj.k

: ifoKkue~ 'kCnfuekZ.k_ 'kCnHksnk% ok;fu_ /kkrq\çR;; 'pA okD; foKkue~ inØe%A

?kVd e&2% ojnjkt %y?kq fl¼kUrdkSeqnh (laLd`rek/;e) 16 vad%

v/;sfy[kr çdj.kfu E¼ Hkk"kkyal aLd`rek/;es lw=kkfj.ka O;k[;k] çeq[k vkjfEHkd

: iflf¼çfØ;k p

(d) lekl çdj.keA

([k) rf¼r çdj.ke~ (pkrqjfFkZd i;ZUre~)A

?kVd e&3% HkÍ¨th nhf{kr %fl¼kUrdkSeqnh (iwokZ)~ %dkjd çdj.ke~ (laLd`rek/;e)

(d) lw=kkfj.ka O;k[;kA 08 vad%

([k) lwf=kr ,oa dkjd&foHkfDr&çfriknue~A 08 vad%

?kVd e&4% ojnjkt %y?kq fl¼kUrdkSeqnh (laLd`rek/;e) 16 vad%

v/;sfy[kr çdj.kfu E¼ Hkk"kkyal aLd`rek/;es lw=kkfj.ka O;k[;k] çeq[k vkjfEHkd

: iflf¼çfØ;k p

(d) frÄUrs vnkfn çdj.ke~ %& √vn~ √vl A

([k) uke/kkrq çdj.keA (x) vkReusinçfØ;kA (?k) ijLeSinçfØ;kA

fVIi.;%%

(d) ç'ui=s i×p (5) vfuok;Z ç'uk% Hkfo";fUrA r=k çFke ç'us ?kVdprq"V; xrikB~;ØesH;% pRokj% fodYi jfgrk% (vfuok;kZ%) l{kiRrksÙkjk% ç'uk% çnkL;UrsA vU;s ç'uk% Øe'k% çFke&f}rh; &rr̀h; &prqFkZ ?kVdlEc¼k% Hkfo";fUrA

([k) O;k[;kRed ç'us"kq 50% vad% vkykspukRed ç'us"kq p 100% vad% oSdfYi d %HkosrA

(x) ?kVdprq"V; xrikB~;ØeH;Jr%çFke% ç'u% çFke ?kVdH;Jr% f}rh; 'p ç'u% laLd`r@fgUnh@vkaXyHkk"kkek/;esukå dsukfi ,ds ek/;es laek/kkrq'kD;rs] ijUrq f}rh; &rr̀h; &prqFkZ ?kVdH;Jrk% vU;s ç'uk% laLd`rek/;es ,o lek/ks;k% vU;Fkk loZFkk vadgkfu% Hkfo";frA

ç'ui=fuekZ.kfof/ %

1. ç'ui=L; fuekZ.ka laLd`rek/;es HkosrA

2. ç'ui=ks i×p (5) vfuok;Z ç'uk s½ Hkh fo"k;fu"B gksaxsA
3. ç'ukuke~ vÄkukap foHkktue~ v/kksfyf[kr: isk Hkfo";fr µ

I. çFke% ç'u% µ v;a (çFke%) ç'u% ?kVd prq"V;xriBÔØeekfJR; Hkfo";frA vfLeu~ ç'us pRokfj % (b) fodYi jfgrk½ (vfuok;Z½ l f{kIrkRed ç'uk ½ çnkL;UrsA (4x4³⁄16 vÄk½

II. f}rh;% ç'u% (çFke ?kVdkfJr%) µ çFke ?kVdkUrxZrikBÔØe l Ec¼a l eh{kkRed a ç'u}; a l ek/kkrq ç'u prq"V; a çnkL;rsA (2x8³⁄16 vÄk½

III. r`rh;% ç'u% (f}rh; ?kVdkfJr%) µ

(d) f}rh; ?kVdkU'rçdj.k l Ec¼a l w=}; a l aÑrekè;eu l kskgj.ka O;k[;kr q ;FkkfufnZ"V/xzUFkkr~ l w=prq"V; a çnkL;rsA (2x4³⁄8 vÄk½

([k) f}rh; ?kVdkU'rçdj.k l Ec¼L; in};L; çeq[kkÌqkuqlikZ; §kirwoZda : iflf¼çfØ;ka l aÑrekè;eu fyf[krq ;FkkfufnZ"V/xzUFkkr~ inprq"V; açnkL;rsA (2x4³⁄8 vÄk½

IV. prqFkZ ç'u% (r`rh; ?kVdkfJr%) µ

(d) r`rh; ?kVdkU'rçdj.k l Ec¼a l w=}; a l aÑrekè;eu l kskgj.ka O;k[;krq ;FkkfufnZ"V/xzUFkkr~ l w=prq"V; a çnkL;rsA (2x4³⁄8 vÄk½

([k) r`rh; ?kVdkU'rçdj.kkuqlkjsk in};L; l w=kuqlkjsk l aÑrekè;eu dkjd&foHkfDr&çfrikndkuk ;FkkfufnZ"V/xzUFkkr~ pRokfj v/kks§kf[kr inkfu çnkL;UrsA (2x4³⁄8 vÄk½

V. i×pe% ç'u% (prqFkZ?kVdkfJr%) µ

(d) prqFkZ?kVdkU'rçdj.k l Ec¼a l w=}; a l aÑrekè;eu l kskgj.ka O;k[;krq ;FkkfufnZ"V/xzUFkkr~ l w=prq"V; açnkL;rsA (2x4³⁄8 vÄk½

([k) prqFkZ?kVdkU'rçdj.k l Ec¼L; in};L; çeq[kkÌqkuqlikZ; §kirwoZda : iflf¼çfØ;ka l aÑrekè;eu fyf[krq ;FkkfufnZ"V/xzUFkkr~ inprq"V; açnkL;rsA (2x4³⁄8 vÄk½

vuq'kafl r xzUFkk%

1. y?kq fl ¼kUrdkSeqnh] ojnjkt] O;k[;kdkj Hkhel su 'kkL=h] HkSeh çdk'ku] fnYyhA
2. y?kq fl ¼kUrdkSeqnh] O;k[;kdkj vkpk;Z fo'ks'oj] v{k;oV i zdk'ku] bykgkcknA
3. y?kq fl ¼kUrdkSeqnh] O;k[;kdkj /kjkuUn 'kkL=h f?kYM;ky] eksrhyky cukjlhnkl] fnYyhA
4. oS;kdj.kfl ¼kUrdkSeqnh (ioZk;½] HkêksftnhfZ{kr] çdk'kd eksrhyky cukjlhnkl] fnYyhA
5. oS;kdj.kfl ¼kUrdkSeqnh (1-2 Hkkx)] O;k[;kdkj xksiky nÙk ik.Ms;] pkS[kEck l qjHkkjrh izdk'ku] okjk.klhA
6. dkjd&izdj.k (fl ¼kUrdkSeqnhLFk)] l Ei kñ rFkk O;k[;kdkj Jhfuokl 'kkL=h] l kfgR; Hk.Mkj] esjBA
7. Hkk"kk vkSj Hkk"kfdh] nsoh'kadj f}osnh] gfj;k.kk l kfgR; vdkneh] p.Mhx<A
8. i ri nkFkZ eh{kk] cyno flag] d#{ks= fo'ofo|ky;] d#{ks=A
9. l ekl] Hkk"kk&foKku] ckcwjke l DlsukA
10. Introduction to Comparative Philology, P.D. Gune, Pune.
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20. Linguistics, An Introduction to Language and Communication-Akmaijan, A.R. Demers and R. Hamish, Cambridge Mass, MIT Press, 1979.

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v"Vei =e~%Hkkjrh; n'kZue~ **(2)**

Paper-VIII : Bharatiyadarshanam (2)

i wkkZÄ¼% **80**
vkUrfjd ew; kÄüukÄ¼% **20**
le; %**3** gk s¼% **(3 Hours)**

?kVd e&û% ykdk{kHkkLdj]% vFkZÄ×g% %fucU/kkRed ç'uk%	16 vÄ¼%
?kVd e&ü% vFkZÄ×g%(lalÑrekè; ea) %i f| Q;k[;kA	16 vÄ¼%
?kVd e&ý% lnkuUr;ksxh&%osnkUrlkj%(lalÑrekè; ea) %fucU/kkRed ç'ukA	16 vÄ¼%
?kVd e&þ% osnkUrlkj%(lalÑrekè; ea) %i f| Q;k[;kA	16 vÄ¼%

fVi .; %%µ
(d) ç'ui =s i×p (ÿ) vfuok;kZ ç'uk% Hkfo"; fUrA r= ç Fke ç'us ?kVdprq"V;xrikBÔØekfJr; pRokj% fodYi jfgrk% (vfuok;kZ) l f{kIrkÙkj ç'uk% çnkL;UrsA vU;s ç'uk% Øe'k% çFke&f}rh;&rr`h;&prqFkZ ?kVdlEc¼k% Hkfo";fUrA
([k) Q;k[;kRed ç'us q 50% vad% vkykspukRed ç'usq p 100% vad% oS fYi d % HkoarA
(x) ?kVdprq"V;xrikBÔØekfJr%çFke% ç'u% çFke ?kVdkfJr% f}rh;'p ç'u% lalÑr@fgUnh@vka×y Hkk"kkekè;ekuka dsfi ,ds ekè;es lek/kkrq'kD;r$ ijUrq f}rh;&rr`h;&prqFkZ ?kVdkfJrk% vU;s ç'uk% lalÑrekè; es ,o lek/ks;k% vU;Fkk lokZ vÄ gkfu% Hkfo"; frA

ç'ui =fuekZ.kfof/ %

1. ç'ui =L; fuekZ.ka lalÑrekè;es HkosrA
2. ç'ui =s i×p (5) vfuok;kZ ç'uk% Hkfo";fUrA
3. ç'ukuke~ vÄkuka p foHkktue~ v/ksfy f[kr : isk Hkfo"; frµ
   I. çFke% ç'u% µv; a (çFke%) ç'u% ?kVdprq"V;xrikBÔØekfJr; HkosrA vfLeu~ ç'us pRokj% (þ) fodYi jfgrk% (vfuok;kZ) l f{kIrkÙkj ç'uk% çnkL;UrsA (4x4¾16 vÄ¼%)

II. f}rh; %ç'u%({çFke?kVdkfJr%µ ;FkkfufnZ"VxzUFke~ vkfJR; ,dafucU/afyf[kr¨fucU/}; açnkL;rsA
(16 vÄ%)

III. rr̀h; %ç'u%(f}rh;?kVdkfJr%µ lçlÄãif/}; alladÑreke;es ¸ O;k[;k;r¨; FkkfufnZ"VxzUFkk~if/ =k,açnkL;rsA
(2x8=16 vÄ%)

IV. prqFkZ%ç'u%(rr̀h;?kVdkfJr%µ ;FkkfufnZ"VxzUFke~ vkfJR; ,da fucU/a laLdÑreke;es fyf[kr¨fucU/}; a
çnkL;rsA (16 vÄ%)

V. i×pe%ç'u%(prqFkZ?kVdkfJr%µ lçlÄãif/}; alladÑreke;es O;k[;k;r¨; FkkfufnZ"VxzUFkk~if/ =k,açnkL;rsA
(2x8=16 vÄ%)

vuq'kaflrxzUFkk%

1. vFkZlaxzg] lEikñ rFkk O;k[;kñ okpLifr mik/;k;] pkS[kEck vkS;.Vky;kA
2. vFkZlaxzg% O;k[;kñ n;k'kadj 'kkL=kh] dkuiqjA
3. vFkZlaxzg% O;k[;kñ lR;çdk'k 'kekZ lkfgR; Hk.Mkj] esjBA
4. Arthasaṅgraha, Eng. Tr. A.B. Gajendragadkar and R.D. Karmarkar, Motilal Banarsidass, Delhi.
5. Arthasaṅgraha, Eng. Tr. G. Thibaut, Delhi.
6. osnkUrlkj] O;k[;kñ cnjhukFk 'kqDy] okjk.klhA
7. osnkUrlkj] lEikñ rFkk O;k[;kñ jkeeafrZ kekZ fnYyhA
8. osnkUrlkj] O;k[;kñ xtkuu 'kkL=kh eql;xkodj] okjk.klhA
9. osnkUrlkj] lEikñ rFkk O;k[;kñ MkWñ v{k;oV çdk'ku] bykgkcknA
10. Vedāntasāra, Eng. Tr. M. Hiriyanna.
11. Vedāntasāra, Eng. Tr. Swami Nikhilananda.

✽✽

uoei=ke~%dkO;e~ dkO;'kkL=ke~ p

Paper-IX : Kavyam Kavyashastram Cha

iw.kkZÄ% **80**
vkUrfjd ewY;kÄ~ukÄ% **20**
le;% **3** gkjk% **(3 Hours)**

?kVde~&û%ck.kHkV~V%dknEcjh%egk'osrko`Ùkkur%v/kfufnZ"V%vä%µ 16 vÄ%
^rRp iouksn~/kwrLrr% bR;kjH; ^dFkadFkefr refrfpjaO;ykd;e~* bfr i;ZUre~A
µx|kak&O;k[;kA

?kVde~&ü%dkfynkl%e~kkuwe~%ioZ?k%'yksdk%84r%lekfIri;ZUre~(laLdÑreke;es) 16 vÄ%
µ'yksdO;k[;kA

?kVde~&ý%fo'oukFk%lkfgR;niZ.k%(laLdÑreke;es) µdkfjdkO;k[;kfoospukRed%ç'u%pA 16 vÄ%
µçFke%ifjPNsn%A f}rh;%ifjPNsn%µvfHk/kkfu:i.ke~]dkfjdk&l{a;k 4 i;ZUre~A

?kVde~&þ%lkfgR;niZ.k%(laLdÑreke;es) µdkfjdkO;k[;kfoospukRed%ç'u%pA 16 vÄ%

µf}rh; %ifjPNs0%y{k.kkfu: i.ke~Ø;×tukfu: i.ke~p (dkfjdk%5µ20) A

fVi.; %%µ
(d) ç'ui=ks i×p (ÿ) vfuok;kZ0 ç'uk% Hkfo";fUrA r=k çFke ç'us ?kVdpr\"V; xrikBÔØeek.kJR; pRokj% fodYi jfgrk% (vfuok;kZ%) l{kIrksÙkjç'uk% çnkL;UrsA vU;s ç'uk% Øe'k% çFke&f}rh;&rìh;&prqFkZ?kVdlEc1⁄4k% Hkfo";fUrA
([k) Q;k[;k;ka dç'uskq 50% v'ak%vkykspukRed ç'uskq p 100% v'ak% oSfYid % HkosrA
(x) ?kVdpr\"V; xrikBÔØek.kJr% çFke% ç'u%] çFke ?kVdk.kJr% f}rh; 'p ç'u% lalÑr@fgUnh@vÄ\"xzHkk\"kkekè;eku dsukfi ,ds u ekè;esu lek/kku;'kD;rs] ijUrq f}rh;&rìh;&prqFkZ?kVdk.kJrk% vU;s ç'uk% lalÑrekè;esu ,o lek/ks;k% vU;Fkk lokZ.kk vÄ\"dk u% Hkfo";frA

ç'ui=kfuekZ.kfof/ %

1. ç'ui=kL; fuekZ.ka lalÑrekè;esu HkosrA
2. ç'ui=ks i×p (5) vfuok;kZ ç'uk% Hkfo";fUrA
3. ç'uke~ vÄ\"dkuka p foHkkt ue~ v/ kksfyf[kr: isk Hkfo";fr µ
   I. çFke% ç'u% µ v;a (çFke%) ç'u% ?kVdpr\"V; xrikBÔØeek.kJR; HkosrA vfLeu~ ç'us pRokj% ([k) fodYi jfgrk% (vfuok;kZ%) l{kIrksÙkj ç'uk% çnkL;UrsA (4x4=16 vÄ\"dk%)
   II. f}rh; % ç'u% (çFke ?kVdk.kJr%) µ lçl Äã dk0;l kS\"Bofunk\"kiwoZda x| ka\"k}; a Q;k[;k;kFkZ fufnZ\"VO;e~ x| ka\"k}; a çnkL;rsA (2x8=16 vÄ\"dk%)
   III. rìh; % ç'u% (f}rh; ?kVdk.kJr%) µ lçl Äã 'ykd}; a lalÑrekè;esu Q;k[;k;k ; Fkkfufn\"VO;e~ 'ykd=k;a çnkL;rsA (2x8=16 vÄ\"dk%)
   IV. prqFkZ ç'u% (rìh; ?kVdk.kJr%) µ
   lçl Äã dkfjdk}; a lalÑrekè;esu Q;k[;k;k ; Fkkfufn\"Vk~ dkfjdk=k; a çnkL;rsA
   vFkok
   ,da foopukRed ç'ua lalÑrekè;esu lek/kku; Fkkfufn\"V Ec1⁄4a ç'u}; a çnkL;rsA (16 vÄ\"dk%)
   V. i×pe% ç'u% (prqFkZ ?kVdk.kJr%) µ
   lçl Äõ~ ,dka dkfjdka lalÑrekè;esu Q;k[;k;k ; Fkkfufn\"Vk~ dkfjdk}; a çnkL;rsA
   vFkok
   ; Fkkfufn\"V Ec1⁄4 a foopukRed e~ ,da ç'ua lalÑrekè;esu lek/kku ç'u}; a çnkL;rsA
   vFkok
   ; Fkkfufn\"Vk~ lçl Äã lalÑrekè;esu Q;k[;k;k~ ,dk dkfjdk rn~fodYi sp lalÑrekè;esu lek/kku~ ,d% foopukRed % ç'u% çnkL;rsA (16 vÄ\"dk%)

vuq\"kaflr xzUFkk%
1. dkO;çdk'k%] egk'osrk0Ùkkdr% lEikn vkpk;Z jkeukFk 'kekZ jkt'ks[kj ,e~ fgrs\"kh çdk'ku] ehjB 2001
2. dkO;çdk'k%] egk'osrk0Ùkkdr] lEikn vkpk;Z dfiyno fxfj] okjk.klhA
3. dkO;çdk'k% ,d lkaÑfrd vè;;u] MkW0 Vkhk ps'kj.k vxzokyA

4. ck.kHkV~ dk lkfgfR;d vuq'khyu] vejukFk ik.M;A
5. lkfgR;niZ.k lEHkõ iHkõohõ dk.kõ}ekshykyk cukjlhnkl] fnYyhA
6. lkfgR;niZ.k O;k[;kõ Ñ".keksgu 'kkL=hA
7. lkfgR;niZ.k lEHkõ 'kkfyxzke 'kkL=h] ekshykyk cukjlhnkl] fnYyhA

✲✲

n'kei=e~% /eZrU=kxe% (2)

Paper-X : Dharmatantragamah (2)

iw.kkZad% **80**
vkUrfjd ewY;kadu% **20**
le; % **3** ?kaVs % **(3 Hours)**

?kVd e&û%'kkfUrinL; Jhjkekuqtkpk;Zdfofojfprfoojk.kkSLÑr%	16 vad%
?kVd e&ü%cãlw=gr'kk[; i×pekskej;k%(laÑrekè;eu)	16 vad%
?kVd e&ý%vkpk;ZkÄj`%] lknf;xgjh (laÑrekè;eu) %1&50 i|kfu	16 vad%
?kVd e&þ%vkpk;ZkÄj`%] lknf;xgjh (laÑrekè;eu) %51&100 i|kfu	16 vad%

fVi.; %%µ
(d) ç'ui=s i×p (ÿ) vfuok;Zç'uk% Hkfo";fUrA r=k çFke% ç'us ?kVdprq"V;xrikBÔØekfJr; pRokj% fodYi jfgrk% (vfuok;kZ%) lf{kIrksÙkjç'uk% çnkL;UrsA vU;s ç'uk%Øe'k%çFke&f}rh;&rr̀h;&prqFkZ?kVdlEc¼k% Hkfo";fUrA
([k) O;k[;kRed ç'usq 50% v'ak% vkykspukRed ç'usq 100% v'ak% oSfYid% HkfoVsA
(x) ?kVdprq"V;xrikBÔØekfJr%çFke% ç'u% çFke?kVdkfJr% f}rh;'p ç'u% laÑr@fgUnh@vkaXyHkk"kkekè;ekuka dsukfi ,dsu ekè;esu lek/kra'kD;rs] ijUrq f}rh;&rr̀h;&prqFkZ?kVdkfJrk% vU;s ç'uk% laÑrekè;esu ,o lek/s;k% vU;Fkk lorZFkk vadgkfu% Hkfo";frA

ç'ui=fuekZ.kfof/ %

1. ç'ui=L; fuekZ.ka laÑrekè;esu HkfoVsA
2. ç'ui=s i×p (5) vfuok;Z ç'uk% Hkfo";fUrA
3. ç'ukuke~ vadkuka p foHkktue~ v/kksfyf[kr:isk Hkfo";frµ
   I. çFke% ç'u% (?kVdprq"V;xrikBÔØekfJr%)µ vfLeu~ ç'us pRokj% fodYijfgrk% (vfuok;kZ%) lf{kIrksÙkjç'uk% laÑr@fgUnh@vkaXyHkk"kkekè;ekuka dsukfi ,dsu ekè;esu lek/kra çnkL;UrsA (4x4¾16 vad%)
   II. f}rh;% ç'u% (çFke?kVdkfJr%)µ ;FkkfufnZ"V/ikBÔØee~ vkfJR; ,da ç'ua laÑr@fgUnh@vkaXyHkk"kkekè;ekuka dsukfi ,dsu ekè;esu lek/kra ç'u}; açnkL;rsA (16 vad%)
   III. rr̀h;% ç'u% (f}rh;?kVdkfJr%)µ ;FkkfufnZ"V/ikBÔØee~ vkfJR; ikBka'k}; alçlÄaã laÑrekè;esu O;k[;kra ikBka'kk=; açnkL;rsA (2x8¾16 vad%)
   IV. prqFkZ ç'u% (rr̀h;?kVdkfJr%)µ ;FkkfufnZ"V/ikBÔØee~ vkfJR; fucU/kRed aç'u}; aç{;rs; r%d'pu ,d% ç'u% laÑrekè;esu lek/s;%A (16 vad%)

V. i×pe%ç'u%(prq£kZ vd¼Jr%µ;Fkkfufn"Z/;kBÔØee~ vkfJR; ikB'kak}; a l ç l Äã l ÌÑrekè;es Ø;k[;kre~ ikB'kakk; açnk; rsA (2x8¾16 vÄ½%

vuq'kaflr xzUFkk%

1. Ṣaṭtriṁśattattvasandoha, with the comm. of Rājānaka Ānanda Kavi, Tr. & Notes by D.B. Sensharma, B.N. Chakravarty University, Kurukshetra, 1977
2. Śrī Brahma-Saṁhitā (Chapter-5), Tr. & Purport by Bhaktisiddhānta Saraswati Goswami Ṭhākura, Bhaktivedanta Book Trust, Bombay, 1991
3. Jhcã lafgrk] Jh t hoxk sokeÑr VhdkI fgrk] enkk] 1958
4. I kfgR;&}gjh] Jh'kÄ÷jkpk;Z bjfprk] y{ehi jkÇ Ø;k[;k I fgrk] pk[kEck Ñ".knkl vdkneh] okjk.kl h] 2007
5. I kfgR;&}gjh] Ø;k[;kµgfjgjçl kn f=ikBh] pk[kEck I ÌÑr I hjht vkfQl] okjk.kl h] 2005

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M. A. Sanskrit (Previous)
(Annual System, Distance Education Mode)
Session 2015-2016

Directorate of Distance Education
Kurukshetra University
Kurukshetra–136 119

,e0 ,0 laLÑre~ (çFkeo"kZ)
Syllabus
Session : 2015-2016

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nwjofÙkZ f'k{kk i¼,Ruqlkjsk ,eú,ú (laLÑre~)-&d{;k;k% çFkeo"kZ ikBÔØe% **2015-2016** 'kS{kdl =k% l'kks/r%A vfLeu~ ikBÔØes i×p **(5)** vfuok;Z=kf.k fu/kZfjrkfu lfUrA çR;sda fyf[kri=ks v'khfr% **(80)** vÄk% fo|UrsA ,rnfrfjDra çfri=ka ¯o'kfr% **(20)** vÄk% vkUrfjdewY;kÄüuk; fu/kZfjrk%A ijh{kkle;% çfri=ka **3** gksjk% Hkfo";frA laLÑr@fgUnh@vka Xy Hkk"kk&ek/;e ekuka dsukfi ,dsu ek/;esu ijh{kkFkhZ ç'ui=kk.kke~ mÙkjakf lyf[krq~ vgZrA ijUrq çfri=ka fu/kZfjr ?kVd lEc¼ç'uL; mÙkja ç'ui=kfunsZ'kkuqlkjsk laLÑrsu ,o ys[kuh;e~ vU;Fkk lo± vÄ gkfu% Hkfo";frA

nwjofÙkZ f'k{kk ikBÔØeL; çR;sda lS¼kfUrd i=ks **20%** vkUrfjdewY;kÄüue~%

1. **20%** vkUrfjdewY;kÄüua o"kZfi lS¼kfUrd i=ksHkq Hkfo";frA
2. çR;sde~ vkUrfjdewY;kÄü ijh{kk v/;kiuksu /kdk (**30** feuV o/kdk) Hkfo";frA
3. Nk=k%@Nk=kkfHk% cgqfodYikRed k% fo'kfr% (**20**) ç'uk% lek/s;k%A
4. cgqfodYikRed ç'ukuka çi=ks v/kksyf[krkfu foojk.k çn;kfu %&
   - **(i)** nwjofÙkZ f'k{kkfun'skky;&lwpuk iqfLrdk
   - **(ii)** Lodh; uke
   - **(iii)** fi r%uke
   - **(iv)** ijh{kk&frfFk%
5. O;fDrxr lEidZ dk;ZØeL; vfUres fnu} ;s fo"k; lEc¼k% vè;kidk% vkUrfjdewY;kÄü ijh{kke~ vk;ksf;";fUrA
6. vkUrfjdewY;kÄü ijh{kk vè;kiukÄ Hkkok Hkfo";frA
7. ;fn df'pr~ Nk=k%@dkpr~ Nk=kk vkUrfjdewY;kÄü ijh{kk;ke~ vuqifLFkr%@vuqifLFkrk vFkok O;fDrxr lEidZ dk;ZØeL; lekiukuUrja çosa'k yC/okuq@yC/orh rfgZ okf"kZd ijh{kk;k% çkIrkÄkuke~ vk/kkjhÑR; rLe@rL;S **20%** vkUrfjdewY;kÄükÄk% çnkL;UrsA

8. vkUrfjd eWY;kÄüuI Ec¼açkIr kÄï ±kfnd anjwofÙkZ k{kkfunsZky; %l jf{k"; fr AfoLr ì kÄï ±kL; çkS.kfrfFkr %, dekI a; kon~, o Nk«k@Nk«kk 'kq d: i sk i ×p'kr: I; dkf.k (: ñ **500/-**) çnk; Lod h; kÙkj çi ±k.kkai qjh{k.kk; vkonf; rq ;kDukfr A

The syllabus of M.A. Sanskrit (Previous) class (Distance Education Mode) has been modified with effect from the Academic Session 2015-2016. There are five (5) compulsory papers prescribed for this syllabus. Each written paper carries Eighty (80) marks. Besides, each paper has been assigned Twenty (20) marks for Internal Assessment. The time for examination in each paper will be three (3) hours. The examinee/candidate can attempt his/her paper through any one medium out of Sanskrit, Hindi and English. But he/she will have to write the answer of the question(s), pertaining to the specific Unit as prescribed in the syllabus and as per instructions in the question paper, through Sanskrit medium only otherwise no marks will be awarded for that particular answer.

<u>20% Internal Assessment in each Theory Paper of Distance Education courses</u>:

1. **20 % Internal Assessment will be in all the theory papers.**
2. **Each Internal Assessment test will be of 30 minutes duration.**
3. **20 MCR type questions shall be answered by the students.**
4. **MCQ sheets must carry the following information:-**
   - **(i) DDE Reference No.**
   - **(ii) Name**
   - **(iii) Father's Name**
   - **(iv) Date of Test**
5. **Internal Assessment test will be conducted by the concerned teachers on the last two days of Personal Contact Programme (PCP).**
6. **The test will be a part of class room teaching.**
7. **In case candidate has not appeared in internal assessment test or he/she took admission after PCP classes then he/she will be awarded 20% Internal Assessment marks on the basis of marks obtained by him/her in final examination.**
8. **The Directorate will maintain the record of internal assessment and student can get his/her answer sheets rechecked on remittance of Rs 500/- fee within one month of dispatch of Detailed Marks Card (DMC).**

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M. A. Sanskrit (Previous)
(Annual System, Distance Education Mode)
Session 2015-2016

ikBÔØeL; :ijs[kk **Outlines of the Syllabus**	iw.kkZÄk% **Max. Marks**	vkUrfjdewY;kÄukÄk% **Internal Assessment Marks**	le;% **Time**
çFkei=e~% lafgrk oSfndlkfgR;ap **Paper-I : Samhita Vaidikasahityam Cha**	**80**	**20**	**3** gksjk% **3 Hours**
f}rh;i=e~% O;kdj.ke~ Hkk"kkfoKkue~p **Paper-II : Vyakaranam Bhasavijnanam Cha**	**80**	**20**	**3** gksjk% **3 Hours**
r`rh;i=e~% Hkkjrh;n'kZue~ **Paper-III : Bharatiyadarshanam**	**80**	**20**	**3** gksjk% **3 Hours**
prqFkZi=e~% dkO;e~ dkO;'kkL=e~p **Paper-IV : Kavyam Kavyashastram Cha**	**80**	**20**	**3** gksjk% **3 Hours**
i×pei=e~% /eZrU=kxe% **Paper-V : Dharmatantragamah**	**80**	**20**	**3** gksjk% **3 Hours**

, e0 , 0 laÑre~(çFkeao"kZ)~

M. A. Sanskrit (Previous)
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(njwofUÙkZ{kkç.kkY;k½ okf"kZd i¼fr,uqlkjsk)
l=e~ **2015-2016**

M.A. Sanskrit (Previous)
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fyf[kri=k.kka foLrr½ikB;Øe%

(üúûÿµüúûö 'kS{kd l=kr½l'akksf/kr%)

Detailed Syllabus for written papers

(Modified w.e.f. Academic Session 2015-2016)

çFkei=e~%l afgrk oSfndlkfgR;ap

Paper-I : Samhita Vaidikasahityam Cha

i wkkZ\dk½**80**
vkUrfjd eWY;kÄ\uk\dk½**20**
le;%**3** gkjsk½ **(3 Hours)**

?kVde&1 : fuEufyf[kr lwDrkuka ikBkEtfjD;k vkf/kqfuD;k vkykspukRedi¼R;k p xgue~ vè;ueµ **16**vÄ\d½
Í Xosn%µvfXu%(1-1)] lfork (1-35)] fo".kq%(1-54)] bUæ%(2-12)] #æ%(2-33)] cgLifr%(4-50)] m"kk%(5-80)] o#.k%(7-88)] Lkkse%(9-80)] iq#"k%(10-90)] fgj.;xHkZ%(10-121)] uklnh;e~(10-129)] Økd~(10-125)] i#jok&mOZkh (10-95)] ;e&;eh&lwDre~ (10-10)] lje&i f.kk&laokn%(10-108)] fo'okfe=k&unh&lwDre~(3-33)A
;tqosZn%µf'koladYilwDre~(34-1µ6)AvFkoZosn%('kkSud%µHkwfelwDre~(12-1-1µ30)A

?kVde&2 : fu#Dre~(lEÑrelè;ees)µ **16**vÄ\d½
çFke%vè;k;%_ f}rh;%vè;k;%(1&5 ikn%)_ lIre%vè;k;%(1&7 ikn%)µ
lEÑrelè;ees O;k[;k] vkykspukRed%ç'u%fuoZpukfu pA

?kVde&3 : czkã.ke~ mifu'kr~p (lEÑrelè;ees)µ **16**vÄ\d½
(d) ,srjsczkã.ke~%vè;k;%33 ('kqu%'ksi[;kue~)%lEÑrelè;ees O;k[;kA
([k) bZ'kkokL;ksifu'kn~(;tqosZn;%pRokfj'k½vè;k;%)%lEÑrelè;ees fo'kn O;k[;kA

?kVde&4 : oSfndaO;kdj.ke~(lEÑrelè;ees)µ **16**vÄ\d½
oSfndHkk"kk;k½Lo:ie~ oSfndykSfdHkk"k;k%vUrje~ lfU/k%inikB% oSfndLoj%
yV~ydkj%yV~ydkj%Açk;%µ'kr] 'kkup~Dolq]dkup~reqFkZdk%A

fVii.;%%%

(d) ç'ui=ks i×p (ÿ) vfuok;kZ% ç'uk% Hkfo";fUrA r=k çFkeç'us ?kVdprq"V;xrikBÔØeekfJR; pRokj% fodYi jfgrk% (vfuok;kZ%) l{kfIrksÙkjç'uk% çnkL;UrsA vU;s ç'uk% Øe'k% çFke&f}rh;&rh;&prqFkZ?kVdl Ec¼k% Hkfo";fUrA

([k) O;k[;kRed ç'uksq 50% vad% vkykspukRed ç'uksqp 100% vad% o§fYid%HkosrA

(x) ?kVdprq"V;xrikBÔØekfJr% çFke% ç'u% çFke?kVdkfJr% f}rh;'p ç'u% lEcÑr@fgUnh@vkÄ~XyHkk'kkekè;ekuka dsukfi ,dsu ekè;esu lek/s;% ijUrq f}rh;&rh;&prqFkZ?kVdkfJrk% vU;s ç'uk% lEcÑrekè;esu ,o lek/s;k% vU;Fkk loZFkk vÄøgkfu% Hkfo";frA

ç'ui=kfuekZ.kfof/%

1. ç'ui=kL; fuekZ.ka lEcÑrekè;esu HkosrA
2. ç'ui=ks i×p (ÿ) vfuok;kZ ç'uk% Hkfo";fUrA
3. ç'ukuke~ vÄ~dkuka p foHkktue~ v/ksfyf[kr: isk Hkfo";frµ
   I. çFke% ç'u% µ v;a (çFke%) ç'u% ?kVdprq"V;xrikBÔØeekfJR; HkosrA vfLeu~ ç'us pRokj% (þ) fodYi jfgrk% (vfuok;kZ%) l{kIrksÙkjç'uk% çnkL;UrsA (4x4³⁄16 vÄ~dk%)
   II. f}rh;% ç'u% (çFke?kVdkfJr%) µ ikfjEifjD;k vk/qfuD;k vkykspukRed i¼R;k p eU=k}; a O;k[;k;rq çFke?kVdkSDrlwDrs"kq% eU=ka; açnkL;rsA (2x8³⁄16 vÄ~dk%)
   III. rr̀h;% ç'u% (f}rh;?kVdkfJr%) µ
      (d) ikBkak}; a lEcÑrekè;esu O;k[;k;rq; Fkkfufnð'X/xzUFkk~ ikBkakk; açnkL;rsA (2x4³⁄8 vÄ~dk%)
      ([k) ; FkkfufnZ'X/xzUFk Ec¼e~ ,d e~ vkykspukRed aç'ua lEcÑrekè;esu lek/kra ç'u}; açnkL;rsA (8 vÄ~dk%)
   IV. prqFkZ% ç'u% (rr̀h;?kVdkfJr%) µ
      (d) ,d aikBkaka lEcÑrekè;esu O;k[;k;rq; Fkkfufn'X/xzUFkk~ (,sjs;czã.ke~ vè;k;% 33 &bR;Lek) ~ ikBkak}; a çnkL;rsA (8 vÄ~dk%)
      ([k) ,dL; eU=kL; lEcÑrekè;esu fo'knO;k[;k;kS'bZkokL;ksfu'kn~ bfr xzUFkk~ eU=k}; açnkL;rsA (8 vÄ~dk%)
   V. i×pe% ç'u% (prqFkZ?kVdkfJr%) µ prqFkZ?kVdkSDrikBÔØel Ec¼aç'u}; alEcÑrekè;esu lek/kra ç'uprq"V;a çnkL;rsA (2x8³⁄16 vÄ~dk%)

vuq'kaflr xzUFkk%

1. The New Vedic Selection, Part I & II (Revised and Enlarged Edition), Braj Bihari Chaubey, Bharatiya Vidya Prakashan, Delhi-7.
2. Vedic Selection, A.A. Macdonell, Motilal Banarsidass, Delhi.
3. ½Xosn] lk;.kHkk";lfgrA
4. mOoV&egh/jÑr 'kqDy;tqosZnHkk";A
5. lqcks/Hkk"; %nkeksnjik.Msu lkroysdj] ikjMhA
6. Hymns of the Atharvaveda – M. Bloomfield, Motilal Banarsidass, Delhi.
7. ½DlwDrlaxzg] Ñ".kdqekj ,oa gfjnÙk 'kkL=kh] lkfgR; HkaMkj] esjBA
8. ½Xosnh; lwDrlaxzg] MkWå osnçdk'k mik/;k;] vuqHko çdk'ku] bykgkckn]A
9. fu#Dr] fgUnh vuqokn iãf'koukjk;.k 'kkL=kh] bUMksyksft dy cqd gkÅl] fnYyhA

10. fu#Dr (Hkkx 1&2)] Lduh&egsoj&Ñr fu#DrHkk";Vhdk&I fgr] y{e.k Lo:i] çdkfi ikf.kfu] ubZ fnYyhA
11. fu#Dr] mxzkpk;ZÑr ofÙk&I fgr] vkuUnkJe] iwukA
12. fu#Dr I Ee'kZ%o cãeqfu ifjoktd] ofnd ;U=ky;] vtesjA
13. fgUnh fu#Dr (vè;k; 1] 2] 7)] Oik[;kdkj dfiyno 'kkL=h] I kfgR; Hk.Mkj] esjBA
14. ,sjs&ckã.k(f}rh; Hkkx)] I k;.kHkk";I fgr] I Eikn ,oe~ vuqokn MkW I qèkkdj ekyoh;] rkjk çdk'ku oDrQ okjk.klhA
15. bZ'kkokL;ksifu"kn~ ('kkÄjHkk";)] xhrk çsl] xksj[kiqjA
16. ofnd Oidj.k (Hkkx 1&2)] jkexkskky] uSkuy ifCyf'kax gkÅI] fnYyhA
17. A Vedic Grammar for Students, A.A. Macdonell, Motilal Banarsidass, Delhi.

✦

f}rh; i=e~ % Oidj.ke~ Hkk"kkfoKkue~ p

Paper-II : Vyakaranam Bhasavijnanam Cha

iw.kkZÄ % **80**
vkUrfjd ewY;kÄ ukÄ % **20**
I e; % **3** gksjk % **(3 Hours)**

?kVd e&**1**: Hkk"kkfoKkue~ **16** vÄ %

Hkk"kkfoKkuL; ifjHkk"kk {ks=a p A Hkk"kk;k% ifjHkk"kk ofSk"V°Ônfu p A Hkk"kk;k ifjorZua rn~ Hksnk'p A Hkk"kkifjorZuL; dkj.kkfu A Hkk"kkifjokjk% (:ij[k&ekeke~) A Hkkjksih; ifjokjL; Hkk"kk;k rçeq[k'kk[kk% rkl kaofSk"V°Ônfu p (:ij[k&ekeke~) A b.Mks&bjkfu;u&Hkk"kk;k rçeq[k'kk[kk% rkl kaofSk"V°Ônfu p (:ij[k&ekeke~) A Hkk"kk.kkaoxhZdj.ke~ (ifjokjewyde~ vkÑfrewyda p) A I aÑrHkk"kk (ofndh ykSfdh p) A vFkZfoKkue~ vFkZifjorZuL; dkj.kkfu fn'k'p A èofufoKkue~ mPpkj.kko;ok% rs"kka çdk;kZ'p A èouhuka èoU;kRedaoxhZdj.ke A :ifoKkue~ 'kCnfuekZ.ke_ 'kCnkuka rÙokfu_ /kkrq çR;;'p A okD; foKkue~ inØe% A

?kVd e&**2**: ojnjkt %o y?kq fl ¼kUrdkSeqnh (I aÑrekè;ee) **16** vÄ %

v/kksfyf[kr çdj.kk Ec¼ vkikkka I aÑrekè;eu I kskgj.ka Oik[;k] çeq[k vkpk;Z I ki o`Z a :ifl f¼çfØ;k p μ

(d) I ×Kkçdj.ke A ([k) I fU/kçdj.ke~ (vpI fU/kçdj.k%foI xZfU/kçdj.k;ksZe) A

(x) I qUrçdj.ke μ
(1) vtUri qfYyÄçdj.ke μ jke] I oZ] gfj] I f[k] xkSA
(2) vtUrL=hfyÄçdj.ke μ jek] I oZ] efr] L=hA
(3) vtUrui qdfyÄçdj.ke μ Kku] okfj] nf/] e/kqA
(4) gyUri qfYyÄçdj.ke μ fo'ookg~ e?kou~ jktu~ ifFku~ fo}I ~ rn~ ;q"en~ vLenA

(?k) I ek çdj.ke A (Ä) rf¼rçdj.ke~ (pkrqjFkZdi;ksZe) A

?kVd e&**3**: HkV~Vksth nhf{kr % fl ¼kUrdkSeqnh (iwokZ¼Z) % dkjdçdj.ke~ (I aÑrekè;ee)

(d) I aÑrekè;ee I kskgj.ka vkOik[;k A úø vÄ %

([k) I aÑrekè;ee I vkpk;Z I ki o`Z a dkjd&foHkfDr&çfrikne A úø vÄ %

?kVd e&**4**% ojnjkt %o y?kq fl ¼kUrdkSeqnh (I aÑrekè;ee) **16** vÄ %

v/kksyf[kr çdj.kksa Ec¼ vkHkkksa lalÑrekè;esu lk/kkgj.ka O;k[;k] çeq[k vkHkks/y§kiwoZda
: ifl f¼çfØ;k pµ

(d) frÄUrsHo/kkfnçdj.ke& √Hkw√,/A ([k) frÄUrsvnkfnçdj.ke& √vn~√vlA

(x) uke/kkrqçdj.keA (?k) vkReusinçfØ;kA (Ä) ijLeSinçfØ;kA (p) iwoZÑnUrçdj.keA

fVIi.;%%&

(d) ç'ui=ks i×p (ÿ) vfuok;kZ ç'uk% Hkfo";fUrA r=k çFke ç'us ?kVdprq"V; xrikBÔØeekfJR; pRokj% fodYi jfgrk% (vfuok;kZ) l{ksikrLkdkçç'uk% çnkL;UrsA vU;s ç'uk% Øe'k% çFke&f}rh;&rr`rh;&prqFkZ?kVdlEc¼k% Hkfo";fUrA

([k) O;k[;kRed ç'usHkq 50% vadk% vkykspukRed ç'usHkq 100% vadk% oSdfYid% HkfoLrA

(x) ?kVdprq"V; xrikBÔØeekfJr% çFke% ç'u% çFke ?kVdkfJr% f}rh;'p ç'u% lalÑr@fgUnh@vkÄXyHkk"kkekè;ekuka dsukfi ,dsu ekè;esu lek/kkrq'kD;r§ ijUrq f}rh;&rr`rh;&prqFkZ?kVdkfJrk% vU;s ç'uk% lalÑrekè;esu ,o lek/ks;k% vU;Fkk lokZ.k vÄdgkfu% Hkfo";frA

ç'ui=kfuekZ.kfof/%

1. ç'ui=L; fuekZ.ka lalÑrekè;esu HkfoLrA
2. ç'ui=ks i×p (5) vfuok;kZ ç'uk% Hkfo";fUrA
3. ç'ukuke~ vÄdkuka p foHkktue~ v/kksyf[kr:isk Hkfo";frµ

I. çFke% ç'u%µ v;a (çFke%) ç'u% ?kVdprq"V; xrikBÔØeekfJR; HkfoLrA vfLeu~ ç'us pRokj% (þ) fodYi jfgrk% (vfuok;kZ) l{ksikrLkdkçç'uk% çnkL;UrsA (4x4³⁄16 vÄdk%)

II. f}rh;% ç'u% (çFke ?kVdkfJr%)µ çFke ?kVdkUrxZr ikBÔØe lEc¼a lef{kkRed a ç'u}; a lek/kkrq ç'uprq"V; a çnkL;rsA (2x8³⁄16 vÄdk%)

III. rr`rh;% ç'u% (f}rh; ?kVdkfJr%)µ

(d) f}rh; ?kVdkUrçdj.kk Ec¼a lw=}; a lalÑrekè;esu lk/kkgj.ka O;k[;kra ;Fkkfufn"V/kkrq:Ik~ lw=prq"V; a çnkL;rsA (2x4³⁄8 vÄdk%)

([k) f}rh; ?kVdkUrçdj.kk Ec¼L; in}; L; çeq[k vkHkks/y§kiwoZda : ifl f¼çfØ;ka lalÑrekè;esu fyf[krq ;Fkkfufn"V/kkrq:Ik~ inprq"V; a çnkL;rsA (2x4³⁄8 vÄdk%)

IV. prqFkZ ç'u% (rr`rh; ?kVdkfJr%)µ

(d) rr`rh; ?kVdkUrçdj.kk Ec¼a lw=}; a lalÑrekè;esu lk/kkgj.ka O;k[;kra ;Fkkfufn"V/kkrq:Ik~ lw=prq"V; a çnkL;rsA (2x4³⁄8 vÄdk%)

([k) rr`rh; ?kVdkUrçdj.kkuqlkjsk in}; L; lvkHkks/y§kiwoZda lalÑrekè;esu dkjd&foHkfDr&çfrikn ;Fkkfufn"V/kkrq:Ik~ p Rokfj v/kkjs§kkfÄrkfu inkfu çnkL;UrsA (2x4³⁄8 vÄdk%)

V. i×pe% ç'u% (prqFkZ ?kVdkfJr%)µ

(d) prqFkZ ?kVdkUrçdj.kk Ec¼a lw=}; a lalÑrekè;esu lk/kkgj.ka O;k[;kra ;Fkkfufn"V/kkrq:Ik~ lw=prq"V; a çnkL;rsA (2x4³⁄8 vÄdk%)

([k) prqFkZ ?kVdkUrçdj.kk Ec¼L; in}; L; çeq[k vkHkks/y§kiwoZda : ifl f¼çfØ;ka lalÑrekè;esu fyf[krq ;Fkkfufn"V/kkrq:Ik~ inprq"V; a çnkL;rsA (2x4³⁄8 vÄdk%)

M. A. Sanskrit (Previous)
(Annual System, Distance Education Mode)
Session 2015-2016

vuqla/ks; xzUFk%
1. y?kq ¼kCndkSeqnh] ojnjkt] O;k[;kdkj /kjkuUn 'kkL=h] f?kYyh] eksrhyky cukjlhnkl] fnYyhA
2. y?kq ¼kCndkSeqnh] ojnjkt] O;k[;kdkj Hkhel su 'kkL=h] HkSeh çdk'ku] fnYyhA
3. y?kq ¼kCndkSeqnh] ojnjkt] O;k[;kdkj vk;kZçlkn feJ] v{k;oV çdk'ku] bykgkcknA
4. oS;kdj.kfl ¼kUrdkSeqnh (iwokZ/Z)] HkV~Vksth nhf{kr] çdk'k eksrhyky cukjlhnkl] fnYyhA
5. oS;kdj.kfl ¼kUrdkSeqnh (1&2 Hkkx)] O;k[;kdkj xksiky nÙk ik.Ms;] pkS[kEck lqjHkkjrh izdk'ku] okjk.klhA
6. dkjd&izdj.k (fl ¼kUrdkSeqnhLFk)] lEiknd rFkk O;k[;kdkj Jhfuokl 'kkL=h] lkfgR; HkaMkj] esjBA
7. Hkk"kk vkSj Hkk"kkdh] nsosUæukFk 'kekZ] gfj;k.kk lkfgR; vdkneh] p.Mhx<+A
8. i ni nkFkZ eh{kk cyno flg] d#{ks= fo'ofo|ky;] d#{ks=A
9. l kekU; Hkk"kk&foKku] ckcwjke lDl sukA
10. Introduction to Comparative Philology, P.D. Gune, Pune.
11. Transformational Grammar, Ratford, A., Cambridge Univ. Press, 1988.
12. Introduction to Linguistics, Ratford, A. *et. al.,* Cambridge Univ. Press, 1999.
13. Introduction to Theoretical Linguistics, Lyons, John, 1968.
14. Linguistic Semantics, Lyons, John, Cambridge Univ. Press, 1995
15. General Linguistics, An Introductory Survey-Robins, R. H., Indiana Press, Bloomington, 1964.
16. Introduction to Government and Binding Theory, Haegaman, L., Basil Balckwell, 1994.
17. Principles and Parameters, Culicover, P.W., Oxford Univ. Press, 1997.
18. An Introduction to Language, Fromkin, V. and R. Rodman, New York etc. Harcourt, Brace Jovenovich College Publishers, 1988, 1992.
19. Linguistics, An Introduction to Language and Communication-Akmaijan, A.R. Demers and R. Hamish, Cambridge Mass, MIT Press, 1979.
20. An Introduction to the Science of Meaning, Oxford Blackwell, Semantics, 1962.
21. Sanskrit Syntax, J.S. Speijer, Motilal Banarasidass, Delhi.
22. The Principles of Semantics, Blackwell, Ullmann, Stephen, 1957.
23. Semantic Analysis, Ithaca, N.Y.–Ziff, Paul, Comell University Press, 1960.

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rr̀h; i =e~ %Hkkjrh; n'kZue~
Paper-III : Bharatiyadarshanam

i wkZÄ% **80**
vkUrfjd ewY;kÄ uk Ä% **20**
l e; %**3** gkjsk%**(3 Hours)**

?kVd e&**1**: dsuksfeJ%rdZHkk"kk (vkjEHkr% çek.k; okni ;ZUre~) %fucU/kkRed ç'u%i f/ O;k[;kpA **16** vÄ%
?kVd e&**2**: bZ'ojÑ".k% l kÄ[;dkfjdk (rÙodkSeqnhlfgrk) (l EiÙrekè; es) %fucU/kkRed ç'u% dkfjdkO;k[;kpA **16** vÄ%
?kVd e&**3**: ykSxk{kHkkLdj% vFkZlÄxzg% (l EiÙrekè; es) %fucU/kkRed ç'u%i f/ O;k[;kpA **16** vÄ%
?kVd e&**4**: l nkuUn;ksxhUæ% osnkUrl kj% (l EiÙrekè; es) %fucU/kkRed ç'u%i f/ O;k[;kpAA **16** vÄ%

fVi .; %%

(d) ç'ui=ks i×p (ÿ) vfuok;Z% ç'uksa% Hkfo";fUrA r=k çFke ç'us ?kVd prq"V;xrikB ÔØeekfJR; pRokj% fodYi jfgrk% (vfuok;kZ%) l{kIrksÙkjç'uk% çnkL;UrsA vU;s ç'uk% Øe'k% çFke&f}rh;&rr̀h;&prqFkZ ?kVdlEc¼k% Hkfo";fUrA

([k) Ok[;kRed ç'uskq 50% vad% vkykspukRed ç'uskqp 100% vad% oSdfYid% HkosrA

(x) ?kVd prq"V;xrikB ÔØeekfJr% çFke% ç'u% çFke?kVdkfJr% f}rh;'p ç'u% lanÑr@fgUnh@vaxzsth"kkek/;eksu ,dus ek/;eu lek/kku'kO;rs ij Urq f}rh;&rr̀h;&prqFkZ?kVdkfJrk% vU;s ç'uk% laLÑrek/;esu ,o lek/ks;k% vU;Fkk lok.kk vad% Hkfo";frA

ç'ui=kfuekZ.kfof/%

1. ç'ui=L; fuekZ.ka laLÑrek/;esu HkosrA
2. ç'ui=ks i×p (5) vfuok;Z ç'uk% Hkfo";fUrA
3. ç'ukuke~ vadkuka p foHkktue~ v/kksfyf[kr:isk Hkfo";fr µ
   - I. çFke% ç'u% µ v;a (çFke%) ç'u% ?kVd prq"V;xrikB ÔØeekfJR; HkosrA vfLeu~ ç'us pRokj% (p) fodYi jfgrk% (vfuok;kZ%) l{kIrksÙkjç'uk% çnkL;UrsA (4x4=16 vad%)
   - II. f}rh;% ç'u% (çFke ?kVdkfJr%) µ
     - (d) ;Fkkfunsf'kr xzUFke~ vkfJR; ,d afucU/a fyf[krqa fucU/}; açnkL;rsA (8 vad%)
     - ([k) lçl ä ãi f }; a Ok[;krq; Fkkfunsf'kr xzUFkkr~ i f =k; açnkL;rsA (2x4=8 vad%)
   - III. rr̀h;% ç'u% (f}rh; ?kVdkfJr%) µ
     - (d) ;Fkkfunsf'kr xzUFke~ vkfJR; ,d afucU/a laLÑrek/;esu fyf[krqa fucU/}; açnkL;rsA (8 vad%)
     - ([k) lçl äãdkfjdk}; a laLÑrek/;esu Ok[;krq; Fkkfunsf'kr xzUFkkr~ dkfjdk=k; açnkL;rsA (2x4=8 vad%)
   - IV. prqFkZ% ç'u% (rr̀h; ?kVdkfJr%) µ
     - (d) ;Fkkfunsf'kr xzUFke~ vkfJR; ,d afucU/a laLÑrek/;esu fyf[krqa fucU/}; açnkL;rsA (8 vad%)
     - ([k) lçl äãi f }; a laLÑrek/;esu Ok[;krq; Fkkfunsf'kr xzUFkkr~ i f =k; açnkL;rsA (2x4=8 vad%)
   - V. i×pe% ç'u% (prqFkZ ?kVdkfJr%) µ
     - (d) ;Fkkfunsf'kr xzUFke~ vkfJR; ,d afucU/a laLÑrek/;esu fyf[krqa fucU/}; açnkL;rsA (8 vad%)
     - ([k) lçl äãi f }; a laLÑrek/;esu Ok[;krq; Fkkfunsf'kr xzUFkkr~ i f =k; açnkL;rsA (2x4=8 vad%)

vuq'kaflr xzUFkk%

1. rdZHkk"kk] Ok[;kñ Jhfuokl 'kkL=kh] lkfgR; HkaMkj] esjBA
2. rdZHkk"kk] Ok[;kñ cnjhukFk 'kqDy] eksrhyky cukjlhnkl] fnYyhA
3. rdZHkk"kk] Ok[;kñ xtkuu 'kkL=kh eqlyxkodj] pkS[kEck] okjk.klhA
4. Tarkabhāṣā, Eng. Tr. S.R. Iyer, Varanasi.
5. Tarkabhāṣā, Eng. Tr. A.B. Gajendragadkar.
6. lka[;rÙodkSeqnhHkk"; lEikñ rFkk Ok[;kñ vk|kizlkn feJ] v{k;oV çdk'ku] bykgkcknA
7. lka[;dkfjdk lEikñ rFkk Ok[;kñ xtkuu 'kkL=kh eqlyxkodj] pkS[kEck] okjk.klhA
8. Sāṅkhyakārikā, Eng. Tr. Wilson, Delhi.
9. vFkZlaxzg] lEikñ rFkk Ok[;kñ okpLifr mik/;k;] pkS[kEck vkSj;.Vkfy;kA
10. vFkZlaxzg% Ok[;kñ n;k'kadj 'kkL=kh] dkuiqjA
11. vFkZlaxzg% Ok[;kñ lR;çdk'k 'kekZ] lkfgR; HkaMkj] esjBA

12. Arthasaṅgraha, Eng. Tr. A.B. Gajendragadkar and R.D. Karmarkar, Motilal Banarsidass, Delhi.
13. Arthasaṅgraha, Eng. Tr. G. Thibaut, Delhi.
14. osnkUrlkj] O;k[;kñ cnjhukFk 'kqDy] okjk.klhA
15. osnkUrlkj] lEikñ rFkk O;k[;kñ jkeeurZ 'kekZ fnYyhA
16. osnkUrlkj] O;k[;kñ xtkuu 'kkL=h eqlyxkodj] okjk.klhA
17. osnkUrlkj] lEikñ rFkk O;k[;kñ MkWñ vk|kçlkn feJ] v{k;oV çdk'ku] bykgkcknA
18. Vedāntasāra, Eng. Tr. M. Hiriyanna.
19. Vedāntasāra, Eng. Tr. Swami Nikhilananda.

✦

prqFkZ&iz'u&i= % dkO;e~ dkO;'kkL=e~ p

Paper-IV : Kavyam Kavyashastram Cha

iwkkZad % **80**
vkUrfjd ewY;kadu % **20**
le; % **3** ?k.Vs % **(3 Hours)**

?kVd&1: (d) ek?kdkO; f'k'kqikyo/e~ (çFke% lxZ) % lçlaX O;k[;k ,oa fun'Z'kd ç'ukA **08** vad ([k) ck.kHkV~V % dknEcjh % egk'osrkoÙkkUr % v/kksfufnZ"V va'k% µ **08** vad
^rRp iou'kksHk;kfrLrr% ... ^d.Bkad.Bfefr refrfpjaO;ykd; e~* bfr i;ZUre~A
µx|kak&O;k[;kA

?kVd&2: HkoHkwfr% mÙkjjkepfjre~ (lEiw.kZ) % lçlaX dkO;lkSUn;Z fun'kZd ç'u ,oa O;k[;k vkykspukRed ç'u% pA **16** vad

?kVd&3: dkfynkl % esÄnwre~ (iwoZes?k%) (lEiw.kZ) % O;k[;kA **16** vad

?kVd&4: fo'oukFk% lkfgR;niZ.k% (lEiw.kZ) µ dkfjdk O;k[;k foospukRed ç'u% pA **16** vad
(d) çFke% ifjPNsn% f}rh;% ifjPNsn% µ vfHk/kk fu:i.ke~ dkfjdk&la[;k 4 i;ZUre~A
([k) f}rh;% ifjPNsn% µ y{k.kk fu:i.ke~ O;×tuk fu:i.ke~ p (dkfjdk% 5&20) A

fVIi.; %&

(d) ç'ui=s i×p (5) vfuok;Z ç'uk% Hkfo";fUrA r=k çFke ç'us ?kVd prq"V; xr i¥pn'k y?kqÙkjh; pkfjdk% fodYi jfgrk% (vfuok;Z) l{kfIrIkdkj ç'uk% çnkL;UrsA vU;s ç'uk% Øe'k% çFke&f}rh;&rrh;&prqFkZ ?kVd lEc¼k% Hkfo";fUrA

([k) O;k[;kRed ç'usHkq 50% va'k% vkykspukRed ç'usHkq p 100% va'k% oSdfYid% HkfOkrA

(x) ?kVd prq"V; xr i¥pn'k y?kqÙkjh; ç'u% ç'ue~ çFke ?kVdkUrx% f}rh; 'p ç'u% lEiw.kZ@Eke~@kA ... dsoy ,d% lek/kkus 'kD;rs] iqUroQ f}rh;&rrh;&prqFkZ ?kVdkUrxr% vU;s ç'uk% lEiw.kZ ,o lek/ks;k% vU;Fkk lokZa vad fu% Hkfo";frA

ç'ui=fuekZ.kfof/ %

M. A. Sanskrit (Previous)
(Annual System, Distance Education Mode)
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1. ç'u i=k; fuekZ.k lacU/kh funsZ'k HkkxA
2. ç'u i=ks i×p (5) vfuok;kZ ç'uk% HkfoO;fUrA
3. ç'ukuke~ vÄdkuka foHkktue~ v/kksfy[kr: i.sk Hkfo";fr µ
   I. çFke% ç'u% µ v;a (çFke%) ç'u% ?kVdprq"V;xrikB~ÔØeeksfJR; HkkxA vfLeu~ ç'us pRokj% (b) fodYi jfgrk% (vfuok;kZ%) l{kIrks'kkç'uk% çnkL;UrsA (4x4=16 vÄdk%)
   II. f}rh;% ç'u% (çFke ?kVdkfJr%) µ
      (d) lçlÄaãNUnksy;Ä;kfufnZ'kiwoZda 'ykd}; aO;k[;k req; Fkkfufn"V/kHkfxr~ 'ykd=;a çnkL;rsA (2x4=8 vÄdk%)
      ([k) lçlÄãdkO;lkSBofunZ'kiwoZdax| kak}; aO;k[;kreq; Fkkfufn"V/kHkfxn~ x| kak=;açnkL;rsA (2x4=8 vÄdk%)
   III. rr`h;% ç'u% (f}rh; ?kVdkfJr%) µ
      (d) lçlÄãdkO;lkSBofunZ'kiwoZda 'ykd}; alacU/kh funsZ'k Ok[;kreq; Fkkfufn"V/kHkfxr~ 'ykd=;a çnkL;rsA (2x4=8 vÄdk%)
      ([k) ;FkkfufnZ"VukVdauk Vdkjkap vkfJR; ,daç'uala cU/kh funsZ'k leh{kkre~ vkykspukRedaç'u}; açnkL;rsA (8 vÄdk%)
   IV. prqFkZ ç'u% (rr`h; ?kVdkfJr%) µ lçlÄãdkO;lkSBofunZ'kiwoZda 'ykd}; alacU/kh funsZ'k Ok[;kreq ;FkkfufnZ"V/kHkfxr~ 'ykd=;a çnkL;rsA (2x8=16 vÄdk%)
   V. i×pe% ç'u% (prqFkZ ?kVdkfJr%) µ
      lçlÄãdkfjdk}; alacU/kh funsZ'k Ok[;kreq ;FkkfufnZ"V/kHkfxr~ dkfjdk=;açnkL;rsA
      vFkok
      ,dafoopukRedaç'uala cU/kh funsZ'k lek/kreq ;FkkfufnZ"V/kHkfxr Ec½ aç'u}; açnkL;rsA (16 vÄdk%)

vuq'kaflr xzUFkk%

1. dknEcjh] egk'osrkoÙkkUr% lEikn vkpk;Z jkeukFk% 'kekZ jkt'ks[kjeqk% 'kkL=k] p] lkfgR; HkaMkj] e~sjBuxje~ i×pelaLdj.ke~ 2001
2. dknEcjh] egk'osrkoÙkkUr] lEikn vkpk;Z dfiyno fxfj] okjk.kl hA
3. dknEcjh % ,d lkaLÑfrd v/;;u] MkW0 oklqnso'kj.k vxzokyA
4. ck.kHkVV dk lkfgfR;d vuq'khyu] vejukFk ik.M;A
5. f'k'kqikyo/ (iBe lxZ] O;k[;k MkW0 Jhfuokl 'kkL=k] lkfgR; HkaMkj] esjBA
6. f'k'kqikyo/] O;k[;k vkpk;Z 'ks"kjkt 'kekZ okjk.kl hA
7. mÙkjjkepfjr] O;k[;k ohjjk?ko] okjk.kl hA
8. Uttararāmacarita of Bhavabhūti, M.R. Kale.
9. mÙkjjkepfjr] lEiko rkfj.kh k>kA
10. e§knw] lEik ,oe~ vuq tukn'kkL=k ik.M;] eksrhyky cukjlhnkl] fnYyhA
11. e§knw (laÑr&fgUnh&vuqokn o O;k[;k] lalkjpUnzo eksguno iUr] eksrhyky cukjlhnkl] fnYyhA
12. lkfgR;niZ.k lEik iholho dk.ks eksrhyky cukjlhnkl] fnYyhA
13. lkfgR;niZ.k O;k[;k Ñ".keksgu 'kkL=khA
14. lkfgR;niZ.k lEik 'kkfyxzke 'kkL=k] eksrhyky cukjlhnkl] fnYyhA
15. laÑr lkfgR; dk bfrgkl] ,ñch dhFk] vuq eaxyno 'kkL=k] eksrhyky cukjlhnkl] fnYyh] 1978
16. laÑr lkfgR; dk bfrgkl] cyno mik/;k;] 'kkjnk fudsru] okjk.kl h] 1978

17. lañr uk\/d dkj] dkfUrfd'kkjs Hkfr;k] çdk'ku 'kk[kk] lwpuk foHkkx] mÙkj çns'k 1959
18. lañr uk\/d lek{kk] çkñ bæthr flag ^bæ'k*] lkfgR; fudsru] dkuiqj 1960

✦

i×pei=e~%/eZrU=kxe%

Paper-V : Dharmatantragamah

iwkkZÄ% **80**
vkUrfjdewY;kÄuk Ä% **20**
le;%**3** gksjk% **(3 Hours)**

?kVde&1: (d) euqLe`fr%] iFkekè;k;%(dsoyd/HkkxkÑreuqLe`frçoD=koY;k vkykduh) **08** vÄ%
([k) 'kwf=kakLÙkoLlUnksg% Jhjkekudkukudfofojfprfooj.kksLÑr% **08** vÄ%
?kVde&2: (d) euqLe`fr%f}rh;kè;k;%(lañrekè;eu)
(dsoyd/HkkxkÑreuqLe`frçoD=koY;k vkykduh) **08** vÄ%
([k) cãlfgrk] i×pekè;k;%(lañrekè;eu) **08** vÄ%
?kVde&3: pk.kD;lw=kf.k %1&571 (lañrekè;eu) **16** vÄ%
?kVde&4: vkpk;ZlkÄj%] lk/kr;ygjh %1&100 i|kfu (lañrekè;eu) **16** vÄ%

fVI.;%%

(d) ç'ui=ks i×p (5) vfuok;kZ ç'uk% Hkfo";fUrA r=k çFke ç'us ?kVdprqV;xrikBÔØeekfJR; pRokj% fodYi jfgrk% (vfuok;kZ) l{kIrkÙkj ç'uk% çnkL;UrsA vU;s ç'uk% Øe'k% çFke&f}rh;&rrh;&prqFk?kVdlEc¼k% Hkfo";fUrA
([k) O;k[;kRed ç'usq 50% v'kk% vkykpukRed ç'usq 100% v'kk% oSdfYid% HkosrA
(x) ?kVdprqV;xrikBÔØekfJr%çFke% ç'u%] çFke?kVdkfJr%f}rh;'p ç'u%lañr@fgUnh@vk\Xyk\Hkk'kkekè;ekuka dsukfi ,dsu ekè;esu lek/kkrq'kD;r\$ ijUrq f}rh;&rrh;&prqFk?kVdkfJrk% vU;s ç'uk% lañrekè;esu ,o lek/s;k% vU;Fkk lokZ vÄgkfu%HkfoKr;frA

ç'ui=kfuekZkfof/%

1- ç'ui=L; fuekZka lañrekè;esu HkosrA
2- ç'ui=s i×p (5) vfuok;kZ ç'uk% Hkfo";fUrA
3- ç'ukuke~ vÄkuka p foHkktue~ v/kksfyf[kr:isk Hkfo";frµ
I. çFke% ç'u% (?kVdprqV;xrikBÔØekfJr%)µ vfLeu~ ç'us pRokj% fodYi jfgrk% (vfuok;kZ) l{kIrkÙkj ç'uk% lañr@fgUnh@vk\Xyk\Hkk'kkekè;ekuka dsukfi ,dsu ekè;esu lek/kkrq çnkL;UrsA (4x4=16 vÄ%)
II. f}rh;% ç'u% (çFke?kVdkfJr%)µ
(d) ;FkkfunZs'ka euqLe`frlEc¼ikBÔØee~ vkfJR; ,da ç'ua lek/kkrq ç'u}; çnkL;rsA (8 vÄ%)
([k) ;FkkfunZs'ka 'kwf=kakLÙkoLlUnksglEc¼ikBÔØee~ vkfJR; ,da ç'ua lek/kkrq ç'u}; çnkL;rsA (8 vÄ%)

III. rr̀h; %ç'u% (f}rh; ?kVd ds fy, r%)µ

(d) ;Fkkfufn"V eutefrl Ec¼ ikBÔØee~ vkfJR; ikBkak}; al çl Äãl ahÑrekè;esu O;k[;kreq ikBkakk; a çnkL;rsA (2x4=8 vÄ%)

([k) ;Fkkfufn"V cãl afgrk Ec¼ ikBÔØee~ vkfJR; ikBkak}; al çl Äãl ahÑrekè;esu O;k[;kreq ikBkakk; a çnkL;rsA (2x4=8 vÄ%)

IV. prq Z% ç'u% (rr̀h; ?kVd ds fy, r%)µ

(d) ;Fkkfufn"V ikBÔØee~ vkfJR; fucU/kkRed a ç'u}; aç{;rs ;r% d'pu ,d% ç'u% l ahÑrekè;esu lek/ks;%A (8 vÄ%)

([k) ;Fkkfufn"V ikBÔØee~ vkfJR; ikBkak}; al çl Äãl ahÑrekè;esu O;k[;kreq ikBkakk; a çnkL;rsA (2x4=8 vÄ%)

V. i×pe% ç'u% (prq Z ?kVd ds fy, r%)µ

(d) ;Fkkfufn"V ikBÔØee~ vkfJR; fucU/kkRed a ç'u}; aç{;rs ;r% d'pu ,d% ç'u% l ahÑrekè;esu lek/ks;%A (8 vÄ%)

([k) ;Fkkfufn"V ikBÔØee~ vkfJR; ikBkak}; al çl Äãl ahÑrekè;esu O;k[;kreq ikBkakk; a çnkL;rsA (2x4=8 vÄ%)

vuq kafl r xzUFk%

1. eutefr% eUokFkZeqDrkoyh l fgrk] l ã olkoqp 'kekZ dk'khdj% fu.kZ l kxj iszl] eqEcbZ 1909
2. eutefr% e.kh'kfrf.Fk&euHkk";&lesrk] l Eikn x Äãkukfk >k] ifjey ifCyds'ku] fnYyh] 1998
3. dkS Vyh; vFkZ'kkL=k] vuq nm; ohj 'kkL=kh] eqjjpUn ykyeunkl] fnYyhA
4. Kauṭilya's Arthaśāstra, Tr. R. Shamasastry, Wesleyan Mission Press, Mysore
5. Ṣaṭtriṁśattattvasandoha, with the comm. of Rājānaka Ānanda Kavi, Tr. & Notes by D.B. Sensharma, B.N. Chakravarty University, Kurukshetra, 1977
6. Śrī Brahma-Saṁhitā (Chapter-5), Tr. & Purport by Bhaktisiddhānta Saraswati Goswami Ṭhākura, Bhaktivedanta Book Trust, Bombay, 1991
7. Jhcãl afgrk] Jh hoxkokeÑr Vhdk fgrk] enkl] 1958
8. l kfo=h xgjh] Jh'kÄjkpk;Z ojfprk] y{eh/jk O;k[;k fgrk] pkS[kEck Ñ".knkl vdknech] okjk.klh] 2007
9. l kfo=h xgjh] O;k[;kugfjgj çlkn f=ikBh] pkS[kEck l ahÑr l hjht vkfQl] okjk.klh] 2005

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M. A. Sanskrit (Final)
(Annual System, Distance Education Mode)
Session: 2015-2016

Directorate of Distance Education
Kurukshetra University
Kurukshetra–136 119

,e0 ,0 l aÑre~(f}rh; o"kZ)
oxZ0^?k* µ l aÑr lkfgR;e~

Syllabus
Session : 2015-2016

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njwofÙkZ f{kki ¼R;uqlkjsk ,eñ ,ñ (l aÑre)~&d{;k,k% ;% f}rh; o"kZ ikBÔØe% **2014–2015** 'kS{kd l =ks l 'kkks/r% l % **2015–2016** 'kS{kd l =sq fi çpfy"; frA njwofÙkZ f{kkfunsZ'kky;s dsoye~,d% oSfYd% oxZ% vFkkZ~ oxZ0^?k* µ l aÑr lkfgR;e~ çpyfrA vL; oxZ; ikBÔØes i×p **(5)** vfuok;Z i=kf.k fu/kZfjrkfu l fUrA çR;sd afyf[kr i=s v'kfr% **(80)** vÄk% fo|UrsA ,rnfrfjDra çfri=a ¯o'kfr% **(20)** vÄk% vkUrfjdeY;kÄuk; fu/kZfjrk%A ijh{kk l e;% çfri=a **3** gksjk% Hkfo";frA l aÑr@fgUnh@vkÄXy Hkk"kk&ek/;ekuka dsukfi ,dsu ek/;esu ijh{kkFkhZ ç'ui=k.kke~ mÙkja fyf[krq~ vgZ%A ijUrq çfri=a fu/kZfjr ?kVd l Ec¼ç'uL; mÙkja ç'ui=kfunZsZkkuqlkjsk l aÑrsu ,o y{kuh;e~ vU;Fkk l oZFkk vÄgkfu% Hkfo";frA

njwofÙkZ f{kki kBÔØeL; çR;sd l =kh; Ùkdi =s **20%** vkUrfjdeY;kÄue~%

1. **20%** vkUrfjdeY;kÄua l oZsfi l =kh; Ùkdi =s"kq Hkfo";frA
2. çR;sde~ vkUrfjdeY;kÄui jh{kk v/;kiudof/ dk (**30** feuVkof/ dk) Hkfo";frA
3. Nk=%@Nk=k fHk% cgqfodYih; kRed k% foa'kfr% (**20**) ç'uk% l ek/s;k%A
4. cgqfodYih; kRed ç'ukSÙkjçi=s v/kksfyf[krkfu foojkf.k çns;kfu %&
   (i) njwofÙkZ f{kkfunsZ'kky; & l UnHkZ l [;k
   (ii) Lod h; uke
   (iii) fi r`uke
   (iv) ijh{kk&frfFk%
5. O;fDrxr l Ei dZ dk; ZØeL; vfUres fnu}; s fo'k; l Ec¼k% vè;kid k% vkUrfjdeY;kÄui jh{kke~ vk; ksf; "; fUrA
6. vkUrfjdeY;kÄui jh{kk vè;ki ukÄ Øfnrk Hkfo";frA

7. ; fn df'pr~ Nk=k@dkfpr~ Nk=kk vkUrfjdewY;kÄüijh{kk;ke~ vuqifLFkr%@vuqifLFkrk vFkok Q;fDrxrlEidZdk;ZØeL; lekiukUrja çoskaa yC/okuù@yC/orh rfgZ okf"kZdijh{kk;k%çkIrkÄïu~vk/kkjhÑR; rLe@rL;S **20%** vkUrfjdewY;kÄüukÄïk%çnkL;UrsA

8. vkUrfjdewY;kÄüulEc½açkIrkÄï=kkfndanjwofUÙkZ{kkfunskky;%lajf{k";fr AfoLrrkÄï=kL; çs"k.kfrfFkr%, dekla;kon~, o Nk=k@Nk=kk 'kqYd:iska i×p'kr:l;dkf.k (: ñ **500/-**) çnk; Lodh;kÙkjçi=kk.kkaiqujh{k.kk; vkosnf;rq¡kDuksfrA

The syllabus of M.A. Sanskrit (Final) class (Distance Education Mode) was modified with effect from the Academic Session 2014−2015. The same syllabus is applicable in the Academic Session 2015-2016. The Directorate of Distance Education runs only one optional group, that is, Group 'D' – Sanskrit Literature, There are five (5) compulsory Theory Papers prescribed in the syllabus of this group. Each written Theory Paper carries Eighty (80) marks. Besides, each Theory Paper has been assigned Twenty (20) marks for Internal Assessment. The time for examination in each paper will be three (3) hours. The examinee/candidate can attempt his/her paper through any one medium out of Sanskrit, Hindi and English. But he/she will have to write the answer of the question(s), pertaining to the specific Unit as prescribed in the syllabus and as per instructions in the question paper, through Sanskrit medium only otherwise no marks will be awarded to that particular answer.

20% Internal Assessment in each Theory Paper of Distance Education course:

1. **20 % Internal Assessment will be in all the theory papers.**
2. **Each Internal Assessment test will be of 30 minutes duration.**
3. **20 MCR type questions shall be answered by the students.**
4. **MCQ sheets must carry the following information:-**
   - **(i) DDE Reference No.**
   - **(ii) Name**
   - **(iii) Father's Name**
   - **(iv) Date of Test**
5. **Internal Assessment test will be conducted by the concerned teachers on the last two days of Personal Contact Programme (PCP).**
6. **The test will be a part of class room teaching.**
7. **In case candidate has not appeared in internal assessment test or he/she took admission after PCP classes then he/she will be awarded 20% Internal Assessment marks on the basis of marks obtained by him/her in final examination.**
8. **The Directorate will maintain the record of internal assessment and student can get his/her answer sheets rechecked on remittance of Rs 500/- fee within one month of dispatch of Detailed Marks Card (DMC).**

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i kB~ÔØeL; : i j§kk **Outlines of the Syllabus**	i wkkZÄ~d% **Max. Marks**	v kUrfj d eWY; kÄ~ukÄ~d% **Internal Assessment Marks**	l e; % **Time**
"k"Bi ±e~ % i kfy çkÑr; ks% Hkk"kk l kfgR; ap **Paper- VI : Paliprakritayoh Bhasa Sahityam Cha** (osn&O; kdj.k&Hkkjrh; n'kZu&l aÑr l kfgR;&oxZ; kZ.kka l oZ"kka Nk=k.kka Ñrs vfuok; Z i ±e~) **(Compulsory paper for all the students of Veda, Grammar, Indian Philosophy and Sanskrit Literature Groups/Options)**	**80**	**20**	**3** gksjk% **3 Hours**

oxZ% ^?k* μ l aÑr l kfgR;e~ (oSdfYi d % oxZ%)
Group : D – Sanskrit Literature (Optional Group)

i kB~ÔØeL; : i j§kk **Outlines of the Syllabus**	i wkkZÄ~d% **Max. Marks**	v kUrfj d eWY; kÄ~ukÄ~d% **Internal Assessment Marks**	l e; % **Time**
l Ireí ±e~ % ukV~; l kfgR;e~ ukV~; 'kkL=e~ p **Paper- VII : Natyasahityam Natyashastram Cha**	**80**	**20**	**3** gksjk% **3 Hours**
v"Vei ±e~ % dkO; 'kkL=e~ **Paper- VIII : Kavyashastram**	**80**	**20**	**3** gksjk% **3 Hours**
uoei ±e~ % dkO;a dkO; 'kkL=L; p bfrgkl % **Paper- IX : Kavyam Kavyashastrasya Cha Itihasah**	**80**	**20**	**3** gksjk% **3 Hours**
n'kei ±e~ % ,sfrgkfl d dkO;e~ [k.MdkO;e~ vk/kqfud dkO;a xhfr dkO;ap **Paper- X : Aitihasikakavyam Khandakavyam Adhunikakavyam Gitikavyam Cha**	**80**	**20**	**3** gksjk% **3 Hours**

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fyf[kri=k.kkafoLrr̀%ikB̂Øe%

Detailed Syllabus for written papers

"k"Bi=e~%ikfyçkÑr;k%Hkk"kk lkfgR;ap

Paper- VI : Paliprakritayoh Bhasa Sahityam Cha

iwkkZÄd%**80**
vkUrfjd eWY;kÄu kÄd%**20**
le;%**3** gksjk%**(3 Hours)**

?kVde&1 : ikfylkfgR;e~%ikfylaxzg%lEiknu MkW0 ìñchñokiV%lkfgR; vdknehA
v/;kufnZ'k%,o ikB%µ

(d) 1–6; 9; 11–13; 17–18 : llizlaxl anÑrekè;esu x|kaFkO;k[;kA **8**vÄd%

([k) 21–30; 32; 34–36 : llizlaxa ykdO;k[;kA **8**vÄd%

?kVde&2 : ikÑrlkfgR;e~%,ñlhñoWuj%,u bUVªksMD'ku Vq çkÑr (ikÑrizos'kdk] vuqkn%µ cukjlhnkl%tSu%A v/;kufnZ'k%,o ikB%µ

(d) 1–8; 15–16; 18–24; 29–32 : llizlaxl anÑrekè;esu x|kaFkO;k[;kA **8**vÄd%

([k) 9–14; 17; 25; 27–28; 33 : llizlaxa ykdO;k[;kA **8**vÄd%

?kVde&3 : (d) ikfylkfgR;L; bfrgkl%µ **8**vÄd%

ikfyHkk"kk;k%mn~Hko%fodkl'p] Hkkjrh;&vk;ZHkk"kk.kkafodkl Øesikfy Hkk"kk;k%
vonkue~] Hkkjrh;laÑrsbfrgklsikfyHkk"kk;k%ikfylkfgR;L; p vonkue~]
Hkkjrh;&bfrgklL; fuek.ksikfyHkk"kkè;;uL; ikfylkfgR;kè;;uL; p egÙoe~]
ikfy&oS'kdlaÑrykSfdlaÑrHkk"kk.kkaHkk"kkoSKkfudalkE;e@oS"kE;eA

([k) ikÑrlkfgR;L; bfrgkl%µ **8**vÄd%

ikÑrHkk"kk;k%mn~Hko%fodkl'p] Hkkjrh;&lkfgR;Hkk"kk.kkafodklØesikÑrHkk"kk.kke~
vonkue~] Hkkjrh;&vk;ZlaÑrsbfrgklsikÑrHkk"kk.kkaikÑrlkfgR;L; p vonkue~]
Hkkjrh;&bfrgklL; fuek.ksikÑrHkk"kk.kkaikÑrlkfgR;L; p egÙoeA

?kVde&4 : (d) ikfyO;kdj.keµ lfU/%lekl%dkjde~lKk ikf.k/kruqikf.kA **8**vÄd%

(v) lKk ikf.kµ cq)] eqfu] vfXx] fHk[kq] jktu~] vÙk vFkok vIik] firk] d×;k] bRFkh] ekrkA

(c) /krqikf.kµ Hkwxe] iB] Bk] fnLl] dj] nk] iqPN] dFk] lD[k (doyay Vs&yÄ&y`V&yks&fof/fyÄ&ydkjs"kq)A

([k) ikÑrO;kdj.keµ lfU/%lekl%dkjde~lKk ikf.k/kruqikf.kA **8**vÄd%

(v) lKk ikf.kµ no] eqfu] xq#] fivk] ynk] cq/] /sWq] ek;k] jk;k] vIikA

(c) /krqikf.kµ dj] Hkwg] dFk] Bk] fnLl] xe (xPN)] ng] ip] iqPN

(dsoy ay\V&y Ä&y\V&y ks&fof/ fy Ä&y dkj.\$ghA

fVi.kh%

(d) i'zukuka lek/kua lbÑr@fgUnh@vkÄ–Xy Hkk"kkekè;ekuka dsukfi ,ds u ekè;esu drZO;a 'kD;rs\$ ijUrq iz'ue?Vdkuxzela; (d) HkkxL; f}rh;?Vdkuxzela; (d) HkkxL; p i'zu% lbÑrekè;esu ,o lek/s;% vU;Fkk lo\$kk vÄ\$gkfu% Hkfo";frA

([k) prq\$Zk?Vda ;kon~ O;k[;kRed'ksq O;kdj.kkRed'ksq p i'zu'ksq 50% vad% bfrgklkRed'ksq fucU/kkRed'ksq p i'zu'ksq 100% vad% o.kZfVIid% Hkos}~ijUrq l{kIrkrkjkRed s ç'ue ç'us dk\$fi fod Yi ksu Hkfo";frA

ç'ui=kfuekZkfof/ %

1. ç'ui=kL; fuekZ.ka lbÑrekè;esu HkosrA

2. ç'ui=ks lekukÄ\$% i×p (5) vfuok;kZ% ç'uk% Hkfo";fUrA r=k 'kkfVlkÄ\$% (16 Marks) çFke% ç'u% ?Vd prq"V;xriBÔØeekfJr% HkosrA vfLeu~ ç'us pRokj% fod Yi jfgrk% (vfuok;kZ%) l{kIrkrkjç'uk% ç'"VO;kA

3. ç'ukuke~ vÄ\$kuka p foHkktue~ v/kksfyf[kr: isk Hkfo";fr µ

I. çFke% ç'u%%?Vd prq"V;xriBÔØeekfJr; pRokj% fod Yi jfgrk% l{kIrkrkjç'uk% çnkL;UrsA (4x4=16vÄ\$%)

II. f}rh;% ç'u% %(d) ,da x|kaka lilzÄã lbÑrekè;esu O;k[;kra çFke?VdL; (d) Hkkxs fufnZ"V/kkBs;l%x|kak}; ainkL;rsA (8vÄ\$%)

([k) 'ykd};al ilzÄãO;k[;kra çFke?VdL; ([k) Hkkxs fufnZ"V/kkBs;l% ykd=k; ainkL;rsA (8vÄ\$%)

III. rr̀h;% ç'u% %(d) ,da x|kaka lilzÄã lbÑrekè;esu O;k[;kra f}rh;?VdL; (d) Hkkxs fufnZ"V/kkBs;l%x|kak}; ainkL;rsA (8vÄ\$%)

([k) 'ykd};al ilzÄãO;k[;kra f}rh;?VdL; ([k) Hkkxs fufnZ"V/kkBs;l% ykd=k; ainkL;rsA (8vÄ\$%)

IV. prqFkZ% ç'u%%(d) rr̀h;?VdL; (d) Hkkxkuqlkjsk ikfy lkfgR;L; bfrgkl lEc¼e~ ,da ç'ua lek/kra ç'u}; ainkL;rsA (8vÄ\$%)

([k) rr̀h;?VdL; ([k) Hkkxkuqlkjsk çkÑrlkfgR;L; bfrgkl lEc¼e~ ,da ç'ua lek/kra ç'u}; a inkL;rsA (8vÄ\$%)

V. i×pe% ç'u%%(d) prqFkZ?VdL; (d) Hkkxkuqlkjsk ikfy O;kdj.k lEc¼a ç'u}; a lek/kra ç'u=k; a çnkL;rsA (8vÄ\$%)

([k) prqFkZ?VdL; ([k) Hkkxkuqlkjsk çkÑr O;kdj.k lEc¼a ç'u}; a lek/kra ç'u=k; a çnkL;rsA (8vÄ\$%)

vuq'kaflr xzUFkk%

1. ikfy&laxzg] lEikñ MkW/hñchñck\V] lkfgR; vdkneh] ubZ fnYyhA
2. ikfy lmhfidk] oh;sUnz eq;k vyadkj] okxkFkZ\kk] fnYyk\$ (iapdwyk) A
3. ikfy egkO;kdj.k] fHk{kq txnh'k d';i] eksrhyky cukjlhnkl] fnYyhA
4. dPpk;u O;kdj.k] lEikñ ,lñ ,uñ froksjh] rkjk cqd ,tsUlh] dePNk] okjk.klh] 1989
5. cky korkj (ikfy O;kdj.k)] lEikñ }kfjdknkl 'kkL=kh] okjk.klhA
6. ikfy lkfgR; dk bfrgkl] Hkjrflag mik/;k;] fgUnh lkfgR; lEesyu] iz;kxA
7. ikfy lkfgR; dk bfrgkl] dkey pUnz tSu] okjk.klh] 1989

8. ikfyIkfgR; dk bfrgkl] iã jkgqy lkaÑR;k;uA
9. fgLVªh vkWQ ikfy fyVjspj (okY;wa&2)] ,eñ fo.VjfuRtA
10. ikÑrizdk'k [okY;we&1] vkYÝsMl lhñoqYuj (cukjlhnkl tSu&Ñr fgUnh vuqokn)A
11. vfHkuo ikÑr&O;kdj.k] useepUn 'kkL=h] okjk.klh] 1963
12. ikÑrizdk'k] oj#fp] lEikñ dkoys] dydrk] 1932
13. ikÑr lkfgR; dk bfrgkl] txnh'kpUnz tSu] okjk.klhA
14. ikÑr lkfgR; vkSj mldk vkykspukRed bfrgkl] useepUn 'kkL=hA
15. ikÑr&O;kdj.k] gspeUnzÑr fl½gs'kCnkuqkklu dsvkBosa v/;k; dk fgUnh vuqokn] ikaõ MkWñ dñ okñ vkIVs (pkSFkEck lañÑr Hkkjrh] 8)A
16. ikÑr xkej] iñ ,yñ oS|] iwuk] 1958

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lIrei=e~%ukV~; lkfgR;e~ ukV~;'kkL=e~ p

Paper- VII : Natyasahityam Natyashastram Cha

iw.kkZad%**80**
vkUrfjd ewY;kadu%**20**
le; %**3** ?k.Vs% **(3 Hours)**

?kVd&1 : 'kkdq.Ry% eRPNdfVde~ p

(d) lIrLrcdksa ls lIrlaÑrekè;esu 'yksdO;k[;kA — **8**vad%

([k) vkykspukRed% iz'u%A — **8**vad%

?kVd&2 : Jhg"kZ%&jRukoyh ukfVdk p

(d) dkO;lkSUn;ksfunsZ'k iwoZd lIrLrcdksa ls yksdO;k[;kA — **8**vad%

([k) vkykspukRed% iz'u%A — **8**vad%

?kVd&3 : /ku×t;%&n'k:ide~ p izdk'kk% 1] 3] 4

(d) lañÑrekè;esu dkfjdkO;k[;kA — **8**vad%

([k) fVi.;kRed%@vkykspukRed% iz'u%A — **8**vad%

?kVd&4 : ukV~;'kkL=L; bfrgkl% p Hkjr%jkepUnzxq.kpUnzkS lkxjuUnh] /ku×t;% fo'oukFk%
f'kaxHkwikyky%: ixkZokeh] 'kkjnkru;%A — **16**vad%

fVi.kh %

(d) iz'ukuka lek/kkua laÑr@fgUnh@vaxzsth Hkk"kkekè;ekuka dsukfi ,dsu ekè;esu drqZ 'kD;rs] ijUrq iFke?kVdkUrxZrL; (d) HkkxL; rr̀h;?kVdkUrxZrL; (d) HkkxL; p iz'u% laÑrekè;esu ,o lek/ks;% vU;Fkk lo%kk vadgkfu% Hkfo";frA

([k) prq"kZ ?kVda; kon~ O;k[;kRedsq iz'usq 50% va'k% vkykspukRedsq bfrgklkRedsq p iz'usq 100% va'k% oSdfYid% Hkos~ ijUrq lEiw.kZ ikB~;Øeknsd çFkeç'usu dkssfi fod Yi ksu Hkfo";frA

ç'ui=kfuekZ.kfof/ %

1- ç'ui=ksa; fuekZ.ka lEcfU/kr fuEufyf[kr fcUnqvksa ds vk/kkj ij gksxkA

2- ç'ui=k ds leku ikap (5) vfuok;Z ç'u gksaxsA r=k 'kks/klkj%& (16 Marks) çFke ç'u ?kVd prqV; xrikBÔØe ls ifjo;ZR gksxsA vfUre ç'u ds vfrfjDr pkjksa ç'u vkUrfjd fodYi ;qDr gksaxsA

3- ç'ukuqlkj vadfoHkktu ,oa fu/kkZfjr dk:i izkIr gksxsA

I. çFke ç'u %&?kVd prqV; xrikBÔØe ls ifjo;ZR pkjksa fodYi ;qDr lw{e rFkk lEcfU/kr ç'u iwNs tk;saxsA
(4x4=16vad)

II. f}rh; ç'u %&(d) 'yksd}; lizlax lEcfU/kr ewy O;k[;k çFke ?kVd ls; (d) Hkkx fufnZ"V xzUFk ~ 'yksd=k; iwNk tk;sxkA (8vad)
([k) çFke ?kVd fufnZ"V uanokD; ds ukVd dkjap vkfJr ;Fkk egkdfo] ,dk i'u lek/kku~ vkyksapukRed i'u} ; a iwNk tk;sxkA (8vad)

III. r`rh; ç'u % (d) dkO; lkSUn;Z fuf'pr dk lizlax ;yksd}; lEcfU/kr ewy O;k[;k iwNh tk;sxhA f}rh; ?kVd & fufnZ"V ukVd ;yksd=k; iwNk tk;sxkA (8vad)
([k) f}rh; ?kVd fufnZ"V ukVd ds ukVddkjap vkfJr ;Fkk egkdfo] ,dk i'u lek/kku~ vkyksapukRed i'u}; a iwNk tk;sxkA (8vad)

IV. prqFkZ ç'u %& (d) r`rh; ?kVd ls; (d) Hkkx ukVdkjksa ,dka dkfjdkvksa lEcfU/kr ewy O;k[;k ,oa fufnZ"V& xzUFk ~dkfjdk}; iwNk tk;sxkA (8vad)
([k) r`rh; ?kVd ls; ([k) Hkkx ukVdkjksa ,dka i'u lek/kku~ fVIi.kh;kRed e~ vkyksapukRed ok i'u}; a iwNk tk;sxkA (8vad)

V. iape ç'u %& prqFkZ ?kVd fufnZ"V ukVdhd 'kkL=kdkjksa vkfJr ;Fkk egkdfo] ,dk i'u lek/kku~ vkyksapukRed i'u}; a iwNk tk;sxkA (16vad)

vuq'kaflr xzUFk%

1- e`PNdfVde~ 'kwnzd% lEikñ MkW- jfoUnz 'kkL=kh] lkfgR; Hk.Mkj] lqHkk"k cktkj] esjBA
2- e`PNdfVde~ ukVd] iFoh/kj&Ñr O;k[;k lfgr] pkS[kEck laLÑr laLFkku] okjk.klhA
3- e`PNdfVde~ xaxk lkaÑr&fgUnh O;k[;k lfgr] lEikñ xaxk /kkj jk;] pkS[kEck lqjHkkjrh izdk'ku] okjk.klhA
4- Mṛcchakaṭika of Śūdraka (A Critical and Cultural Study), S.K. Sharma, Parimal Publications, Delhi.
5- jRukoyhukfVdk] Jhg"kZ] lEikñ MkW- 'kojkt 'kkL=kh] lkfgR; Hk.Mkj] lqHkk"k cktkj] esjBA
6- jRukoyh ukfVdk] fdj.kkoyh laLÑr&fgUnh&O;k[;k lfgr] lEikñ jkt'soj 'kkL=kh eqlyxkodj] pkS[kEck laLÑr laLFkku] okjk.klhA
7- jRukoyh ukfVdk] Hkkokoyh lEcfU/kr dk eyÑrk] ozjRu HkkVpk;Z Hkjrh; fo|k izdk'ku] tokgj uxj] fnYyhA
8- n'k:id] /kUat;] lEikñ MkW- jfoUnz 'kkL=kh] lkfgR; Hk.Mkj] esjBA
9- n'k:id] lEikñ Hkksyk'kadj O;kl] pkS[kEck izdk'ku] okjk.klhA
10- n'k:id] lEikñ Jhfuokl 'kkL=kh] pkS[kEck izdk'ku] okjk.klhA
11- laLÑr dkO;'kkL=k dk bfrgkl] MkW- lq'khy dqekj Ms] fcgkj fgUnh xzUFk vdkneh] iVukA
12- laLÑr dkO;'kkL=k dk bfrgkl] ih-oh- dk.ks] ekshyky cukjlhnkl] fnYyhA
13- vyadkj'kkL=k dk bfrgkl] Ñ".kdqekj] lkfgR; Hk.Mkj] lqHkk"k cktkj] esjBA
14- laLÑr ukV~; fl)kUr] jekdkUr f=kikBh] pkS[kEck fo|kHkou] okjk.klhA

15- laÑr Mkek] ,ñchñdhFkA
16- D.R. Mankad, Types of Sanskrit Dramas.
17- laÑr ukVddkj] dkfynkl'kkjs Hkfr;k] izdk'ku 'kk[kk] lwpuk foHkkx] mÙkj izns'k] iz;kxA
18- laÑr&ukVd&lek{kk] iksïbUnzikky flag, bUnz] lkfgR; fudsru] dkuiqjA
19- laÑr ukVd] ,ñchñdhFk] vuq] MkW mn;Hkkuqflag] eksrhyky cukjlhnkl] fnYyhA
20- C.V. Vaidya, History of Sanskrit Literature, Parimal Publications, Delhi.

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v"Vei=e~%dkO;'kkL=e~

Paper- VIII : Kavyashastram

iw.kkZad%**80**
vkUrfjd ewY;kadu vad%**20**
le;%**3** ?k.Vs%**(3 Hours)**

?kVd&1 : eEeV%dkO;izdk'k%mYykl%1µ4
laÑrek/;eu dkfjdkO;k[;k vFkok vkykspukRed%iz'uA **16** vad

?kVd&2 : dkO;izdk'k%µ mYykl%5µ6] 7 (imekn'kk%vFkZnks"kk%jlnks"kp) & 8
dkfjdkO;k[;k vFkok lfVIi.khd%iz'uA **16** vad

?kVd&3 : dkO;izdk'k%µ mYykl&9µ10
dsoyafuEufyf[krk%vyadkjk%o.kZuh;k%µ
vuqizkl%;ede~'ys"k%oØksfDr%miek:idé~mRizs{kk lekl®fDr%viÉqfr%
n"VkUr%vfr'k;ksfDr%fun'kZuk] vFkkZUrjU;kl%foHkkouk] fo'ks"kksfDr%O;frjsd%
mide~dkO;fyÄé~lad j%lal"VA **16** vad

?kVd&4 : vkuUno/kZu%èoU;kyksd%iFke%mn~;ksr%(ykspulfgr%)µ
dkfjdkO;k[;k vFkok vkykspukRed%iz'uA **16** vad

fVi.kh%

(d) iz'ukuka lek/kkua laÑr@fgUnh@vaxzsth'kkekè;ekuka dsukfi ,dsu ekè;esu drqa 'kD;rs] ijUrq iFke?kVdlEc½iz'u%laÑrekè;esu ,o lek/s;%vU;Fkk lokZ.kk vaäkfu% Hkfo";frA

([k) pr¶kZ?kVda;kon~O;k[;kRed'kcp o.kZukRed'kcp iz'uskq 50% vad% vkykspukRed'kcp iz'uskq 100% vad% oSdfYid%Hkos~ijUrq lafkrrk'kkjkRedsçFkeç'usdkssfi fodYiksu Hkfo";frA

ç'ui=fuekZ.kfof/ %

1- ç'ui=L; fuekZ.kalaÑrekè;esu HkosrA

2- ç'ui=s lekukad%i×p (5) vfuok;kZ ç'uk% Hkfo";fUrA r= "kksMlkad%(16 Marks) çFke%ç'u% ?kVdprq"V;xrikBÔØeekfJR; HkosrA vfLeu~ç'us pRokj% fodYi jfgrk% (vfuok;kZ) lafkrrksÙkjç'uk% ç"VO;k%A

3- ç'ukuke~vÄïkukap foHkktue~v/;k;sfyf[kr: isk Hkfo";frµ

I. çFke%ç'u%%%?kVdprq"V;xrikBÔÇØeeklJR; pRokj%fodYi jfgrk%l f{klrkèk;kç'uk%çnkL;UrsA

(4x4=16vÄïd%)

II. f}rh;%ç'u%%%dkO;'kkL=kh;fl ¼kUrfoospuizœ~e~,dka dkfjdka lUÑrekè;ess O;k[;k;rq çFke?kVds fufnZ"Vkn~xUFkk~dkfjdk}; e~vFkok vkykspukRed e~,dai'zual Ñrekè;eu lek/kkrqei'zu}; ainkL;rsA

(16vÄïd%)

III. rr̀h;%ç'u%%dkO;'kkL=kh;fl ¼kUrfoospuizœ~e~,dka dkfjdka O;k[;k;rq f}rh;?kVds fufnZ"Vkn~xUFkk~ dkfjdk}; e~vFkok lS)kfUrd e~,dai'zual ek/kkrqei'zu}; ainkL;rsA (16vÄïd%)

IV. prqFkZ%ç'u%%;FkkfRk e~vyÄïkjprq"V;al kskkgj.ka Li"Vhdrqrr̀h;?kVdksYyf[kr%dsqfi "kM-vyÄïkjk% iznkL;UrsA (4x4=16vÄïd%)

V. i×pe%ç'u%%dkO;'kkL=kh;fl ¼kUrfoospuizœ~a dkfjdk}; a O;k[;k;rq prqFkZ?kVds fufnZ"Vkn~xUFkk~ dkfjdkk;e~vFkok ,de~vkykspukRed ai'zual ek/kkrqei'zu}; ainkL;rsA (16vÄïd%)

vuqkaflr xzUFkk%

1- dkO;izdk'k] eEeV] Vhdkdkj& okeu >ydhdj] Hkk.Mkjdj vks;.Vy fjlp bULVhV~;w] iwukA
2- dkO;izdk'k] O;k[;kdkj& vkpk;Z fo'os'oj] Kkue.My fyfe] okjk.klhA
3- dkO;izdk'k] lEikñ Jhfuokl 'kkL=kh] lkfgR; Hk.Mkj] esjBA
4- èoU;kyksd (ykspu lfgr)] O;k[;kñ jkelkxj f=ikBh] fnYyhA
5- èoU;kyksd (ykspu lfgr)] O;k[;kñ vkpk;Z txUukFk ikBd] pkS[kEck fo|kHkou] okjk.klhA
6- èoU;kyksd] O;k[;kñ vkpk;Z fo'os'ojA
7- vkuUno/kZu] jkeikn f}osnh] eè;izns'k vdknehA Hkksiky A
8- V. Raghavan, Some Concepts of Alaṁkāraśāstra.
9- P.C. Lahiri, Concepts of Rīti and Guṇa.
10- V. Raghavan, The Number of Rasas.
11- S.K. De, Sanskrit Poetics.

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uoei=ke~%dkO;adkO;'kkL=L; p bfrgkl%

Paper- IX : Kavyam Kavyashastrasya Cha Itihasah

iw.kkZÄd% **80**

vkUrfjdewY;kÄ~ukÄd% **20**

le;% **3** gksjk% **(3 Hours)**

?kVde~1 : Jhg"kZ%ofjfpre~ i×pe%lxZ%µ ikBÄ'fufnZ"Vikoizœ~a'yksdO;k[;kA **16**vÄd%

?kVde~2 : ck.kHkÍ%ofjfpre~i×pe%mPN~okl%µ dkO;lkSUn;Zfo"k;ikBÄ~x| O;k[;kA **16**vÄd%

?kVd e&3 : (d) f=kfoØeHkkLdjpfjre~ ¼uypEiw½ i×pe% mPNokl %µ
dksÃ Hkh ,d fuèkkZfjr i|kuqokn ,oa O;k[;k vFkok vkykspukRed iz'uA 8 vad
([k) dkO;'kkL=h; bfrgkl %µ Hkkeg ¼n.Mh okeu½ vkuUnoèkZu] vfHkuoxqIr ¼
eEeV½ fo'oukFk ¼½ txUukFk ¼½A 8 vad

?kVd e&4 : n.Mh dkO;kn'kZ ¼i×pe% ifjPNsn½ ¼dkO;xq.kku~ R;DRok½ µ
lEcfUèkr eku dkfjdk O;k[;k vFkok lEcfUèkr eku vkykspukRed iz'uA 16 vad

fVIi.kh %

(d) i'ukuka lekèkkua lEcfUèkr xzUFk ds ikB~;Øe ,oa ekuka ds vk/kkj ij fuèkkZfjr gksaxsA iz'u lEcfUèkr eku ,oa lekèkku vkUrfjd lq>ko Hkh fo"k; gSA

([k) prqFkZ?kVd esa iwNs x;s O;k[;kRed iz'uksa 50% vad vkykspukRed iz'uksa 100% vad oSdfYid Hkh gksaxs ijUrq fo|kFkhZ dks O;k[;k djuk gS fodYi Hkh fo"k; gSA

ç'u i=k fuekZ.k fof/ %

1- ç'u i=k; fuekZ.k lEcfUèkr Hkh gSA

2- ç'u i=k lekèkku vad i×p (5) vfuok;Z ç'u Hkh fo"k; gSA r=k "kksMl vad (16 Marks) çR;sd ç'u ?kVd prq"V;xr ikB~;Øe Hkh gksxkA vfLeu~ ç'u esa fodYi ifjorZu ¼vfuok;Z½ fo|kFkhZ ç'u ç'u ç"V O;kAA

3- ç'ukuke~ vadkuka p foHkktue~ v/kksfyf[kr : isk Hkh fo"k; grµ

I. çFke% ç'u% ?kVd prq"V;xr ikB~;Øe ls fodYi ifjorZu dk fo|kFkhZ ç'u ç'nk; gSA (4x4=16 vad)

II. f}rh; % ç'u% i|kuqokn ,oa ikB~;Øe dh O;k[;k rFkk ?kVd fuèkkZfjr ikB~;Øe ~ yksd=k; ,oa xn; gSA (2x8=16 vad)

III. r`rh; % ç'u% dkO;lkLrzo fuèkkZfjr i|kuqokn ,oa O;k[;k f}rh; ?kVd fuèkkZfjr xn|kka ,oa iznk; gSA (2x8=16 vad)

IV. prqFkZ ç'u% (d) r`rh; ?kVd; (d) Hkkx dkO;lkLrzo fuèkkZfjr i|kuqokn ,oa x|ka O;k[;k vFkok vkykspukRed ,oa iz'u lekèkku ifjorZu iznk; gSA (8 vad)
([k) r`rh; ?kVd; ([k) Hkkx dkO;'kkL=h; bfrgkl ¼u vkpk;kZ vkfJr½ vkykspukRed ,oa iz'u lekèkku ifjorZu iznk; gSA (8 vad)

V. i×pe% ç'u% dkfjdk; lEcfUèkr eku O;k[;k prqFkZ?kVd fuèkkZfjr dkfjdkA; iznk; gSA
vFkok
prqFkZ?kVd ikB~;Øe fuèkkZfjr ¼e~ vkykspukRed ,oa iz'u lEcfUèkr eku lekèkku ifjorZu iznk; gSA (16 vad)

vuqekfnr xzUFk%

1- uSÔpfjre~ lEiknd vkpk;Z 'ks"kjkt 'kekZ jsXeh] okjk.klh A

2- uSÔpfjre~ ^thokrq^ef.kizHkk* lEcfUèkr&fgUnh&vuqokn lfgr] okjk.klh A

3- u\$k/pfjre~ l Ekñ f'kojkt 'kkL=kh] lkfgR; Hk.Mkj] esjBA
4- g"kZpfjre~ l Ekñ txUukFk ikBd] pkS[kEck fo|kHkou] okjk.klhA
5- g"kZpfjre~ vxzoky vuqokn ,oaf'Mi.f.k;ka fgr] l Ekñ ihñohñ dk.ks fnYyhA
6- g"kZpfjr] ckk.kHkêõ 'kÃjdfofojfpr l Äs Vhdk; Hkkoizdkf'kdk fgUnh O;k[;k; l Ekñ MkW- Vd'kojko ebyxkpdj] pkS[kEck l aLÑr l aLFkku] okjk.klhA
7- g"kZpfjre~&,d l kaLÑfrd v è; ;u] oklqnso'kj.k vxzokyA
8- uypEiw] l Ekñ jkeuUFk osnkyadkj] lkfgR; Hk.Mkj] l qHkk"k cktkj] esjBA
9- uypEiw p.Mikky&Ñr l aLÑr O;k[;k ,oafgUnh :ikUrjdkj MkW- Vd\$yk'k ifr f=ikBh] pkS[kEck l aLÑr l hjht vkWfQl] okjk.klhA
10- uypEiw] l Ekñ ijes'ojnhu ik.Ms] okjk.klhA
11- l aLÑr dkO;'kkL=k ,l ñ dsñ MsA
12- vyadkj'kkL=k dk bfrgkl] Ñ".k dqekj] lkfgR; Hk.Mkj] esjBA
13- History of Sanskrit Poetics, P.V. Kane, Motilal Banarsidass, Delhi.
14- History of Sanskrit Literature, A.B. Keith, Delhi.
15- dkO;kn'kZ l Ekñ /keZsUnzukFk xqIr] fnYyhA
16- dkO;kn'kZ l Ekñ Jhdkur ik.Ms] lkfgR; Hk.Mkj] l qHkk"k cktkj] esjBA
17- dkO;kn'kZ f'koukjk;.k 'kkL=kh }kjk jfpr izdkfnuh fgUnhO;k[;k fgr] ifjey izdk'ku] fnYyhA

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n'kei=ke~ % ,sfrgkfl ddkO;e~ [k.MdkO;e~ vk/kqfuddkO;a xhfrdkO;ap
Paper- X : Aitihasikakavyam Khandakavyam Adhunikakavyam Gitikavyam Cha

iw.kkZÄ% **80**
vkUrfjd ewY;kÄ uk Ä% **20**
l e; % **3** ?k.Vs% **(3 Hours)**

?kVd e&**1** : fcYg.k% foØekÄnsopfjre~ iFke% l xZ% µ NUnksa y Äkfunsz'kiwoZd l izl Äã yk[;k O;k[;kA **16** vÄ%
?kVd e&**2** : if.Mrjkt txUukFk% Hkkfeuhfoykl % (iz[kjkfodfoykl %) µ 'ykd% **1&80**
dkO;l kSUn;Z funsz'kiwoZd l izl Äã yk[;k O;k[;kA **16** vÄ%
?kVd e&**3** : dkfynkl % es?knwre~ nÙkjes?k% µ l aLÑrek è; esu 'yksd O;k[;kA **16** vÄ%
?kVd e&**4** : cyHknz i zknkxkbokeh] d.kkZEkr k ;e~ uk Vde~ µ (d) l izl Äã yk[;k O;k[;kA **8** vÄ%
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fVIi.kh %

(d) iz'ukuka l ek/kkua l aLÑr @ fgUnh@vÄ~xzsth Hkk"kkekè; ekuka dsukfi ,dsu ekè; esu drO;e~ 'kD;r\$ ijUrq rì h; ?kVdL; iz'u% l aLÑrekè; esu ,o l ek/s;% vU;Fkk l o\`Zk vÄgkfu% Hkfo"; frA

([k) prqFkZ?kVda ;kon~ O;k[;kRed\$kq iz'u\$kq **50%** v'ak% vkykspukRed\$kq p iz'u\$kq **100%** v'ak% o\`SfYid% Hkos~] ijUrq l {kfrk\$k;kRed s çFke ç'usdk\$fi fodYi ksu Hkfo";frA

ç'ui =kfuekZ.kfof/ %

1- ç'ui=k; fuekZ.kal aÑrekè;esu HkosrA

2- ç'ui=ks lekukÄ~ i×p (5) vfuok;kZ% ç'uk% Hkfo";fUrA r=k "kksM'kkÄ~ % **(16 Marks)** çFke% ç'u% ?kVdprq"V; xrikBÔØeekfJR; HkosrA vfLeu~ ç'us pRokj% fodYi jfgrk% (vfuok;kZ%) lf{kIrksÙkj ç'uk% ç'VO;k%A

3- ç'ukuke~ vÄ~ukukap foHkktue~ v/kksfyf[kr:isk Hkfo";fr µ

I. çFke% ç'u% % ?kVdprq"V; xrikBÔØeekfJR; pRokj% fodYi jfgrk% lf{kIrksÙkj ç'uk% çnkL;UrsA (4x4=16vÄ~ %)

II. f}rh;% ç'u% % NUnksyÄ~dkjfunZsk ikBÔØel ilEÄf~ã 'yksd}; aO;k[;k;rka ç Fke ?kVdsfufnZ"Vkn~ xzUFkkr~ 'yksd=k; a iznkL;rsA (2x8=16vÄ~ %)

III. r`rh;% ç'u% % dkO;lkS"Bofunsk ikBÔØel ilEÄ~ã 'yksd}; aO;k[;k;rka f}rh; ?kVdsfufnZ"Vkn~ xzUFkkr~ 'yksd=k; a iznkL;rsA (2x8=16vÄ~ %)

IV. prqFkZ% ç'u% % yksd}; al aÑrekè;esu O;k[;k;rka r`rh; ?kVdsfufnZ"Vkn~ xzUFkkr~ 'yksd=k; a iznkL;rsA (2x8=16vÄ~ %)

V. i×pe% ç'u% % (d) prqFkZ?kVdL; (d) Hkkxkuqlkjsk lilEÄ~õ~, d a'yksd aO;k[;k;rq;Fkkfufn"V xzUFkkr~ 'yksd}; a iznkL;rsA (8vÄ~ %)
([k) prqFkZ?kVdL; ([k) Hkkxkuqlkjsk , de~ vkykspukRed ai'zua lek/kk;rq~ i'zu}; a iznkL;rsA (8vÄ~ %)

vuq'kaflr xzUFk%

1- foØekÄ~nspfjr] fcYg.kj lEiknd fo'ukFk 'kkL=kh Hkkj}kt] cukjl fgUnw fo'ofo|ky;] okjk.klhA
2- foØekÄ~nspfjr] jekl aÑr&fgUnh Vhdk lfgr] okjk.klhA
3- foØekÄ~nspfjr] O;kñ iznki ukjk;.k ik.M;] Hkkjrh; fo|k iznk'ku] tokgj uxj] fnYyhA
4- foØekÄ~nspfjr & , d lkaLÑfrd vè;;u] MkW- pk'kqyk[kuk ifCy'kl] tokgj uxj fnYyhA
5- Hkkfeuhfoykl] txUukFk] lEiknd Jh jk/s;ke feJ] pkS[kEck laÑr lalFkku] okjk.klhA
6- eSkno] lEikn , eñ vkjñ dkys] ekrhyky cukjlhnk] fnYyhA
7- eSkno] la thouh Vhdk lfgr] fu.kZ; lkxj izsl] eqEcbZA
8- eSkno] dkfynkl] l×thouh] pfj=kof/ Zuh] Hkkoclks/uh rFkk fo|ksruh Vhdk fgr] pkS[kEck laÑr lalFkku] okjk.klhA
9- d.kZHkkj.kE~ uhVd] cyHknzzkn xkSokeh] okXnsork iznk'ku] cjsyhA

Kurukshetra University Kurukshetra

(Establishment by the State Legislature Act XII of 1956)
('A' Grade, NAAC Accredited)

Syllabi
Post Graduate Diploma in Human Rights w.e.f. 2015-16

Scheme of Examination

Paper No.	Nomenclature	Max. Marks	Time
Paper I	History and Theories of Human Rights	100	3 Hours
Paper II	Indian Constitution and Human Rights	100	3 Hours
Paper III	Global Perspective on Human Rights	100	3 Hours
Paper IV	Human Rights Movement in India	100	3 Hours
Paper V	Changing Dynamics of Human Rights	100	3 Hours

Paper 1 History and Theories of Human Rights

Max. Marks: 100
Time: 3 Hours

Note: Total 10 questions will be set. The candidates are required to attempt five questions in all, selecting one question from each Unit.

Unit I **Concept of Human Rights**: Meaning and Nature of rights, Natural, Moral and legal rights, Classification of Rights – Three generations of Human Rights.

Unit II **Evolution Of Human Rights**: Philosophical foundations of Human Rights, Magna Carta, International Bill of Rights and other landmark documents.

Unit III **Theories of Human Rights**: Marxist Theory of Rights & Liberal Theory of Rights, Negative Theory of Rights, Positive Theory of Rights, Gandhian perspective on Human Rights.

Unit IV **Relationship between Rights and Duties**: Rights and duties, Rights and Obligations, Globalization and Human Rights, Changing context of Rights and Duties.

Unit V **Violations of Rights**: Crimes against humanity (war crimes), Genocide, Racial discrimination, Discrimination against women, Human Trafficking.

Readings:

1. Edmundson, William A., An Introduction to Rights, New York: CUP, 2004.
2. Finnis, J., Natural Law and Natural Right, Oxford: Clarendon Press 1980.
3. Jones, P., Rights, New York: St. Martin's Press 1994.
4. Martin, R., A System of Rights, Oxford: Oxford University Press 1993.

5. Plamenatz, J., Consent, Freedom, and Political Obligation, 1938. Oxford: OUP Rainbolt, G., The Concept of Rights, Dordrecht: Springer 2006
6. Sumner, L., The Moral Foundations of Rights, Oxford: OUP 1987
7. Tierney, B., The Idea of Natural Rights, Atlanta: Scholars Press. 1997
8. Waldron, J., (ed.), Theories of Rights, Oxford: Oxford University 1984
9. White, Alan R. Rights, Oxford: Basil Blackwell. 1984

Paper 2 Indian Constitution and Human Rights

Max. Marks: 100
Time: 3 Hours

Unit I **Historical Perspective:** Historical background to the constitution of India, salient features of the constitution of India, philosophy and ideals of constitution of India.

Unit II **Nature and Development of Rights**: Constitution of India as an instrument of socio economic change, concept of positive and negative rights, Analysis of Fundamental rights.

Unit III **Directive Principles and Affirmative Action**: Directive Principles: Non-justiciable rights, Fundamental Duties, Affirmative Action: Special Provisions for Scheduled Castes , Scheduled Tribes, OBCs.

Unit IV **Protection of Weaker Sections of Society**: Provisions for the Protection of Women, Children, Labour, Minorities, Elderly and Differently abled people.

Unit V **Enforcement Mechanisms and Evaluation**: Role of the Judiciary, National Human Rights Commission, State Human Rights Commissions, Problems and Prospects.

Readings:

1. Bajwa, G.S., Human Rights in India: Implementation and Violations. Anmol publications : Delhi, 1995.
2. Mehta P.L., Human Rights under the Indian Constitution, Deep and Deep publications: New Delhi, 2002.
3. Venkataramiah E.S. (Ed), Human Rights in a Changing World, International Law Association: New Delhi, 1988.
4. Hingorani R.C., Human Rights in India Oxford: University of Michigan, 1985.
5. Shankar Sen, Human Rights in a Developing Society, Sage Publications: New Delhi, 2009.

Paper 3 Global Perspective of Human Rights

Max. Marks: 100
Time: 3 Hours

Unit I **International Instruments**: International Humanitarian Law, United Nations Charter on Human Rights, Universal Declaration on Human Rights, The Hague Conventions , Geneva Conventions.

Unit II **Regional Conventions on Human Rights** : European Convention on Human Rights , The African Charter on Human Rights , The American Convention on Human Rights.

Unit III **International Conventions on Human Rights** : Customary International Law, Convention on Elimination of Discrimination against Women, Convention on Elimination of Racial Discrimination , Human Rights in Developed Countries: Australia, France, Germany, Russia, USA, UK.

Unit IV **International Enforcement Mechanisms of Human Rights:** The United Nations, International Criminal Court, Human Rights Courts: European, African, Inter-American, UN High commission for Refugees.

Unit V **Monitoring and Humanitarian Relief**: Red Cross/Red Crescent Movements – INTERPOL , Transparency International , Human Rights Watch – Amnesty International Organization .

Readings:

1. Resurrect RC, KA, Human Rights, , Sherides Book Company: New Delhi, 1995
2. Nagendra Singh, Enforcement of Human Rights, Eastern Law House:Calcutta, 1986.
3. Agarwal, H.O, Implementation of Human Rights Corners with special refrence to India, DK Publishers:New Delhi, 1993.

Paper 4 Human Rights Movements in India

Max. Marks: 100
Time: 3 Hours

Unit I **Historical Perspective:** Origin and evolution of Human Rights movements in India, Indian Independence Movement, Civil and Democratic Rights Movements in India.

Unit II **Movements Against Caste based Discrimination**: Dalits and their Disabilities, B.R. Ambedkar , Sree Narayana Guru and SNDP Yogam , Subramanya Bharathi.

Unit III **Movements for Equal Rights**: Periyar E.V.R. and the Self-Respect Movement , Chattamp Swamikal, Ayyankali , Hindu Reform Movements and Bengal Renaissance , Rights of Children and Women.

Unit IV **Movements for Women Rights** : Dayanada Saraswati and Arya Samaj , Ishwar Chandra Vidyasagar and Uplift of Women, Raja Ram Mohan Roy and Brahmo Samaj, Mother Teresa, Baba Amte, Behramji Malabari.

Unit V **Modern Human Rights Movements in India** : Environmental Movement : Save Narmada Movement and Chipko Movement. , Land Reforms in India: Sarvodaya Movement , Trade Movement in India.

Readings:

1. Vijay Kaushik, Women's Movements , Pointer Publisher, Jaipur, 1999.
2. Smitu Kothari and Harsh Sethi, eds., Rethinking Human Rights, Lokyan Publication: Delhi, 1989.
3. Shobha sayene, Crimes against Women and Protective Laws, Deep & Deep, New Delhi, 1999.
4. Waghmare B.S., Human Rights and Prospects; Kalinga Publications:New Delhi, 2001.

Paper 5 **Changing Dynamics of Human Rights**

Max. Marks: 100
Time: 3 Hours

UNIT I **Human Rights and Good Governance**: Concept of Political Power, Separation of Powers, Good Governance, Accountability and transparency.

UNIT II **Outreach of Human Rights**: Universality and Indivisibility of Human Rights, Gross National Happiness, Secularism, Peace, Freedom of Speech and Freedom of Press.

UNIT III **Human Rights in the New Millennium**:– Right to Food, Right to clean Environment: Sustainable Development, Right to Education ,

UNIT IV **New Concerns for Human Rights:** Human Security and Non-Traditional Threads; Emergency and Disaster; Terrorism and Human Rights; Human Rights in the United States with special reference to Guantanamo Bay and Transnational Human Rights Actions.

UNIT V **Human Rights Violations in Third World**: Human Rights Violations in the People's Republic of China, Africa, India, Sri Lanka, Iran and Iraq.

Readings:

1. Begum S.M., Human Rights in India: Issues and Prospects, APH Publishing Co: New Delhi, 2000.
2. Saksena K.P., Human Rights: 50 years of India's Independence, Gyan Publishing House: New Delhi, 1999.
3. Gokulesh Sharma, Human Rights and Social Change, Deep & Deep, New Delhi: 1998.

KURUKSHETRA UNIVERSITY, KURUKSHETRA

B.A. Defence Studies (Annual-System)

Scheme of Examination w.e.f. 2015-16.

Examination: **B.A. 1st YEAR**

Paper No.	Nomenclature	Max.Marks	Time
Paper:-I	World Military History (Earliest Times to 1789 A.D.)	60+15(Int. Assessment)	3 Hours
Paper:-II	(Practical) Map Reading	25	3 Hours

Examination: **B.A. 2nd YEAR**

Paper No.	Nomenclature	Max.Marks	Time
Paper:-I	(Option-A):Military Thinkers and Military History	60+15	3 Hours
	(Practical) Map Reading Part-II	25	3 Hours
Paper:-II	(Option-B):Study of War	60+15	3 Hours
	(Practical) Map Reading Part-II	25	3 Hours

Examination: **B.A. 3rd YEAR**

Paper No.	Nomenclature	Max.Marks	Time
Paper:-I	(Option-A): National Defence and Security	60+15	3 Hours
	(Practical) Elementary Tactics upto Infantry Platoon Level	25	3 Hours
Paper:-II	(Option-B): International Relations (Defence Aspects)	60+15	3 Hours
	(Practical) Elementary Tactics upto Infantry Platoon Level	25	3 Hours

KURUKSHETRA UNIVERSITY, KURUKSHETRA

B.A. 1st YEAR Defence Studies (Annual-System)

Syllabus and Courses of Reading w.e.f. 2015-16

Note : *1.* *There will be one Theory Paper of 75 marks (Paper-60, Internal* Assessment-15*) and one paper of Practical having 25 marks.*

2. Examiner is to set ten questions in all including one objective type multiple choice question, covering the entire syllabus, Candidates are required to attempt any five questions. No questions are compulsory.

3. *The candidates are required to pass separately both in Theory and Practical paper.*

Paper -I: World Military History (Earliest Times to 1789 A.D.)

Max. Marks : 60
Internal Assessment: 15
Time : 3 Hours

1. Influence of Armament of the History of World:

a. Inter-Relationship or Weapons and Tactics

b. Wintringhams theory and Fuller's classification

c. Constant Tactical factor

2. The Age of Valour:

a. Comparative study of Freeck Phalanx and Roman Legion with special reference to the Battle of Pydna (168 B.C.)

b. Detailed study of the Battle of Arbella (331 B.C.)

c. Battle of Cannae (216 B.C.)

d. Reforms made by Alexander the Great in the Art of Warfare.

3. The Age of Chivalry:

a. The decline of infantry and emergence of cavalry with special reference to the Battle of Adrianople (378 A.D.)

b. Study of Battle of Hastings (1068 A.D.)

c. Causes of the decline of Cavalry

d. Influence of Feudalism, Church and Chivalry on medieval warfare

4. The Age of Gun-Powder

a. Advent of Fire Arms and re-emergence of infantry

b. Impact of Science and Technology on warfare

c. Military reforms and contributions of Gustavus Adolphus and Frederick the Great.

5. The Age of Steam:

a. Revolution in Tractics

b. French Revolution – 1789 A.D.

c. Napoleonic Art of War

d. Battle of Waterloo – 1815 A.D.

Books Recommended:

1. J.F.C. Fuller: Armament and History
2. Tome Wintringham: Weapons and Tractics
3. E.M. Earle: Makers of Modern Strategy
4. J.F.C. Fuller: Conduct of War
5. Cyril Falls: A Hundred Years of War
6. S.T. Das: An Introduction to the Art of War
7. B.N. Maliwal: Sainya Vigyan.

Paper-II: (Practical) Map Reading

Max. Marks: 25
Time: 3 Hours

Practical Test	15 Marks
Practical Record	05 Marks
Viva-voce	05 Marks

1. **Map:** Its definition, characteristics, classification, Management Information of a Topo-sheet and its utility for Military.
2. Conventional Sign: Military and Geographical
3. Grid System: Four figure and six figure Map references.
4. Sheet Number: Million Sheets, 'Quarter-Inch Sheets', Half-inch sheet', 'One-inch Sheet' and index of sheets.
5. Scale: Definition. Three methods of representing scale interconversion of Statement into R.F. constructions of Simple Scale Line and the comparative scale lines.

Note: Practical exercises should be carried out on Top-Sheets.

Books Recommended:

1.	Gale and Polden	:	Military Map Reading
2.	Hazari Lal	:	Samrik Manchitra Pathyan (Hindi)
3.	B.N. Maliwal	:	Prakriyatmal Sainya Vigyan (Hindi) Vol. I and II).
4.	M.P. Verma	:	Sainik Manchitra Vigyan.

KURUKSHETRA UNIVERSITY, KURUKSHETRA

B.A. 2nd YEAR Defence Studies

Syllabus and Courses of Reading w.e.f. 2016-2017

Note: *1. There will be one Theory Paper of 75 marks (Paper-60, Internal* Assessment-15*) and one paper of Practical having 25 marks..*

2. Two theory papers (Opt. A and Opt. B) have been prescribed. The candidate is required to take any of them.

3. Examiner is to set ten questions in all including one objective type multiple choice question, covering the entire syllabus, Candidates are required to attempt any five questions. No questions are compulsory.

4. The candidates are required to pass separately both in theory and practical papers.

Paper-I (Option-A): Military Thinkers and Military History

Max. Marks : 60
Internal Assessment: 15
Time : 3 Hours

1. Military Thinkers:

a. Machiavelli
b. Vauban
c. Jomini
d. Napolean
e. Clautsewitz
f. A.T. Mahan
g. Doughet
h. Hitler
i. Liddle Hart

2. Principles of War:

a. Selection and Maintenance of Aim
b. Offensive Action
c. Concentration
d. Economy of Forces
e. Co-operation
f. Security
g. Surprise
h. Mobility
i. Maintenance of Moral

j. Administration

Paper-I (Option-B): Study of War

Max. Marks : 60
Internal Assessment: 15
Time : 3 Hours

Part-A

1. Nature of War:

a. Definition of War, its Scope, Advantages and Disadvantages.
b. Evolution of War-Feudal Dynastic People, Total Nuclear Wars.
c. Cold-War-Psychological, Economic and Diplomatic.
d. Guerilla War
e. Features of Modern War
f. Future of War

2. Principles of War:

a. Selection and Maintenance of Aim
b. Offensive Action
c. Concentration
d. Economy of Forces
e. Co-operation
f. Security
g. Surprise
h. Mobility
i. Maintenance of Moral and Administration

Part-B

1. Strategy and Tactics:

Various definitions, distinction between Strategy and Grand Strategy. Evolution of Tactics during 19^{th} and 20^{th} Century, Strategy of Indirect Approach, Strategy of Annihilation and Strategy of Exhaustion.

2. Indo-Pak War 1965 &1971 A.D. and Battle of Kargil 1999 with references to the following:

a. Causes of War
b. Study of War in outline
c. Political and Military lessons learnt.

3. Origin and Causes of World War I and II

Books Recommended:

1.	Essentials of Military Knowledge	:	Major Gen. Palit
2.	Nature of Modern War	:	Cyril Falls
3.	Samarik Siddhant	:	M.D. Verma
4.	The Art of Land Welfare	:	B.N. Maliwal
5.	India Wins the War	:	S.N. Rampal
6.	An Introduction of the Art of War	:	S.T. Das
7.	The Study of Military History	:	Sheppered
8.	The Study of Indirected Approach	:	Little Hart

Paper-II: (Practical) Map Reading Part-II

Max. Marks: 25
Time: 3 Hours

Practical Test	15 Marks
Practical Record	5 Marks
Viva-Voce	5 Marks

1. SCALE: Construction of Time Scale Diagonal Scale.
2. Bearing and Inter-conversion of Bearing with I.C.E.
3. Finding position on the griddle Map by Intersection Method and Resection method.
4. Relife Feature and their representation on the map.
5. Types of slope and their representation on the map by contour lines.
6. Gradient and Slope in Degrees.
7. To determine inter-visibility between two points; Gradient method, Sum proportion method and Section drawing method.
8. To draw a Field Sketch from a given Route Report.
9. Enlargement and Reduction of Maps.
10. To prepare a Route from a given narrative Data.

Note: The above mentioned exercise should be carried out on Top Sheets.

KURUKSHETRA UNIVERSITY, KURUKSHETRA

B.A. 3rd YEAR Defence Studies

Syllabus and Courses of Reading w.e.f. 2017-2018

Notes: 1. There will be one Theory Paper of 75 marks (Paper-60, Internal Assessment-15*) and one paper of Practical having 25 marks.*

2. Two theory papers (Opt. A and Opt. B) have been prescribed. The candidate is required to take any one of them.

3. The examiner is to set ten questions in all including one objective type multiple choice question covering the entire syllabus. Candidates are required to attempt any five questions. No questions are compulsory.

4. The candidates are required to pass separately both in theory and practical papers.

Paper-I (Option-A): National Defence and Security

Max. Marks : 60
Internal Assessment: 15
Time : 3 Hours

1. Meaning of National Defence and Security
2. Essentials of National Defence:
   a. Geographical factors – Location, Frontiers, Terrain, Climate.
   b. Economic Factors – Resources, Industrial and Scientific Development, Transport and Communication.
   c. International Political Conditions.
   d. Defence Mechanism of Modern State.
3. India's Defence Problem from 1947 to date.
4. India's Defence Policy.
5. Nuclear Policy of India.
6. Civil Military Relations of India.
7. Civil Defence:
   a. Definition
   b. Need and Importance of Civil Defence.
   c. Organization and Measures of Civil Defence.
8. Military in aid to Civil War.
9. Geostrategic Location of India.
10. Importance of Indian Ocean in India's Defence.
11. India's Relations with

a. Pakistan

b. China

c. Bangladesh

d. Sri Lanka

e. Nepal

f. Afghanistan

12. War Finance – Taxation, Borrowing and Inflation.

13. Cost of War (Real Cost of War)

14. Economic Mobilization.

15. Comparative Study of Defence Budget of India and Pakistan

Books Recommended:

1.	Khera, S.S.	:	India's Defence Problem
2.	Rao, P.V.	:	Defence Without Drift
3.	Chopra, M.K.	:	India: The Search of Power
4.	Panikar, K.M.	:	India & Indian Ocean
5.	Sharma, Harveer	:	Rastriya Pratiraksha.
6.	Kavie, L.J.	:	India: Quest for Security
7.	Robbins	:	Economic Problems of War and Peace
8.	Singh, Nagender	:	Defence Mechanism of the State
9.	Das Gupta, A.	:	Economic and Commercial Geography of India.
10.	Maliwal, B.N.	:	Rastriya Pratiraksha
11.	Kumar, Dhirender	:	India: Nuclear Estate

Paper-I (Option-B): International Relations (Defence Aspects)

Max. Marks : 60
Internal Assessment: 15
Time : 3 Hours

Group-A:

1. Causes of First World War.

2. The peace Settlement (1919-23):

   The Treaty of Versailles, the Treaty of St. Germans; the Treaty of Trianon, the Treaty of Neuilly, the Treaty of Serves and the Treaty of Lausanne, Creation of New States.

3. League of Nations:

   Its Purpose and Organization; League and the Problem of Collective Security. Estimate of League's Work and Causes of the Failure of the League.

4. Causes of World War-II
5. United Nations Organization:

   Its Purpose and Principles, Organization, Estimation of its Work, its Superiority Over the League of Nations; Proposals for Strengthening it. UNO and the problem of Collective Security. Merits and Limitations of the UNO; Collective Security System.

Group-B:

1. The theory of Balance of Power and the new Balance of Power.

   The various meanings. Evolution of the Balance of Power, Methods of the Balance of Power.
2. National Interest:

   Definition, National Interest and Foreign Policy; Security and National Interest.
3. Foreign Policy of China, India, Pakistan, Bangladesh and Sri Lanka.
4. Contemporary Foreign Policy of U.S.A. and Russia.

Books Recommended:

1.	Morgenthau, H.J.	:	Politics among Nations
2.	Kumar, Mahender	:	Theoretical Aspects of International Politics
3.	Chakravarty, Raghuvir	:	International Relations
4.	Palmer and Perkins	:	International Relations
5.	Verma, D.N.	:	International Relations
6.	Wright, Quincy	:	The Study of International Relations
7.	M. Bellof	:	The Foreign Policy of Soviet Russia

Paper-II: (Practical) Elementary Tactics upto Infantry Platoon Level

Max. Marks: 25

1. Sand Model Meaning, Importance and Preparing.
2. Detailed Study of an infantry Platoon including Organization, Weapons and Equipments.
3. Study of Field Crafts with references to the following:

   (a) Ground (b) Cover (c) Camouflage (d) Concealment (e) Observation
4. Application of Fire-Fire Control and Fire Control orders.
5. Practical Formations-Section and Platoon.
6. Verbal Orders.
7. Patrols – Types and Stages of Patrolling
8. Battle Procedure
9. Military Appreciation of a situation in attack and Defence.

10. Platoon in attack – Types, principles of attack, stage of attack, Battle Craft for platoon in attack and platoon attack exercises.
11. Platoon Defence Types, Principles of Defence, Defence operation.
12. Military Message writing.
13. Ambush – Organization of ambush party, Ambush operation.
14. Lecture on any theory topics.

Note:- The course mentioned above shall be carried on sand models with a view to prepare candidates upto command of an infantry platoon.

SCHEME OF EXAMINATION AND SYLLABUS OF THE
POST-GRADUATE COURSE IN
M.A. - SOUTH ASIAN STUDIES – (SEMESTER SYSTEM)
3rd & 4th Semester,
(W.E.F. the Session 2015-16)

M.A.-South Asian Studies Course shall be a two years Degree Course consisting of four Semesters of 2000 marks. The candidate shall take Five Papers in each Semester, i.e., 20 Papers in the full Course. Each Paper will carry 100 marks out of which 20 marks shall be earmarked for Internal Assessment.

M.A. (Final) South Asian Studies IIIrd Semester

There shall be one Core Paper and Six Optional Papers. The candidate shall take any four optional Papers out of the given list of Six Optional Papers.

M.A. (Final) South Asian Studies IVth, Semester:

There shall be one Core Paper and Six Optional Papers. The candidate shall take any four optional Papers out of the given list of Six Optional Papers.

Note:- The choice of the Optional Papers in M.A. Course shall be determined on the basis of merit. Moreover, the Department shall decide the specific optional papers to be offered to the students in each Semester in a particular year.

M.A. (Final) South Asian Studies, Semester-IIIrd

SCHEME OF EXAMINATION W.E.F. The Session 2015-2016

Paper No.	Nomenclature	Int. Ass.	Theory Paper Marks	Total Marks	Time
Core Papers					
Paper- XV	Post-Colonial Historiography on South Asia	20	80	100	3 Hrs.
Optional Papers					
Paper-XVI	Agrarian Economy in South Asia	20	80	100	3 Hrs.
Paper-XVII	State and Government in South Asia	20	80	100	3 Hrs.
Paper-XVIII	Regional Studies : Punjab	20	80	100	3 Hrs.
Paper-XIX	Society, Culture and Ethnicity in South Asia	20	80	100	3 Hrs.
Paper-XX	Religions in South Asia : Philosophy and Practices	20	80	100	3 Hrs.
Paper-XXI	International Relations of South Asian Countries	20	80	100	3 Hrs.

SEMESTER – IVth

Paper No.	Nomenclature	Int Ass.	Theory Paper Marks	Total Marks	Time
Core Papers					
Paper-XXII	Theories of Area Studies and International Relations	20	80	100	3 Hrs.
Optional Papers					
Paper- XXIII	Industrial Economy in South Asia	20	80	100	3 Hrs.
Paper-XXIV	Politics in South Asia	20	80	100	3 Hrs.
Paper-XXV	Regional Studies : Haryana	20	80	100	3 Hrs.
Paper-XXVI	Islam in Modern South Asia	20	80	100	3 Hrs.
Paper-XXVII	Gender and Society in South Asia	20	80	100	3 Hrs.
Paper-XXVIII	Globalization and South Asia	20	80	100	3 Hrs.

(Prof. Amarjit Singh)
Chairman

Paper – XV (Core Paper): Post-Colonial Historiography on South Asia

Marks: 80
Internal Assessment: 20
Time: 3 Hours

Note: - The question paper will consist of nine questions. The candidate shall attempt *five* questions in all. Question No. 1 will be *compulsory,* which will consist of four short conceptual / thematic questions of equal marks (i.e. 4 marks each) spread over the whole syllabus. The candidate shall attempt *four* more questions, selecting at least *one* from each Unit. Each question will carry equal marks (i.e. 16 marks).

Unit -1 **Historical Approaches on India**: Marxist Approach: State and Nationalism; Subaltern Historiography: Characteristics and Trends, its Perceptions over Caste and Tribal Issues; Progressive Historiography: Nation Building, National Movements and Political Parties

Unit- 2. **Historical Approaches on Bangladesh:** Historical Paradox in dealing with Bangladeshi Nationalism and Bengali Nationalism, Muslim Nation and Secular Nation; Marxist Historiography: State, Leadership, Secularism and Fundamentalism

Unit- 3. **Historical Approaches on Pakistan:** New Cambridge Historiography: Nationalism, Communalism and Partition; Nationalist History Writing in Pakistan: Trends and Characteristics; Marxist Interpreting of Nationalism, Communalism, State and Political Institutions

Unit - 4. **Historical Approaches on Sri-Lanka:** Ethnic Issues and Differences in Historical Narrations; Nationalist Historiography in Sri-Lanka**:** Characteristics and Trends; Marxist Historiography: State, Religion, Conflict- Reconciliation

Suggested Readings

Afzal, M. Rafique, *Pakistan : History and Politics*

Ali, B. Sheikh, History *: Its Theory and Method*

Ali, Imran, *Punjab Under Imperialism*

Aziz, K.K., *Making of the Pakistan*

Barns H.D.,*A History of Historical Writings*

Bayly, C. A., *Origins of Nationality in South Asia*

Bentley, Michael (ed.), *A Companion to Historiography*

Bradburn, N.M. and Sudman S., *Improving Interview Method and Questionnaire Design*

Buddha Prakash, *Itihas Darshan (Hindi)*

Burtens, Hans, *The Idea of Post Modern: A History*

Carr, E.H,. *What is History?*

Chandra, Bipan, *India's Struggle for Independence*

Chandra, Bipan, *India Since Independence*

Clark Stuart, *The Annals Historians*

Comte Auguse, *The Course of Positivsit Philosophy*

Elton, *G.R., Practice of History*

Gardener Patrick, *Theories of History*

Guha, R.C., *Subaltern Studies,* Vol. I-VI

Helt Robert T and Turne E. Jhon, *The Methodology of Comparative Method*

Hughes Warrington, *Fifty Key Thinkers on History*

Jenkins Keith, *Post Modern History Reader*

Johnson, Allen, *Historian and Historical Evidence*

Khan, Yashmin, *The Great Divide : The Making of India and Pakistan*

Knors K Chitina, *Advances in Social Theory and Methodology*

Ladurie, L. R., *Territory of the Historian*

Leonard, M.M., *The Nature of Historical Inquiry*

Marwick, Aurther, *The Nature of History*

Marwick, Aurther, *What History Is and Why It is Important* ?

Rath Sharda, *Methods in Political and Social Research*

Sarkar, Sumit, *Modern India*

Sridharan E., A *Text Book of Historiography*

Sridharan, *E., Itihas Lekh (Hindi)*

Talbot Ian, *Pakistan : A Modern History*

Talbot Ian, and Gurharpal Singh, *The Partition of India*

Topoloski Jarzy, *Methodology of History*

Wiggery, G.A., *The Meaning of History*

William H.S., *The Modern Historians*

Paper – XVI (Optional Paper): Agrarian Economy in South Asia

Marks: 80
Internal Assessment: 20
Time: 3 Hours

Note: - The question paper will consist of nine questions. The candidate shall attempt *five* questions in all. Question No. 1 will be *compulsory,* which will consist of four short conceptual / thematic questions of equal marks (i.e. 4 marks each) spread over the whole syllabus. The candidate shall attempt *four* more questions, selecting at least *one* from each Unit. Each question will carry equal marks (i.e. 16 marks).

UNIT I- **Agrarian History of South Asia:** Agrarian Structure and Land Relations in Colonial India; Commercialization of Agriculture; Rural Indebtedness; Decline of Handicraft Industry; Frequencies of Famines

UNIT II- **Economic Growth and Poverty in South Asia**: Changing Agrarian Structure in South Asia: A Comparative Study; Food Security in South Asia; Land Reforms in South Asia; Poverty and Income Distribution in Rural Societies: Theories and Models; Green Revolution and its Impact

UNIT III- **Nature and Problems of Rural Development in South Asia :** State of Rural Development in South Asia; Policies to Health and Education: Effect on Development; Strategies for Rural Industrialization; The New Economic Policy and Indian Agriculture; Gender and Caste Discrimination in South Asia: Theories and Perspectives

UNIT IV: **Rural Poverty Alleviation and Employment Programmes in South Asia :** Rural Poverty Alleviation and Employment Programmes / Schemes in South Asia: A Comparative Study; Concept of National Happy Index in Bhutan; Problem of Economic Reconstruction in Afghanistan; Working of International Agencies for Rural Development in South Asia

Suggested Readings

Ahmed Sadiq. (ed.), *Promoting Economic Cooperation in South Asia*, New Delhi, Sage, 2010.

Behera, Navnita Chadha. (ed.), *International Relations in South Asia: Search for an Alternative Perspective*, New Delhi, Sage, 2008.

Bose, Sugata and Ayesha Jalal. *Modern South Asia: History, Culture, Political Economy. New* Delhi, Oxford University Press, 1997.

David N. Balaam and Michael Veseth., "What is IPE" in *Introduction to International Political Economy*, New Jersey, Pretice Hall, 2001.

Desai, A.R. (ed.), *Peasant Struggles in India*, Bombay: Oxford University Press, 1979.

Garmer B.H., *An Introduction to South Asia*, London, Routledge, 1993.

GhoshPartha., *Cooperation and Conflict in South Asia*, New Delhi, Manohar, 1995.

Jalal, Ayesha,. *Democracy and authoritarianism in South Asia: A comparative and historical perspective*, U.K., Cambridge University Press, 1995.

John Baylis and Steve Smith. (ed.), *The Globalization of World Politics*, (4th edition), Oxford: Oxford University Press, 2007.

Khan, Shaheen Rafi. (ed.), *Regional Trade Integration and Conflict Resolution*, Routledge, 2009.

Kodikara Shelton U. (ed.), *External Compulsions of South Asian Politics*, New Delhi, Sage, 1993.

Nizamani, Haider, K. *The Roots of Rhetoric: Politics of Nuclear Weapons in India and Pakistan*, New Delhi, India Research Press, 2001.

Paswan, Nawal K, Agricultural Trade in South Asia: Potential and Policy Options (New Delhi: APH Publications, 2003).

Regional Energy Security for South Asia, Regional Report. Available at: www.sari-energy.org

Shelton, Kodikara, U. (ed.), *South Asian Strategic Issues,* New Delhi, Sage, 1990.

Stern Robert W., *Democracy and Dictatorship in South Asia,* New Delhi, India Research Press, 2001.

Cohen Stephen. (2006): *The Idea of Pakistan,* Brookings Institution Press; 2nd edition.

Yunus Mohammed, Parmar Aradhana. *South Asia: A Historical Narrative,* Karachi, Oxford University Press, 2006.

Chandra Bipan, *The Rise and Growth of Economic Nationalism in India,* Anamika Publishers and distributors 2004.

Paper – XVII (Optional Paper): State and Government in South Asia

Marks: 80
Internal Assessment: 20
Time: 3 Hours

Note: - The question paper will consist of nine questions. The candidate shall attempt *five* questions in all. Question No. 1 will be *compulsory,* which will consist of four short conceptual / thematic questions of equal marks (i.e. 4 marks each) spread over the whole syllabus. The candidate shall attempt *four* more questions, selecting at least *one* from each Unit. Each question will carry equal marks (i.e. 16 marks).

UNIT I **Sri-Lanka and Nepal:** Sri Lanka- Challenges in State Consolidation and Minority Integration; Government Structure in Sri-Lanka; Government Structure in Nepal; Rebellion and State Formation in Nepal; Political Institutions and Government Processes in Nepal

UNIT II **Bangladesh:** Theories of "A Weak State" with Multiple Security Challenges; Political Culture and Heritage; Government Institutions; Political Parties and Interest Groups, Media; Role of Judiciary and Military

UNIT III **Pakistan and Afghanistan:** Theories of 'Garrison State; Political Culture and Heritage; Constitutional Structure; Political Parties and Army; Political Parties and Interest Groups in Afghanistan; Ethnic Conflict and threat to Fundamentalism

UNIT IV **India:** Security Challenges in Contemporary India; Political Culture and Heritage, Political Institutions; Government Processes and Governance; Major Political Parties and Electoral Politics; Modernization and Development

Suggested Readings

Baxter C. et al edited. *Government and Politics in South Asia.* Boulder, Westview, 1987.

Bestsch Gary K. et al. eds., *Engaging India: US Strategic Relations with the World's Largest Democracy.* New York, Routledge, 1999.

Bose Sugata and Ayesha Jalal., *Modern South Asia: History, Culture, Political Economy.* New Delhi, Oxford University Press, 1997.

Chilty Naren, *Framing South Asia Transformations.* New Delhi, South Asian Publishers, 1994.

Garmer B.H., *An Introduction to South Asia.* London, Routledge, 1993.

Ghosh Partha S., *Cooperation and Conflict in South Asia.* New Delhi, Manohar, 1995.

Iftekhar Uzzaman (ed.), *Ethnicity and Constitutional Reform in South Asia.* New Delhi, Manohar, 1998.

Jalal, Ayesha., *Democracy and authoritarianism in South Asia: A comparative and historical perspective.* U.K., Cambridge University Press, 1995.

Kodikara Shelton U. (ed.), *External Compulsions of South Asian Politics.* New Delhi, Sage, 1993.

Malik, Yogendra, K. (ed.), *Government and Politics in South Asia,* (Sixth edition), USA, Westview Press, 2008.

Nizamani, Haider, K., *The Roots of Rhetoric: Politics of Nuclear Weapons in India and Pakistan.* New Delhi, India Research Press, 2001.

Shelton, Kodikara, U. (ed.), *South Asian Strategic Issues.* New Delhi, Sage, 1990.

Stern Robert W., *Democracy and Dictatorship in South Asia.* New Delhi, India Research Press, 2001.

Paper – XVIII (Optional Paper) : Regional Studies : Punjab

Marks: 80
Internal Assessment: 20
Time: 3 Hours

Note: - The question paper will consist of nine questions. The candidate shall attempt *five* questions in all. Question No. 1 will be *compulsory*, which will consist of four short conceptual / thematic questions of equal marks (i.e. 4 marks each) spread over the whole syllabus. The candidate shall attempt *four* more questions, selecting at least *one* from each Unit. Each question will carry equal marks (i.e. 16 marks).

Unit – I **18th and 19th Century Punjab** : Military Activities of Banda Singh Bahadur, Establishment of First Sikh State and Execution of Banda Singh Bahadur; Rise of Ranjit Singh; Ranjit Singh and his relations with Sikh Misls; Ranjit Singh and the British; Land Revenue and Military System under Ranjit Singh

Unit – II **Colonial Punjab**: First Anglo - Sikh War; Second Anglo Sikh War; Anexation of the Punjab; Board of Administration; Sir John Lawrence and Punjab; Punjab and the Uprising of 1857; Activities of Christian Missanories; Introduction of Modern Education

Unit – III **Socio-Economic Changes**: Arya Smaj Movement; Kuka Movement; Singh Sabha Movement; Establishment of Canal Calonies and Agrarian Changes; Agrarian; Uprising of 1907; Guradawara Reform Movement

Unit – IV **National Movement and Punjab :** Rawlat Satyagrah and Jalianwala Bagh Masacare; Non - Cooperation Movement; Civil Disobedence Movement; Quit India Movement; Revolutionary Movement in 1920s; Muslim Communal Politics; Provincial Elections of 1946; Provincial Politics and the Partition of Punjab

Suggested Readings :

Alam, Muzaffar	*Crisis of Empire in Mughal North India ; Awadh and the Punjab, 1707-48, New Delhi, Oxford University Press, 1986*
Ali, Imran	*The Punjab under Imperialism. 1890-1947, Delhi : Oxford Univesity Press, 1989*
Banerjee, Himadri	*Agrarian Society of the Punjab (1849-1901), New Delhi, Manohar 1982*
Banga Indu (ed.)	*Five Punjabi Centuries : Polity, Economy, Society and Culture 1500-1900, New Delhi, Manohar 2000*
Banga, Indu	*Agrarian System of the Sikhs, New Delhi, Manohar, 1978*
Fauja Singh	*State and Society under Ranjit Singh, Delhi : Master Publishers, 1982*
Ganda Singh	*Baba Banda Singh Bahadur, Sarhind : Sarhind Historical Research Society, 1976*
Grewal, J.S.	*The Sikhs of the Punjab, New Cambridge History of India, New Delhi, Orient Longman, Foundation Books, 1998*
Grewal, J.S. & banga, Indu (eds.)	*Punjab in Prosperity and Violence, 1947-1997, New Delhi, K.K. Publishers, 1998 (Essays on Demographic Change, Urbanizatiion, Dalits and Women*
Grewal, J.S.,	*Maharaja Ranjit Singh Polity, Economy and Society, Amritsar ; Guru Nanak Dev University, 2001*
Mahajan Ganeshi	*Congress Politics in the Punjab (1885-1947), New Delhi, K.K.Publishers, 2002*
Mc Leod, W.h.	*Sikhs and Sikhism, New Delhi : Oxford University Press, 2000*
Mittal, S.C.	*Freedom Movement in the Punjab*
Mohan, Kamlesh	*Militant Nationalism in the Punjab, New Delhi, Manohar, 1985*
Rai, Satya. M.,	*Legislative Politics and Freedom Struggle in Punjab*
Saini, B.S.	*The Social and Economic History of the Punjab, 1901-1939, Delhi ; Ess Ess Publications, 1975*
Singh, Amarjit	*Punjab Divided Politics of Muslim League and Partition 1935-1947, Kanishka Publishers, New Delhi, 2001*
Singh, Amarjit	*Jinnah and Punjab : Shamsul Hasan Collection and Other Documents,1943-1947, Kanishka Publishers, New Delhi, 2007*
William Irvine	*Later Mughals*

Paper – XIX (Optional Paper): Society, Culture and Ethnicity in South Asia

Marks: 80
Internal Assessment: 20
Time: 3 Hours

Note: - The question paper will consist of nine questions. The candidate shall attempt *five* questions in all. Question No. 1 will be *compulsory,* which will consist of four short conceptual / thematic questions of equal marks (i.e. 4 marks each) spread over the whole syllabus. The candidate shall attempt *four* more questions, selecting at least *one* from each Unit. Each question will carry equal marks (i.e. 16 marks).

Unit – I **Culture in South Asia**: Geography and Emergence of South Asian Cultures: Language Kinship Relations; Family and Household, Gender and Personhood; Urban and Rural Life in South Asian Societies

Unit – II **Society in South Asia**: Institutions of Caste in South Asia; The transition in Caste System in India: Theory and in Practice; Social Transformation and

Social Change in India; Caste Mobilization and Anti-Caste Movements in India; Policy of Affirmative Actions and Its impact in India

Unit – III **Class in South Asia:** Class Formation in Pakistan; Interrelation in Caste and Class in Pakistan; Worker Organizations and Working Class Movements in Pakistan; Peasant and Tribal Movements in Pakistan; Role of Middle Class in Pakistan Society and Politics

Unit – IV **Ethnicity in South Asia**: Ethnicity and Social Conflict in Sri Lanka: Historical Perspective; Ethnic Problems in contemporary India; Ethnicity Problems in Pakistan; Ethnicity Problems Sri Lanka

Suggested Readings

Ahmed, Imtiaz; Dasgupta, Abhijit; Kerkhoff, Kathinka; Sinha, *State, Society and Displaced People in South Asia* (Bangladesh, The University Press Ltd., 2004).

Allen, Douglas, ed., *Religion and Political Conflict in South Asia: India, Pakistan, and Sri Lanka* (Praeger/Greenwood, 1992).

Baral, Lok Raj, *Nepal Problems of Governance* (New Delhi, Konark publishers, 1993).

Baxter, Charles; Malik, Yogendra, Kennedy, Charles, and Oberst, Robert, Government and *Politics in South Asia* (Boulder, Westview (fifth edition), 2002).

Baxter, Craig, *Government and Politics in South Asia* (London, Westview Press, 2001).

Brass, Paul, *The Politics of India since Independence* (Cambridge, (second edition), 1994).

Brass, Paul R., and Franda, Marcus F. (eds.*), Radical Politics in South Asia* (Cambridge, MIT Press, 1974).

Breckenridge, Carol; Appadurai and Veer, Peter van der, eds., *Orientals and the Postcolonial Predicament: Perspectives on South Asia* (Philadelphia, University of Pennsylvania Press, 1993).

Chadda, Maya, *Building Democracy in South Asia* (New Delhi, Vistaar Publications, 2000).

Cohen, Stephen, *The Idea of Pakistan* (Washington, Brookings, 2004).

Gellner, David N., *Resistance and the State Nepalese Experiences* (New Delhi, Social Science Press).

Iftekharuzzaman, *Ethnicity and Constitutional Reforms in South Asia* (New Delhi, Manohar, 1998).

Jalal, Ayesha, *Democracy and Authoritarianism in South Asia* (New Delhi, 1995).

Jetley, Nancy (ed.), *Regional Security in South Asia* (New Delhi, 1999). Johari,

J.C., *Governments and Politics of South Asia* (New Delhi, Sterling, 1991).

Kabir, Muhammad Ghulam, *Changing Face of Nationalism: The Case of Bangladesh* (Dhaka, University Press Limited, 1994).

Kejariwal, O.P., *The Afghanistan Crisis Problems and Perspectives* (New Delhi, Nehru Memorial museum and Library, 2002).

Mitra, S.K.andRothermund, Dietmer, eds., *Legitimacy and Conflict in South Asia* (Delhi, Manohar, 1998).

Muni, S.D, *Understanding South Asia* (New Delhi, South Asian Publishers, 1994).

Sinha, R.P. and Dandekar, Surya, *South Asian Politics: Ideological and Institutions* (New Delhi, Kanishka, 1998).

Stern, Robert W., *Democracy and Dictatorship in South Asia Dominant Classes and Political Outcomes in India, Pakistan, and Bangladesh* (London, Praeger, 2004).

Paper – XX (Optional Paper): Religions in South Asia: Philosophy and Practices

Marks: 80
Internal Assessment: 20
Time: 3 Hours

Note: - The question paper will consist of nine questions. The candidate shall attempt *five* questions in all. Question No. 1 will be *compulsory*, which will consist of four short conceptual / thematic questions of equal marks (i.e. 4 marks each) spread over the whole syllabus. The candidate shall attempt *four* more questions, selecting at least *one* from each Unit. Each question will carry equal marks (i.e. 16 marks).

Unit – I: **Earlier Traditions**: Religion in Harappan Civilization; Vedic Religion; Early Philosophical Traditions: Upanishad, Teaching of Bhagavad Gita; Various Ramayana traditions in South Asia

Unit – II: **Religious Movements in Ancient South Asia:** Lord Budda and Introduction of Early Buddhism: Perspective and Philosophy; Spread of Buddhism in South Asia and Impact on Art and Architecture; Introduction to Jainism and its Philosophy

Unit – III: **Religion in Medieval South Asia**: Devotional movements in North and South India - Alawar and Nyanar; Bhakti Movement and Sufi Movement and its Impact on South Asia; Guru Nanak and Rise of Sikhism, Philosophy of Sikhism and Its Impact

Unit – IV: **Modern Religions**: The Hindu Way of Life; Popular Forms of Hindu Worship; Hinduism and Sikhism in Global perspective; Conversion movements: Christian and Neo- Buddhists

Suggested Books:

Tilak, B.G *Gita Rahasya.*

Sharma, I.C. *Ethical Philosophies of India*

Brahma, N.K, *Philosophy of the Hindu Sadhana.*

Hiriyanna, M., *The Indian Conception of Values.*

Prasad, R. *Niskama Karma and Practical Morality.*

Sri Aurobindo :*Essays on the Gita. S.K. Maitra : The Ethics of the Hindus.*

Verma, V.*P, Dharma Darshan ki MulSamsyaen.*

Thompson, *A Modern Philosophy of Religion.*

Swami Vivekananda : *Complete Works (relevant chapters)*

Lal, B.K. *Contemporary Indian Philosophy.(Hindi version also available)*

Paper – XXI (Optional Paper): International Relations of South Asian Countries

Marks: 80
Internal Assessment: 20
Time: 3 Hours

Note: - The question paper will consist of nine questions. The candidate shall attempt *five* questions in all. Question No. 1 will be *compulsory,* which will consist of four short conceptual / thematic questions of equal marks (i.e. 4 marks each) spread over the whole syllabus. The candidate shall attempt *four* more questions, selecting at least *one* from each Unit. Each question will carry equal marks (i.e. 16 marks).

Unit – I **South Asia and Major Powers**: Geo-strategy of South Asia and Interests of Superpowers in South Asia**;** India's Relations with Russia and America; Pakistan and America; Bangladesh and America; Sri- Lanka and America

Unit – II **South Asia and China: '**String of Pearls' of China and South Asia; China's South Asia Policy; Sino- Pakistan Strategic Cooperation; Sino-India Cooperation and Conflicts; Sino- Bangladesh Relations; China's Engagement with Nepal

Unit – III **South Asia and its Intra Relations:** Indo-Pak Relations; Pakistan and Bangladesh Relation; Pakistan- Afghanistan and India: A triangle; Bangladesh and India Relation; Sri-Lanka and India

Unit – IV **South Asia and International Agencies:** India's Relation with UN and its Demand to reforms in Security Council; UN in Reconstruction of Afghanistan, UN and Sri Lanka Conflict; World Bank, IMF and South Asia; International Environmental Organizations and South Asia's Response

Suggested Readings

Appadorai, A., *National Interest and Non-Alignment* (New Delhi: Kalinga Publications, 1999).

Axford, *The Global System: Economics, Politics and Culture* (Cambridge: Polity Press, 1995).

Ayood, Mohammad, ed., *Conflict and Intervention in the Third World* (New Delhi: Vikas, 1990).

Bajpai, Kanti P., *Roots of Terrorism* (New Delhi: Penguin Books, 2000).

Brown, C., *International Relations in a Changing Global System* (Coloraro: University Press, 1992).

Chan, S. and Mandaville, P. G. eds., *The Zen of International Relations* (Hampshire, Macmillan, 2001).

Chomsky, N., *World Order: Old and New* (London: Pluto Press, 1994).

Clard, I., *Globalization and Fragmentation: International Relations in the Twentieth Century* (Oxford University Press, 1997).

Cohen, R. and Kennedy, P., *Global Sociology* (London: St. Martin Press, 1999).

Coplin, W. D., Introduction to International Politics (Chicago: Markham, 1971).

Couloumbis and Wolf, *Introduction to International Relations* (New Delhi: Prentice Hall, 2000).

Dalton, R. and Kuechler, M., *Challenging the Political Order: New Social and Political Movements in Western Democracies* (Cambridge: Polity, 1990).

Bueno, M. and Lalman, D., *The Anarchical Society: A Study of Order in World Politics* (London: Macmillan, 1977).

Frankel, J., *The Making of Foreign Policy* (London: Oxford University Press, 1963).

Gilbert, P., *Terrorism, Security and Nationality* (London, and New York: Routledge, 1995).

Goldman, Alllan and Goldman, K., eds., *The End of the Cold* War (Dordrecht: Martinus Nijhoff, 1992).
Halliday, F., *Revolution and World Politics: The Rise and Fall of the Sixth Great Power*, (Basingstoke: Macmillan, 1999).
Harshe, R. G., *Twentieth Century Imperialism: Shifting Contours and Changing Conceptions* (New Delhi: Sage, 1997).
Hobson, J. M., *The State and International Relations* (Cambridge: Cambridge University Press, 2000).
Jackson, Robert and Sorensen, George, *Introduction to International Relations* (New York, Oxford University Press, 1999).
Jha, Nalini Kant, *Domestic Imperatives in India's Foreign Policy* (New Delhi: South Asian Publishrs, 2002).
Jha, Nalini Kant, *South Asia in 21st Century: India, Her Neighbours and Great Powers* (New Delhi: South Asian Publishers, 2003).
Jha, Nalini Kant (ed.), *India's Foreign Policy in a Changing World* (New Delhi: South Asian Publishers, 2000).
Kegley, C. W. and Wittkopt, E. R., *World Politics: Trends and Transformation* (New York: St. Martin‟s Press, 1995).
Keohane, R. O., and Ostrom, E. eds., *Local Commons and Global Interdependence: Heterogeneity and Co-operation in Two Domains* (London: Sage, 1994).
Nayar, Deepak, *Governing Globalization* (New Delhi: Oxford University Press, 2002). International Relations: Then and Now (London, Harper Collins Academic, 1991).
P, Taylor, *International Organization in Modern World* (London: Printers, 1995).
Rajan, M. S., *Non-Alignment and the Non-Aligned Movement in the Present World Order* (Delhi: Konark, 1994).
Raju, AdluriSubramanyam, ed., *Terrorism in South Asia: Views from India* (New Delhi: India Research Press, 2004).
Rosenau, J. N., *The Scientific Study of Foreign Policy* (Princeton NJ: Princeton University Press, 1980).
Russett, B. M. and Starr, H., *Grasping the Democratic Peace: Principles for a Post-Cold War World* (Princeton NJ: Princeton University Press, 1993).
Williams, M., *Third World Co-operation: The Group of 77 in UNCTAD* (London, Frances Printer, 1991).

SEMESTER - IVth

Paper No.	Nomenclature	Int Ass.	Theory Paper Marks	Total Marks	Time
Core Papers					
Paper-XXII	Theories of Area Studies and International Relations	20	80	100	3 Hrs.
Optional Papers					
Paper- XXIII	Industrial Economy in South Asia	20	80	100	3 Hrs.
Paper-XXIV	Politics in South Asia	20	80	100	3 Hrs.
Paper-XXV	Regional Studies : Haryana	20	80	100	3 Hrs.
Paper-XXVI	Islam in Modern South Asia	20	80	100	3 Hrs.
Paper-XXVII	Gender and Society in South Asia	20	80	100	3 Hrs.
Paper-XXVIII	Globalization and South Asia	20	80	100	3 Hrs.

Paper XXII – (Core Paper): Theories of Area Studies and International Relations

Marks: 80
Internal Assessment: 20
Time: 3 Hours

Note: - The question paper will consist of nine questions. The candidate shall attempt *five* questions in all. Question No. 1 will be *compulsory*, which will consist of four short conceptual / thematic questions of equal marks (i.e. 4 marks each) spread over the whole syllabus. The candidate shall attempt *four* more questions, selecting at least *one* from each Unit. Each question will carry equal marks (i.e. 16 marks).

Unit – I **Area Studies :** Concept of Area Studies; Main Features of Area Studies, Theories of Area Studies; Approaches of Area Studies.

Unit – II **International Politics :** Realist Theory; Idealist Theory; Decision-making Theory; Systems Theory.

Unit – III **Strategic Thoughts :** Kautilya, Clausewitz; A. T. Mahan; Mackinder, Douhet.

Unit – IV **Foreign Policy :** Theories of Foreign Policy; Approaches of Foreign Policy making; Domestic Determinants of Foreign Policy; External Determinants of Foreign Policy.

Suggested Readings :

Walter Carlsnaes, Thomas Risse, Beth, A Simmons *Handbook of International Relations*

Richard Devetak, Anthony Burke, Jim George, *An Introduction to International Relations*

David Shambaugh, Michael Yahuda, *International Relations of Asia*

Professor Mario Telò, *International Relations: A European Perspective*

Christopher Hill, Michael Smith, *International Relations and the European Union*

Charles R. Beitz, *Political Theory and International Relations*

David L. Szanton, *The Politics of Knowledge: Area Studies and the Disciplines*

Terence Wesley-Smith, Jon D. Goss, *Remaking Area Studies: Teaching and* Learning Across Asia and the Pacific Dan C. Hazen, James H. Spohrer *Building Area Studies Collections*

Mark A. Tessler, Jodi Nachtwey, Anne Banda, *Area Studies and Social Science: Strategies for Understanding Middle East Politics*

Sir Hamilton Alexander Rosskeen Gibb, *Area Studies Reconsidered*

David P. Forsythe, Patrice C. McMahon, *Human Rights and Diversity: Area Studies Revisited*

Neil L. Waters, *Beyond the Area Studies Wars: Toward a New International Studies*

Paper – XXIII (Optional Paper): Industrial Economy in South Asia

Marks: 80
Internal Assessment: 20
Time: 3 Hours

Note: - The question paper will consist of nine questions. The candidate shall attempt *five* questions in all. Question No. 1 will be *compulsory,* which will consist of four short conceptual / thematic questions of equal marks (i.e. 4 marks each) spread over the whole syllabus. The candidate shall attempt *four* more questions, selecting at least *one* from each Unit. Each question will carry equal marks (i.e. 16 marks).

Unit – I **The Colonial Historical Background:** Industry and Business in Pre- Colonial India; Business in Colonial Regime: Mercantile Capitalism under East India Company; Caste and Business Communities; Railways and its Economic Impact; Impacts of World War I and World War II on South Asian Industrial Economy

Unit-II **Industrial Development**: Foreign Trade and Capital Flows; Foreign Aid in the Region; Imperatives of Reviving Intra-Regional and Inter-Regional Trade Routes; Urban Poverty and Regional Economic Imbalances in South Asia

Unit -III **Urbanization, Migration and Regional Development:** Urbanization in South Asia; The International Migration Process and Labour Mobility; Inter-State Study of Human Development in India with special reference to Punjab and Haryana; Environment and Development—Growth-Environment Linkage

Unit-IV **Human Development:** Measuring Human Development: UNDP Human Development Index, Limitations of the Index; Human Development Index : India, Pakistan, Bangladesh and Nepal

Suggested Readings

Ahmed, Sadiq, at al, *Promoting Economic Cooperation in South Asia-Beyond SAFTA* (New Delhi: Sage Publications, 2010).

Desai, Meghnad, *Development and Nationhood: Essays in the Political Economy of South Asia* (New Delhi: Oxford University Press, 2005).

Jairath, Jasveen and Ballabh, Vishwa, *Droughts and Integrated Water Resource Management in South Asia* (New Delhi: Sage Publications, 2008).

Jha, Nalini Kant, *Nation Building and Peace in South Asia* (New Delhi:Har-Anand Publications, 2009)

Jha, Raghbendra, *Economic Growth, Economic Performance and Welfare in South Asia* (New Delhi: Palgrave, Macmillan Publications, 2005).

Kelegama, Saman, *South Asia in the WTO* (New Delhi: Sage Publications, 2007).

Khan, Mohsin S., *Economic Development in South Asia* (New Delhi: Tata McGraw-Hill Pub, 2005).

Ludden, David, *Agricultural Production and South Asian History* (Oxford University Press, 2005).

Ocampo, Jose Antonio, Growth Divergences: *Explaining Differences in Economic Performance* (Orient Black Swan Publications, 2007).

Parikh, Kirit S, *Explaining Growth In South Asia* (Oxford: Oxford University Press, 2006).

Rani, Saroj, *Regional Economic Integration: A Comparative Study of Central Asian and South Asian Regions* (New Delhi: Kalpaz Publications, 2009).

Reddy, K.C. and Devi, T. Nirmala, *WTO and Implications for South Asia* (New Delhi: Serials Publications, 2006).

Sareen, T.R. and Bakshi, S.R., *Socio-Economic and Political Development in South Asia* (Isha Books Publications, 2004).

Sharma S.I, *Nation and National Identity in South Asia* (New Delhi: Orient Longman, 2001).

Siddiqui, Anjum, *India and South Asia; Economic Developments in the Age of Globalization* (M.E. Sharpe, Inc, 2007).

Siddiqui, Kamal, *Land Management in South Asia: A Comparative Study* (New Delhi: Manohar Publications, 1994).

Singh, Mahavir, *Building a New Asia* (New Delhi: Shipra Publications, 2005).

Skidelsky, Robert and Christian Wigstrom, Westerlind, *The Economic Crisis and the State of Economics* (New Delhi: Palgrave Macmillan Publications, 2010).

Subrahmanyam, Sanjay, *Land, Politics and Trade in South Asia* (Oxford: Oxford University Press, 2004).

Vanaik, Achin, *Globalization and South Asia Multidimensional Perspectives* (New Delhi: Manohar Publications, 2004).

Yong, Tai Tan, *Socio-Political and Economic Challenges in South Asia* (New Delhi: Sage Publications, 2009).

Paper – XXIV (Optional Paper): Politics in South Asia

Marks: 80
Internal Assessment: 20
Time: 3 Hours

Note: - The question paper will consist of nine questions. The candidate shall attempt *five* questions in all. Question No. 1 will be *compulsory,* which will consist of four short conceptual / thematic questions of equal marks (i.e. 4 marks each) spread over the whole syllabus. The candidate shall attempt *four* more questions, selecting at least *one* from each Unit. Each question will carry equal marks (i.e. 16 marks).

Unit – I **Perspectives of Politics in South Asia:** Contours of Diversity: Geography, Culture People; Debates on Nationalism and Partition of India; Emergence of Nation States; Understanding the Evolution of Modern Politics in the Region

Unit – II **Democratic Transformation in South Asia:** Constitutional Reforms Under Colonial State in South Asia; Political and Mass Movements in South Asia; Left Movements in Colonial South Asia; Movements of Peasants

Unit-III **Patterns of Politics and Forms of Government**: Democratic and Military Forms in Pakistan and Bangladesh; Monarchy in Nepal; Political Infrastructure in India : Parties, State and Role of Opposition

Unit – IV **State of The Democratic Institutions in South Asia:** State and Working of Judiciary in India; Election Commission in India; Pressure Groups in Pakistan and Bangladesh; Media in South Asia.

Suggested Readings

Barathwal C.P.(ed), Good Governance in India, Deep and Deep Publications Pvt. Ltd., New Delhi,2003.

Datta, Sreeradha, Bangladesh: A Fragile Democracy (Dhaka: Shipra, 2004).

David, Abecassis, Identity, Islam and Human Development in Rural Bangladesh (Dhaka: UPL, 1990).

Gain, Philip, Bangladesh Environment: Facing 21st Century (Dhaka: SEHD, 1998).

Khan, Akbar Ali, Discovery of Bangladesh: Explorations into Dynamics of A Hidden Nation (Dhaka: UPL, 1996).

Khan, Mizan R and Mohammad Humayun Kabir, Civil Society and Democracy in Bangladesh

Ligschultf, Lawrence, Bangladesh: The Unfinished Revolution (London: Zed, 1979).

Mannan, Abdul Md., Election and Democracy in Bangladesh (Dhaka: Academic Press, 2005). Maniruzzaman, Talukder, Politics and Security of Bangladesh (Dhaka)

Narain, S R Chakravarty Virendra, Bangladesh Domestic Politics (New Delhi: South Asian Pub., 1986). Oldenburg, Marta Nicholas Philip, Bangladesh: the Birth of a Nation (India: M. seshachalam and Company, 1972).

Osmany, Mufleh R, and Muzaffer Ahmad, Security in the Twenty First Century: A Bangladesh Perspective (Dhaka: Academic Press, 2003).

Chakrabarty Bidyut and Mohit Bhattacharya, The Governance Discourse-A Reader, Oxford University Press, New Delhi, 2008.

Jain, R.B. (ed), Globalization and Good Governance: Pressures for Constructive Reforms, Deep and Deep Publications, New Delhi,2005.

Jha, Nalini Kant ed., Democracy, Nation building and Peace in South Asia: Challenges and Prospects (New Delhi: Har Anand, 2009)

Jha, Nalini Kant ed., Pangs of Transition: South Asia between Hope and Turmoil (New Delhi: Shipra, forthcoming)

Kashyap Subhash C.(ed), Crime and Corruption to Good Governance, Uppal Publishing House, New Delhi, 1997.

Kjaer Anne Mette, Governance, Polity Press, Cambridge, 2004.

Medury Uma, Public Administration in the Globalization Era, Orient Blackswan Private Limited, New Delhi, 2010.

MunshiSurendra and Biju Paul Abraham (eds.) Good Governance, Democratic Societies and Globalization, Sage Publications, New Delhi, 2004.

Nischal N Panday and Dev Raj Dahal, Comprehensive Security in South Asia (New Delhi: Manohar, 2006)

Nischal N Panday and Dev Raj Dahal, Nepal's Maoist Movement and Implications for South Asia (New Delhi: Manohar, 2008)

Pierre, John (ed.), Debating Governance: Authority, Steering and Democracy, 2000.

Sahani Pradeepand Uma Medury (eds.), Governance For Development: Issues and Strategies, Prentice Hall of India Private Limited, New Delhi, 2003

Ali, Tariq, Pakistan: Military Rule or People's Power? (London, 1970).

Aziz, K.K., A History of the Idea of the Pakistan (Vol. 1 to 4, Lahore, Vanguard Press, 1987). Baynard, Sally Ann, et al, Afghanistan, A Country Study (Washington, US Government). Bhagat, S. N., Pakistan: Withering State (New Delhi, Vikas Publishers, 1999).

Cohen, Stephen P., The Idea of Pakistan (Washington, Brookings, 2004).

Paper – XXV (Optional Paper) : Regional Studies : Haryana

Marks: 80
Internal Assessment: 20
Time: 3 Hours

Note: - The question paper will consist of nine questions. The candidate shall attempt *five* questions in all. Question No. 1 will be *compulsory,* which will consist of four short conceptual / thematic questions of equal marks (i.e. 4 marks each) spread over the whole syllabus. The candidate shall attempt *four* more questions, selecting at least *one* from each Unit. Each question will carry equal marks (i.e. 16 marks).

Unit – I	**Colonial Haryana**: Establishment of the British Rule in Haryana : Civil, Judicial and Land Revenue Administration, Resistance to the British Rule : The Pre 1857 Risings. The Uprising of 1857 : Causes, Nature and Impact; Aftermath of the Revolt : Merger with Punjab and New Administration Setup
Unit – II	**Socio-Economic Transition**: Transition in Society : Urban and Rural, Transition in Economy with special reference to Agrarian Change; Growth of Modern Education; Socio-Religious Reform Movements : Arya Samaj and Sanatan Dharam Sabha
Unit – III	**National Movement and Haryana** : Emergence of National Consciousness in Haryana; First Phase of National Movement: 1905-1920; Second Phase of National Movement – 1920-1947; Politics of Unionist Party and the Role of Sir Chhotu Ram; Muslim League and Partition
Unit – IV	**Towards and Political Identity**: Partition and Rehabilitation of the Displaced People; Electoral Politics in Haryana, 1947-1966; Growth of Education and Social Changes in Haryana 1947-1966; Struggle for Identity and Creation of Haryana State.

Suggested Readings :

Bajaj, Satish K.	*Recent Trends in Historiography*
Buddha, Prakash	*Glimpses of Haryana*
Buddha Prakash	*Haryana Through the Ages*
Chhotu Ram	*Bechara Kisan* (Hindi tr. by K.C. Yadav)
Darling, Malcolm	*Punjab Peasantry in Prosperity and Debt*
Gopal, Madan	*Sir Chhotu Ram : A Political Biography*
Griffin, L.H.	*The Rajas of Punjab*
Gupta, H.R.	*The Marathas and Panipat*
Hussain, Azim	*Fazl-i-Hussain : A Political Biography*
Jagdish Chandra	*Freedom Movement in Haryana*
Jagdish Chandra	*Gandhi and Haryana*
Jones, K.W.	*Arya Dharma : Hindu Consciousness in the* 19th *Century Punjab*
Jones, K.W.	*Socio-Religious Reform Movements in British India*
Kayo, Johan William	*Life of Lord Metcalfe,* Vols. I-II
Kundu, C.L. and Udai Shankar	*Education in Haryana*
Mittal, S.C.	*Haryana : A Historical Perspective*
Muztar, B.K.	*Haryana : Political and Cultural*
Phadke, H.A.	*Haryana : Ancient and Medieval*
Prem Chaudhury	*Punjab Politics and the Role of Sir Chhotu Ram*
Saini, B.S.	*Social and Economic History of Punjab*
Satish Chandra	*The Eighteenth Century in India : It Economy and Role of the Marathas, the Jats, the Sikhs and the Afghans*
Sen, S.N. (ed.)	*Sources of Indian History*
Sharma, S.R.	*Haryana Ke Swantantrata Sainani* (Hindi)
Shukla, S.P.	*Indian Freedom Struggle and the Role of Haryana*
Singh, Amarjit	*Punjab Divided: Politics of the Muslim League and Partition 1935-1947*
Singh, Amarjit	*Jinnah and Punjab : Shamsul Hasan Collection and Other*

Documents,1943-1947, Kanishka Publishers, New Delhi, 2007,
Singh, Chetan — *Region and Empire : Punjab in the* 17th *Century*
Singh, Fauja — *History of Punjab*
Singh, Pardaman, and S.P. Shukla — *Freedom Struggle in Haryana and Indian National Congress 1885-1985*
Singh, Ranjit — *Haryana Ke Arya Samaj Ka Itihas* (Hindi)
Talbot, Ian — *Punjab and the Raj*
Tanwar, R. — *The Politics of Sharing Power : The Punjab Unionist Party*
Tanwar, R. — *Reporting Partition of Punjab 1947 : Press, Public and Other Opinions*
Verma, D.C. — *Sir Chhotu Ram: Life and Times*
Yadav, K.C. — *Haryana: Studies in History and Culture*
Yadav, K.C. — *The Revolt of 1857 in Haryana*
Yadav, K.C. — *Haryana : Itihas Evam Sanskriti* (Hindi), Vols. I-II

Paper – XXVI (Optional Paper): Islam in Modern South Asia

Marks: 80
Internal Assessment: 20
Time: 3 Hours

Note: - The question paper will consist of nine questions. The candidate shall attempt *five* questions in all. Question No. 1 will be *compulsory*, which will consist of four short conceptual / thematic questions of equal marks (i.e. 4 marks each) spread over the whole syllabus. The candidate shall attempt *four* more questions, selecting at least *one* from each Unit. Each question will carry equal marks (i.e. 16 marks).

Unit –I **Post - Partition Islam**: Violence and Partition; Migration and Resettlement; Ethnicity in India and Pakistan; Secularism: The Post Colonial Predicament, Retreat of Secularism, Modernization of Islam : Problems and Perspectives

Unit –II **Changing Societies**: Introduction of Modern Education vs Madarssa Education, Social Customary laws and Issue of Rights: Fatawa, Buraqa(hizab), Women Right, Personal law in India with special reference Shahbano Case; Sachhar Commission Report- A Debate; Wahabism in South Asia and its impact

Unit–III **Politics:** State and Islam in Modern South Asia; Political Participation with special reference of Jihad; Islamic Reemergence and fundamentalism after 9/11; America's War on Terror and its Impact on South Asia, Shifting politics of Muslim identity in south Asia

Unit–IV **Various Form of Religious Fundamentalism in South Asia:** Religious Fundamentalism in Bangladesh; Religious Fundamentalism in Pakistan;Rise of Taliban and Afghanistan; Production of Hindu-Muslim Violence in Post-Colonial India

Suggested Readings

Alavi, Seema — *Fugitive Mullahs and Outlawed Fanatics': Indian Muslims in Nineteenth Century Trans-Asiatic Imperial Rivalries*', *Modern Asian Studies*, 45, 6 (2011) pp.1337–1382
Ayesha Jalal — *Partisans of Allah: Jihad in South Asia, Paperback* – 2009

Dass, Niranjan	*Terrorism and Militancy in South Asia*
Eaton, Richard	*The Rise of Islam and the Bengal Frontier*
Gerald, Larson	*Religion and Personal Law in Secular India : A Call to Judgment*
Gilmartin, David	*Empire and Islam*
Hasan, Mushirul	*Legacy of A Divided Nation : India's Muslims Since Independence*
Hasan, Mushirul	*Islam in the Sub Continent : Muslims in A Plural Society*
Jalal, Ayesha	*Nation, Reason and Religion: Punjab's Role in the Partition of India'*, Economic and Political Weekly, *pp.8-15, August 1998*
Jeffrey, Robin	*Being Muslim in South Asia: Diversity and Daily Life*
Kaur, Ravinder	*Religion, Violence and Political Mobilisation in South Asia*
Nicholas B. Dirks	*Castes of Mind*
Peters, Rudolph	*Jihad in Classical and Modern Islam*
Reza Pirbha, M	*Reconsidering Islam in a South Asian Context*
Riaz, Ali	*Faithful Education: Madrassahs in South Asia*
Richard King	*Religion and Violence in South Asia: Theory and Practice*
Schendel, Willem Van	*A History of Bangladesh*
Schwartz, Stephen	*The Two Faces of Islam: Saudi Fundamentalism and Its Role in Terrorism*
Singh, Amarjit	*Jinnah and Punjab : Shamsul Hasan Collection and Other Documents,1943-1947, Kanishka Publishers, New Delhi, 2007*
Talbot, Ian and Gurharpal Singh	*The Partition of India*
William, Gould	*Religion and Conflict in Modern South Asia*
Williams, Rina Verma	*Postcolonial Politics and Personal Laws: Colonial Legal Legacies and the Indian State*

Paper – XXVII (Optional Paper): Gender and Society in South Asia

Marks: 80
Internal Assessment: 20
Time: 3 Hours

Note: - The question paper will consist of nine questions. The candidate shall attempt *five* questions in all. Question No. 1 will be *compulsory*, which will consist of four short conceptual / thematic questions of equal marks (i.e. 4 marks each) spread over the whole syllabus. The candidate shall attempt *four* more questions, selecting at least *one* from each Unit. Each question will carry equal marks (i.e. 16 marks).

Unit – I **Approaches to the Study of Gender Studies**: Liberal; Radical; Postmodern; Gender in International Relations

Unit –II **Hegemonic Masculinities :** Roots of Patriarchy in South Asia; Gender Injustice: perspectives of Religion, Culture and Caste; Gendered Concepts: State, Sovereignty and Nationalism

Unit –III **Gender and Conflict:** Militarization of Countries and its Impact on Women's Lives; Sex Trafficking; Politics of Security; Conflict and Migration; Gender Discrimination in Modern Societies; States of Human Right of Women

Unit – IV **Issues of Women in South Asia:** Women and Empowerment**;** Women and Economy; Women and Violence; Women's Movements in South Asia and its Limitation

Suggested Readings

Ardener, E. 1975. "Belief and the Problem of Women" and "The Problem Revisited", in S. Ardener (ed.), *Perceiving Women*, London: Malaby Press.

Barrett, M. 1980. *Women's Oppression Today*, London: Verso. (Chapters 1 to 4, and 6).

Bazaz, P. N. 1959. *Daughters of the Vitasa: A History of Kashmir Women form early times to the present day*. New Delhi: Kashmir Book Co

Boserup, E. 1974.*Women's Role in Economic Development*, New York: St. Martin's Press. (Part I).

Dabla, B. A. 2007. *Multi-dimensional problems of women in Kashmir*. New Delhi: Gyan Book Pvt Ltd

De Beauvoir, S.1983. *The Second Sex*, Harmondsworth: Penguin. (Book Two).

Douglas. M. 1970 *Purity and Danger*, Harmondsworth: Penguin.

Engels, F.1972. *The Origin of the Family,Private Property and, the State*, London: Lawrence and Wishart.

Hershman, P. 1977. "Virgin and Mother" in I.M. Lewis (ed.). *Symbols and Sentiments: Cross-Culture Studies in Symbolism*, London: Academic Press.

Hirschon, R. 1984 "Introduction: Property, Power and Gender Relations" in R. Hirschon (ed.). *Women and Property. Women as Property*, Beckenham: Croom Helm.

Jaggar, A. 1983.*Feminist Politics and Human Nature*, Brighton: The Harvester Press.

Leacock, E. 1978."Women's Status in Egalitarian Societies: Implications for Social Evolution", *Current Anthropology*, 19(2), pp. 247-75.

Mac Cormack,C. and M.Strathern (ed.). 1980 *Nature, Culture and Gender*, Cambridge: Cambridge University Press. (Chapter I).

Mead, M. 1935. *Sex and Temperament in Three Primitive Societies*, New York: William Morrow.

Meillassoux, C. 1981. *Maidens, Meals and Money*, Cambridge: Cambridge University Press, (Part I).

Reiter, R. R. (ed.) 1975.*Towards an Anthropology of Women*, New York: Monthly Review Press, (Articles by Draper and Rubin; other articles may be used for illustration).

Rogers, S.C. 1975. "Female Forms of Power and the Myth of Male Dominance: A Model of Female/Male Interaction in Peasant Societies", *American Ethnologist*, 2(4), pp. 727-56.

Rosaldo, M. Z. and L. Lamphere (ed.). 1974 *Women, Culture and Society*, Stanford: Stanford University Press, (Articles by Rosaldo, Chodorow, Ortner; other articles may be used for illustration).

Shafi, Aneesa. 2002. Working Women in Kashmir: Problems and Prospects: New Delhi: APH Publishing

Sharma, U. 1980. *Women, Work and Property in North West India*, London: Tavistock.

Uberoi, J. P. S. 1961. "Men, Women and Property in Northern Afghanistan" in S.T. Lokhandawala (ed), *India and Contemporary Islam*, Simla: Indian Institute of Advanced Study.pp. 398-415.

Vatuk, S. 1982. "Purdah Revisited: A Comparison of Hindu and Muslim Interpretations of the Cultural Meaning of Purdah in South Asia", in H. Papanak and G. Minault (eds.). *Separate World: Studies of Purdah in South Asia*, Delhi: Chanakya.

Yalman, N.1963 "On the Purity of Women in the Castes of Ceylon and Malabar", *Journal of the Royal Anthropological Institute*, pp. 25-58.

Paper – XXVIII (Optional Paper): Globalization and South Asia

Marks: 80
Internal Assessment: 20
Time: 3 Hours

Note: - The question paper will consist of nine questions. The candidate shall attempt *five* questions in all. Question No. 1 will be *compulsory*, which will consist of four short conceptual / thematic questions of equal marks (i.e. 4 marks each) spread over the whole syllabus. The candidate shall attempt *four* more questions, selecting at least *one* from each Unit. Each question will carry equal marks (i.e. 16 marks).

Unit –I **Conceptions and Perspectives on Globalization:** Defining Global, Globalism and Globalization; Debates on Globalization: Hyperglobalists, Sceptics, Transformational lists; Dimensions of Globalizations: Cultural, Economic, Geographic, and Technological

Unit –II **Contemporary Global Actors**: United Nations; World Trade Organisation; Group of 77; International Monetary Fund; World Bank; Transnational Corporations

Unit –III **Globalisation and Development Dilemmas in South Asia**: Globalization and Diaspora; Globalization and Change; Asymmetric Economic Growth; Poverty and Human Security Development and Displacement; Gender Liberalization and Privatization in Education System

Unit –IV **South Asia in a Globalizing World:** Challenges of Globalization to South Asia**,** Information Technology Revolution and Debates on Sovereignty; Asymmetric Intra - and Inter-Regional Trade Relations, Migration, Cultural Globalization in South Asia

Suggested readings

Adams, N.BWorlds Apart: *The North-South Divide and the International System*, London: (1993)

Daniele and Jonathan Mitchie (eds) *Technology, Globalisation and Economic Performance,* Cambridge:(1997)

Barbora, Sanjay et al. "Migration Matters in South Asia: Commonalities and Critiques", *Economic and Political Weekly*, Vol. 43, No. 24, pp. 57-65. (2008),

Bhattacharya, Mita *South Asia in the Era of Globalisation: Trade, Industrialization and Welfare,* New York: (2004)

Dunning, John A, (ed) *Globalisation, Trade and Foreign Direct Investment,* UK: 1998

El-Ojeili, Chamsi and Patrick Hayden *Critical Theories of Globalisation*, London: 2006

Palgrave Enloe, Cynthia *Globalisation and Militarism: Feminists Make the Link, Lanham,* UK2007

Gilpin, R. *Global Political Economy, Princeton,* NJ 2001

Glen, J. *Globalisation: North-South Perspectives*, London: 2007

Held, David and Anthony McGrew, *Globalisation Anti-globalisation*, London: 2003

Held, David (ed.), *A Globalising World: Culture, Economics and Politics*, London: 2006

Held, David et al. (1999), *Global Transformations*, Cambridge: Polity Press.

Hirst, P. and G. Thompson (1999), *Globalisation in Question*, Cambridge Polity Press.

Hoda, Anwarul and Ashok Gulati (2007), *WTO Negotiations on Agriculture and Developing Countries*, New Delhi: Oxford University Press.

Hugo, Graeme "Improving Statistics on International Migration in Asia", International *Statistical Review,* Vol. 74, No. 3, pp. 335-355, 2006.

Katrak, Homi and Roger Strange (eds) WTO *and Developing Countries*, Hampshire: 2004

Khor, Martin, "*Impasse at the WTO: A Development Perspective*", Economic and *Political Weekly*, Vol. 41, No. 45, pp. 4659-4667, 2006.

Kiely, Ray The New Political Economy of Development: Globalisation, Imperialism, Hegemony, London: 2007

Kumar, Nagesh, et al. *Globalisation, Foreign Direct Investment and Technology Transfers: Impacts on and Prospects for Developing Countries*, London: (1998)

Lechner, F.J. and J. Boli (eds) *The Globalisation Reader,* Oxford: 2004

Kurukshetra University, Kurukshetra

Scheme of Examination for Bachelor in Physical Education (B.P.Ed.)

w.e.f. 2015-16

Semester - I

Credits= 26 **Total Marks = 800**

Paper Code	Subjects	Type of Course	Contact Hours Per Week			Credit			Examination Scheme			Total
			Theory	Practical	Total	Theory	Practical	Total	Internal Assessment	Theory	Practical	
BPEd -101	History and foundation of Physical Education	CCC	04	--	04	04	--	04	20	80	--	100
BPEd - 102	Anatomy and Physiology	CFC	04	--	04	04	--	04	20	80	--	100
BPEd - 103	Health Education and Environmental Studies	CFC	04	--	04	04	--	04	20	80	--	100
BPEd -104	Officiating and Coaching	CCC	04	--	04	04	--	04	20	80	--	100
BPEd - 105	Practicum: (i) Athletics (Track Events)	CCC		05	05	-	2.5	2.5	-	-	100	100
BPEd - 106	(ii) Game – I (Basket Ball & Kabaddi)	CCC	--	05	05	--	2.5	2.5	--	--	100	100
BPEd - 107	(iii) Game –II (Football & Kho Kho)	CCC	--	05	05	--	2.5	2.5	--	--	100	100
BPEd -108	(iv) Anatomy ,Physiology and Health Education	CCC	--	05	05	--	2.5	2.5	--	--	100	100
Total			16	20	36	16	10	26	80	320	400	800

.C.C = Compulsory Core Course **C.F.C = Compulsory Foundation Course**

Kurukshetra University, Kurukshetra

Scheme of Examination for Bachelor in Physical Education (B.P.Ed)

w.e.f. 2015-16

Semester - II

Credits= 26 **Total Marks = 800**

Paper Code	Subjects	Type of Course	Contact Hours Per Week			Credit			Examination Scheme			Total
			Theory	Practical	Total	Theory	Practical	Total	Internal Assessment	Theory	Practical	
BPEd-201	Yoga Education	CCC	04	--	04	04	--	04	20	80	--	100
BPEd- 202	Computer Applications in Physical Education	CFC	04	--	04	04	--	04	20	80	--	100
BPEd- 203	Sports Psychology and Sociology	CFC	04	--	04	04	--	04	20	80	--	100
BPEd -204	Contemporary issues in Physical Education, Fitness and Wellness	CCC	04	--	04	04	--	04	20	80	--	100
BPEd- 205	Practicum: (i) Athletics (Throwing Events)	CCC		05	05	-	2.5	2.5	-	-	100	100
BPEd- 206	(ii) Game – I (Volleyball & Yoga)	CCC	--	05	05	--	2.5	2.5	--	--	100	100
BPEd- 207	(iii) Game –II (Handball & Gymnastic	CCC	--	05	05	--	2.5	2.5	--	--	100	100
BPEd-208	(iv) Computer Applicatio Rehabilitation & Sports Psychology	CCC	--	05	05	--	2.5	2.5	--	--	100	100
Total			16	20	36	16	10	26	80	320	400	800

C.C.C = Compulsory Core Course **C.F.C = Compulsory Foundation Course**

Kurukshetra University, Kurukshetra

Scheme of Examination for Bachelor in Physical Education (B.P.Ed)

Semester - III

Credits= 26 **Total Marks = 800**

Paper Code	Subjects	Type of Course	Contact Hours Per Week			Credit			Examination Scheme			Total
			Theory	Practical	Total	Theory	Practical	Total	Internal Assessment	Theory	Practical	
BPEd - 301	Sports Training	CCC	04	--	04	04	--	04	20	80	--	100
BPEd - 302	Educational Technology and Methods of Teaching in Physical Education	CFC	04	--	04	04	--	04	20	80	--	100
BPEd - 303	Organization and Administration	CFC	04	--	04	04	--	04	20	80	--	100
BPEd - 304	Curriculum Design	CCC	04	--	04	04	--	04	20	80	--	100
BPEd - 305	Practicum: (i) Athletics (Jumps)	CCC		05	05	-	2.5	2.5	-	-	100	100
BPEd - 306	(ii) Game – I (Cricket & Swimming	CCC	--	05	05	--	2.5	2.5	--	--	100	100
BPEd - 307	(iii) Game –II (Weight Training & Hockey)	CCC	--	05	05	--	2.5	2.5	--	--	100	100
BPEd - 308	(iv) Mass Display Activity (Free Hand)	CCC	--	05	05	--	2.5	2.5	--	--	100	100
Total			16	20	36	16	10	26	80	320	400	800

C.C.C = Compulsory Core Course **C.F.C = Compulsory Foundation Course**

Kurukshetra University, Kurukshetra

Scheme of Examination for Bachelor in Physical Education (B.P.Ed)

Semester-IV

Credits= 26 **Total Marks = 800**

Paper Code	Subjects	Type of Course	Contact Hours Per Week			Credit			Examination Scheme			Total
			Theory	Practical	Total	Theory	Practical	Total	Internal Assessment	Theory	Practical	
BPEd - 401	Olympic Movement	CCC	04	--	04	04	--	04	20	80	--	100
BPEd - 402	Sports Nutrition and Weight Management	CFC	04	--	04	04	--	04	20	80	--	100
BPEd - 403	Sports Management	CFC	04	--	04	04	--	04	20	80	--	100
BPEd - 404	Sports Medicine and Rehabilitation	CCC	04	--	04	04	--	04	20	80	--	100
BPEd - 405	Practicum: (i) Athletic Meet (Opening, March Past, Victory Ceremony & Closing)	CCC		05	05	-	2.5	2.5	-	-	100	100
BPEd - 406	(ii) Game – I (Badminton & Table Tennis)	CCC	--	05	05	--	2.5	2.5	--	--	100	100
BPEd - 407	(iii) Game –II (Boxing & Wrestling)	CCC	--	05	05	--	2.5	2.5	--	--	100	100
BPEd - 408	(iv) Mass Display Activity (Lezium, Dumbbell & Tipri)	CCC	--	05	05	--	2.5	2.5	--	--	100	100
Total			16	20	36	16	10	26	80	320	400	800

C.C.C = Compulsory Core Course **C.F.C = Compulsory Foundation Course**

B. P. Ed. –Syllabus
(From Session 2015-16)
Semester – I
Theory Courses

BPEd- 101: HISTORY AND FOUNDATION OF PHYSICAL EDUCATION

Time : Three Hours Total Marks : 100 (Theory Marks: 80 + Internal Assessment :20)

Note: *Paper setter is required to set 2 questions from each Unit - I, II, III and IV. Unit - V consists of 10 questions of short answers distributed from all over the syllabus. The candidates are required to attempt one question from each Unit – I, II, III & IV carrying 15 marks for each question. Unit - V is compulsory for all consisting 2 marks of each short answer.*

Unit – I: Introduction of Physical Education

i. Meaning, Definition and Scope of Physical Education
ii. Aims and Objective of Physical Education
iii. Importance of Physical Education in present era.
iv. Misconceptions about Physical Education.
v. Relationship of Physical Education with General Education.
vi. Physical Education as an Art and Science.

Unit- II: Historical Development of Physical Education in India

i. Indus Valley Civilization Period. (3250 BC – 2500 BC)
ii. Vedic Period (2500 BC – 600 BC)
iii. Early Hindu Period (600 BC – 320 AD) and Later Hindu Period (320 AD – 1000 AD)
iv. Medieval Period (1000 AD – 1757 AD)
v. British Period (Before 1947)
vi. Physical Education in India (After 1947)

Unit- III: Foundation of Physical Education

i. Philosophies of Education as applied to Physical Education – Idealism, Naturalism, Realism, Pragmatism, Existentialism and Humanism
ii. Contribution of Akhadas and Vyayamshals in the development of Physical Education.
iii. Y.M.C.A. and its contributions in the development of Physical Education.
iv. Contribution of Sports Authority of India in the development of sports.

Unit- IV: Historical Development of Physical Education Overseas

History of Physical Education in Ancient Greece, Rome and Contemporary, Germany, Sweden, Denmark and Russia.

References:

Bucher, C. A. (n.d.) Foundation of physical education. St. Louis: The C.V. Mosby Co.
Deshpande, S. H. (2014). Physical Education in Ancient India. Amravati: Degree college of Physical education.
Mohan, V. M. (1969). Principles of physical education. Delhi: Metropolitan Book Dep.
Nixon, E. E. & Cozen, F.W. (1969). An introduction to physical education. Philadelphia: W.B. Saunders Co.
Obertuffer, (1970). Delbert physical education. New York: Harper & Brothers Publisher.
Sharman, J. R. (1964). Introduction to physical education. New York: A.S. Barnes & Co.
William, J. F. (1964). The principles of physical education. Philadelphia: W.B. Saunders Co.

Semester I
Theory Courses
BPEd - 102 ANATOMY AND PHYSIOLOGY

Time : Three Hours **Total Marks : 100 (Theory Marks: 80 + Internal Assessment :20)**

Note: *Paper setter is required to set 2 questions from each Unit - I, II, III and IV. Unit - V consists of 10 questions of short answers distributed from all over the syllabus. The candidates are required to attempt one question from each Unit – I, II, III & IV carrying 15 marks for each question. Unit - V is compulsory for all consisting 2 marks of each short answer.*

UNIT- I

i. Meaning of Anatomy and Physiology. Its scope of in the field of Physical Education.
ii. Introduction of Cell, Tissue and organ.
iii. Meaning of skeleton, Functions of the skeleton, Types of Bones in Human Skelton
iv. Meaning of joints and types of Joints in human body.
v. Gender difference in the Skeleton systems.

UNIT- II

i. **Blood and Circulatory System:** Constituents of blood and their function, structure of the heart, Types of Blood circulation: Systemic, Pulmonary and Coronary, Meaning of Blood pressure, Heart Rate, Stroke volume, Cardiac output. Effect of exercise on the blood and circulatory system.
ii. **The Digestive System:** Organs of Digestive System, **S**tructure and functions of the digestive system, Name and functions of various digestive juices and enzymes, Effect of exercise on the Digestive System.

UNIT- III

i. **The Respiratory System:** Organs of Respiratory system and their functions. Structure of lungs, exchange of gases in the lungs and tissues, Meaning of various lung capacities and volumes, oxygen debt, second wind, Effect of exercise on the respiratory system
ii. **The Excretory System:** Structure and functions of the kidneys and skin, Effect of exercise on the Excretory System

UNIT- IV

i. Muscular System: Types of muscles, Gross Structure of Skeletal Muscle, Functions of Skeletal muscles, Effect of exercise on the Skelton muscles**.**

ii. The Endocrine Glands: Functions of Endocrine glands: Pituitary, Thyroid, Parathyroid, Adrenal and Sex glands. Effect of exercise on the secretion of endocrine glands.

iii. Nervous Systems: Organs and Functions of the central nervous system (CNS) and Peripheral Nervous System (PNS).

References:

Gupta, A. P. (2010). *Anatomy and physiology.* Agra: SumitPrakashan.
Gupta, M. and Gupta, M. C. (1980). *Body and anatomical science.* Delhi: Swaran Printing Press.
Guyton, A.C. (1996). Textbook of Medical Physiology, 9th edition. Philadelphia: W.B.Saunders.

Karpovich, P. V. (n.d.). *Philosophy of muscular activity.* London: W.B. Saunders Co.
Lamb, G. S. (1982). Essentials of exercise physiology. Delhi: Surjeet Publication.
Moorthy, A. M. (2014). *Anatomy physiology and health education.*Karaikudi: Madalayam Publications.
Morehouse, L. E. & Miller, J. (1967). *Physiology of exercise*. St. Louis: The C.V. Mosby Co.
Pearce, E. C. (1962). *Anatomy and physiology for nurses.* London: Faber & Faber Ltd.
Sharma, R. D. (1979). *Health and physical education,* Gupta Prakashan.
Singh, S. (1979). *Anatomy of physiology and health education*. Ropar: Jeet Publications.

Semester I
Theory courses

BPEd - 103 HEALTH EDUCATION AND ENVIRONMENTAL STUDIES

Time : Three Hours **Total Marks : 100 (Theory Marks: 80 + Internal Assessment :20)**

Note: *Paper setter is required to set 2 questions from each Unit - I, II, III and IV. Unit - V consists of 10 questions of short answers distributed from all over the syllabus. The candidates are required to attempt one question from each Unit – I, II, III & IV carrying 15 marks for each question. Unit - V is compulsory for all consisting 2 marks of each short answer.*

Unit – I Health Education

i. Meaning, Concept and Dimensions of Health.
ii. Definition of Health, Health Education, Health Instruction and Health Supervision
iii. Aim, objective and principles of Health Education
iv. First- aid and emergency care
v. Health Service and guidance instruction in personal hygiene

Unit – II Health Problems in India

i. Meaning and description of Communicable and Non Communicable Diseases
ii. Meaning of Obesity and Malnutrition, Basic concept of Balance Diet.
iii. Objective of school health service, Role of health education in schools
iv. Health Services – Care of skin, Nails, Eye health service, Nutritional service, Health record,
v. Healthful school environment

Unit – III Environmental Science

i. Definition, Need and Importance of environmental studies.
ii. Concept of environmental education, Historical background of environmental education,
iii. Celebration of various days in relation with environment.
iv. Waste Management: Different types of waste materials and their management.
v. Role of school in environmental conservation and sustainable development.

Unit – IV Natural Resources and related environmental issues:

i. Meaning and Conservation of Water resources, food resources and Land resources.
ii. Definition, effects and control measures of Air Pollution, Water Pollution, Soil Pollution, Noise Pollution and Thermal Pollution,
iii. Govt. policies for Management of environment, Role of pollution control board.

References:

Agrawal, K.C. (2001). Environmental biology.Bikaner: Nidhi publishers Ltd.
Frank, H. &Walter, H., (1976). Turners school health education. Saint Louis: The C.V. Mosby Company.
Nemir, A. (n.d.). The school health education. New York:Harber and Brothers.
Odum, E.P. (1971). Fundamental of ecology. U.S.A.: W.B. Saunders Co.

Semester – I
Theory courses

BPEd - 104 OFFICIATING AND COACHING

Time : Three Hours **Total Marks : 100 (Theory Marks: 80 + Internal Assessment :20)**

Note: *Paper setter is required to set 2 questions from each Unit - I, II, III and IV. Unit - V consists of 10 questions of short answers distributed from all over the syllabus. The candidates are required to attempt one question from each Unit – I, II, III & IV carrying 15 marks for each question. Unit - V is compulsory for all consisting 2 marks of each short answer.*

Unit- I: Introduction of Officiating and coaching

i. Meaning, concept and importance of officiating and coaching
ii. Principles of officiating
iii. Principles of Coaching
iv. Relation of official and coach with management, players and spectators.
v. Measures of improving the standards of officiating and coaching

Unit- II: Coach as a Mentor

i. Duties of coach in general, pre, during and post game.
ii. Philosophy of coaching
iii. Responsibilities of a coach on and off the field.
iv. Coach as role model for young players
v. Ethics of coaching

Unit- III: Duties of Official

i. Duties of official in general, pre, during and post game.
ii. Philosophy of officiating
iii. Mechanics of officiating – position, singles and movement during officiating.
iv. Use of latest technology in the officiating of various games.
v. Ethics of officiating

Unit- IV: Qualifications of Coach and Official

i. Academic and professional qualification of a coach for various levels.
ii. Academic and professional qualification of an official for various levels.
iii. Eligibility rules of Inter-School and School National.
iv. Traveling and Dearness Allowances rules for Inter-School and School National.
v. Method of taking sanction and bill preparation for Traveling and Dearness Allowances for various Competitions.

Reference Books:

Bunn, J. W. (1968). *The art of officiating sports*. Englewood cliffs N.J. Prentice Hall.
Bunn, J. W. (1972). *Scientific principles of coaching.* Englewood cliffs N. J. Prentice Hall.
Dyson, G. H. (1963). *The mechanics of athletics*. London: University of London Press Ltd.
Dyson, G. H. (1963). *The mechanics of Athletics*. London: University of London Press Ltd.
Lawther, J.D. (1965). *Psychology of coaching.* New York: Pre. Hall.
Singer, R. N. (1972). *Coaching, athletic & psychology*.New York: M.C. Graw Hill.

Part – B

Practical Courses

Semester – I

BPEd – 105: Athletics (Track Events) **Marks - 100**

Track Events

i. Teaching ability of Starting techniques (Marks – 20)

ii. Teaching ability of Finishing Techniques (Marks – 10)

iii. Teaching ability of Baton Exchange (Marks - 10)

iv. Interpretation of various rules of Track Events (Marks – 10)

v. Marking of Track 400m and 200m. (Marks – 50)

Note: Candidate have to take at least 5 teaching lessons of various techniques.

BPEd – 106: (Basketball and Kabaddi) **Marks - 100**

i) Basketball **Marks – 50**

1. Marking of Basketball Court (Marks – 20)
2. Teaching ability of various basic skills of Basketball (Marks – 20)
3. Interpretation of Various rules of Basket ball (Marks – 10)

ii) Kabaddi **Marks – 50**

1. Marking of kabaddi Court (Marks – 20)
2. Teaching Ability of various basic skills of kabaddi (Marks – 20)
3. Interpretation of Various rules of kabaddi (Marks – 10)

Note: Candidate have to take at least 5 teaching lessons of each game.

BPEd – 107: (Football and Kho - Kho) **Marks - 100**

i) Football **Marks – 50**

1. Marking of Football Ground (Marks – 20)
2. Teaching ability of various basic skills of Football (Marks – 20)
3. Interpretation of Various rules of Football (Marks – 10)

ii) Kho - Kho

Marks – 50

1. Marking of kho - Kho Court (Marks – 20)
2. Teaching Ability of various basic skills of kho - Kho (Marks – 20)
3. Interpretation of Various rules of kho - Kho (Marks – 10)

Note: Candidate have to take at least 5 teaching lessons of each game.

BPEd – 108: Anatomy, Physiology and Health Education **Marks - 100**

i. Name and location of various bones of Human Body (Marks – 10)
ii. Measurement of peak expiratory flow and its interpretation (Marks – 10)
iii. Measurement of BMI and its interpretation (Marks – 20)
iv. Measurement of Leg, back and grip strength (Marks – 20)
v. Measurement of Blood Pressure (Marks – 10)
vi. First Aid for various conditions and articles of first aid box (Marks – 30)

Semester – II
Theory Courses

BPEd - 201 YOGA EDUCATION

Time : Three Hours **Total Marks : 100 (Theory Marks: 80 + Internal Assessment :20)**

Note: *Paper setter is required to set 2 questions from each Unit - I, II, III and IV. Unit - V consists of 10 questions of short answers distributed from all over the syllabus. The candidates are required to attempt one question from each Unit – I, II, III & IV carrying 15 marks for each question. Unit - V is compulsory for all consisting 2 marks of each short answer.*

Unit – I: Introduction

i. Meaning and Definition of Yoga
ii. Historical background Yoga
iii. Aims and Objectives of Yoga
iv. The Yoga Sutra: General Consideration
v. Need and Importance of Yoga in Modern Society
vi. Misconceptions about Yoga

Unit - II: Foundation of Yoga

i. The Astanga Yoga: Yama, Niyama, Asana, Pranayama, Pratyahara, Dharana, Dhyana and Samadhi
ii. Yoga in the Bhagavadgita - Karma Yoga, Raja Yoga, Jnana Yoga and Bhakti Yoga

Unit - III Asanas and Paranayam

i. Meaning of Asanas and Paranayam, Different Types of Paranayams
ii. Effect of Asanas and Paranayam on Respiratory, Circulatory, Digestive, Endocrine and Muscular system.
iii. Classification of asanas with special reference to physical education and sports
iv. Influences of meditative posture on various system of the body

Unit – IV Yoga Education

i. Types of Bandhas and Mudras
ii. Type of kriyas
iii. Difference between yogic practices and physical exercises
iv. Yoga education centers in India and abroad

References:

Brown, F. Y.(2000). *How to use yoga*. Delhi:Sports Publication.
Gharote, M. L. &Ganguly, H. (1988). *Teaching methods for yogic practices*.Lonawala: Kaixydahmoe.
Rajjan, S. M. (1985). *Yoga strenthening ofrelexation for sports man.* New Delhi:Allied Publishers.
Shankar,G.(1998). *Holistic approach of yoga.* New Delhi:Aditya Publishers.
Shekar,K. C. (2003). *Yoga for health*. Delhi: Khel Sahitya Kendra.

Semester – II
Theory Courses

BPEd - 202 Computer Applications in Physical Education

Time : Three Hours **Total Marks : 100 (Theory Marks: 80 + Internal Assessment :20)**

Note: *Paper setter is required to set 2 questions from each Unit - I, II, III and IV. Unit - V consists of 10 questions of short answers distributed from all over the syllabus. The candidates are required to attempt one question from each Unit – I, II, III & IV carrying 15 marks for each question. Unit - V is compulsory for all consisting 2 marks of each short answer.*

Unit – I: Introduction to Computer

i. Meaning, need and importance of information and communication technology (ICT).
ii. Application of Computers in Physical Education
iii. Components of computer: input and output device
iv. Application software used in Physical Education and sports

Unit – II: MS Word

i. Introduction to MS Word
ii. Creating, saving and opening a document
iii. Formatting, page setup, paragraph alignment, spelling and grammar check, printing option, inserting: page number, graph, footnote and notes.
iv. Drawing table, Inserting row and column, deleting row and column

Unit – III: MS Excel

i. Introduction to MS Excel
ii. Inserting data in to excel sheet
iii. Creating, saving and opening worksheet
iv. Preparing bar Diagrams
v. Format and editing features adjusting columns width and row height understanding charts.

Unit – IV: MS Power Point

i. Introduction to MS Power Point
ii. Creating, saving and opening a ppt. file
iii. Format and editing features: design, inserting slide number, picture, graph and table.
iv. Stating slide show, Animations in the slides show
v. Preparation of Power point presentations

Referances:

Irtegov, D. (2004). Operating system fundamentals. Firewall Media.

Marilyn, M.& Roberta, B.(n.d.).Computers in your future. 2nd edition, India: Prentice Hall.

Milke, M.(2007). Absolute beginner's guide to computer basics. Pearson Education Asia.

Sinha, P. K. & Sinha, P. (n.d.).Computer fundamentals. 4th edition, BPB Publication

Semester – II
Theory Courses

BPEd - 203 Sports Psychology and Sociology

Time : Three Hours **Total Marks : 100 (Theory Marks: 80 + Internal Assessment :20)**

Note: *Paper setter is required to set 2 questions from each Unit - I, II, III and IV. Unit - V consists of 10 questions of short answers distributed from all over the syllabus. The candidates are required to attempt one question from each Unit – I, II, III & IV carrying 15 marks for each question. Unit - V is compulsory for all consisting 2 marks of each short answer.*

Unit -I: Introduction

i. Meaning, Importance and scope of Educational and Sports Psychology.
ii. General characteristics of Various Stages of growth and development.
iii. Types and nature of individual differences; Factors responsible – Heredity and environment
iv. Nature of learning, theories of learning and Laws of learning.

Unit-II: Sports Psychology

i. Meaning and definition of personality, dimensions of personality and Effect of Personality on the Sports performance
ii. Meaning and definition of motivation, Factors influencing motivation in sports and techniques of motivation in sports.
iii. Meaning and definition of anxiety and effect of anxiety on sports performance.

Unit-III: Relation between Social Science and Physical Education.

i. Meaning of Orthodoxy, Customs and Tradition, their relation with Physical Education.
ii. Concept of Socialization through Physical Education
iii. Meaning of Group Dynamics, Structure of Group, Social Group life, Primary group and Remote group.
iv. Meaning of Cohesion and development of team Cohesion.

Unit-4 Culture and Leadership

i. Meaning and definition of culture.
ii. Features and Importance of culture.
iii. Meaning and definition of leadership.
iv. Effects of culture on people life style and sports.
v. Theories of leadership and Types of leadership.

References:

Ball, D. W. & Loy, J. W. (1975).*Sport and social order; Contribution to the sociology of sport.*London: Addison Wesley Publishing Co., Inc.
Blair, J.& Simpson, R.(1962). *Educational psychology*, New York:McMillan Co.
Cratty, B. J.(1968). *Psychology and physical activity*. Eaglewood Cliffs. Prentice Hall.
Kamlesh, M.L. (1998). *Psychology inphysical education and sport*. New Delhi:Metropolitan Book Co.
Loy, J. W., Kenyon, G. S. & McPherson, B. D. (1978). Sport and social system. London: Addison Wesley Publishing Company Inc.
Loy, J. W., Kenyon, G. S. & McPherson, B. D. (1981).*Sports culture andsociety.*Philadelphia: Lea &Febiger.

Mathur, S.S., (1962). *Educational psychology*. Agra.VinodPustakMandir.
Skinnner, C. E., (1984.). *Education psychology*. New Delhi: Prentice Hall of India.
William, F. O.&Meyer, F. N. (1979). A handbook of sociology. New Delhi: Eurasia Publishing House Pvt Ltd.

Semester – II
Theory Courses

BPEd - 204 Contemporary issues in Physical Education, Fitness and Wellness

Time : Three Hours **Total Marks : 100 (Theory Marks: 80 + Internal Assessment :20)**

Note: *Paper setter is required to set 2 questions from each Unit - I, II, III and IV. Unit - V consists of 10 questions of short answers distributed from all over the syllabus. The candidates are required to attempt one question from each Unit – I, II, III & IV carrying 15 marks for each question. Unit - V is compulsory for all consisting 2 marks of each short answer.*

Unit – I Concept of Physical Education and Fitness

i. Definition, Aims and Objectives of Physical Education, fitness and Wellness
ii. Importance and Scope of fitness and wellness
iii. Modern concept of Physical fitness and Wellness
iv. Physical Education and its Relevance in Inter Disciplinary Context.

Unit – II Fitness, Wellness and Lifestyle

i. Fitness – Types of Fitness and Components of Fitness
ii. Understanding of Wellness: Body Wellness, Mind Wellness and Spiritual Wellness.
iii. Ethics of Wellness Coaching
iv. Principles and factors of fitness and wellness

Unit – III Principles of Exercise Program

i. Means of Fitness development – aerobic and anaerobic exercises
ii. Exercises and Heart rate Zones for various aerobic and anaerobic exercise intensities
iii. Various isometric, isotonic and isokinetic exercise for various major muscle groups: Hamstring, Quadriceps, Deltoid, Latissimus Dorsi and Pictorials Major.
iv. Concept of free weight Vs Machine, Sets and Repetition etc.

Unit – IV Safety Education and Fitness Promotion

i. Health and Safety in Daily Life
ii. Medical Considerations for exercise
iii. Common sports Injuries and their Management
iv. Modern Life Style and Hypo-kinetic Disease –Prevention and Management

References:

Difiore, J.(1998). Complete guide to postnatal fitness. London: A & C Black,.
Giam, C.K & The, K.C. (1994). Sport medicine exercise and fitness. Singapore: P.G. Medical Book.
Mcglynn, G., (1993). Dynamics of fitness. Madison: W.C.B Brown.
Sharkey, B. J.(1990). Physiology of fitness, Human Kinetics Book.

Part – B
Practical Courses
Semester – II

BPEd – 205: Athletics (Throwing Events) **Marks - 100**

Track Events

i. Marking of Short Put, Discus and Javelin throw Sector (Marks – 30)
ii. Teaching ability of Short Put Techniques (Marks – 20)
(Standing and Parry O'brien Technique)
iii. Teaching ability of Discus Throw Technique (Marks - 20)
iv. Teaching ability of Javelin Throw Technique (Marks - 20)
v. Interpretation of various rules of Throwing Events (Marks – 10)
(Short Put, Discus and Javelin throw)

Note: Candidate have to take at least 5 teaching lessons of Throwing Events.

BPEd – 206: (Volleyball & Yoga) **Marks - 100**

i) Volleyball **Marks – 50**

1. Marking of Volleyball Court (Marks – 20)
2. Teaching ability of various basic skills of Volleyball (Marks – 20)
3. Interpretation of Various rules of Volleyball (Marks – 10)

ii) Yoga **Marks – 50**

Asana (Marks – 40)

1. Shirsh Asana
2. Vipratakarani
3. Hal Asana
4. Bhujang Asana
5. Ardh-Shalbh Asana
6. Vakra Asana
7. Ardha Matasyaendrasana
8. Paschimottan Asana
9. Vajra Asana
10. Supta Vajra Asana
11. Yoga Mudra
12. Nauka Asana
13. Bak Asana
14. Mayur Asana
15. Ustra Asana
16. Vriksh Asana
17. Padma Asana
18. Trikon Asana
19. Sarvang Asana
20. Surya Namaskar

Paranayam (Marks - 10)

1. Ujjai
2. Bhastrika
3. Shitali
4. Sitkari
5. Bhramri

Note: Students are required to do any 10 of above mentioned Asanas and two Pranayama

Note: Candidate have to take at least 5 teaching lessons of each Volleyball and Yoga.

BPEd – 207: (Handball & Gymnastics) **Marks - 100**

i) Handball **Marks – 50**

1. Marking of **Handball** Ground (Marks – 20)
2. Teaching ability of various basic skills of **Handball** (Marks – 20)
3. Interpretation of Various rules of **Handball** (Marks – 10)

ii) Gymnastics **Marks – 50**

1. Dimensions of various gymnastic apparatus (Marks – 20)
2. Teaching Ability of various basic skills of ***Gymnastics*** (Marks – 20)

(Gymnastics should be chalked out internally considering advance level of students and suitable to their age and gender)

3. Interpretation of Various rules of ***Gymnastics*** (Marks – 10)

Note: Candidate have to take at least 5 teaching lessons of each game.

BPEd – 208: Computer Application, Rehabilitation & Sports Psychology **Marks - 100**

i. Operating of MS Word, MS Excel & MS Power Point (Marks – 40)
ii. Identification and rehabilitation of various types of sports injuries (Marks – 20)
iii. Assessment of reaction time, anticipation and Hand Eye co-ordination (Marks – 20)
iv. Assessment of Motivation and Anxiety. (Marks – 20)

KURUKSHETRA UNIVERSITY, KURUKSHETRA
B.Ed. Spl. Ed. (V.I.) SYLLABUS

Effective from Academic Session 2015-16 & 2016-17
Two Years Duration (4-Semesters)

KURUKSHETRA UNIVERSITY, KURUKSHETRA
B.Ed. Spl. Ed. (V.I.) SYLLABUS

PART-I: INTRODUCTION TO COURSE

Course	Course title		Credits	Internal assessment	External assessment	Total marks	Duration of Exam (hours)
SEMESTER-I							
C-1	Human Growth & Development		4	20	80	100	3 hours
C-2	Contemporary India and Education		4	20	80	100	3 hours
C-3	Introduction to Sensory Disabilities(VI, HI, Deaf-blind)		2	10	40	50	1.5 hours
C-4	Introduction to Neuro Developmental (LD, ID/ MR, ASD), Loco motor and Multiple Disabilities (Deaf-Blind, CP, MD)		4	20	80	100	3 hours
C-5	Identification of Children with visual impairment and assessment of needs		4	20	80	100	3 hours
C-6	Practical: Cross Disability and Inclusion		2	10	40	50	
SEMESTER-II							
C-7	Learning, Teaching and Assessment		4	20	80	100	3 hours
C-8 & C-9	Pedagogy of Teaching (V.I.) (any two papers from any two groups selecting one from one group)						
	Group-A	I. Pedagogy of teaching Science to students with visual impairment	4	20	80	100	3 hours
	Group-B	I. Pedagogy of teaching Mathematics to students with visual impairment II. Pedagogy of teaching Social Science to students with visual impairment	4	20	80	100	3 hours
	Group-C	I. Pedagogy of teaching Hindi to students with visual impairment II. Pedagogy of teaching English to students with visual impairment	4	20	80	100	3 hours
C-10	Inclusive Education		2	10	40	50	1.5 hours
C-11	Curriculum, Designing, Adaptation and Strategies for teaching expanded curriculum		4	20	80	100	3 hours
C-12	Practical: Disability specialization (V.I.)		2	10	40	50	

SEMESTER-III						
C-13	Intervention and Teaching Strategies	4	20	80	100	3 hours
C-14	Technology and Education of Visually Impaired	4	20	80	100	3 hours
C-15	Psycho Social and Family Issues	2	10	40	50	1.5 hours
C-16	Practical: Disability Specialization (visual impairment)	4	20	80	100	
C-17	Field Work: Main disability special school (visual impairment)	4	20	80	100	
C-18	Reading and Reflecting on Texts (EPC)	2	10	40	50	1.5 hours
C-19	Performing and Visual Art (EPC)	2	10	40	50	1.5 hours
SEMESTER-IV						
C-20	Skill based Optional Course (Hearing Impairment) ANY ONE* A. Guidance and Counselling(HI) B. Early Childhood and Education (HI) C. Applied Behavioural Analysis(HI) D. Community based Rehabilitation(HI) E. Applications of ICT in Classroom (HI) F. Gender and Disability (HI) G. Braille and Assistive Devices (VI)	2	10	40	50	1.5 hours
C-21	Skill based Optional Course (Hearing Impairment) ANY ONE* A. Orientation and Mobility (VI) B. Communication Options: Oralism (HI) C. Communication Options: Manual (Indian Sign Language) (HI)	2	10	40	50	1.5 hours
C-22	Basic Research & Statistics (EPC)	2	10	40	50	1.5 hours
C-23	Practical: Cross Disability and Inclusion	4	20	80	100	
C-24	Field Work: Other disability special school	4	20	80	100	
C-25	Field Work: Inclusive school	4	20	80	100	
GRAND TOTAL		**80**	**400**	**1600**	**2000**	

*Student-teachers will be specialized in the hearing impairment-other than visual impairment- as per the Area B (Cross Disability and Inclusion) of curriculum framework given by RCI on pg-8. In case of student-teachers with disability; the choice of two optional courses C-20 & C-21 will be on case to case basis (e.g. students-teachers with VI and HI may opt for courses that are appropriate for them across C-20 &C-21).

PART-II: ENGAGEMENT WITH FIELD AS PART OF COURSES

Sr. No.	Task for the student-teacher	Course	Description
SEMESTER-I			
1	Assignment / Project	**C-1**	Department of Education, KUK
2	Assignment / Project	**C-2**	Department of Education, KUK
3	Assessment & Identification of Needs	**C-5** (All disabilities)	Camp / Clinic / School, etc. for minimum of fifteen hours
4	Assignment / Project / Presentation	**C-7**	Department of Education, KUK
SEMESTER-II			
5	Assignment / Project / Presentation	**C-10**	Department of Education, KUK
6	Assignment / Project / Presentation	**C-11**	Department of Education, KUK
7	Assignment / Project / Presentation	**C-8/C-9**	Department of Education, KUK/ Special/ Inclusive School
SEMESTER-III			
8	Assignment / Project/Presentation	**C-13**	Department of Education, KUK
9	Assignment / Project/Presentation	**C-14**	Department of Education, KUK
10	Assignment / Project/Presentation	**C-15**	Department of Education, KUK
11	Assignment / Project/Presentation	**C-18**	Department of Education, KUK/ School
12	Assignment / Project/Presentation	**C-19**	Department of Education, KUK/ School
SEMESTER-IV			
13	Assignment / Project/Presentation	**C-20**	Department of Education, KUK
14	Assignment / Project/Presentation	**C-21**	Department of Education, KUK/ School
15	Assignment / Project/Presentation	**C-22**	Department of Education, KUK/ School

PART-III: PRACTICAL

Note: The evaluation will be done jointly by the two examiners (one internal and one external).

Semester	Sr. No	Task for the student teacher	Disability focus		Educational settings	Specific activities	Hrs. (60)	Marks
Semester-I	1	Classroom Observation	1	VI	Special School	Learners will observe students in different educational settings, curriculum transaction, classroom interaction in curricular and co-curricular areas and submit a report	10	25 (20+5)
			2	Other than VI	Minimum three special school		10	
			3	Any Disability	Inclusive schools		10	
	2	Learning of Braille	VI and DEAF-blind		Department of Education, KUK	Introduction to Bharti/hindi or Regional Braille	30	25 (20+5)
Semester-II	1	Learning of Braille	VI		Department of Education, KUK	1.Bharati Hindi or Regional Braille	30	25
						2. Braille Mathematical sign for: Numeric indicator, basic operations, simple fraction and brackets	15	25
	2	Learning the use of Assistive Devices	VI		Department of Education, KUK	Taylor Frame: Basic Operation using arithmetic and algebraic types	15	
Semester-III	1	Reading and writing of standard English	VI		Department	1. Reading and writing English Braille text. Transcription	60	50

		braille			from print to Braille and vice versa(Grade II)		
					2. Braille Mathematics Code: Radicals, fraction (Mixed, complex and hyper complex), sign and symbols of comparison, Shape signs, Greek letters, indices, set, symbols, trigonometric functions	30	25
					3. Abacus and Geometric kit	30	25
Semester-IV	1	Classroom Observation For school subjects at different levels	1. Other than VI	1. Special Schools other than VI	Observation For school subjects at different levels	15	25
			2. Any Disability	2. Inclusive schools	Observation For school subjects at different levels	15	
	2	Orientation and Mobility Training	VI	Department of Education, KUK Campus and outside campus	a) Sighted Guide Technique b) Pre Cane skills c) Cane technique d) Direction finding technique	60	50
	3	Teaching lessons on O&M and ADL	VI and VIMD	Special and inclusive school	Individualized Teaching lessons on orientation and mobility and activities of daily living	30	25

PART-IV: PEDAGOGY

(A) COURSE-17: DISABILITY SPECIALISATION

Sr.No.	Tasks for the Student teachers	Disability Focus	Set Up	No. of Lessons
1	Classroom Teaching	Major disability	Special schools for disability specialisation	Minimum 90 school periods

(B) Minimum of four weeks should be allocated for School attachment/Internship and reflected in the time table and should cover Tasks specified under C-16 and C-17 with sufficient time for teaching to acquire Pedagogical competence to deal with school subjects chosen and related activities for whole class as well as children with disabilities in different education settings. A suggestive framework is given below:

Note: The evaluation will be done jointly by the two examiners (one internal and one external).

Area	Disability Specialization
C-8 Pedagogy Subject 1	Semester- III (three days-15 Hrs)
C-9 Pedagogy Subject 2	Semester- III (three days-15 Hrs)
C-17 School Attachment/ Internship	Semester- III (24 days-120 Hrs)

(C) Course-24 Other Disability Special School

Note: The evaluation will be done jointly by the two examiners (one internal and one external).

Sr.No.	Tasks for the Student teachers	Disability Focus	Set Up	No. of Lessons
1	Classroom Teaching	Other than Major disability	Special schools for other disabilities	Minimum 180 school periods

(D) Course-25 Inclusive School

Note: The evaluation will be done jointly by the two examiners (one internal and one external).

Sr.No.	Tasks for the Student teachers	Disability Focus	Set Up	No. of Lessons
1	Classroom Teaching	Any disability	Inclusive School	Minimum 180 school periods

(E) Minimum of four weeks should be allocated for School attachment/ Internship and reflected in the time table and should cover Tasks specified under E-1, F-2 and F-3 with sufficient time for teaching to acquire Pedagogical competence to deal with school subjects chosen and related activities for whole class as well as children with disabilities in different education settings. A suggestive framework is given below:

Note: The evaluation will be done jointly by the two examiners (one internal and one external).

Area	Disability Specialization	Other Disability	Inclusive Education
C-8 Pedagogy Subject-I	Semester- III (3 days-15 Hrs)	Semester- IV (2 days-12 Hrs)	Semester- IV (2 days-12 Hrs)
C-9 Pedagogy Subject-II	Semester- III (3 days-15 Hrs)	Semester- IV (2 days-12 Hrs)	Semester- IV (2 days-12 Hrs)
C-24 &C-25	Semester- III (24 days-120 Hrs)	Semester- IV (24 days-120 Hrs	Semester- IV (24 days-120 Hrs

It may be noted:

1. Observations and Lessons should be on Primary and Secondary level of classes in all three areas, i.e., Disability Specialisation, Other disability and in Special and Inclusive Settings.

2. Practical are focused on school subject teaching. Every student is expected to opt for and teach any two school subject as offered by the Institution/ University.

3. Practical in Other disability should be for other than disability specialisation.

4. Practical in Inclusive settings should be preferably with various disabilities.

SEMESTER–I B.Ed. Spl. Ed. (V.I.)

Introduction To Course For Semester-I

Course	Course title	Credits	Internal assessment	External assessment	Total marks	Duration of exam
C-1	Human Growth & Development	4	20	80	100	3 hours
C-2	Contemporary India and Education	4	20	80	100	3 hours
C-3	Introduction to Sensory Disabilities(VI, HI, Deaf-blind)	2	10	40	50	1.5 hours
C-4	Introduction to Neuro Developmental (LD, ID/ MR, ASD), Locomotor and Multiple Disabilities (Deaf-Blind, CP, MD)	4	20	80	100	3 hours
C-5	Identification of Children with visual impairment and assessment of needs	4	20	80	100	3 hours
C-6	Practical: Cross Disability and Inclusion	2	10	40	50	
GRAND TOTAL		**20**	**100**	**400**	**500**	

COURSE-I: HUMAN GROWTH & DEVELOPMENT

Course: I **Credits: 04**
Contact Hours: 60 **Marks: 100**
Time of Examination: 3 Hours **(External-80+Internal-20)**

Note: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions will carry equal marks.

Introduction

This course exposes student-teachers to the study of child and human development in order to gain a better understanding about variations and the influence of socio-cultural-political realities on development. A critical understanding of theoretical perspectives of development would aid in their application in teaching learning process. Through close observation of children in their natural environments the teacher trainee would be able to situate their theoretical knowledge within realistic frames. This course would also be able to equip them to reflect and critique the normative notions of childhood and adolescence.

Objectives

After studying this course the student- teachers will be able to

•*explain the process of development with special focus on infancy, childhood and adolescence.*
•*critically analyze developmental variations among children.*
•*comprehend adolescence as a period of transition and threshold of adulthood.*
• *analyze different factors influencing child development.*

Unit 1: Approaches to Human Development

1.1 Human development as a discipline from infancy to adulthood
1.2 Concepts and Principles of development
1.3 Developing Human- Stages (Prenatal development, Infancy, Childhood, Adolescence, Adulthood)
1.4 Nature v/s Nurture
1.5Domains (Physical, Sensory- perceptual, Cognitive, Socio-emotional, Language &communication, Social relationship)

Unit 2: Theoretical Approaches to Development

2.1 Cognitive & Social- cognitive theories (Piaget, Vygotsky, Bruner, Bandura)
2.2 Psychosocial Theory (Erikson)
2.3 Psychoanalytic Theory (Freud)
2.4 Ecological Theory (Bronfrenbrenner)
2.5 Holistic Theory of Development (Steiner)

Unit 3: The Early Years (Birth to Eight Years)

3.1 Prenatal development: Conception, stages and influences on prenatal development

3.2 Birth and Neonatal development: Screening the newborn - APGAR Score, Reflexes and responses, neuro-perceptual development
3.3. Milestones and variations in Development
3.4 Environmental factors influencing early childhood development
3.5 Role of play in enhancing development

Unit 4: Early Adolescence (From nine years to eighteen years)

4.1 Emerging capabilities across domains of physical and social emotional
4.2Emerging capabilities across domains related to cognition – meta-cognition, creativity, ethics.
4.3Issues related to puberty
4.4Gender and development
4.5Influence of the environment (social, cultural, political) on the growing child

Unit 5: Transitions into Adulthood

5.1 Psychological well-being
5.2 Formation of identity and self-concept
5.3 Emerging roles and responsibilities
5.4 Life Skills and independent living
5.5 Career Choices

Engagement with the field as part of course as indicated below

Hands on Experience

• Observe children in various settings and identify milestones achieved.
• Seminar on human development
• Writing Journal for reflection and case study

Suggested Readings

• Berk, L. E. (2000). *Human Development.* Tata Mc.Graw Hill Company, New York.
• Brisbane, E. H. (2004). *The developing child*.Mc.Graw Hill, USA.
• Cobb, N. J. (2001). *The child infants, children and adolescents*. Mayfield PublishingCompany, California.
• Hurlocl, E. B. (2005). *Child growth and development*. Tata Mc.Graw Hill PublishingCompany, New York.
• Hurlocl, E. B. (2006). *Developmental Psychology- A life span approach*. Tata Mc.Graw Hill Publishing Company, New Delhi.
• Meece, J. S., & Eccles J. L (Eds) (2010). *Handbook of Research on Schools, Schooling and Human Development*.New York: Routledge.
• Mittal. S. (2006).*Child development- Experimental Psychology*.Isha Books, Delhi.
• Nisha, M. (2006). Introduction to child development, Isha Books, Delhi.
• Papalia, D. E., & Olds, S. W. (2005). *Human development*. Tata Mc.Graw HillPublishing Company, New York.
• Santrock. J. W. (2006). *Child Development*., Tata Mc.Graw Hill Publishing Company,New York.
• Santrock. J. W. (2007). *Adolescence*.,TataMc.Graw Hill Publishing Company, NewDelhi.

COURSE-2: CONTEMPORARY INDIA AND EDUCATION

Course: 2 **Credits: 04**
Contact Hours: 60 **Marks: 100**
Time of Examination: 3 Hours **(External-80+Internal-20)**

Note: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions will carry equal marks..

Introduction

This course will enable student-teachers to explore education from philosophical and sociological perspective and hands on experience of engaging with diverse communities, children and schools. It also traces the educational developments in the historical context leading to contemporary India. The course also includes various commissions and policies and issues and trends in the field of education, special education and inclusive education.

Objectives

After completing this course the student-teachers will be able to

• *Explain the history, nature and process and Philosophy of education*
• *Analyse the role of educational system in the context of Modern Ethos*
• *Understand the concept of diversity*
• *Develop an understanding of the trends, issues, and challenges faced by thecontemporary Indian Education in global context*

Unit 1: Philosophical Foundations of Education

1.1 Education: Concept, definition and scope
1.2 Agencies of Education: School, family, community and media
1.3Philosophies of Education: idealism, naturalism, pragmatism, existentialism, humanism, constructivism and connectionism
1.4 Classical Indian Perspective (Budhism, Jainism, Vedanta Darshan, Sankya Darshan)
1.5 Indian Philosophers (Aurobindo, Gandhi, Tagore, Krishna Murthy)

Unit 2: Understanding Diversity

2.1 Concept of Diversity
2.2Types of Diversity: Gender, linguistic, cultural, socio-economic and disability
2.3 Diversity in learning and play
2.4 Addressing diverse learning needs
2.5 Diversity: Global Perspective

Unit 3: Contemporary Issues and Concerns

3.1Universalisation of School Education, Right to Education and Universal Access
3.2Issues of a) Universal enrolment b) Universal retention c) Universal learning
3.3 Issues of quality and equity: Physical, economic, social, cultural and linguistic,particularly w.r.t girl child, weaker sections and disabled

3.4 Equal Educational Opportunity: (i) Meaning of equality and constitutional provisions
(ii) Prevailing nature and forms of inequality, including dominant and minority groups and related issues
3.5 Inequality in Schooling: Public-private schools, rural-urban schools, single teacher schools and other forms of inequalities such as regular and distance education system

Unit 4: Education Commissions and Policy (School Education)

4.1 Constitutional provisions on education that reflect National Ideals: Equality, liberty, secularism, and social justice
4.2 National Commissions and Policies: Education Commission (1964), NPE and POA(1986, 1992), National Policy for Persons with Disabilities (2006)
4.3 National Acts: RCI Act, 1992, PWD Act, 1995, NT Act, 1999, RTE Act (2009 &2012).
4.4 Programmes and Schemes: IEDC (1974, 1983), SSA (2000, 2011), RMSA, 2009,IEDSS, 2009
4.5 International Conventions and Policies: Salamanca Declaration and Framework,1994; UNCRPD, 2006; MDG, 2015; INCHEON strategies

Unit 5: Issues and Trends in Education

5.1 Challenges of education from preschool to senior secondary
5.2 Inclusive education as a rights based model
5.3 Complementarity of inclusive and special schools
5.4 Language issues in education
5.5 Community participation and community based education

Some Suggested Activities on contemporary issues

• Comparative study of different settings
• Conflicts and social movements in India: Women, Dalit, Tribal and Disabled
• Educational debates and movements
• First generation learners
• Children with disabilities
• Inclusive education
• RTE act in the context of disadvantaged
• Linguistic and religious diversity
• Human rights, minority rights
• Educational status of various groups
• Special and inclusive schools
• Analysis of contemporary debates

Essential Readings

• Guha, R. (2007). India after Gandhi: The History of the World's Largest Democracy.Macmillon: Delhi.
•National Education Commission. (1964-66). Ministry of Education, Government ofIndia, New Delhi
•National Policy on Education. (1986 & 92).Ministry of Human ResourceDevelopment Government of India, New Delhi.

• Right to Education Act. (2009). Ministry of Human Resource Development, Government of India, New Delhi.

Suggested Readings

•Aggarwal. J. C. (1992). Development and Planning of Modern Education: New DelhiVikas Publishing House Pvt. Ltd.
•Ain, L. C. (2010). Civil Disobedience, Book Review Literary Trust: New Delhi.Select chapters.
•Anand, S. P. (1993).The Teacher & Education in Emerging Indian Society, NewDelhi: NCERT.
• Bhat. B. D. (1996). Educational Documents in India, New Delhi: Arya Book Depot.
•Bhatia, K. & Bhatia, B. (1997). The Philosophical and Sociological Foundations, NewDelhi Doaba House.
• Biswas. A. (1992).Education in India, Arya Book Depot. New Delhi
• Biswas. A., &Aggarwal, J.C. (1992).Education in India, Arya Book Depot NewDelhi.
•Chakravarty, S. (1987). Development Planning: The Indian Experience, OxfordUniversity press: New Delhi.
•Chandra, B. (1997). Nationalism and Colonialism, Orient Longman: Hyderabad.
• Choudhary. K.C., &Sachdeva, L. (1995). Total literacy by 2000: New Delhi: IAEAssociation.
• Deaton A., &Dreze, J. (2008-2009). Poverty and Inequality in India in Raj Kapilaand Uma Kapila (Ed.) in Indian Economy since Independence. Oxford UniversityPress: New Delhi.
• Deshpande, S. (2004). Contemporary India: A Sociological View. Penguin: NewDelhi.
• Dubey, S. C (2001). Indian Society, National Book Trust: New Delhi.
• Famous Speeches of Gandhi ji: Speech on the Eve of The Last Fast, January 12, 1948.
• http://unesdoc.unesco.org/images/0023/002322/232205e.pdf
• http://www.gandhi-manibhavan.org/gandhicomesalive/speech8.htm
• http://www.mkgandhi.org/speeches/speechMain.htm
• Jain, L.C. (2010). Civil Disobedience, Book Review Literary Trust, New Delhi.
• Jagannath. M. (1993). Indian Education in the Emerging Society, New Delhi Sterlingpublishers Pvt. Ltd.
• Jangira, N.K. (2012). NCERT Mmother of Inclusive Eeducation Address on GoldenJubilee of NCERT at RIE, Ajmer on 01 Sept. 2012.
• Kashyap, S. C. (2009). The Constitution of India, National Book Trust: New Delhi.
• Sapra. C. L., &Aggarwal, A. (1987): Education in India some critical Issues. NewDelhi: National Book Organisation.
• Saraswathi, T. S. (1999). Culture, Socialization and Human Development, New Delhi:Sage Publications.
• Sen, A., &Dreze, J. (1997). India: Economic Development and Social OpportunityOxford India: Delhi.
• Speeches of Gandhi ji: Speech on the Eve of The Last Fast, January 12, 1948. Government of India.
• Steven, B. (1998). School and Society, New Delhi: Sage Publications.
• Suresh, D. (1998). Curriculum and Child Development, Agra: Bhargava.
• Taneja. V.R. (1998). Educational Thoughts and Practice, Delhi University Publications.
•Vaidyanathan, A. (1995). The Indian Economy: Crisis, Response and Prospects.Tracts of the Times. Orient Longman Publications: New Delhi.
•Weber. O.C. (1990).Basic Philosophies of Education, New York Holt, Rinehart andWinston.

COURSE-3: INTRODUCTION TO SENSORY DISABILITIES (VI, HI, Deaf-Blind)

Course: 3 **Credits: 02**

Contact Hours: 30 **Marks: 50**

Time of Examination: 1.5 Hours **(External-40+Internal-10)**

Note: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions will carry equal marks.

Introduction

The course is designed to provide a basic understanding to the student-teachers about the nature and needs of different types of sensory disabilities. It will also equip them in undertaking screening, planning and instructing students with sensory disabilities.

Objectives

After completing this course, the student-teachers will be able to

• *Name the different types of sensory impairments and its prevalence and describe the process of hearing & implications of various types of hearing loss.*

• *Explain the issues & ways to address challenges in educating students with hearing loss.*

• *Describe nature, characteristics & assessment of students with low vision & visual impairment.*

• *Suggest educational placement and curricular strategies for students with low vision& visual impairment.*

•*Explicate the impact of deaf-blindness & practices for functional development.*

Unit 1: Hearing Impairment: Nature & Classification

1.1 Types of sensory impairments: Single (Hearing Impairment & Visual Impairment) &Dual sensory impairment (Deaf-blindness)

1.2 Importance of hearing

1.3 Process of hearing & its impediment leading to different types of hearing loss

1.4 Definition of hearing loss, demographics & associated terminologies: deaf/ Deaf/deafness/ hearing impaired/ disability/ handicapped

1.5 Challenges arising due to congenital and acquired hearing loss

Unit 2: Impact of Hearing Loss

2.1 Characteristics of learners with hearing loss and impact of different degrees of hearing impairment on communication

2.2 Language & communication issues attributable to hearing loss and need for early Intervention

2.3 Communication options, preferences & facilitators of individuals with hearing loss

2.4 Issues & measures in literacy development and scholastic achievement of students with hearing loss

2.5 Restoring techniques using human (interpreter) & technological support (hearing devices)

Unit 3: Visual Impairment-- Nature and Assessment

3.1. Process of Seeing and Common Eye Disorders in India

3.2. Blindness and Low Vision--Definition and Classification

3.2. Demographic Information--NSSO and Census 2011

3.4. Importance of Early Identification and Intervention

3.5. Functional Assessment Procedures

Unit 4: Educational Implications of Visual Impairment

4.1. Effects of Blindness--Primary and Secondary

4.2. Selective Educational Placement

4.3. Teaching Principles

4.4. Expanded Core Curriculum-- Concept and Areas

4.5. Commonly Used Low Cost and Advanced Assistive Devices

Unit 5: Deaf-blindness

5.1 Definition, causes, classification, prevalence and characteristics of deaf-blindness

5.2 Effects and implications of deaf-blindness on activities of daily living & education

5.3 Screening, assessment, identification & interventional strategies of deaf-blindness

5.4 Fostering early communication development: Methods, assistive devices and practices including AAC

5.5 Addressing orientation, mobility & educational needs of students with deaf-blindness

Course Work/ Practical/ Field Engagement

• Develop a checklist for screening of children for hearing impairment

• Develop a checklist for screening of children for low vision

• Develop a checklist for screening of children for blindness

• Develop a checklist for screening of children for deaf blindness

• Journal based on observations of teaching children with sensory disabilities

Transactions

Visits, Observations, Videos and Interactions with Students with Disabilities

Essential Readings

• Bradford, L. J. & Hardy, W.G. (1979). Hearing and Hearing Impairment. New York:Grune and Stratton.

• Davis, H. & Silverman, S. R. (1970). Hearing and Deafness - Part I. Holt, London:Rinehart & Winston.

• Holbrook, C.M., & Koenig, A. J. (Eds.) (2000). Foundations of Education, Vol I:History and Theory of Teaching Children and Youths with Visual Impairments. (2nd ed): New York: AFB Press.

• Handbook on Deafblindness (2005). Sense International India. Retrieved online on24/4/2015 from http://www.google.co.in/url?sa=t&rct=j&q=&esrc=s&source=web&cd=3&ved=0CDEQFjAC&url=http%3A%2F%2Fssa.nic.in%2Finclusive-education%2Ftrainingmodule-for-resource-teachers-for-disablechildren%2FModule%25202%2520Deafblindness.pdf%2Fat_download%2Ffile&ei=LkY6VdGlOIKymAW604CgDg&usg=AFQjCNHxJc9OazS1f-TSI_HgQqJKxWjs_A&sig2=LIBWuGnYE0OLPtpK5FCHEg&bvm=bv.91427555,d.dGY

• Kelley, P., & Gale, G. (1998). Towards Excellence: Effective education for studentswith vision impairments. Sydney: North Rocks Press.
• Lowenfeld, B. (1973). Visually Handicapped Child in School and Society; AmericanFoundation for the Blind; NewYork.
• Lynas, W. (2000). Communication options.In J. Stokes (Ed), Hearing ImpairedInfants – Support in the first eighteen months. London: Whurr Publishers Ltd.
• Martin, F. N., & Clark, J.G. (2009). Introduction to Audiology. 10th ed. Boston:Pearson Education.
• Martin, F.N., & Clark, J.G. (2012). Introduction to Audiology. 11th ed. Boston:Pearson Education.
• National Institute for the Visually Handicapped (2015). Information Booklet onVisual Impairment in India, Dehradun: Government of India.
• Nerbonne, M. A., &Schow, R.L. (2002). Introduction to Audiologic Rehabilitation.Boston: Allyn and Bacon.
• Nerbonne, M. A., &Schow, R.L. (2013). Introduction to Audiologic Rehabilitation.6th ed. Boston: Pearson Education.
• Northern, J. L., & Downs, M. P. (2002). Hearing in Children (5th Ed.). Philadelphia:Williams & Wilkins
• Prescod, S. V. (1978). Audiology Handbook of Hearing Disorders. New York: VanNostrand Reinhold Company.
• Sataloff, R. T., &Sataloff, J. (2005). Hearing Loss.(4th Ed.) London: Taylor &Francis.
• Sims, L.G., Walter, G.G., & Whitehead, R.L. (1981). Deafness and Communication:Assessment and Training. Baltimore: Williams and Wilkins.
• Warren, D.H. (1994). Blindness and Children: An Individual Differences Approach.New York: Cambridge University Press.

Suggested Readings

• Auditory-Verbal International (1991). Auditory-verbal position statement.*Auricle*4:11-12.
• Harp, B. (2006). *The handbook of literacy assessment and evaluation*, (3rd Eds).Norwood, M.A.: Christopher-Gordon Publishers, Inc.
• Katz, J. (1985). *Handbook of Clinical Audiology*.(4th Ed.) Baltimore: Williams andWilkins.
• Loreman, T., Deppeler, J., & Harvey, D. (2005). *Inclusive education - A practical guide to supporting diversity in the classroom*.(2nd Eds.).U.K. Routledge.
• Norris, G. H., &Romer, L.T. (1995). *Welcoming Students who are deaf blind to typical classrooms*. U.S: Paul H. Brookes.
• Pandey, R. S., &Advani, L. (1995). *Perspectives in Disability and Rehabilitation*. New Delhi: Vikas Publishing House Pvt. Ltd.
• *Proceedings from National Conference on Centenary for Work for the Blind in India*(1987). All India Confederation of the Blind and ChristoffelBlinden Mission; Delhi:R.K.Printers.
• Scholl, G.T. (1986). *Foundations of Education for Blind and Visually HandicappedChildren and Youth*. New York: American Foundation for the BLind.
• Tucker, I., & Nolan, M. (1984).*Educational Audiology*. London: Croom Helm.
• Tye-Murray, N. (1998). Intervention Plans for Children. In Tye-Murray N. (Eds)*Foundations of Aural Rehabilitatio*n. San Diego: Singular. p.381–413.

COURSE-4: INTRODUCTION TO NEURO DEVELOPMENTAL (LD,ID/MR,ASD), LOCO MOTOR AND MULTIPLE DISABILITIES (Deaf-Blind, CP, MD)

Course: 4 **Credits: 04**
Contact Hours: 60 **Marks: 100**
Time of Examination: 3 Hours **(External-80+Internal-20)**

Note: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions will carry equal marks.

Introduction

The course integrates relevant subject matter in the areas of Learning Disability, intellectual Disability and Autism Spectrum Disorder. This course will prepare pre-service teachers to work with students with Neuro Developmental disabilities in inclusive and specialized settings. It fosters the acquisition of the broad-based knowledge and skills needed to provide effective educational programs for students with learning and behavior characteristics. The course emphasizes implications for educational and vocational programming, curriculum, and instruction. The course also aims to develop understanding about planning effective educational programme and functional activities for students with locomotor and multiple disabilities. This course intends to develop required skills in teacher trainee to identify the children with locomotor and multiple disabilities and also plan an effective programme education as well as for creating awareness on these conditions. Teacher is also expected to plan an effective therapeutic and programme and also refer for medical intervention whenever if necessary.

Objectives

After completing the course the student-teachers will be able to

• *Discuss the characteristics and types of learning disability.*
• *Describe the tools, areas of assessment and apply intervention strategies to enhance learning.*
• *Explain the characteristics and types of Intellectual disability.*
• *Describe the tools, areas of assessment and prepare and apply intervention strategies for independent living.*
• *Explain the characteristics and types of Autism Spectrum Disorder.*
• *Describe the tools, areas of assessment and apply intervention strategies.*
• *Identify the persons with Locomotor disabilities such as Cerebral Palsy, Amputees, Polio, Leprosy cured, Muscular dystrophies, Neural and spinal defects and Multiple disabilities.*
• *Plan an effective programme for creating awareness about the persons with Locomotor disabilities and Multiple disabilities.*
• *Plan an effective therapeutic and programme for the persons with Locomotor disabilities and Multiple disabilities and to refer for medical intervention if necessary.*
• *Plan an effective educational programme and functional activities for the persons with Locomotor disabilities and Multiple disabilities.*

Unit 1 Learning Disability & Intellectual Disability: Nature, Needs, Assessment and Intervention

(a) Learning Disability

1.1 Definition, Types and Characteristics

1.2 Tools and Areas of Assessment

1.3 Strategies for reading, Writing and Maths

1.4 Curricular Adaptation, IEP, Further Education,

1.5 Transition Education, Life Long Education

(b) Intellectual Disability

1.6 Definition, Types and Characteristics

1.7 Tools and Areas of Assessment

1.8 Strategies for Functional Academics and Social Skills

1.9 Assistive Devices, Adaptations, Individualized Education Plan, Person Centered Plan, Life Skill Education

1.10 Vocational Training and Independent Living

Unit 2: Autism Spectrum Disorder: Nature, Needs and Intervention

2.1 Definition, Types and Characteristics

2.2 Tools and Areas of Assessment

2.3 Instructional Approaches

2.4 Teaching Methods

2.5 V3cational Training and Career Opportunities

Unit 3: Cerebral Palsy (CP)

3.1. CP: Nature, Types and Its Associated Conditions

3.2. Assessment of Functional Difficulties of CP including Abnormalities of Joints and Movements (Gaits)

3.3. Provision of Therapeutic Intervention and Referral of Children with CP

3.4. Implications of Functional Limitations of Children with CP in Education and Creating Prosthetic Environment in School and Home: Seating Arrangements, Positioning and Handling Techniques at Home and School

3.5. Facilitating Teaching-Learning of Children with CP in School, IEP, Developing TLM; Assistive Technology to Facilitate Learning and Functional Activities

Unit 4: Amputees, Polio, Spinal Cord Injuries Spina-bifida and Muscular Dystrophy

4.1. Definition, Meaning and Classification

4.2. Assessment of Functional Difficulties

4.3. Provision of Therapeutic Intervention and Referral

4.4. Implications of Functional Limitations for Education and Creating Prosthetic Environment in School and Home: Seating Arrangements, Positioning and Handling Techniques at Home and School

4.5. Facilitating Teaching-Learning: IEP, Developing TLM; Assistive technology

Unit 5: Multiple Disabilities and Other Disabling Conditions

5.1 Multiple Disabilities: Meaning and Classifications

5.2 Various Combinations of Multiple Disabilities and Associated Conditions Such as Epilepsy, Motor and Sensory Conditions

5.3 Other Disabling Conditions such as Leprosy Cured Students, Tuberous Sclerosis and Multiple Sclerosis

5.4 Implications of Functional Limitations for Education and Creating Prosthetic Environment in School and Home: Seating Arrangements, Positioning and Handling Techniques at Home and School

5.5 Facilitating Teaching-Learning: IEP, Developing TLM; Assistive technology

Transaction

This course should be taught through lectures, discussion, demonstrations, presentations and workshops. They should be given hands on training in assessments of specific needs of children, interpretation of test reports and develop strategies for classroom intervention

Course Work/ Practical/ Field Engagement

• Develop an Assessment Tool for a child with learning disability in the given area

• Prepare a transition plan from school to college for an LD Child

• Prepare a life skill curriculum

• Prepare a screening tool for children with Autism Spectrum Disorder

• Prepare teacher made test for functional assessment of a given child with ID/ Autism

• Plan an educational program on the basis of an assessment report of a child with ID/Autism

• Undertake a case study after identifying a child **C** with cerebral palsy or a child with Multiple Disabilities. Assess the child's difficulties in activities of daily living and academic activities and develop an intervention plan.

• Undertake a survey on 50 children with different disabilities and find out how many children are affected with cerebral palsy and multiple disabilities. Find out the causes of their disabling conditions and what difficulties these children are facing in attending their schools.

Essential Readings

• Accardo, P.J., Magnusen, C., &Capute, A.J. (2000). Autism: Clinical and ResearchIssues. York Press, Baltimore,

• American Psychiatric Association.(2000). Diagnostic and Statistical Manual ofMental Disorders (4th ed. TR). Washington DC.

• Bala, M.J. (2004). Methods of Teaching Exceptional Children, Discovery, New Delhi.

• Browning, R. E. (2004). Teaching Students with Behaviour and Serve EmotionalProblems,

• Miller, F. and Bachrach, S.J. (2012). *Cerebral Palsy: A Complete Guide for Caregiving*.A Johns Hopkins Press Health Book.

•SarvaSikshaAbhiyan. Module on Cerebral Palsy. http://ssa.nic.in/inclusiveeducation/training-module for-resource-teachers-for-disablechildren/Module%205%20Cerebral%20Palsy.pdf/at_download/file

•SarvaSikshaAbhiyan. Module on Multiple Disabilities.http://ssa.nic.in/inclusiveeducation/training-module-for-resource-teachers-for-disablechildren/Module%203%20Multiple%20Disability.pdf/at_download/file

Suggested Readings

• Higgins, J. (2003) Practical Ideas that Really Work for Students with Dyslexia and Other Reading Disorders, PRO-ED, Austin.
• Moyes, R.A. (2010). Building Sensory Friendly Classrooms to Support Children with Challenging Behaviors: Implementing Data Driven Strategies, Sensory World, Texas.
• Pierangelo, R., & Giuliani G.A. (2003). Transition services in Special Education,Allyn& Bacon.
• Reddy G.L., & Rama, R. (2000). Education of Children with Special Needs, NewDelhi - Discovery Pub.
• Simpson, R. L., & Myles, B, S. (2008). Educating Children and Youth with Autism:Strategies for Effective Practice. (2nd edition) Pro Ed. Texas.
• Smith, D.D. (2003). Introduction to Special Education Teaching in an Age of opportunity, Allyn& Bacon.
• Strichart, S. S. (1993). Teaching Study Strategies to Students with Learning Disabilities, Allyn& Bacon, Boston.
• Swady, E.R. (1989). Diagnosis & Correction of Reading, Difficulties, Allyn& Bacon,Boston.
• Taylor, B. (1988). Reading Difficulties: Instruction and Assessment, Random House,New York.
• Wong, B. Y. L. (1996) .The ABCs of learning disabilities (1st ed.) Academic Press,San Diego, CA

COURSE-5: IDENTIFICATION OF CHILDREN WITH VISUAL IMPAIRMENT AND ASSESSMENT OF NEEDS

Course: 5 **Credits: 04**
Contact Hours: 60 **Marks: 100**
Time of Examination: 3 Hours **(External-80+Internal-20)**

Note: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions will carry equal marks.

Introduction

We cannot treat a visually impaired child as 'a pair of young eyes'. We need to understand the whole child, including his feelings and needs. Having understood the psychological and sociological implications of visual impairment, the learners should be more empathetic to the needs of the visually impaired and address them appropriately in diverse educational settings. There are many eye conditions each with different educational and social implications. The infant must 'see to learn' and therefore a visually impaired infant must 'learn to see'. The course will enable the trainees to be able to identify children who are at risk for visual impairment. The trainees will be able to develop the skills of doing functional vision assessment and enhance the residual vision. The course also focuses on needs and assessment of children with multiple disability and visual impairment.

Objectives

After completing the course student-teachers will be able to

• *Describe the structure of eye and common eye defects.*
• *Explain the etiology of visual impairment.*
• *Analyse the implications of visual impairment and identify their needs.*
• *Develop skills to identify and assess children with visual impairment.*
• *Describe the needs and develop skills to assess children with visual impairment and multiple disabilities (VIMD).*

Unit 1: Anatomy and Physiology of Human Eye

1.1 Structure and Function of human eye
1.2 Normal vision development and process of seeing
1.3 Principles of refraction and refractive errors
1.4 Concept and definitions of blindness and low vision
1.5 Concept of visual acuity, visual field, depth perception and contrast sensitivity

Unit 2: Types of Visual Impairment and Common Eye Disorders

2.1 Loss of Visual acuity
2.2 Loss of Visual field
2.3 Colour vision defect and loss of contrast sensitivity

2.4 Refractive errors, Vitamin-A deficiency, Cataract, Glaucoma, Corneal ulcer, trachoma, Albinism, Retinal detachment, Retinitis pigmentosa, Retinopathy of prematurity, Cortical Visual Impairment, Optic Atrophy, Nystagmus, Amblyopia, and
Macular degeneration
2.5 Educational implications of different Eye disorders

Unit 3: Implications of Visual Impairment and Needs of Visually Impaired

3.1 Psychosocial implications of visual impairment
3.2 Factors affecting implications of visual impairment: Age of onset, degree of vision, type of vision loss, prognosis, and socio economic status of the family
3.3 Effect of visual impairment on growth and development: Physical, Motor, Language, Socio-emotional, and Cognitive development
3.4 Educational needs of the visually impaired and need for expanded core curriculum
3.5 Implications of low vision and needs of children with low vision

Unit 4: Identification and Assessment of Visual Impairment

4.1 Interpretation of clinical assessment of vision
4.2 Functional assessment of vision: Concept, need and methods
4.3 Tools of functional assessment of vision and skills: Functional skills inventory for the blind (FSIB), Low Vision Assessment by Jill Keeffe, Lea tests, and Port folioassessment
4.4 Tools for psychological assessment of the visually impaired: Vithoba Paknikar
Performance Test, A short Scale IQ measure for the visually impaired based on WISC-R, Adapted EPQ, Adapted Blind Learning Aptitude Test, Concept development for blind children, Reading Preference Test, Cornell Medical Index for Visually Handicapped Children
4.5 Report writing

Unit 5: Assessment of Learning Needs of Children with VIMD

5.1 Concept and definition of VIMD
5.2 Etiology of VIMD
5.3 Impact of VIMD on learning and development
5.4 Screening, identification, and assessment of Visually Impaired children with associated disabilities
5.5 Multidisciplinary assessment of Visually Impaired children with Associated
Disabilities

Course Work/ Practical/ Field Engagement

• Present a seminar on implications of visual impairment on the personality of the visually impaired
• Prepare material on early indicators of visual impairment and prevention of visual impairment
• Carry out functional assessment of skills of a blind, a low vision, and a VIMD child and submit a report of their assessment

Essential Readings

• Barraga, N. C. (1980). Sequences of Visual Development .Austin: University of

Texas.
• Bhan, S. &Swarup, S. (2010). Functional Skills Inventory for the Blind.Mumbai:National association for the blind.
• Bhandari, R. & Narayan J. (2009).Creating learning opportunities: a step by stepguide to teaching students with vision impairment and additional disabilities,including deafblindness. India: Voice and vision.
• Hyvarinen, L. & Jacob N. (2011).What and how does this child see: assessment ofvisual functioning for development and learning. Finland:Vistest Ltd.
• Mukhopadhyay, S., Mani, M.N.G., RoyChoudary&Jangira, N.K. (1988). SourceBook for Training Teachers of Visually Impaired. New Delhi: NCERT.
• Leat, S.J., Shute R.H., &Westall, C.A. (1999). Assessing children's vision: Ahandbook. Oxford: Butterworth-Heinemann.
• Mani, M.N.G. (2001). Reading Preference Test (REPT) for Children with LowVision. Coimbatore: International Human Resource Development Centre for theDisabled.
• Mani, M.N.G. (1992). Concept development of blind children.Coimbatore:SRKVidyalaya.
• Scholl, G. T. (Ed.) (1986). Foundations of the education for blind and visuallyhandicapped children and youth: Theory and Practice. New York: AFB Press.
• Singh, T.B. (1986). A short Scale I.Q Measure for the Visually Handicapped. Dehradun: NIVH.
• Singh, T.B. (1986). Eyssenck Personality Questionnaire (EPQ) for the VisuallyHandicapped. Dehradun: NIVH.
• Singh, T.B. (1986).Standardisation of Cornell Medical Index on VisuallyHandicapped children.Dehradun: NIVH.
• Singh, T.B & Sati, G. (1992). Use of Blind Learning Aptitude Test as a performance measure for the assessment of Visually Handicapped Children in India.Dehradun:NIVH.
• Warren, D.H. (1983). Blindness and Early Childhood Development. New York: AFBPress.

Suggested Readings

• Holbrook M. C. & Koenig A. J. (Eds.) (2000). Foundations of Education, Vol I: History and Theory of Teaching Children and Youths with Visual Impairments, (2nd Ed): New York: AFB Press.
• Kundu, C.L. (2000). Status of Disability in India, New Delhi, RCI.
• National Institute for the Visually Handicapped (1990). Handbook for Teachers of theBlind, Dehradun: NIVH.
• Punani, B., &Rawal, N. (1993). Handbook: Visual Impairment. New Delhi :Ashish Publishing House
• Bright Hub Education (2012). Identifying Students with Visual Impairment.Retrieved from http://www.brighthubeducation.com/special-ed-visualimpairments/69240-early-signs-of-visual impairment-in-a-child/

COURSE-6: CROSS DISABILITY AND INCLUSION (PRACTICAL)

Course: 6 **Credits: 02**
Hours: 60 **Marks: 50**
(External-40+internal-10)

Note: The evaluation will be done jointly by the two examiners (one internal and one external).

Sr. No	Task for the student teacher	Disability focus		Educational settings	Specific activities	Hrs. (60)	Marks
1	Classroom Observation	1	VI	Special School	Learners will observe students in different educational settings, curriculum transaction, classroom interaction in curricular and co-curricular areas and submit a report	10	25 (20+5)
		2	Other than VI	Minimum three special school		10	
		3	Any Disability	Inclusive schools		10	
2	Learning of Braille	VI and DEAF-blind		Department of Education, KUK	Introduction to Bharti/hindi or Regional Braille	30	25 (20+5)
GRAND TOTAL							50 (40+10)

SEMESTER–II B.Ed. Spl. Ed. (V.I.)

Introduction to course for semester-II

Course	Course title		Credits	Internal assess-ment	External assessme-nt	Total marks	Duration of exam
C-7	Learning, Teaching and Assessment		4	20	80	100	3 hours
C-8 & C-9	Pedagogy of Teaching (V.I.) (any two papers from any two groups selecting one from one group)						
	Group-A	I. Pedagogy of teaching Science to students with visual impairment	4	20	80	100	3 hours
	Group-B	I. Pedagogy of teaching Mathematics to students with visual impairment II. Pedagogy of teaching Social Science to students with visual impairment	4	20	80	100	3 hours
	Group-C	I. Pedagogy of teaching Hindi to students with visual impairment II. Pedagogy of teaching English to students with visual impairment	4	20	80	100	3 hours
C-10	Inclusive Education		2	10	40	50	1.5 hours
C-11	Curriculum, Designing, Adaptation and Strategies for teaching expanded curriculum		4	20	80	100	3 hours
C-12	Practical: Disability specialization (visual impairment)		2	10	40	50	
GRAND TOTAL			**20**	**100**	**400**	**500**	

COURSE-7: LEARNING, TEACHING AND ASSESSMENT

Course: 7 **Credits: 04**

Contact Hours: 60 **Marks: 100**

Time of Examination: 3 Hours **(External-80+Internal-20)**

Note: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions will carry equal marks.

Introduction

This Course will initiate student-teachers to understand learning theories and as these translate into teaching and learning actions. Assessment of learning as a continuous process is also focused. The course also needs to focus on the PWD as Learner and their special education needs that teacher needs to address in diverse education settings.

Objectives

After completing this course the student-teachers will be able to

•*Comprehend the theories of learning and intelligence and their applications for teaching children*

• *Analyse the learning process, nature and theory of motivation*

• *Describe the stages of teaching and learning and the role of teacher*

• *Situate self in the teaching learning process*

• *Analyze the scope and role of assessment in teaching learning process in order to introduce dynamic assessment scheme for educational set up towards enhanced learning*.

Unit 1: Human Learning and Intelligence

1.1 Human learning: Meaning, definition and concept formation

1.2 Learning theories:

- Behaviourism: Pavlov, Thorndike, Skinner
- Cognitivism: Piaget, Bruner
- Social Constructism: Vygotsky, Bandura

1.3 Intelligence:

- Concept and definition
- Theories: Two-factor, Multifactor, Triarchic Theory (Robert Steinberg)

1.4 Creativity: Concept, Definition and Characteristics

1.5 Implications for Classroom Teaching and Learning

Unit 2: Learning Process and Motivation

2.1 Sensation: Definition and Sensory Process

2.2 Attention: Definition and Affecting Factors

2.3 Perception: Definition and Types

2.4 Memory, Thinking, and Problem Solving

2.5 Motivation: Nature, Definition and Maslow's Theory

Unit 3: Teaching Learning Process

3.1 Maxims of Teaching

3.2 Stages of Teaching: Plan, Implement, Evaluate, Reflect

3.3 Stages of Learning: Acquisition, Maintenance, Generalization

3.4 Learning Environment: Psychological and Physical

3.5 Leadership Role of Teacher in Classroom, School and Community

Unit 4: Overview of Assessment and School System

4.1 Assessment: Conventional meaning and constructivist perspective

4.2 'Assessment of Learning' and 'Assessment for Learning': Meaning and difference

4.3 Comparing and contrasting assessment, evaluation, measurement, test and examination

4.4 Formative and summative evaluation, Curriculum Based Measurement

4.5 Revisiting key concepts in school evaluation: filtering learners, marks, credit, grading, choice, alternate certifications, transparency, internal-external proportion, improvement option

Unit 5: Assessment: Strategies and Practices

5.1 Strategies: (Oral, written, portfolio, observation, project, presentation, group discussion, open book test, surprise test, untimed test, team test, records of learning landmark, cloze set/open set and other innovative measures) Meaning and procedure

5.2 Typology and levels of assessment items: Multiple choice, open ended and close ended; direct, indirect, inferential level

5.3 Analysis, reporting, interpretation, documentation, feedback and pedagogic decisions

5.4 Assessment of diverse learners: Exemptions, concessions, adaptations and accommodations;

5.5 School examinations: Critical review of current examination practices and their assumptions about learning and development; Efforts for exam reforms: Comprehensive and Continuous Evaluation (CCE), NCF (2005) and RTE (2009)

Engagement with the field as part of course as indicated below:

I. Report submission: observation of children belonging to any three stages of development and describing applications of development in teaching-learning contexts

II. Preparation of Self study report on individual differences among learners

III. Prepare a leaflet for parents on better emotional management of children

IV. Compilation of 5 CBM tools from web search in any one school subject

V. Team presentation of case study on assessment outcome used for pedagogic decisions

VI. Report on community participation in school assessment or study recent ASAR report to understand school independent assessment

Transaction and Evaluation

This concepts and theoretical precepts included in this course should be explained with reference to children with and without disabilities. The effort of transaction should be to enhance the understanding of how learning occurs and what are the suitable means of its assessment. Evaluation may be done by asking student-teachers to children with and without disabilities and present a report of the same.

Essential Readings

• Amin, N. (2002). Assessment of Cognitive Development of Elementary SchoolChildren.A Psychometric Approach, Jain Book Agency, New Delhi.

• Chauhan, S.S. (2013). Advanced Educational Psychology.Jain Book Agency, Delhi.

• King-Sears, E. M. (1994). Curriculum Based Assessment in Special Education. Singular Publishing Group, San Diego, CA.

• Panch, R. (2013). Educational Psychology: Teaching and Learning Perspective, McGraw Hill Education (India) Private Limited, New Delhi.

• Paul, P. (2009). Language and Deafness.Singular publication.

• Salvia, John, Ysseldyke, James, E. And Bolt, Sara. (2007). Assessment in Special andInclusive Education. Houghton Mifflin Company, Boston.

• Whitcomb, S., & Merrell, K.W. (2012). Behavioral, Social, and EmotionalAssessment of Children and Adolescents, Routledge, New York.
•Woolfolk, A., Misra, G., &Jha, A.K.(2012). Fundamentals of EducationalPsychology, 11th edn, Pearson Publication, New Delhi.

Suggested Readings

• Geisinger, K.F. (2013). APA Handbook of Testing and Assessment in Psychology.Available at American Psychological Association, USA.
• Guskey, T. R., & Bailey. J (2000). Grading and Reporting. Thousnad Oaks, CA: Corwin King.
• Howell, K. W., &Nolet, V. (2000). Curriculum-Based Evaluation: Teaching and decisionmaking.Scarborough, Ontario, Canada, Wadsworth.
• McMillan, J. H. (2001). Classroom Assessment: Principles and Practice for EffectiveInstruction.Allyn and Bacon, London.
• Nevo, D. (1995). School based Evaluation. Pergamon Publishing, Kidlington, Oxford.
• Salvia, J., &Ysseldyke. J.E.(1998). Assessment. (7th ed) Houghton Mifflin, Boston.

COURSE-8 & 9: PEDAGOGY OF TEACHING SCIENCE TO STUDENTS WITH VISUAL IMPAIRMENT

Course: 8 & 9, Group-A (I) **Credits: 04**
Contact Hours: 60 **Marks: 100**
Time of Examination: 3 Hours **(External-80+Internal-20)**

Note: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions will carry equal marks.

Introduction

The course will help the student-teachers to generate their student's interest for learning science and develop a scientific attitude. It is designed to equip the student-teachers to teach science using innovative methods, techniques and teaching learning material to students with& without disabilities.

Objectives

After completing the course the student-teachers will be able to

• *Explain the role of science in day to day life and its relevance to modern society.*
• *Describe the aims and objectives of teaching science at school level.*
• *Demonstrate and apply skills to select and use different methods of teaching the content of sciences.*
• *Demonstrate competencies of planning for teaching sciences, organizing laboratory facilities and equipment designing pupil centered teaching learning experiences.*
• *Demonstrate skills to design and use various evaluation tools to measure learner achievement in sciences.*

Unit 1: Nature and Significance of Science

1.1 Nature, Scope, Importance and Value of Science
1.2 Science as An Integrated Area of Study
1.3 Science and Modern Indian Society: Relationship of Science and Society
1.4 Impact of Science with Special Reference to Issues related with Environment, Industrialization and Disarmament
1.5 Role of Science for Sustainable Development

Unit 2: Planning for Instruction

2.1 Aims and Objectives of Teaching Science in Elementary and Secondary School
2.2 Bloom's Taxonomy of Educational Objectives and Writing Objectives in Behavioural Terms
2.3 Lesson Planning – Importance and Basic Steps. Planning Lesson for an Explanation, Demonstration, and Numerical Problem in Teaching of Sciences
2.4 Unit Planning – Format of A Unit Plan
2.5 Pedagogical Analysis: Meaning and Need. Guidelines for Conducting Pedagogical Analysis

Unit 3: Approaches and Methods of Teaching Sciences

3.1 Process Approach, Direct Experience Approach, Inductive-Deductive Approach
3.2 Lecture, Demonstration, Discussion, Problem-solving, Concept-mapping, Programmed Instruction, Team Teaching, Seminar, Computer Assisted Learning (CAL)
3.3 Project Method and Heuristic Method

3.4 Creating Different Situations of Learning Engagement: Group Learning, Individual Learning, Small Group, Cooperative (Peer-Tutoring, Jigsaw, etc.), Situated/Contextual Learning with reference to Children with Disabilities

3.5 Constructivist Approach and its Use in Teaching Science

Unit 4: Learning Resources with reference to Children with Disabilities for Teaching Science

4.1 Teaching Learning Aids – Need, Importance, Selection, Use and Classification of Aids Based on Type of Experience, Audio Visual Aids, Multimedia, Charts, and Models (Tactile and Visual)

4.2 Importance of Co-Curricular Activities-Science Club, Science Exhibition, Science Text Books-Characteristics and Significance with reference to Children with Disabilities

4.3 The Science Laboratory-Planning Organization of Lab, Storage, Record Keeping and Safety of Scientific Equipments with reference to Children with Disabilities

4.4 Aquarium, Vivarium – Role in Teaching with Setting & Maintaining

4.5 Museum, Botanical and Zoological Garden: Role In Teaching

Unit 5: Evaluation

5.1 Evaluation- Concept, Nature and Need

5.2 Norm Referenced & Criterion Referenced Evaluation, Comprehensive and Continuous Evaluation: Concept and Significance, Scholastic and Co-Scholastic Assessment

5.3 Tools and Techniques for Formative and Summative Assessments

5.4 Preparation of Diagnostic Test and Achievement Test

5.5 Adaptations of Evaluation Procedure With Reference To Children With Disabilities

Practical/ Field Engagement/Project Work

Any one of the following

I. Pedagogical analysis of a unit from Science content.

II. Preparation of a multimedia presentation on a topic from Science content keepingstudents with disabilities in view.

III. Developing an Action Research Plan on a problem related to teaching and learning of Sciences to students with disabilities to students with disabilities.

IV. Construction of a diagnostic test for unit along with a remedial plan.

V. Comparative analysis of prescribed syllabus and textbooks of different BoardsCurricular innovations in respective subject areas

VI. Curricular adaptations for teaching Sciences to students with disabilities.

Essential Readings

• Brown, R. (1978). Science instruction of visually Impaired Youth. New York: AFB.

• Buxton, A. C. (2010). Teaching Science in Elementary and Middle School**.**NewDelhi: Sage Publications.

• Bybee, R. (2010b). The teaching of science: 21st-century perspectives. Arlington, VA: NSTA Press,USA.

• Fensham, P.J. (1994). The content of Science: A constructive Approach to its Teaching and Learning**.**Washington, D.C: The Falmer Press.

• Gupta, V. K. (1995). Teaching and lLearning of Science and Technology. New Delhi:Vikas Publishing House Pvt. Ltd.

• Henninen, K. A. (1975). Teaching of Visually Handicapped, Ohio: Charles E. MerrillPublishing Company.

• Joshi, S. R. (2005). Teaching of Science.New Delhi: A.P.H Publishing Corporation.
• Kelley, P., & Gale, G. (1998). Towards Excellence: Effective education for studentswith vision impairments, Sydney: North Rocks Press.
• Lawson, E. A. (2010). Teaching Inquiry Science in Middle School, New Delhi: SagePublications.
• Layton, D. (1989). Innovations in Science and Technology Education, New Delhi: Sterling Publishers.
• Mani, M. N. G. (1992). Techniques of teaching blind children, New Delhi: Sterling Publishers.
• Mukhopadhyay, S., Jangira, N. K., Mani, M.N. G., &Raychowdhary, N. (1987). Sourcebook for training teachers of visually impaired, New Delhi: NCERT.
• Murray, L. J. (1988). Basic Skills – Science, Boston: John Murrey.
• NCERT (1982). Teaching Science in secondary schools, New Delhi: NCERT.
• NIVH (1992). Handbook for the teachers for the visually handicapped, Dehradun
• Scholl, G.T. (1986). Foundations of education for blind and visually handicappedchildren and youth, New York: American Foundation for the blind.
• Sharma, R. C. (2005). Modern Science teaching, Delhi: DhanpatRai& Sons.
• Siddiqui, H. M. (2007). Teaching science, New Delhi: Balaji offset.
• Siddiqui, N.N., &Siddiqui, M. N. (1994). Teaching of science today & tomorrow,Delhi: Doaba House.
• Starin, A., &Sund, B. (1983). *Teaching science through discovery*. Ohio: Charles E. Merril Publishing Company.
• Tripathi, S. (2004). Teaching of Physical Science, Delhi: Dominant Publications.
• UNESCO (1966). Source Book for Science Teaching, Paris: UNESCO.
• Vaidya, N. (2003). Science Teaching in Schools, New Delhi: Deep & Deep Publishers.
•Vanaja, M. (2006). Teaching of Physical Science, Hyderabad: NeelkamalPublications.

Suggested Readings

• Gupta, S. K. (1983). Technology of Science Education, Delhi: Vikas Publishing House Pvt. Ltd.
• Gupta, V. K. (1995). Readings in Science and Mathematics Education, Ambala: The Associated Press.
• Mangal S. K., &Shubhra (2005). Teaching of Biological Sciences, Meerut:International Publishing House.
• Rao, V.K. (2004). Science Education, APH Publishing Corpn. New Delhi.

COURSE-8 & 9: PEDAGOGY OF TEACHING MATHEMATICS TO STUDENTS WITH VISUAL IMPAIRMENT

Course: 8 & 9 , Group-B (I) **Credits: 04**
Contact Hours: 60 **Marks: 100**
Time of Examination: 3 Hours **(External-80+Internal-20)**

Note: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions will carry equal marks.

Introduction

The course will help the student-teachers to generate their student's interest for learning maths and develop dispositions towards the subject. It is designed to equip the learners to teach maths using innovative methods, techniques and teaching learning material for children with& without disabilities.

Objectives

After completing the course the student-teachers will be able to

• *Explain the nature of Mathematics and its historical development with contribution of Mathematicians.*

• *Describe the aims and objectives of teaching Mathematics at school level.*

• *Demonstrate and apply skills to select and use different methods of teaching Mathematics.*

• *Demonstrate competencies of planning for teaching Mathematics, organizing laboratory facilities and equipment designing pupil centered teaching learning experiences.*

• *Demonstrate skills to design and use various evaluation tools to measure learner achievement in Mathematics.*

Unit 1: Nature of Mathematics

1.1 Meaning, Nature, Importance and Value of Mathematics

1.2 Axioms, Postulates, Assumptions and Hypothesis in Mathematics

1.3 Historical Development of Notations and Number Systems

1.4 Contribution of Mathematicians (Ramanujam, Aryabhatta, Bhaskaracharya, Euclid , Pythagoras)

1.5 Perspectives on Psychology of Teaching and Learning of Mathematics-Constructivism, Enactivism, Vygotskyian Perspectives, and Zone of Proximal Development

Unit 2: Objectives and Instructional Planning in Mathematics

2.1 Aims and Objectives of Teaching Mathematics in Elementary and Secondary Schools

2.2 Bloom's Taxonomy of Educational Objectives and Writing Objectives in Behavioural Terms

2.3 Lesson Planning– Importance and Basic Steps. Planning Lesson of Arithmetic, Algebra and Geometry

2.4 Unit Planning – Format of A Unit Plan

2.5 Pedagogical Analysis: Meaning and Need and Procedure for Conducting Pedagogical Analysis. Classification of Content, Objective, Evaluation, etc

Unit 3: Strategies for Learning and Teaching Mathematics

3.1 Concept Formation and Concept Attainment: Concept Attainment Model for Learning and Teaching of Concepts

3.2 Learning By Exposition: Advanced Organizer Model
3.3 Methods of Teaching- Lecture, Discussion, Demonstration, Inductive-Deductive, Analytic-Synthetic, Problem-Solving, and Project
3.4 Techniques of Teaching Mathematics: Oral Work, Written Work, Drill-Work, Brain-Storming and Computer Assisted Instruction (CAI)
3.5 Creating Different Situations of Learning Engagement: Group Learning, Individual Learning, Small-Group, Cooperative (Peer-Tutoring, Jigsaw, etc.), and Situational/Contextual Learning

Unit 4: Teaching-Learning Resources in Mathematics for Students with Disabilities

4.1 Mathematics Laboratory- Concept, Need, and Equipment for Setting Up a Mathematics Laboratory
4.2 Utilization of Learning Resources in Mathematics: Charts and Pictures, Weighing and Measuring Instruments, Drawing Instruments, Models, Concrete Materials, Surveying Instruments With Reference To Children With Disabilities
4.3 Bulletin Boards and Mathematics Club
4.4 Abacus, Cussionaire Rods, Fractional Discs, Napier Strips
4.5 Calculators, Computers, Smart Boards, Multimedia Presentations, and Special Aids and Appliances For Children With Disabilities

Unit 5: Assessment and Evaluation for Mathematics Learning

5.1 Assessment and Evaluation- Concept, Importance and Purpose
5.2 Error Analysis, Diagnostic Tests, Identification of Hard Spots and Remedial Measures
5.3 Tools and Techniques for Formative and Summative Assessments of Learner Achievement in Mathematics, Comprehensive and Continuous Evaluation in Mathematics
5.4 Preparation of Diagnostic and Achievement Test
5.5 Adaptations in Evaluation Procedure for Students with Disabilities

Practical/ Field Engagement/ Project Work

Any one of the following

I. Pedagogical analysis of a unit of content from secondary school Mathematics Syllabus
II. Preparation of a multimedia presentation on a topic with special reference to students with disabilities
III. Construction of a question paper based on current CBSE format/concerned State Board of education, preparing its Scoring key, and marking scheme
IV. Analyzing errors committed by school children in Mathematics and preparing are medial plan
V. Developing an Action Research proposal for a problem related to teaching and learning of Mathematics with reference to students with disabilities

Transactions

Lecture cum demonstration, Workshops and Seminars

Essential Readings

• Carey, L.M. (1988). *Measuring and Evaluating School Learning*, Boston: Allyn and Bacon.
• Chambers, P. (2010).*Teaching Mathematics*, Sage Publication, New Delhi.
• Chapman, L.R. (1970). *The Process of Learning Mathematics*, New York: Pregamon Press.
• David, A.H., Maggie, M.K., & Louann, H.L. (2007). *Teaching Mathematics Meaningfully: Solutions for Reaching Struggling Learners*, Canada: Amazon Books.
• David, W. (1988). *How Children Think and Learn*, New York: Blackwell Publishers Ltd.

• Gupta, H. N., &Shankaran, V. (Ed.), (1984). Content-Cum-Methodology of TeachingMathematics. NCERT, New Delhi.
• James, A. (2005). *Teaching of Mathematics*, New Delhi: Neelkamal Publication.
• Kumar, S. (2009). Teaching of Mathematics, New Delhi: Anmol Publications.
• Mangal, S.K. (1993). *Teaching of Mathematics*, New Delhi: Arya Book Depot.
• Mani, M. N. G. (1992). *Techniques of Teaching Blind Children*, New Delhi: Sterling Publishers.
• Mukhopadhyaya, S., Jangira, N. K., Mani, M.N. G., &Raychaudhary, N. (1987). *Sourcebook for Training Teachers of Visually Handicapped*, New Delhi: NCERT.
• Nemeth, A. (1973). *Nemeth Code for Mathematics and Scientific Notation*, Loviseville K: American Printing House.
• Siddhu, K.S. (1990). *Teaching of Mathematics*, New Delhi: Sterling Publishers.

Suggested Readings

• Keeley, P. K., & Cheryl, T. R. (2011). *Mathematics Formative Assessmen*t, Canada: Sage Publications.
• *National Curriculum Framework*. (2005). NCERT, New Delhi: NCERT.
• *National Curriculum Framework for Teacher Education*. (2009). NCTE, New Delhi.
• *Teaching of Mathematics (ES-342), Blocks 1-4*. (2000). IGNOU, New Delhi.
• *Text Books of Mathematics for Class-VI to X*. (2006). NCERT, New Delhi.

COURSE-8 & 9: PEDAGOGY OF TEACHING SOCIAL SCIENCE TO STUDENTS WITH VISUAL IMPAIRMENT

Course: 8 & 9 , Group-B (II) **Credits: 04**

Contact Hours: 60 **Marks: 100**

Time of Examination: 3 Hours **(External-80+Internal-20)**

Note: Paper setter will set 10 questions in all out of which students will be required to attempt five questions. Question number one will be compulsory which will comprise of four short answer type notes of four marks each from entire syllabus. Remaining nine questions will be long answer type questions out of which students will be required to attempt four questions. All questions carry equal marks.

Introduction

This course explores the scope of social science. It develops competencies in designing lesson plans and evaluations tools. It addresses the knowledge and understanding of the methodologies, approaches to teach social sciences at secondary level and also modify and adapt content-area curricula, materials and techniques for students with disabilities. The course also focuses on various skills and competencies that teachers need to develop.

Objectives

After completing the course the student-teachers will be able to

• *Explain the concept, nature and scope of social science.*

• *Develop competencies for designing unit and lesson plans, as well as tools of evaluation for social science teaching.*

• *Develop skills in preparation and use of support materials for effective social science teaching.*

• *Develop the ability to organize co-curricular activities and community resources for promoting social science learning.*

Unit I: Nature of Social Sciences

1.1 Concept, scope and nature of social science

1.2 Difference between social sciences and social studies

1.3 Aims and objectives of teaching social science at school level

1.4 Significance of social science as a core subject

1.5 Role of social science teacher for an egalitarian society

Unit II: Curriculum and Instructional Planning

2.1 Organization of social science curriculum at school level

2.2 Instructional Planning: Concept, need and importance

2.3 Unit plan and Lesson plan: need and importance

2.4 Procedure of Unit and Lesson Planning

2.5 Adaptation of unit and lesson plans for children with disabilities

Unit III: Approaches to teaching of Social Science

3.1 Curricular approaches: a) Coordination, b) Correlational, c) Concentric, d) Spiral, e)Integrated, f) Regressive

3.2 Methods of teaching social science: Lecture, discussion, socialized recitation, source and project method

3.2.1. Devices and techniques of teaching social studies – Narration, description, illustration, questioning, assignment, field trip, story-telling, Role play, Group and self study, programmed learning, inductive thinking, Concept mapping, expository teaching and problem solving

3.3 Accommodations required in approaches for teaching children with disabilities
3.4 Instructional material for teaching of social science: Time-lines & Genealogical charts, Maps & Globes, Use of different types of Boards(Smart boards, Chalk Board,
Flannel Board), Tape-records, Radio, Television, Films & Filmstrips, Overhead
Projector, Social science games and Power Point Presentation
3.5 Adaptations of material for teaching children with disabilities

Unit IV: Evaluation of Learning in Social Science

4.1 Purpose of evaluation in social science
4.2 Techniques of evaluating learner achievement in social Science: Written and Oral tests, Observation Tools, Work Samples, Portfolio
4.3 Assessment: tools and techniques of Continuous and Comprehensive Evaluation
(CCE) for curricular and co-curricular subjects
4.4 Construction of teacher made test
4.5 Diagnostic testing and enrichment techniques for children with disabilities

Unit V: Social Science Teacher as a Reflective Practitioner

5.1 Being a reflective practitioner- use of action research
5.2 Developing an Action Research Plan for solving a problem in teaching-learning of
Social science
5.3 Case study- Need and Importance for a School Teacher
5.4 Development of a Professional Portfolio/ Teaching Journal
5.5 Competencies for teaching Social science to children with disabilities

Transaction

The student-teachers should be encouraged to read chapters and articles. There may be quizzes, seminars, field trips, lectures, demonstrations, school visits and observations to teach this course.

Course Work/ Practical/ Field Engagement

• Prepare a unit of social science content for a given child with disabilities
• Develop an Action Research Plan on a problem related to teaching and learning in
Social Science
• Adapt teaching learning materials for a child with disabilities
• Develop questions and achievement tests in social science
• Organize activities like quiz, mock-parliament, field trips, exhibitions and any other co-curricular activities in schools

Essential Readings

• Aggarwal, J. C. (2008). Principles, methods & techniques of teaching. UP: VikasPublishing House Pvt Ltd.
• Batra, P. (2010). Social Science Learning in Schools Perspective and Challenges,Sage Publications Pvt. Ltd; Pap/Com edition.
• Chauhan, S. S. (2008). Innovations in teaching learning process. UP: VikasPublishing House Pvt Ltd.
• Dhand, H. (2009). Techniques of Teaching. New Delhi: APH Publishing Corporation.
• Duplass, J. A. (2009). Teaching elementary social studies. New Delhi: AtlanticPublishers.
• Mangal, U. (2005). SamajikShikshan, Arya Book Depot, New Delhi.

Suggested Readings

• Aggarwal, J.C. (2008). Teaching of social studies: A practical approach. (4th ed). UP:Vikas Publishing House Pvt Ltd.
• George, A. M., & Madam, A. (2009). *Teaching Social Science in Schools: NCERT'SNew Textbook Initiative*.

• Mangal, S.K. (2004). Teaching of Social Science, Arya Book Depot, Delhi.
• Rai, B.C. (1999). Methods of Teaching Economics, Prakashan Kendra, Lucknow.
• Sharma, R.A. (2008). Technological foundation of education. Meerut: R.Lall BooksDepot.
• Sharma, R.N. (2008). Principles and techniques of education. Delhi: SurjeetPublications.
• Singh, Y.K. (2009). Teaching of history: Modern methods. New Delhi: APHPublishing Corporation.
•Stone, R. (2008). Best Practices for Teaching Social Studies: What Award-WinningClassroom Teachers Do, Corwin, CA.

COURSE-8 & 9: PEDAGOGY OF TEACHING HINDI TO STUDENTS WITH VISUAL IMPAIRMENT

Course: 8 & 9 , Group-C (I) **Credits: 04**
Contact Hours: 60 **Marks: 100**
Time of Examination: 3 Hours **(External-80+Internal-20)**

Note: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions will carry equal marks.

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• fgUnh f'k{k.k ds fof'k"V O;kogkfjd mn~ns';ksa ds fu/kkZj.k vkSj ys[ku esa l{ke gksaxsA

•fgUnh f'k{k.k ds vf/kxe y{;ksa dh izkfIr ds fy, iz;ksT; f'k{k.k fof/k;ks adk iz;ksx djsaxsA

• fgUnh f'k{k.k ds mn~ns';ksa dh lgt izkfIr ds fy, lgk;d midj.kksa ds fuekZ.k vkSj mi;ksx esa n{k gksaxsA

•Hkk"kk vf/kxe esa lrr ,oa O;kid ewY;kadu izfof/k ds mi;ksx dq'kyrk iwZod djsaxsA

• Hkk"kk vf/kxe esa fo|kfFkZ;ksa dh dfBukb;ksa ds fujkdj.k ds fy, fØ;kRed vuqlU/kku dk iz;ksx djsaxsA

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1-1 Hkk"kk dk izR;; vkSj mi;ksfxrkA

1-2 cksyh] foHkk"kk vkSj ekud Hkk"kk dk izR;;A

1-3 f'k{kk] lekt] O;kikj] jktuhfr] 'kks/k ,oa fodkl esa Hkk"kk dk ;ksxnkuA

1-4 fgUnh Hkk"kk dk ukedj.k] laLd`r ls fgUnh ds mn~Hko dh izfØ;kA

1-5 fo'o Hkk"kk vkSj Hkkfo"; Hkk"kk ds :i esafgUnh dk fodkl dk vkdyuA

1-6 ewy&Hkwr Hkk"kk dkS'kyksa&Jo.k] okpu] iBu vkSj ys[ku dk ifjp;A

1-7 ikB~;oLrq lao/kZu

1-7-1 fgUnh lkfgR; dk lkekU; ifjp;A

1-7-2 fgUnh x| lkfgR; dh ijEijkxr fo/kk,¡&dgkuh] ukVd vkSj egkdkO;A
1-7-3 fgUnh x| lkfgR; dh vk/kqfud fo/kk,¡&miU;kl] ;k=k fooj.k] thouh] vkRedFkk vkSj laLej.kA
1-7-4 fgUnh O;kdj.k es amnZw] vaxzst+h vkSj laLd`r ls lekfo’V izR;;A
1-7-5 ek/;fed Lrj ij fgUnh ikB~;Øe esa gq, ifjorZuksa dk vkdyuA
bdkbZ 2 & Hkk"kk vf/kxe dh izd`fr vkSj ikB fu;kstu
2-1 ek/;fed Lrj ij fgUnh f’k{k.k ds y{; vkSj mn~ns’;A
2-2 bdkbZ fu;kstu dk izR;;] bldk egÙo vkSj fuekZ.k fof/kA
2-3 ikB;kstuk dk ifjp;] mi;ksx vkSj egÙoA
2-4 ikB;kstuk ds pj.k vkSj mu dk fØ;kUo;uA
2-5 fgUnh f’k{k.k ds KkukRed] cks/kkRed] dkS’kykRed vkSj :fpxr mn~ns’;ksa dk fu/kkZj.kA
2-6 fof’k"V mn~ns’;ksa dk O;kogkfjd ’kCnkoyh esays[kuA
2-7 ikB ;kstuk ds lajpukRed mikxe dk ifjp; vkSj vH;klA
bdkbZ 3 &fgUnh dh fofo/k fo/kkvksa ds f’k{k.k dh fof/k;ksa dk ifjp; vkSj mi;ksx
3-1 ek/;fed d{kkvksa esa x| f’k{k.k dh mi;ksfxrkA
3-2 x| f’k{k.k dh vFkZ cks/k] O;k[;k] fo’ys"k.k vkSj la;qDr fof/k dk ifjp; vkSj bu dh leh{kkA
3-3 ek/;fed d{kkvksa ds ikB~;Øe esa i| ds lekos’k dh mi;ksfxrkA
3-4 i| f’k{k.k dh ’kCnkFkZ dFku] [k.MkUo;] O;kl vkSj leh{kk fof/k dk ifjp; vkSj budh mi;qDrrk dk vkdyuA
3-5 ek/;fed Lrj ij O;kdj.k f’k{k.k dh vko’;drk vkSj mi;ksfxrkA
3-6 O;kdj.k f’k{k.k dh fuxeu] vkxeu] Hkk"kk lalxZ vkSj ikB~;&iqLrd fof/k;ksa dk ewY;kduA
bdkbZ 4 &Hkk"kk vf/kxe&f’k{k.k esa lgk;d lkefxz;ksa dk iz;ksx vkSj ewY;kadu dh izfof/k
4-1 f’k{k.k midj.kksa dk lUnHkZ] egÙo vkSj ykHkA
4-2 vf/kxe&f’k{k.k ds n`’; midj.kksa ds izdkjA
4-3 n`’; midj.kksa& ’;keiV~V] pkVZ] uD’kk] ekufp=] izfr:i] dk;Z’khy izfr:i vkSj ¶yS’k dkMZ dh iz;ksx fof/kA
4-4 JO; midj.kksa&dkWEiSDVfMLd o dSlsV~l~ ds iz;ksx dh fof/k vkSj vH;klA
4-5eqfnzr JO; midj.kksa&v[kckj] if=dkvks avkSj iqLrdksa dk lgk;d midj.kksa ds :i esa iz;ksxA
4-6oS|qnf.od midj.kksa&Vsyhfotu+] dEI;wVj vkSj fo’otky ds lgk;d midj.kksa ds :i esa iz;kxs dh fof/k vkSj mi;ksfxrkA
4-7 Hkk"kk vf/kxe esa Hkk"kk iz;ksx’kkyk ds iz;ksx dh fof/k vkSj leh{kkA
4-8 &Hkk"kk vf/kxe ds ewY;kadu dh izfof/k
4-8-1 ewY;kadu dh ladYiuk] mn~ns’; vkSj egÙoA
4-8-2 lrr ,oa O;kid ewY;kadu dk lUnHkZA

4-8-3 ys[ku] iBu] J`rys[k] lqys[k] rhozys[ku] =qfV eqDr ys[ku] vk’kqHkk”k.k vkSj dkO; ikBdk
lrr ,oa O;kid ewY;kadu izfof/k }kjk ewY;kaduA
4-8-4 d{kk xr ikB~; lgxkeh xfr fof/k;ksa&xhr] vfHku;] laokn] fØ;k dyki vkSj usr`Ro ds xq.kksa dk lrr ,oa O;kid ewY;kadu izfof/k }kjk ewY;kaduA
4-8-5 fo|kfFkZ;ksa ds Hkk"kk vf/kxe dk lap;h o`Ùk cukukA
bdkbZ 5 & fpUru’khy lk/kd ds :i esa f’k{kd
5-1 vuqorhZ fpUru dh vko’;drk vkSj egÙoA
5-2 fpUru nSufUnuh vkSj iksVZQksfy;ks cukukA
5-3 fo|kfFkZ;ksa dh vf/kxe leL;kvksa ds funku vkSj lek/kku ds fy, fØ;kRed vuqlU/kku dk iz;ksxA
5-4 ikB~;Øe] lgk;d lkexzh vkSj ikB~;fof/k;ksa dk vkykspukRed foospuA
5-5 ikB~;Øe] lgk;d lkexzh vkSj ikB~; fof/k;ksa ij fo|kfFkZ;ksa vkSj vfHkHkkodksa dh izfrfØ;kvksa dk laxzgA
izk;ksfxd dk;Z&
• vk/kqfud Hkk"kk ds :i esa fgUnh ds xq.kksa vkSj fLFkfr dk vuqlU/kku fooj.kA
• fgUnh f’k{k.k dh fdUgh nks v/kuqru fof/k;ksa dk ifjp; ,oa buds mi;ksx dh rqyukRed leh{kkA
• fgUnh f’k{k.k ds Jo.k] okpu vkSj ys[ku vf/kxe ds lVhd ewY;kadu esa lrr ,oa O;kid ewY;kadu dh izfof/k ds mi;ksx dk fooj.kA
• fpUru nSufUnuh] iksVZQksfy;ks vkSj vkykspukRed fooj.kh ds mi;ksx dh leh{kk vkSj budh izfr d`frdk izLrqfrdj.kA
ewY;kadu ;kstuk&
ewY;kadu fcUnq d{kk ijh{kk izk;ksfxd dk;Z iksVZQksfy;ks mifLFkfr l=kUr ijh{kk izns; vda 10 10 05 05 70
lUnHkZ iqLrdsa&
• fgUnh f’k{k.k % vfHkuo vk;ke] MkW- Jqfr dkUr ik.Ms;] ,fDll ifCyds’kal] nfj;kxat] ubZ fnYyh] 2010-
• fgUnh f’k{k.k] mek eaxy] vk;Z cqd fMiks djksyckx] ubZfnYyh] 2005-
• fgUnh f’k{k.k] MkW- jke’kdy ik.Ms;] fouksn iqLrd efUnj] vkxjk] 2005-
• fgUnh lkfgR; dk bfrgkl] vkpk;Z jkepUnz ‘kqDy] jkt dey izdk’ku] ubZfnYyh] 2006
• fgUnh f’k{k.k] jeu fcgkjh yky] jLrksxh izdk’ku] esjB] 2002-
• fgUnh f’k{k.k] lkfo=h flag] bUVj us’kuy ifCyf’kax gkml] esjB] 2004

COURSE-8 & 9: PEDAGOGY OF TEACHING ENGLISH TO STUDENTS WITH VISUAL IMPAIREMENT

Course: 8 & 9 , Group-C (II) **Credits: 04**
Contact Hours: 60 **Marks: 100**
Time of Examination: 3 Hours **(External-80+Internal-20)**

Note: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions will carry equal marks.

Introduction

This course will enable the student-teachers to gain a strong knowledge base in nature of English language & literature, instructional planning and evaluation. It will help in applying theory to practice to design your own materials and plan lessons in preparation for teaching real classes. The course offers you the opportunity to explore in-depth aspects of English and to find out about the approaches and current practices of language teaching in relation to Indian and international contexts. The course also equips you with analytical and investigative skills and povides a foundation in issues related to English language teaching, second language pedagogy and language acquisition.

Objectives

After completing the course the student-teachers will be able to

• *Explain the principles of language teaching, and evolution and trends in English literature.*
• *Prepare an instructional plan in English.*
• *Adapt various approaches and methods to teach English language.*
• *Use various techniques to evaluate the achievement of the learner in English.*

Unit I: Nature of English Language & Literature

1.1 Principles of Language Teaching
1.2 Language Proficiency: Basic Interpersonal Communication Skills (BICS) and Cognitive Academic Language Proficiency (CALP)
1.3 English Language in the school context: An Evolutionary Perspective
1.4 Current Trends in Modern English Literature in Indian context
1.5 Teaching as second language in Indian context.

Unit II: Instructional Planning

2.1 Aims and objectives of Teaching English at different stages of schooling
2.2 Instructional Planning: Need and Importance
2.3 Unit and lesson plan: Need and Importance
2.4 Procedure of Unit and Lesson Planning
2.5 Planning and adapting units and lessons for children with disabilities

Unit III: Approaches and Methods of Teaching English

3.1 Difference between an approach and a method
3.2 Task based approach, co-operative learning, language across curriculum, communicative language teaching, Bilingual, Eclectic and Constructive approach

3.3 Method Teaching of Prose, Poetry, Drama, Grammar and Vocabulary- i) Translation method. ii) Structural – Situational method. iii) Direct method
3.4 Development of four basic language skills: Listening, Speaking, Reading, and Writing
3.5 Accommodation in approaches and techniques in teaching children with disabilities

Unit IV: Instructional Materials

4.1 Importance of instructional material and their effective use
4.2 The use of the instructional aids for effective teaching of English: Smart boards, Chalk Board, Flannel Board, Pictures/ Picture-cut-outs, Charts, Tape-records, Radio, Television, Films & Filmstrips, Overhead Projector, Language Laboratory, Language games, reading cards, Worksheets, Handouts, and Power Point Presentation
4.3 Construction of a teacher made test for English proficiency
4.4 Teaching portfolio
4.5 Adaptations of teaching material for children with disabilities

Unit V: Evaluation

5.1 Evaluation - Concept and Need
5.2 Testing Language skills and Language elements (Vocabulary, Grammar and Phonology)
5.3 Adaptation of Evaluation Tools for Children with Disabilities
5.4 Individualized assessment for Children with Disabilities
5.5 Error analysis, Diagnostic tests and Enrichment measures

Transaction

This course should be taught through a series of workshops, seminars and presentations. Lectures, demonstrations and discussions for theory based topics. Students should be encouraged to use instructional material in their practice of teaching lessons. Adaptations in pedagogy, material and evaluation should be taught through workshops and specific case studies

Course Work/ Practical/ Field Engagement

• Design teaching programme based on error analysis
• Develop an Action Research Plan for measuring the effectiveness of a given teaching approach in English
• Develop work sheet (interactive including language games)
• Prepare worksheets to enrich vocabulary among secondary students with disabilities
• Develop lesson plans for the teaching of prose and poetry
• Critically analyze any one poem or essay of a well known poet or writer

Essentital Readings

• Allen, H., &Cambell, R. (1972). Teaching English as second Language, McGraw Hill,New York.
• Bharthi, T., &Hariprasad, M. (2004). Communicative English, Neelkamal Publications,Hyderabad.
• Bhatia, K.K. (2006). Teaching and Learning English as a Foreign Language.KalyaniPublishers, New Delhi.
• Grellet, F.(1980). Developing Reading Skills, Cambridge University Press, New York.
• IGNOU CTE – 02 Certificate in Teaching of English (1989). The Structure of English,IGNOU, New Delhi.
• IGNOU EEG – 02 Elective Course in English (1989). The Structure of Modern EnglishBlocks (1 to 7), IGNOU, New Delhi.

Suggested Readings

• Agnihotri, R.K., &Khanna, A.L. (Ed.) (1996). English Grammar in context, Ratnasagar,Delhi.

• Bhatia, K.K., &Kaur, N. (2011). Teaching and Learning English as a Foreign Language.Ludhiana: Kalyani Publishers.
• Bindra, R. (2005). Teaching of English. Jammu: RadhaKrishanAnand and Co.
• Brumfit, C.J., & Johnson (Ed.) (1979). The communicative Approach to LanguageTeaching, Oxford University Press, Oxford.
• Bryne, D. (1988). Teaching Writing Skills, Longman, England.
• Krashen, D. (1992). Principles and Practice in Second Language Acquisition, PergamumPress Oxford.
• Krishna Swamy (2003). Teaching English: Approaches, Methods and Techniques, Macmillan Publication, New Delhi.
• Sachdeva, M. S. (2007). Teaching of English. Patiala: Twenty First Century Publications.
• Sahu, B. K. (2004). Teaching of English. Ludhiana: Kalyani Publishers.
• Shaik, M. & Gosh, R.N. (2005). Techniques of Teaching English, NeelkamalPublications, Hyderabad.
• Sharma, P. (2011). Teaching of English: Skill and Methods. Delhi: Shipra Publication

COURSE-10: INCLUSIVE EDUCATION

Course: 10 **Credits: 02**
Contact Hours: 30 **Marks: 50**
Time of Examination: 1.5 Hours **(External-40+Internal-10)**

Note: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions will carry equal marks.

Introduction

The course is designed to develop an understanding about inclusive education and addressing diversity in the mainstream classroom. It is also formulated in a way that the learners will know the pedagogical practices and recognises ways in which different stakeholders can collaborate for the success of inclusive education.

Objectives

After completing the course the student-teachers will be able to

• *Explain the construct of inclusive education & the progression from segregation towards valuing & appreciating diversity in inclusive education.*

• *Explicate the national & key international policies & frameworks facilitating inclusive education.*

• *Enumerate the skills in adapting instructional strategies for teaching in mainstream classrooms.*

• *Describe the inclusive pedagogical practices & its relation to good teaching.*

• *Expound strategies for collaborative working and stakeholders support in implementing inclusive education.*

Unit 1: Introduction to Inclusive Education

1.1 Marginalisation vs. Inclusion: Meaning & Definitions
1.2 Changing Practices in Education of Children with Disabilities: Segregation, Integration & Inclusion
1.3 Diversity in Classrooms: Learning Styles, Linguistic & Socio-Cultural Multiplicity
1.4 Principles of Inclusive Education: Access, Equity, Relevance, Participation & Empowerment
1.5 Barriers to Inclusive Education: Attitudinal, Physical & Instructional

Unit 2: Polices & Frameworks Facilitating Inclusive Education

2.1 International Declarations: Universal Declaration of Human Rights (1948), World Declaration for Education for All (1990)
2.2 International Conventions: Convention against Discrimination (1960), Convention on Rights of a Child (1989), United Nations Convention of Rights of Persons with Disabilities (UNCRPD) (2006)
2.3 International Frameworks: Salamanca Framework (1994), Biwako Millennium Framework of Action (2002)

2.4 National Commissions & Policies: Kothari Commission (1964), National Education Policy (1968), National Policy on Education (1986), Revised National Policy of Education (1992), National Curricular Framework (2005), National Policy For Persons With Disabilities (2006)
2.5 National Acts & Programs: IEDC (1974), RCI Act (1992), PWD Act (1995), National Trust Act (1999), SSA (2000), RTE (2006), RMSA (2009), IEDSS (2013)

Unit 3: Adaptations Accommodations and Modifications

3.1 Meaning, Difference, Need & Steps
3.2 Specifics for Children with Sensory Disabilities
3.3 Specifics for Children with Neuro-Developmental Disabilities
3.4 Specifics for Children with Loco Motor & Multiple Disabilities
3.5 Engaging Gifted Children

Unit 4: Inclusive Academic Instructions

4.1 Universal Design for Learning: Multiple Means of Access, Expression, Engagement& Assessment
4.2 Co-Teaching Methods: One Teach One Assist, Station-Teaching, Parallel Teaching,Alternate Teaching & Team Teaching
4.3 Differentiated Instructions: Content, Process & Product
4.4 Peer Mediated Instructions: Class Wide Peer Tutoring, Peer Assisted Learning Strategies
4.5 ICT for Instructions

Unit 5: Supports and Collaborations for Inclusive Education

5.1 Stakeholders of Inclusive Education & Their Responsibilities
5.2 Advocacy & Leadership for Inclusion in Education
5.3 Family Support & Involvement for Inclusion
5.4 Community Involvement for Inclusion
5.5 Resource Mobilisation for Inclusive Education

Practical & Field Engagement

I. Visit Special Schools of any two Disabilities & an Inclusive school & writeobservation report highlighting pedagogy
II. Prepare a Checklist for Accessibility in Mainstream Schools for Children with Disabilities
III. Design a Poster on Inclusive Education
IV. Prepare a Lesson Plan on any one School subject of your choice using any one Inclusive Academic Instructional Strategy

Transactions

Group discussions following videos and visits. Debate for Inclusion vs. Segregation & Self study for legislations and frameworks

Suggested Readings

• Bartlett, L. D., &Weisentein, G. R. (2003). *Successful Inclusion for Educational Leaders*. New Jersey: Prentice Hall.
• Chaote, J. S. (1991). *Successful Mainstreaming*.Allyn and Bacon.
• Choate, J. S. (1997). *Successful Inclusive Teaching*.Allyn and Bacon.
• Daniels, H. (1999) .*Inclusive Education*.London: Kogan.
• Deiner, P. L. (1993). *Resource for Teaching Children with Diverse Abilities*, Florida:Harcourt Brace and Company.

• Dessent, T. (1987). *Making Ordinary School Special*. Jessica Kingsley Pub.
• Gargiulo, R.M. *Special Education in Contemporary Society: An Introduction to Exceptionality*. Belmont: Wadsworth.
• Gartner, A., &Lipsky, D.D. (1997). *Inclusion and School Reform Transferring America's Classrooms*,Baltimore: P. H. Brookes Publishers.
• Giuliani, G.A. &Pierangelo, R. (2007). *Understanding, Developing and Writing IEPs*.Corwin press:Sage Publishers.
• Gore, M.C. (2004) .*Successful Inclusion Strategies for Secondary and Middle SchoolTeachers*, Crowin Press, Sage Publications.
• Hegarthy, S. &Alur, M. (2002). *Education of Children with Special Needs: from Segregation to Inclusion*, Corwin Press, Sage Publishers.
• Karant, P., &Rozario, J. ((2003*). Learning Disabilities in India*.Sage Publications.
• Karten, T. J. (2007). *More Inclusion Strategies that Work*. Corwin Press, Sage Publications.

• King-Sears, M. (1994). *Curriculum-Based Assessment in Special Edcuation*. California: Singular Publications.
• Lewis, R. B., &Doorlag, D. (1995). *Teaching Special Students in the Mainstream*. 4th Ed. New Jersey: Pearson.
• McCormick, S. (1999). Instructing Students who Have Literacy Problems. 3rd Ed. New Jersey, Pearson.
• Rayner, S. (2007). *Managing Special and Inclusive Education*, Sage Publications.
• Ryandak, D. L. &Alper, S. (1996). *Curriculum Content for Students with Moderate and Severe Disabilities in Inclusive Setting*. Boston, Allyn and Bacon.
• Sedlak, R. A., &Schloss, P. C. (1986). *Instructional Methods for Students with Learning and Behaviour Problems*.Allyn and Bacon.
• Stow L. &Selfe, L. (1989). *Understanding Children with Special Needs*. London: Unwin Hyman.
• Turnbull, A., Turnbull, R., Turnbull, M., & Shank, D.L. (1995). *Exceptional Lives: Special Education in Today's Schools*.2nd Ed. New Jersey: Prentice-Hall.Inc.

• Vlachou D. A. (1997).*Struggles for Inclusive Education: An Ethnographic Sstudy*. Philadelphia: Open University Press.

• Westwood, P. (2006). *Commonsense Methods for Children with Special EducationalNeeds -Strategies for the Regular Classroom.*4th Edition, London RoutledgeFalmer:Taylor & Francis Group.

COURSE-11: CURRICULUM, DESIGNING , ADAPTATION AND STRATEGIES FOR TEACHING EXPANDED CURRICULUM

Course: 11 **Credits: 04**

Contact Hours: 60 **Marks: 100**

Time of Examination: 3 Hours **(External-80+Internal-20)**

Note: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions will carry equal marks.

Introduction

Curriculum is the heart of any educational system. As is the curriculum, so is the educative process. This course will provide basic understanding of the concept of curriculum approaches to curriculum development. The course content shows a strong commitment to the notion that children with visual impairment should have access to the regular core curriculum for which they need to learn an expanded core curriculum unique to visual impairment. Apart from that certain curricular adaptations and modifications are required to be done to enable the students to access visually oriented concepts. Adapted physical education and creative arts also form a part of this course of study.

Objectives

After completing the course student-teachers will be able to

• *Define curriculum, its types and explain its importance*.

• *Demonstrate techniques of teaching functional academic skills.*

• *Explain importance and components of independent living skills.*

• *Explain curricular adaptations with reasonable accommodations.*

• *Illustrate how physical education and creative arts activities can be adapted for the children with visual impairment.*

Unit 1: Concept and Types of Curriculum

1.1 Concept, Meaning and Need for Curriculum

1.2 Curricular Approaches in Special Education – Developmental, Functional, Eclectic and Universal design for learning Approach

1.3 Types of Curriculum – need based, knowledge based, activity based, skill based and hidden curriculum

1.4 Curriculum Planning, Implementation and Evaluation; Role of Special teachers of the Visually Impaired

1.5 Core Curriculum and Expanded Core Curriculum- Meaning, Need and Components

Unit 2: Teaching Functional Academics Skills

2.1 Learning media assessment

2.2 Braille reading readiness

2.3 Techniques of teaching Braille

2.4 Techniques of Teaching print to children with low vision

2.5 Braille aids and devices, optical devices for print reading and writing

Unit 3: Teaching of Independent Living Skills

3.1 Independent living skills – Meaning, Importance, Components

3.2 Orientation and Mobility – need and importance, techniques of teaching mobility,sighted guide and pre-cane, cane techniques and mobility aids
3.3 Daily living skills – assessment of needs and techniques of teaching age appropriatedaily living skills
3.4 Sensory efficiency – importance and procedures for training auditory, tactile,olfactory, gustatory, kinaesthetic senses and residual vision
3.5 Techniques of teaching social interaction skills, leisure and recreation skills and self - determination

Unit 4: Curricular Adaptation

4.1 Curricular adaptation – Need, Importance and Process
4.2 Reasonable accommodation – Need and Planning
4.3 Planning of lessons for teaching Expanded Core Curriculum – Individualized Education Program writing
4.4 Pedagogical Strategic – Cooperative learning, Peer tutoring, reflective teaching, multisensory teaching
4.5 Preparation of Teaching Learning Material for ECC – Reading Readiness kit, Flash Cards, Sensory Kits, and Mobility Maps

Unit 5: Curricular Activities

5.1 Curricular activities – Meaning and Need for Adaptation.
5.2 Adaptation of Physical education activities and Yoga
5.3 Adaptation of Games and Sports – both Indoor and Outdoor
5.4 Creative Arts for the children with visual impairment
5.5 Agencies/Organisations promoting – Sports, Culture and Recreation activities for the Visually Impaired in India – Indian Blind Sports Association, Chess Federation of India, Paralympic Committee of India, Abilympics, World Blind Cricket

Course Work/ Practical/ Field Engagement

• Prepare reading readiness material for pre-school children with visual impairment
• Preparation and presentation of a kit to develop sensory efficiency
• Select one chapter from a primary level text book of your choice and adapt it for learners with visual impairment
• Adapt one diagram and one map from secondary classes into non-visual format

Essential Readings

• Lowenfeld, B. (1971). Our blind children: Growing and learning with them, Springfield, Charles C. Thomas.
• Aggarwal, J.C. (2005). Curriculum development.Shipra Publication. Delhi
• Arora, V. (2005). Yoga with visually challenged.:Radhakrishna Publication, New Delhi
• Baratt, S. H. (2008). The special education tool kit. Sage Publication, New Delhi.
• Chapman, E. K. (1978). Visually Handicapped Children and Young People. Routledge and Kegan Paul, London.
• Cutter, J. (2006). Independent Movement and travel in Blind Children. IAP, North Carolina.
• Dickman, I.R. (1985). Making life more liveable. AFB, New York.
• Dodds, A. (1988). Mobolity training for visually handicapped people.Croom Helm. London.
• Jose, R. (1983). Understanding Low Vision. American Foundation for the Blind, NewYork.
• Kauffman, J.M., &Hallahan, D.P. (1981). Handbook of Special Education. Prentice Hall, New Delhi
• Kelly, A.V. (1997). The curriculum: theory and practice. Harper and Row, London.
• Lowenfeld, B. (1973). The Visually Handicapped Child in School. John Day Company, New York.

• Mangal, S. K. (2011) Educating Exceptional Children: An Introduction to Special Education. PHI Learning Pvt.Ltd., New Delhi.
• Mani, M. N. G. (1992). Techniques of teaching blind children. Sterling Publishers Pvt. Ltd., New Delhi.
• Mani, M. N. G. (1997). Amazing Abacus. S.R.K. Vidyalaya Colony, Coimbatore.
• Mason, H., & Stephen McCall, S.(2003) . Visual Impairment – Access to Education for Children and Young people. David Fulton Publishers, London.
• Mukhopadhyay, S., Mani, M.N.G., RoyChoudary, M., &Jangira, N.K. (1988). Source Book for Training Teachers of Visually Impaired. NCERT, New Delhi.
• Punani, B., &Rawal, N.(2000). Handbook for Visually Impaired. Blind Peoples' Association, Ahmedabad.
• Scholl, G. T. (1986). Foundations of the education for blind and visually handicappedchildren and youth: Theory and Practice. AFB Press, New York.
• Sharma, R. A. (2011). Curriculum development and instruction. R. Lall Book Depot,Meerut.
• Vijayan, P., &Gnaumi, V. (2010). Education of children with low vision.Kanishka Publication, New Delhi.
• Welsh, R., &Blasch, B. (1980). Foundation Orientation &Mobility.AFB, New York.

Suggested Readings

• Ashcroft, S. C., & Henderson, F. (1963). Programmed Instruction in Braille.StanwickHouse, Pittsburgh.
• Barraga, N. C. (1986). 'Sensory Perceptual Development'.in: G.T. Scholl (ed.) Foundations of the education for blind and visually handicapped children and youth: Theory and Practice. AFB Press, New York.
• National Curriculum Framework .(2005). Position paper National focus group in Education of Children with Special needs. NCERT,New Delhi.
• Status of Disability in India. (2012). Rehabilitation Council of India, New Delhi.
• Hodapp, R. M. (1998). Developmental and disabilities: Intellectual, sensory and motor impairment. Cambridge Uni. Press, New York.
• The expanded Core Curriculum. (2013). Retrieved from http: // www.afb.org
• Wright, L. (2013). The Skills of Blindness: What should students know and when students know. Retrieved from http:// www.lofob.org

Semester – II

COURSE-12: DISABILITY SPECIALISATION (VISUAL IMPAIRMENT)

Sr. No	Task for the student teacher	Disability focus	Educational settings	Specific activities	Hrs. (60)	Marks
1	Learning of Braille	VI	Department of Education, KUK	1. Bharati Hindi orRegional Braille	30	25
				2. Braille Mathematical sign for: Numericindicator, basicoperations, simplefraction and brackets	15	25
2	Learning the use of Assistive Devices	VI	Department of Education, KUK	Taylor Frame: BasicOperation usingarithmetic and algebraic types	15	
GRAND TOTAL						50

(PRACTICAL)

Course: 12 **Credits: 02**

Hours: 60 **Marks: 50**

(External-40+Internal-10)

Note: The evaluation will be done jointly by the two examiners (one internal and one external).

SEMESTER–III B.ED. Spl. Ed. (V.I)

Introduction to course for semester-III

Course	Course title	Credits	Internal assessment	External assessment	Total marks	Duration of Exam
C-13	Educational Intervention and Teaching Strategies	4	20	80	100	3 hours
C-14	Technology and Education of the visually impaired	4	20	80	100	3 hours
C-15	Psycho Social and Family Issues	2	10	40	50	1.5 hours
C-16	Practical: Disability Specialization	4	20	80	100	
C-17	Main disability special school (Related to VI)	4	20	80	100	
C-18	Reading and Reflecting on Texts (EPC)	2	10	40	50	1.5 hours
C-19	Performing and Visual Art (EPC)	2	10	40	50	1.5 hours
GRAND TOTAL		**22**	**110**	**440**	**550**	

COURSE-13: INTERVENTION AND TEACHING STRATEGIES

Course: 13 **Credits: 04**

Contact Hours: 60 **Marks: 100**

Time of Examination: 3 Hours **(External-80+Internal-20)**

Note: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions will carry equal marks.

Introduction

This course builds on the pedagogy courses presented under A4 and A5 of the present B.Ed. curriculum. It prepares the student-teachers to transact lessons in various school-subjects for children with visual impairment. For this purpose, the required intervention and teaching techniques and skills are highlighted. The student-teachers, it is hoped, will find the course highly stimulating, as it will enable them to help blind and low vision students to cope effectively with the challenges of curriculum transaction, at par with their sighted peers.

Objectives

After completing the course student-teachers will be able to

•*Explain various theoretical perspectives related to intervention & teaching strategies.*

• *Demonstrate techniques of teaching Mathematics to visually impaired children.*

•*Acquire necessary competencies and skills for teaching science and assessment of the learners with special reference to children with visual impairment.*

•*Acquire and apply necessary skills for adapting TLM in social science and assessment of the learners with special reference to children with visual impairment.*

•*Describe the process of assessment visual efficiency and classroom management for children with low vision.*

Unit 1: Theoretical Perspectives

1.1 Difference among Methods, Approaches and Strategies

1.2 Intervention – Concept, Scope and Importance

1.3 Intervention for lately blinded students – Role of Special teachers/educators

1.4 Mediated teaching-learning – Concept, Need and Procedure

1.5 Enriched teaching for Concept development: Converting visual concepts into accessible experiences

Unit 2: Mathematics

2.1 Coping with Mathematics phobias

2.2 Conceptualization of Mathematical ideas – Processes and Challenges for Children with Visual Impairment

2.3 Preparation and Use of tactile materials

2.4 Mental arithmetic abilities – Concept, Importance and Application

2.5 Evaluation procedures with special reference to the Needs of Children with Visual Impairment

Unit 3: Science

3.1 Providing first-hand experience in the class and the school environment

3.2 Inclusive/collaborative learning for laboratory work

3.3 Science Teaching Learning Materials and Equipment: i) Preparation and use of TLM,

ii) Locating and procuring Science equipment
3.4 Problem solving and Learning by doing approach for Visually Impaired students
3.5 Evaluation procedure with particular reference to Practicals and Adaptations in Examination questions

Unit 4: Social Science

4.1 Techniques of preparation and presentation of adapted Tactile maps, Diagrams, and Globe
4.2 Procuring, adapting and use of different types of models
4.3 Organizing field trips
4.4 Teaching Skills: Dramatization, Narration, Explanation, Story-telling, and Role play
4.5 Evaluation of concepts and skills in social science with particular reference to Geography

Unit 5: Teaching of Children with Low Vision

5.1 Visual Stimulation: Concept and Procedure
5.2 Selection of an appropriate medium of reading and writing
5.3 Techniques and procedures for developing reading and writing skills
5.4 Orientation and Mobility for low vision children
5.5 Classroom management – Seating arrangement, adjustable furniture, illumination, non-reflecting surfaces and colour contrast

Course Work / Practical / Field Engagement

• Prepare and use two teaching learning materials for teaching Maths/ Science/ Social Science.
• Prepare a short concept paper (about 500 words) on developing a science laboratory for the visually impaired students.
• Functionally assess the vision of a low vision child and plan a teaching programme.

Essential readings:

• Bourgeault, S. E. (1969). The Method of Teaching the Blind : The Language Arts. American Foundation for the Overseas Blind ,Kuala Lumpur.
• Chapman, E. K. (1978). Visually Handicapped Children and Young People. Routledge, London.
• Fernandez, G., Koening. C., Mani. M.N.G., & Tensi. S. (1999). See with the Blind. Books for Change, Banglalore.
• Jackson, J. (2007). Low Vision Manual. Edingurgh: Butterworth Heinemann/ Elsevier, Edingurgh.
• Jose, R. (1983). Understanding Low Vision. American Foundation For The Blind.
New York.
• Kauffman, J.M., & Hallahan, D.P. (1981). Handbook of Special Education. Prentice Hall, New Delhi.
• Lowenfeld, B. (1973). The Visually Handicapped Child in School. John Day Company, New York.
• Lydon, W. T., & McGraw, M. L. (1973). Concept Development for Visually Handicapped Children. AFB, New York.
• Mangal. S. K. (2007). Educating exceptional children-an introduction to special education. PHI learning Pvt. New Delhi.
• Mangal, S. K. (2011) Educating Exceptional Children: An Introduction to Special Education. PHI Learning Pvt. Ltd., New Delhi.
• Mani. M. N. G. (1997). Amazing Abacus. S.R.K. Vidyalaya Colony, Coimbatore.
• Mani, M. N. G. (1992). Techniques of Teaching Blind Children. Sterling Publishers Pvt. Ltd. New Delhi.
• Macnaughton, J. (2005). Low Vision Assessment. Butterworth Heinemann/ Elsevier, Edingurgh.
• Mason, H., & McCall, S. (2003). Visual Impairment – Access to Education for Children and Young people. London: David Fulton Publishers.

• Mukhopadhyay, S., Mani, M.N.G., Roy Choudary, M., & Jangira, N.K. (1988). Source Book for Training Teachers of Visually Impaired. New Delhi: NCERT.
• Macnaughton, J. (2005). Low Vision Assessment. Butterworth Heinemann /Elsevier, Edingurgh.
• Niemann, S., & Jacob, N. (2009). Helping Children who are Blind. The Hesperian Foundation, California.
• Punani, B., & Rawal, N.(2000). Handbook for Visually Impaired. Blind Peoples' Association, Ahmedabad.
• Scholl, G.T. (1986). Foundations of the education for blind and visually handicapped children and youth: Theory and Practice. AFB Press, New York.
• Vijayan, P.., & Gnaumi, V. (2010). Education of children with low vision. Kanishka Publication, New Delhi.

Suggested Readings:

• Agrawal, S. (2004). Teaching Mathematics to Blind Students through Programmed Learning Strategies. Abhijeet Publication, Delhi.
• Hodapp, R. M. (1998). Developmental Disabilities: Intellectual, Sensory and Motor Impairment. Cambridge University Press, New York.
• Kelley, P., & Gale, G. (1998). Towards Excellence: Effective Education for Students with Vision Impairments.North Rocks Press, Sydney.
• Mangold, S. S. (1981). A teachers' Guide to the Special Education needs of Blind and Visually handicapped Children. New York: AFB
• Pandey, V. P. (2004). Teaching of mathematics.Sumit Publiication, New Delhi.
• Status of Disability in India. (2012). Rehabilitation Council of India, New Delhi.

COURSE-14: TECHNOLOGY AND EDUCATION OF THE VISUALLY IMPAIRED

Course: 14 **Credits: 04**

Contact Hours: 60 **Marks: 100**

Time of Examination: 3 Hours **(External-80+Internal-20)**

Note: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions will carry equal marks.

Introduction

Technology in the form of adaptive and assistive devices plays a crucial role in the education of the visually impaired. This course brings into sharp focus the need and importance of such technologies both for the practicing teachers and the visually impaired learners. While highlighting the significance of addressing the users point of view/feedback and involving mainstream professionals in developing required technologies, the course also dwells upon on how best students with visual impairment get access to the printed text/material. The course also acquaints the student-teachers with various devices for making the teaching learning process for important school subjects meaningful, exciting and rewarding for all concerned. The educational needs of children with low vision and related technological perspectives are addressed, too, along with critical contributions of computer-aided learning and interventions. In short, the course focuses on making transaction of curriculum for blind and low vision students, a really enjoyable and worthwhile experience. It needs to be studied in conjunction with course Code C14 of the curriculum.

Objectives

After completing the course student-teachers will be able to

• *Relate the concept and nature of educational technology and ICT to the education of children with visual impairment.*

•*Acquire knowledge of the concept and nature of adaptive technology and explain underlying principles and techniques.*

•*Get familiar with technologies for print-access for children with visual impairment.*

•*Describe and use different technologies for teaching low vision children as also various school subjects.*

•*Demonstrate understanding of computer-based teaching-learning processes.*

Unit 1: Introducing Educational and Information Communication Technology

1.1 Educational Technology-Concept, Importance, and Scope

1.2 Difference between Educational Technology and Technology in Education

1.3 Special Significance and Goals of Technology for the Education of children with Visual Impairment

1.4 Information and Communication Technology (ICT) - Concept and Special Significance for teaching-learning of the visually impaired

1.5 ICT and the UN Convention on the Rights of Persons with Disabilities.

Unit 2: Adaptive Technologies

2.1 Concept and Purposes

2.2 Basic Considerations--Access, Affordability, and Availability

2.3 Addressing User's Perspectives in Developing Adaptive Technologies

2.4 Roles of IIT's and the Scientific Community;
2.5 Universal/Inclusive Design - Concept, Advantages, and Limitations.

Unit 3: Access to Print for the Visually Impaired

3.1 Screen Readers with Special Reference to Indian Languages; Magnifying Software, and Open Source Software.
3.2 Braille Notetakers and Stand-alone Reading Machines
3.3 Braille Translation Software with Particular reference to Indian Languages and Braille Embossers
3.4 On-Line Libraries and Bookshare
3.5 Daisy Books, Recordings, and Smart Phones.

Unit 4: Assistive Technologies for the Visually Impaired with Reference to School Subjects and Low Vision

4.1 Mathematics: Taylor Frame, Abacus, Geo Board, Algebra and Maths Types, Measuring Tapes, Scales, and Soft-wares for teaching Maths.
4.2 Science: Thermometers, Colour Probes, Scientific and Maths Talking Calculators,
Light Probes, and Weighing scales and Soft-wares for teaching Science.
4.3 Social Science: Tactile/Embossed Maps, Charts, Diagrams, Models of Different
Types, Auditory Maps, Talking compass, and GPS
4.4 Low vision devices: Optical, Non-Optical and Projective
4.5 Thermoform and Swell Paper technology and Softwares for developing tactile diagrams

Unit 5: Computer-Aided Learning

5.1 Social Media
5.2 Creation of Blogs
5.3 Tele-Conferencing
5.4 Distance Learning and ICT
5.5 e-Classroom: Concept and Adaptations for Children with Visual Impairment

Course Work / Practical / Field Engagement

Any three of the following

• Prepare a list of devices for Mathematics and Science available for the visually impaired in one special school and one inclusive school
• Write a short list of hints and suggestions you will offer to the scientific community for motivating them to develop adaptive technologies for the visually impaired
• Make a short report (in about 500 words) on the advantages and limitations as well as sources of availability in respect of any print-access technology indicated in Unit 3 above.
• Make a case study of a student with low vision at the secondary stage, indicating clearly his educational needs and how you can address them
• Prepare a report on the possibilities and prospects available for the visually impaired students through the use of computers
• Prepare a short note (in about 400 words) on various aspects of a classroom and how it could be made accessible to the visually impaired

Essential Readings

• Biwas, P. C. (2004). Education of children with Visual Impairment: in inclusive education. Abhijeet Publication, New Delhi.
• Bourgeault, S. E. (1969). The Method of Teaching the Blind: The Language Arts, Kuala Lumpur: American Foundation for the Overseas Blind.

• Chaudhary, M. (2006). Low Vision Aids. Japee Brothers, New Delhi.
• Lowenfeld, B. (1973). The Visually Handicapped Child in School. John Day Company, New York.
• Mani. M.N.G. (1997).Amazing Abacus. Coimbatore: S.R.K. Vidyalaya Colony.
• Mukhopadhyay, S., Mani, M.N.G., Roy Choudary, M., & Jangira, N.K. (1988). Source Book for Training Teachers of Visually Impaired. New Delhi: NCERT.
• Proceedings: Asian Conference on Adaptive technologies for the Visually Impaired (2009). New Delhi: Asian Blind Union
• Punani, B., & Rawal, N. (2000). Handbook for Visually Impaired. Blind Peoples' Association, Ahmedabad.
• Scheiman, M., Scheiman, M., & Whittaker, S. (2006). Low Vision Rehabilitation: a practical guide for occupational therapists. Thorefore Slack Incorp, New Jersy.
• Scholl, G. T. (1986). Foundations of the education for blind and visually handicapped children and youth: Theory and Practice. AFB Press, New York.
• Singh, J. P. (2003). Technology for the Blind: Concept and Context. Kanishka Publication, New Delhi.
• Vijayan, P., & Gnaumi, V. (2010). Education of Children with low Vision. Kanishka Publication, New Delhi.

Suggested Readings

• Fatima, R. (2010). Teaching aids in mathematics; a handbook for elementary teachers. Kanishka Publication, New Delhi.
• Hersh, M.A., & Johnson, M. (2008). Assistive Technology for Visually Impaired and Blind People. Springer, London.
• Sadao, K. C., & Robinson, N. B. (2010). Assistive Technology for young children: creating inclusive learning environments.Paul H Brooks, Baltimore.

COURSE-15: PSYCHO SOCIAL AND FAMILY ISSUES

Course: 15 **Credits: 02**

Contact Hours: 30 **Marks: 50**

Time of Examination: 1.5 Hours **(External-40+Internal-10)**

Note: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions will carry equal marks.

Introduction

Children with Visual Impairment belong to families. It is important to explore family backgrounds and their influence on how visually impaired are perceived and how children perceive themselves, and how they behave in consequence. The learners need to develop an insight into the plethora of emotions the family goes through at the birth of a special child, the challenges they face throughout the life of the visually impaired, and the roles and responsibilities of the family and the community.

Objectives

After completing the course student-teachers will be able to

• *Describe the effect of birth of a child with visual impairment on the family.*

• *Analyze the role of family and parental concerns related to their child with visual impairment from birth to adulthood.*

• *Explain the role of parent community partnership in the rehabilitation of a person with visual impairment.*

• *Develop different skills to empower families in meeting the challenges of having a child with visual impairment.*

Unit 1: Family of a Child with Visual Impairment

1.1 Birth of a child with visual impairment and its effect on parents and family dynamics
1.2 Parenting styles: Overprotective, Authoritative, Authoritarian and Neglecting
1.3 Stereotypic attitudes related to visual impairment and attitude modification
1.4 Role of family in Early stimulation, Concept development and Early intervention
1.5 Role of siblings and extended family

Unit 2: Parental Issues and Concerns

2.1 Choosing an educational setting
2.2 Gender and disability
2.3 Transition to adulthood: sexuality, marriage, and employment
2.4 Parent support groups
2.5 Attitude of professionals in involving parents in IEP and IFSP

Unit 3: Parental Involvement in Educational Planning

3.1 IEP
3.2 ITP
3.3. IFSP
3.4 Attitude of professionals in involving parents in IEP, ITP, IFSP

Unit 4: Rehabilitation of Children with Visual Impairment

3.1 Concept of habilitation and rehabilitation
3.2 Community Based Rehabilitation (CBR) and Community Participatory Rehabilitation (CPR)

3.3 Legal provisions, concessions and advocacy
3.4 Vocational rehabilitation: need and challenges
3.5 Issues and challenges in rural settings

Unit 5: Meeting the Challenges of Children with Visual Impairment

4.1 Enhancing pro-social behaviour
4.2 Stress and coping strategies
4.3 Recreation and leisure time management
4.4 Challenges of adventitious visual impairment
4.5 Soft skills and social skills training

Course Work/ Practical/ Field Engagement (Any Two)

• Interview family members of three children with visual impairment (congenital/ adventitious and blind, low vision and VIMD) and analyze their reactions and attitude towards the child
• Prepare and present a list of activities how parents, siblings, and grandparents can be engaged with the child with visual impairment
• Prepare charts/ conduct street plays/ make oral presentations to remove myths related to visual impairment
• Visit schools for the visually impaired and make presentations before the parents on Government concessions and auxiliary services available

Essential Readings

• Bhandari, R., & Narayan, J. (2009).Creating learning opportunities: a step by step guide to teaching students with vision impairment and additional disabilities, including deafblindness. India: Voice and vision.
• Hansen, J. C., Rossberg, R.H., & Cramer,S.H. (1994). Counselling Theory and Process. Allyn and Bacon: USA
• Lowenfeld, B. (1969). Blind children learn to read. Springfield: Charles C. Thomas.
• Lowenfeld, B. (1973).Visually Handicapped Child in School; New York: American Foundation for the Blind.
• Lowenfeld, B. (1975). The Changing Status of the Blind from Separation to Integration.Springfield: Charles C. Thomas.
• Mani, M. N. G. (1992). Techniques of Teaching Blind Children. New Delhi: Sterling publishers Pvt. Ltd.
• Narayan, J., & Riggio, M. (2005). Creating play environment for children. USA: Hilton/ Perkins.
• Shah, A. (2008). Basics in guidance and Counselling. New Delhi:Global Vision Publishing House.
• Smith, D. D., & Luckasson, R. (1995). Introduction to Special Education – Teaching in an age of Challenge.(2Ed).USA: Allyn & Bacon.

Suggested Readings

• Bhan, S. (2014). Understanding learners-A handbook for teachers. Prasad Psycho Corporation, New Delhi.
• Early Support for children, young people and families (2012). Information about Visual Impairment, Retrieved from http://www.ncb.org.uk/media/875236/earlysupportvisimppart1final.pdf
• Kundu, C. L. (2000). Status of Disability in India. New Delhi: RCI.
• Lowenfeld, B. (1971). Psychological problems of children with impaired vision, Prentice-Hall.

COURSE-16: DISABILITY SPECIALISATION (PRACTICAL)

Course: 16 **Credits: 04**

Contact Hours: 120 **Marks: 100**

Note: There will be two examiners-one internal and other external-for the evaluation of students.

Sr. No	Tasks for the Student-teachers	Educational setting	Disability Focus	Specific Activity	Hrs	Marks
1.1	Reading and writing of standard English braille	Department of Education,KUK	VI	1. Reading and writing English Braille text. Transcription from print to Braille and vice versa(Grade II)	60	50
				2. Braille Mathematics Code: Radicals, fraction (Mixed, complex and hyper complex), sign and symbols of comparison, Shape signs, Greek letters, indices, set, symbols, trigonometric functions	30	25
				3. Abacus and Geometric kit	30	25

COURSE-17: MAIN DISABILITY SPECIAL SCHOOL(Related to VI) (FIELD WORK)

Course: 17 **Credits: 04**

Contact Hours: 120 **Marks: 100**

Note: The evaluation will be done jointly by the two examiners (one internal and one external).

Sr.No.	Tasks for the Student teachers	Disability Focus	Educational Set Up	No. of Lessons
1	Classroom Teaching	VI	Special schools for VI	Minimum 90 school periods

COURSE-18: READING AND REFLECTING ON TEXTS (EPC)

Course: 18 **Credits: 02**

Contact Hours: 30 **Marks: 50**

Time of Examination: 1.5 Hours **(External-40+Internal-10)**

Note: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions will carry equal marks.

Introduction

One of the core areas that schools focus upon is age appropriate and fluent literacy skills. Hence, aspirant graduates who intend to make career in education must be good readers and good writers (in literally sense). Due to several reasons a student teacher like you may not have adequate skills, interest and motivation for reading and writing. Here is a skill based and activity oriented course designed to give you an opportunity to look at reading writing seriously, relearn it as a professional activity, apply it for students with special needs and enjoy it like never before.

Objectives

After completing the course student-teachers will be able to

• *Reflect upon current level of literacy skills of the self.*

• *Show interest and begin working upon basic skills required to be active readers in control of own comprehension.*

• *Show interest and begin working upon basic skills required to be independent writers understanding adequate intent, audience and organization of the content.*

• *Prepare self to facilitate good reading writing in students across the ages.*

• *Find reading writing as learning and recreational tools rather than a course task.*

Unit 1: Reflections on Literacy

1.1 Literacy and Current University Graduates: Status and Concerns

1.2 Role of Literacy in Education, Career and Social Life

1.3 Literacy, Thinking and Self Esteem

1.4 Literacy of Second Language/ English: Need and Strategies

1.5 Basic Braille Literacy

Unit 2: Reflections on Reading Comprehension

2.1 Practicing Responses to Text: Personal, Creative and Critical

2.2 Meta Cognitive Awareness of Reading Processes and Strategies Applied for Meaning Making

2.3 Developing Good Reading Skills and Habits in Primary Level Students: Activities and Strategies

2.4 Basic Understanding of Reading Comprehension of Children with Disabilities

Unit 3: Skill Development in Responding to Text

3.1 Indicators of Text Comprehension: Retelling, Summarizing, Answering, Predicting, Commenting and Discussing

3.2 Practicing Responding to Text (Using The Indicators) for Recreational Reading Material (Narrations) and School Textbooks (Description)

3.3 Practicing Responding to Text (Using the Indicators) for Reports, Policy Documents and News (Expositions) and Editorial, Academic Articles, Advertisement Copy, Resume (Argumentation)
3.4 Practicing Web Search, Rapid Reading and Comprehensive Reading

Unit 4: Reflecting Upon Writing as a Process and Product

4.1 Understanding writing as a Process: Content (Intent, Audience and Organization)
4.2 Understanding writing as a Process: Language (Grammar, Vocabulary, Spelling)
4.3 Understanding writing as a Process: Surface Mechanics (Handwriting, Neatness, Alignment and Spacing)
4.4 Practicing Self Editing and Peer Editing of Sample Texts
4.5 Practicing Evaluating Students Writing Using Parameters: Productivity, Correctness, Complexity, Text Organization and Literary Richness

Unit 5: Practicing Independent Writing

5.1 practicing Writing: Picture Description/ Expansion of Ideas/ Essays/ Stories
5.2 Practicing Daily Leaving Writing: Applications/ Agenda - Minutes/ Note Taking
5.3 Practicing Converting Written Information into Graphical Representation
5.4 Practicing Filling up Surveys, Forms, Feedback Responses, Checklists
5.5 Reflections on the Course: From Theory to Practice to Initiating Process to Improve Self

Course Work/ Practical/ Field Engagement

• Have a peer editing of independently written essays and discuss your reflections upon this experience
• Prepare a feedback form for parents and for teachers focussing on differences in the two forms due to different intent and audience
• Develop a short journal of graphical representation of 3 newspaper articles on school education using the options given in 2.4
• Visit a book store for young children, go through the available reading material including exercise books, puzzles. etc. and make a list of useful material for developing early literacy skills

Essential Readings

• Anderson, R., Hiebert, E., Scott, J., & Wilkinson, I. (1985). Becoming a Nation of Readers: The report of the commission on reading. Washington, DC: National Institute of Education and the Center for the Study of Reading.
• ASER report of 2015: Pratham Publication
• May, F. B. (2001). Unravelling the seven myths of reading. Allyn and Bacon: Boston
• McGregor, T. (2007). *Comprehension Connections: Bridges to Strategic Reading*. Heinemann Educational Books.
• Tovani, C., & Keene.E.O. (2000). *I Read It, but I Don't Get It: Comprehension Strategies for Adolescent Readers*. Stenhouse Publishers
• Soundarapandian, M. (2000). Literacy campaign in India. Discovery Publishing House: New Delhi.

Suggested Readings

• Aulls, M. W. (1982). Developing readers in today's elementary school. Allyn and Bacon: Boston
• Baniel, A. (2012). Kids beyond limits. Perigee Trade: New York
• McCormick, S. (1999). Instructing students who have literacy problems.(3rd) Merrill: New Jersy
• Ezell, H., & Justice, L. (2005). Programmatic Research on Early Literacy: Several Key Findings. *IES 3rd Annual Research Conference: American Speech Language & Hearing Association (ASHA)*.
• Frank, S. (1985). Reading without Nonsense. Teachers College Press, New York.
• Gallangher.K. (2004). *Deeper Reading: Comprehending Challenging Texts*. Stenhouse Publishers

• Heller, R. (1998). Communicate clearly. DK Publishing: New York.
• Luetke-Stahlman, B., & Nielsen, D. (2003). Early Literacy of Kindergartners with Hearing Impairment. *High Beam*
• May, F. B. (1998). Reading as communication. Merrill: New Jersy
• Miller. D. (2002). *Reading With Meaning: Teaching Comprehension in the Primary Grades.*Stenhouse Publishers, New York.
• Pandit, B., Suryawanshi, D. K., & Prakash, M. (2007). Communicative language teaching in English.Nityanutan Prakashan, Pune.
• Paul, P. V. (2009). Language and Deafness. Jones and Bartlett: Boston

COURSE-19: PERFORMING AND VISUAL ARTS (EPC)

Course: 19 **Credits: 02**

Contact Hours: 30 **Marks: 50**

Time of Examination: 1.5 Hours **(External-40+Internal-10)**

Note: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions will carry equal marks.

Introduction

India has an excellent historical backdrop as well as contemporary talents in the field of art. However, it is debatable whether the same has been translated into our school system effectively. Do most of our students get exposure to a variety of activities involving knowing, exploring and appreciating art? Most probably they do not. It is time that we take a fresh look at what art education is and what role it plays in school education. More than anything, art education is also expected to enhance learning. And do teachers know how to go about it to achieve it? Here is an opportunity to facilitate the art within you which in turn will reflect art in within students. For a student-teacher with disability appropriate learning alternatives are to be given by the college. For example, a candidate with blindness must get alternative learning opportunities and evaluative tasks for visual art or a candidate with deafness for music art – if and when needed.

Objectives

After completing the course student-teachers will be able to

• *Exhibit Basic understanding in art appreciation, art expression and art education.*
• *Plan and implement facilitating strategies for students with and without special needs.*
• *Discuss the adaptive strategies of artistic expression.*
• *Discuss how art can enhance learning.*

Unit 1: Introduction to art Education

1.1 Art and art education: Meaning, scope and difference
1.2 Artistic expression: Meaning and strategies to facilitate
1.3 Art therapy: Concept and application to students with and without disabilities
1.4 Linking Art Education with Multiple Intelligences
1.5 Understanding emerging expression of art by students

Unit 2: Performing Arts: Dance and Music

2.1 Range of art activities related to dance and music
2.2 Experiencing, responding and appreciating dance and music
2.3 Exposure to selective basic skills required for dance and music
2.4 Dance and Music: Facilitating interest among students: planning and implementing activities
2.5 Enhancing learning through dance and music for children with and without special needs: Strategies and Adaptations

Unit 3: Performing Arts: Drama

3.1 Range of art activities in drama
3.2 Experiencing, responding and appreciating drama
3.3 Exposure to selective basic skills required for drama
3.4 Drama: Facilitating interest among students: planning and implementing activities

3.5 Enhancing learning through drama for children with and without special needs: strategies and adaptations

Unit 4: Visual Arts

4.1 Range of art activities in visual arts
4.2 Experiencing, responding and appreciating visual art
4.3 Exposure to selective basic skills in visual art
4.4 Art education: Facilitating interest among students: planning and implementing activities
4.5Enhancing learning through visual art for children with and without special needs: strategies and adaptations

Unit 5: Media and Electronic Arts

5.1 Range of art activities in media and electronic art forms
5.2 Experiencing, responding and appreciating media and electronic arts
5.3 Exposure to selective basic skills in media and electronic arts
5.4 Media and electronic arts: Facilitating interest among students: planning and implementing activities
5.5 Enhancing learning through media and electronic art for children with and without special needs: strategies and adaptations

Course Work/ Practical/ Field Engagement

• 'hot seating' activity for historical / contemporary personalities wherein students play the role of that personality to advocate his/her opinions/decisions/thought processes (for example, Akbar, Hitler, Galileo, Bhagat Singh etc)
• Portfolio submission of the basic skills exposed in any one of the art forms of choice
• Write a self reflective essay on how this course on art will make you a better teacher
• Learn and briefly explain how music notations are made. Submit a brief report OR learn and explain the concept of composition in visual art. Submit a brief report. OR make and submit a sample advertisement for a product OR Learn Mudras of a classical dance forms and hold a session for the students on that. Submit photo report of the same OR Carry out web search on Indian sculpture and submit a brief compilation
• Observe an art period in a special school and briefly write your reflections on it

Essential Readings

• Finlay, Victoria. The brilliant History of Color in Art. Getty Publications, China.
• Shirley, Greenway. (2000). Art, an A to Z guide. Franklin Watts: USA
• Vaze, Pundalik. (1999). How to Draw and Paint Nature. Jyosna Prakashan: Mumbai
• Ward, Alan. (1993) Sound and Music. Franklin Watts: New York.

Suggested Readings

• Baniel, Anat. (2012). Kids beyond limits. Perigee Trade: New York
• Beyer, E. London. (2000). The arts, popular culture and social change
• Efland, A. D. (1990). *A history of Art Education: Intellectual and social currents in teaching the visual arts*. New York, NY: Teachers College Press.
• Gair, S. B. (1980). Writing the arts into individualized educational programs. *Art Education, 33*(8), 8–11
• Greene, S., & Hogan, D. (2005).Researching children's experience. Sage Publication: London
• Heller, R. (1999). Effective Leadership. DK Publishing: New York.
• Lewiecki-Wilson C. & B. J. Brueggemann (Eds.), Disability and the teaching of writing: A critical sourcebook. Boston, MA: Bedford/St. Martin's.
• Nyman, L.& A. M. Jenkins (Eds.), *Issues and approaches to art for students with special needs* (pp. 142 154). Reston, VA: National Art Education Association.

SEMESTER–IV B.Ed. Spl. Ed. (V.I.)

Introduction to course for semester-IV

Course	Course title	Credits	Internal assess -ment	External assessment	Total marks	Duration of Exam
C-20	Skill based Optional Course (Hearing Impairment) ANY ONE* A. Guidance and Counselling(HI) B. Early Childhood and Education (HI) C. Applied Behavioural Analysis(HI) D. Community based Rehabilitation(HI) E. Applications of ICT in Classroom (HI) F. Gender and Disability (HI) G. Braille and Assistive Devices (VI)	2	10	40	50	1.5 hours
C-21	Skill based Optional Course (Hearing Impairment) ANY ONE* A. Orientation and Mobility (VI) B. Communication Options: Oralism (HI) C. Communication Options: Manual (Indian Sign Language) (HI)	2	10	40	50	1.5 hours
C-22	Basic Research & Statistic (EPC)	2	10	40	50	1.5 hours
C-23	Practical: Cross Disability and Inclusion	4	20	80	100	
C-24	Other disability special school	4	20	80	100	
C-25	Inclusive school	4	20	80	100	
GRAND TOTAL		**18**	**90**	**360**	**450**	

*Student-teachers will be specialized in the hearing impairment-other than visual impairment- as per the Area B (Cross Disability and Inclusion) of curriculum framework given by RCI on pg-8. In case of student-teachers with disability; the choice of two optional courses C-20 & C-21 will be on case to case basis (e.g. students-teachers with VI and HI may opt for courses that are appropriate for them across C-20 &C-21).

COURSE-20(A): GUIDANCE & COUNSELLING (HEARING IMPAIRMENT)

Course: 20(A) **Credits: 02**

Contact Hours: 30 **Marks: 50**

Time of Examination: 1.5 Hours **(External-40+Internal-10)**

Note: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions will carry equal marks.

Objectives

After completing this course the student-teachers will be able to

- *Apply the skills of guidance and counselling in classroom situations.*
- *Describe the process of development of self-image and self-esteem.*
- *Appreciate the types and issues of counselling and guidance in inclusive settings.*

Unit 1: Introduction to Guidance

1.1 Guidance: Definition and Aims
1.2 Need and Importance of Guidance
1.3 Areas of Guidance
1.4 Role of Teacher in Guiding Students with Special Needs

Unit 2: Introduction to Counselling

2.1Counselling: Definition and Aims
2.2 Areas of Guidance and Counselling
2.3 Core Conditions in Counselling
2.4 Skills and Competencies of a Counsellor
2.5 Role of Teacher in Counselling Students with Special Needs

Unit 3: Enhancing Self Image and Self Esteem

3.1 Concept of Self as Human
3.2 Understanding of Feelings and Changes
3.3 Growth to Autonomy
3.4 Personality Development
3.5 Role of Teacher in Developing Self-Esteem in Children

Unit 4: Guidance in Inclusive Education

4.1 Guidance in Formal and Informal Situations: Within and Outside Classroom, Vocational Guidance
4.2 Group Guidance: Group Leadership Styles and Group Processes
4.3 Challenges in Group Guidance

Unit 5: Counselling in Inclusive Education

5.1 Current Status of counselling with reference to Indian School
5.2 Types of Counselling: Child-Centred, Supportive, Family

Practicum/ Field engagement

I. Counselling and report writing on a selected case
II. Simulation of a parent counselling session
III. Report of critical observation of a given counselling session

Transaction

The transaction for this course should be done with a perspective to enhance in the student teachers the ability to become a "People-helper". They should be able to appreciate the role of a guide and counsellor in the school setting.

Essential Readings

• Naik, P.S. (2013). Counselling Skills for Educationists. Soujanya Books, New Delhi.

• Nayak, A.K. (1997). Guidance and Counselling. APH Publishing, Delhi.

• Rao, V. K., & Reddy, R.S. (2003). Academic Environment: Advice, Counsel andActivities. Soujanya Books, New Delhi.

• Shah, A. (2008). Basics in gGuidance and Counselling. Global Vision PublishingHouse.

• Sharma, V.K. (2005). Education and Training of Educational and VocationalGuidance. Soujanya Books, New Delhi.

Suggested Readings

• Kapunan, R.R. (2004). *Fundamentals of Guidance and Counselling*. Rex PrintingCompany, Phillipines.

• Pal, O.B. (2011). *Educational and Vocational Guidance and Counselling*. SoujanyaBooks, New Delhi.

COURSE-20(B): EARLY CHILDHOOD AND EDUCATION (HEARING IMPAIRMENT)

Course: 20(B) **Credits: 02**
Contact Hours: 30 **Marks: 50**
Time of Examination: 1.5 Hours **(External-40+Internal-10)**

Note: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions will carry equal marks.

Introduction

The course is designed to provide the student-teachers with an insight into developmental milestones of typical children. This will enable the learners to understand deviations and strategies to address them in the critical phase of development. It will also help the learners understand the importance of transitions and its requirements.

Objectives

After undertaking the course the student-teachers will be able to

• *Explain the biological & sociological foundations of early childhood education.*

• *Describe the developmental systems approach and role responsibilities of interdisciplinary teams for early education of children with disabilities.*

• *Enumerate the inclusive early education pedagogical practices.*

Unit 1: The Early Years: An Overview

1.1 Facts about Early Childhood Learning & Development
1.2 Neural Plasticity

Unit 2: Learning and Development in Early Years

2.1 Critical Periods of Development of Motor, Auditory, Visual, Linguistic & Cognitive Skills
2.2 Sensitive Periods of Learning: Maria Montessori's Framework & Windows of Opportunity & Learning Timelines of Development in Young Children
2.3 Integrating Theories of Development & Learning for Early Childhood Education Curricula

Unit 3: Early Education of Children with Disabilities

3.1 Young Children at Risk & Child Tracking
3.2 Interdisciplinary Assessments & Intervention Plans
3.3 Developmental Systems Model for Early Intervention (Ofguralnick, 2001)
3.4 Curricular Activities for Development of Skills of: Imagination, Joy, Creativity, Symbolic Play, Linguistic, Emergent Literacy, Musical, Aesthetic, Scientific &Cultural Skills
3.5 Evidenced Based Practices for Early Intervention

Unit 4: Inclusive Early Childhood Educational (ECE) Practices-(I)

4.1 Natural Environments, Service Delivery Models & Importance of Universal Designs of Learning (UDL)
4.2 Practices for Inclusive ECE Programs: Adaptations of Physical Environment & Equipments, Visual Support Materials, Parent Partnerships, Friendships &Engagements with Typical Children
4.3 Principles of Inclusive ECE Practices: Full Participation, Open Ended Activities, Collaborative Planning

Unit 5: Inclusive Early Childhood Educational (ECE) Practices-(II)

5.1 Collaborating with Parents, Family Education & Developing Individualised Family Service Plan (IFSP)

5.2 School Readiness and Transitions

Practical/ Field Engagements

I. Developing a journal on developmental milestones & learning timelines of children from 0 to 8 years

II. Participation in workshop & develop five creative teaching learning materials for children in inclusive early childhood education programs

Transactions

Visits, Observations & Workshops.

Essential Readings

• Costello, P.M. (2000). *Thinking Skills & Early Childhood Education*. London: DavidFulton Publishers.

• Dunn, S.G., & Dunn, K. (1992). *Teaching Elementary students through theirindividual learning styles:Practical approaches for grades 3-6.* Massachusetts: Allyn& Bacon.

• Guralnick, M.J. (2005). The Developmental Systems Approach to Early Intervention:Brookes Publication.

• Klausmeir, H.J., & Sipple, T.S. (1980). *Learning & Teaching Concepts. A strategy fortesting applications of theory*. New York: Academic Press.

• Mohanty, J., & Mohanty, B. (1999). *Early Chilhood Care and Education*. Delhi:
Offset Printers.

Suggested Readings

• Barbour, N., & Seefeldt, C. (1998). *.Early Childhood Education. An Introduction* (4thEds). U.K: Prentice Hall.

• Broman, B. C. (1978). *The Early Years in Childhood Education.* Chicago: RandMcNally College Publishing Company.

• Catron, C.E., & Allen, J. (1993). *Early Childhood Curriculum.* New York: MacMillanPublishing Company.

• Dahlberg, G. , Moss, P. & Pence, A. (2007). *Beyond Quality in Early Childhood Careand Education.(2nd Ed.)*. New York: Routledge Publication.

• Dopyera, M.L., & Dopyera, J. (1977). *Becoming a Teacher of Young Children*. New York: Random House Publications.

• Gordon, I.J. (1972). *Early Childhood Education*. Chicago: Chicago University Press.Hamilton, D.S. & Flemming, (1990). *Resources for Creative Teaching in Early Childhood Education* (2nd Edition). Tokyo: Harcourt Brace Jovanvich.

• Hilderbrand, V. (1991). *Introduction to Earcly Childhood Education*. New York: MacMillan Publishing.

• Krogh, S.L., & Slentz, K. (2001). *Early Childhood Education, Yesterday, Today & Tomorrow.* London: Lawrence Erlbaum Associates Publishers.

• Range, D.G., Layton, J.R. & Roubinek, D.C. (1980). *Aspects of Early Childhood Education.Theory to Reserch to Practice.* New York: Academic Press.

• Spodek, B., Saracho, O.N., & Davis, M.D. (1987). *Foundations of Early Childhood Education*. Englewood Cliffs, New Jersey: Prentice Hall,

• Wortham, S.C. (NK). *Measurement & Evaluation in Early Childhood Education* (2ndEds.), Ohio: Merrill Prentice Hall.

COURSE-20(C): APPLIED BEHAVIOURAL ANALYSIS (HEARING IMPAIRMENT)

Course: 20(C) **Credits: 02**

Contact Hours: 30 **Marks: 50**

Time of Examination: 1.5 Hours **(External-40+Internal-10)**

Note: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions will carry equal marks.

Objectives

After undertaking the course the student-teachers will be able to

• *Develop an understanding of the underlying principles and assumptions of Applied Behavioural Analysis (ABA).*

• *Use various measures of behavioural assessment.*

• *Apply methods of ABA in teaching and learning environments.*

• *Integrate techniques of ABA in teaching programs.*

• *Select suitable strategies for managing challenging behaviours.*

Unit 1: Introduction to Applied Behaviour Analysis (ABA)-(I)

1.1 Principles of Behavioural Approach

1.2 ABA - Concept and Definition

1.3 Assumptions of ABA – Classical and Operant Conditioning

Unit 2: Introduction to Applied Behaviour Analysis (ABA)-(II)

2.1 Behaviour- Definition and Feature

2.2 Assessment of Behaviour – Functional Analysis of Behaviour, Behaviour Recording Systems

Unit 3: Strategies for Positive Behaviour Support-(I)

3.1 Selection of Behavioural Goals

3.2 Reinforcement

- Types: Positive and Negative, Primary and Secondary
- Schedules: Continuous, Fixed Ratio, Fixed Interval, Variable Ratio, Variable Interval

Unit 4: Strategies for Positive Behaviour Support-(II)

4.1 Discrete Trial Teaching

- Discriminative Stimulus - Characteristics
- Response
- Prompts: Physical, Gestural, Pointing, Visual, Positional, Verbal
- Consequence - Characteristics
- Inter-Trial Interval

4.2 Application of ABA in Group Setting

- Negotiation and contract
- Token economy
- Response cost
- Pairing and fading

4.3 Leadership role of teacher in promoting positive behaviour

Unit 5: Management of Challenging Behaviour

5.1 Differential Reinforcements of Behaviour

5.2 Extinction and Time Out
5.3 Response Cost and Overcorrection
5.4 Maintenance
5.5 Generalization and Fading

Practicum

I. Observation and functional analysis of behaviour of a given case.
II. Development of ABA program for management of a challenging behaviour.

Transaction

The course consists of several concepts from behavioural theories. The concepts should be explained through real life examples and selected case studies. Students should been couraged to conduct systematic observations of behaviour and suggest suitable plan of action for dealing with behavioural deficits in children.

Essential Readings

• Bailey, J., & Burch, M. (2011). *Ethics for Behaviour Analysts*. Routledge, New York.
• Cooper, J.O., Timothy, E.H., & Heward, W.L. (2007). *Applied Behaviour Analysis*.Pearson Publications.
• Fisher, W.W., Piazza, C.C., & Roane, H.S. (2013). *Handbook of Applied BehaviourAnalysis*. Guilford Press, New York.
• Kearney, A. J. (2007). *Understanding Applied Behaviour Analysis: An Introduction toABA for Parents, Teachers and Other Professionals*. Jessica Kingsley, Philadelphia.
• Lewis, P. (2006). *Achieving Best Behaviour for Children with Developmental Disabilities.* Jessica Kingsley Publishers London.

Suggested Readings

• Aune, B., Burt, B., & Gennaro, P. (2013). *Behaviour Solutions for the Inclusive Classroom*. Future Horizons Inc, Texas.
• Moyes, R.A. (2002). *Addressing the Challenging Behaviour of Children with HFA/ASin the Classroom.* Jessica Kingsley Publishers London.

COURSE-20(D): COMMUNITY BASED REHABILITATION (HEARING IMPAIRMENT)

Course: 20(D) **Credits: 02**
Contact Hours: 30 **Marks: 50**
Time of Examination: 1.5 Hours **(External-40+Internal-10)**

Note: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions will carry equal marks.

Objectives

After completing this course the student-teachers will be able to

• *Explain the concept, principles and scope of community based rehabilitation.*
• *Learn the strategies for promoting public participation in CBR.*
•*Apply suitable methods for preparing persons with disability for rehabilitation withinthe community.*
• *Provide need-based training to persons with disabilities.*
• *Develop an understanding of the role of government and global agencies in CBR.*

Unit 1: Introduction to Community Based Rehabilitation (CBR)

1.1 Concept and Definition of CBR
1.2 Principles of CBR
1.3 Difference between CBR and Institutional Living

Unit 2: Socio-cultural and Economic Contexts of CBR

2.1 Socio-cultural and Economic Contexts of CBR
2.2 Scope and Inclusion of CBR in Government Policies and Programs

Unit 3: Preparing Community for CBR

3.1 Awareness Program-Types and Methods
3.2 Advocacy - Citizen and Self
3.3 Focus Group Discussion

Unit 4: Family and corporate group in CBR

4.1 Family Counselling and Family Support Groups
4.2 CBR and Corporate Social Responsibility

Unit 5: Preparing Persons with Disability for CBR

5.1 School Education: Person Centred Planning, and Peer Group Support
5.2 Transition: Individual Transition Plan, Development of Self Determination and Self Management Skills
5.3 Community Related Vocational Training
5.4 Skill Training for Living within Community
5.5 Community Based Employment and Higher Education

Practicum/ Field Engagement

I. Visit an ongoing CBR program and write a report on its efficacy
II. Organize a community awareness program
III. Conduct a focus group discussion on a selected disability issue with school/collegestudents

Transaction

Besides lecture method the topics in this course may be transacted through discussion onselected case studies, classroom seminar/debates.

Essential Readings

• Loveday, M. (2006). *The HELP Guide for Community Based Rehabilitation Workers*:A Training Manual. Global-HELP Publications, California.

• McConkey, R. and O'Tool, B (Eds). *Innovations in Developing Countries for Peoplewith Disabilities*, P.H. Brookes, Baltimore.

• Neufelt, A. and Albright, A (1998). *Disability and Self-Directed Employment:Business Development Model*. Campus Press Inc. York University.

• Peat, M. (1997). *Community Based Rehabilitation*, W.B. Saunders Company.

• *Scheme of Assistance to Disabled for Purposes of Fitting of Aids/Appliances*, — Ministry of Social Welfare, Govt. of India, New Delhi.

• *Scheme of Assistance to Organizations for Disabled Persons*, Ministry of SocialWelfare, Govt. of India, New Delhi.

• WHO .(1982). *Community Based Rehabilitation — Report of a WHO International Consultation*, Colombo, Sri Lanka, 28 June- 3 July. WHO (RHB/IR/82.1)

• WHO .(1984). "Rehabilitation For AIl" in World Health Magazine, WHO, Geneva.

COURSE-20(E): APPLICATION OF ICT IN CLASSROOM (HEARING IMPAIRMENT)

Course: 20(E) **Credits: 02**

Contact Hours: 30 **Marks: 50**

Time of Examination: 1.5 Hours **(External-40+Internal-10)**

Note: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions will carry equal marks.

Introduction

This course has dual purpose: firstly it aims to orient the teacher trainee to various applications of Information and Communication Technology in teaching learning process; and secondly it intends to orient the learners to understand the scope and application of ICT for students with disabilities. The course includes uses of all kinds of media and computer in order to give hands on experience of applying ICT in various learning environments as well to familiarize the student teacher with different modes of computer based learning.

Objectives

After completing the course the student teacher will be able to

• *Gauge the varying dimensions in respect of ICT and Applications in Special Education.*

• *Delineate the special roles of ICT Applications.*

• *Acquire Familiarity with Different Modes of Computer-Based Learning.*

Unit 1: Information Communication Technology (ICT) and Special Education-(I)

1.1 Meaning and Scope of ICT and Its Role in 'Construction of Knowledge'

1.2 Possible Uses of Audio-Visual Media and Computers (Radio, Television, Computers)

Unit 2: Information Communication Technology (ICT) and Special Education-(II)

2.1 Integrating ICT in Special Education With Reference To Articles 4 and 9 of UNCRPD and Goal 3 of Incheon Strategy

2.2 Three as of ICT Application—Access, Availability, Affordability

2.3 Overview of WCAG (Web Content Access Guidelines)

Unit 3: Using Media and Computers

3.1 Media: Radio and Audio Media- Script Writing, Storytelling, Songs, etc., Television and Video in Education, Importance of Newspaper in Education

3.2 Computers: Functional Knowledge of Operating Computers–On/Off, Word Processing, Use Of Power Point, Excel, ICT Applications for Access to Print

3.3 Computer as a Learning Tool: Effective Browsing Of The Internet for Discerning and Selecting Relevant Information, Survey of Educational Sites and Downloading Relevant Material; Cross Collating Knowledge from Varied Sources

Unit 4: Using Media and Computers

4.1 Computer-Aided Learning: Application of Multimedia in Teaching and Learning, Programmed Instruction; Computer-Assisted Instruction; Interactive Learning

4.2 E-Classroom: Concept, Organizing E-Classroom and Required Adaptations for Students with Disabilities

Unit 5: Visualising Technology-Supported Learning Situations

5.1 Preparation of Learning Schemes and Planning Interactive Use of Audio-Visual Programme

5.2 Developing PPT Slide Show for Classroom Use and Using of Available Software orCDs with LCD Projection for Subject Learning Interactions

5.3 Generating Subject-Related Demonstrations Using Computer Software and EnablingStudents to Plan and Execute Projects

5.4 Interactive Use of ICT: Participation in Social Groups on Internet, Creation of 'Blogs', Organizing Teleconferencing and Video-Conferencing

5.5 Identifying and Applying Software for Managing Disability Specific Problems

Course Work/ Practical/ Field Engagement (any Two of the following)

I. Develop a script on any topic of your choice. Conduct an interview with an expert onthe selected topic to prepare an audio or video program of 15 minutes duration

II. Prepare a PPT by inserting photos and videos on a topic of your choice

III. Create your email account as well as design a blog

Essential Readings

• Abbot, C. (2001). *ICT: Changing Education*. Routledge Falmer.

• Florian, L., & Hegarty J. (2004). *ICT and Special Educational Needs: A Tool forInclusion*. Open University Press.

Suggested Readings

• Kozma, R.B. (2003). *Technology, Innovation, and Educational Change: A Global Perspective: A Report of the Second Information Technology in Education Study, Module 2*. International Society for Technology in Education.

COURSE-20(F): GENDER AND DISABILITY (HEARING IMPAIRMENT)

Course: 20(F) **Credits: 02**

Contact Hours: 30 **Marks: 50**

Time of Examination: 1.5 Hours **(External-40+Internal-10)**

Note: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions will carry equal marks.

Objectives

After completion of this course the student-teachers will be able to

• *Develop an understanding of human rights based approach in context of disability.*

• *Explain the impact of gender on disability.*

• *Describe the personal and demographic perspectives of gender and disability.*

• *Analyse the issues related to disabled women and girl children.*

Unit 1: Human Right-based Approach and Disability

1.1 Human Rights-Based Approach: Concept and History

1.2 Principles of Human Rights-Based Approach

- Equality and Non-Discrimination
- Universality & Inalienability
- Participation and Inclusion
- Accountability and Rule of Law

Unit 2: Human Rights and Implications and Disability

2.1 Elements of Human Rights System

- Legal Framework
- Institutions
- Development Policies & Programs
- Public Awareness
- Civil Society

2.2 Advantage of Human Rights-Based Approach

2.3 Implications for Disability

- Empowerment
- Enforceability
- Indivisibility
- Participation

Unit 3: Gender and Disability

3.1 Sex & Gender: Concept & Difference

3.2 Impairment & Disability: Concept & Difference

3.3 Gendered Experience of Disability

- Public Domain: School and Outside School
- Private and Familial Domain
- Normalization and Social Role Valorisation

3.4 Gender and Disability Analysis: Techniques and Strategies

3.5 Psyche and Gender: Implications for Teaching

Unit 4: Women and Girl Child with Disability-(I)

4.1 Inclusive Equality

- Access to Family Life
- Access to Education, Vocational Training and Employment
- Access to Political Participation

4.2 Factors Contributing to Disability

- Gender-Based Violence in School and Within Family
- Traditional Practices

Unit 5: Women and Girl Child with Disability-(II)

5.1 Sexual and Reproductive Health

5.2 Teacher's Role in Promoting Gender Equality

5.3 Gender Critique of Legislation, Government Policy and Schemes

Practicum/Field Engagement

I. Study the case of a woman with disability and submit a report

II. Review selected paper/s authored by women with disability

III. Conduct a gender analysis of a selected disability Act/Policy

Transaction

This course has been designed to provide the student teachers a socio-cultural perspective todisability. It aims to promote awareness about the space for disability equity andrehabilitation within the human rights system. As such the transaction of the course topicsshould be done through focus group discussions, and issue-based classroom interactions inaddition to lectures and seminars.

Essential Readings

• Habib, L. A. (1997). *Gender and Disability: Women's Experiences in the Middle East.*Oxfam, UK.

• Hans, A. (2015). *Disability, Gender and the Trajectories of Power*. Sage PublicationsPvt. Ltd.

• Meekosha, H. (2004). *Gender and Disability*. Sage Encyclopaedia of Disability.

• O'Brien, J., & Forde, C. (2008). *Tackling Gender Inequality, Raising Pupil Achievement* , Dunedin Academic.

• Ridgeway, C. L. (2011). *Framed by Gender: How Gender Inequality Persists in the Modern World*. Oxford University Press.

• Samuels, E. (2014). *Fantasies of Identification: Disability, Gender, R*ace. NYU Press,USA.

• Smith, B. G., & Hutchison, B. (2013). *Gendering Disability*. Rutger University Press,New Jersey.

Desirable Readings

• Beeghley, L. (1999). *Angles of Vision: How to Understand Social Problems,* West View Press.

• Purkayastha, D. (2010). *Economic Growth, Intra-Household Resource Allocation andGender Inequality*, Atlantic Economic Journal, Vol. 38, No. 4.

• Treas, J., & Drobnic, S. (2010). *Dividing the Domestic: Men, Women, and HouseholdWork in Cross-National Perspective,* Stanford University Press.

COURSE-20(G): BRAILLE AND ASSISTIVE DEVICES (VI)

Course: 20(G) **Credits: 02**
Contact Hours: 30 **Marks: 50**
Time of Examination: 1.5 Hours **(External-40+Internal-10)**

Note: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions will carry equal marks.

Introduction

Braille, the embossed system of reading and writing for the blind along with its inventor, Louis Braille (1809-1852), has opened a wide range of avenues and opportunities for effective mainstreaming and empowerment for Persons with Visual Impairment. In addition, a plethora of devices are now available which help the visually impaired to access meaningful education in all school-subjects as also skills of independent living and economic activities. This course familiarizes the student-teachers with the importance and operational aspects of Braille, which has stood the test of time and competition for the last about 185 years. It also introduces them to basic devices used for teaching blind and low vision children. It is hoped that through the study of the course, the learners will be motivated to know more about these and various other devices and technologies and be in a position to help children with visual impairment/their parents to procure the needed devices with ease and speed.

Objectives

After completing the course the student-teachers will be able to

• *Acquire basic information about Braille, its relevance and some important functional aspects.*
• *Get basic information on types and significance of different Braille devices.*
• *Get acquainted with the types and significance of basic devices relating to Mathematics, Science, Geography and Low Vision as also on sources of their availability*.

Unit 1: Braille-(I)

1.1 Louis Braille and the Evolution of Braille
1.2 Continuing Relevance of Braille vis-a-vis Audio Material

Unit 2: Braille-(II)

2.1 Braille Signs, Contractions and Abbreviations--English Braille
2.2 Braille Signs and Symbols—Hindi/Regional Language
2.3 Braille Reading and Writing Processes

Unit 3: Braille Devices -- Types, Description, Relevance

3.1 Slate and Stylus
3.2 Braille Writer
3.3 Electronic Devices— Note takers and Refreshable Braille Displays
3.4 Braille Embossers
3.5 Braille Translation Software

Unit 4: Educational Devices – Types, Description, Relevance

4.1 Mathematical Devices: Taylor Frame and Types, Abacus, Geometry Kit, Algebra Types
4.2 Geography: Maps--Relief, Embossed, Models
4.3 Science Material

Unit 5: Low Vision Aids and Schemes– Types, Description, Relevance

5.1 Low Vision Aids--Optical, Non-Optical, Vision Training Material

5.2 Schemes and Sources of Availability

Course Work/ Practical/ Field Engagement (Any Two)

Each Student-Teacher will

a. Observe at least five devices in use in at least five school periods.

b. Draw up an item-wise price list of at least ten devices from different sources.

c. Prepare a presentation – Oral/ Powerpoint – on the relevance of Braille for children with visual impairment.

d. Prepare a report on the availability and use of Mathematical devices (at least two) in one special school and on inclusive school.

e. Make a report on the application of at least two non-optical devices for children with low vision.

Essential Readings

• A Restatement of the Layout, Definitions and the Rules of the Standard English Braille System (1971). London: The Royal National Institute for the Blind.

• Ashkroft, S.C., & Henderson, F. (1963). Programmed Instruction in Braille. Pittsburgh: Stanwick House.

• Lowenfeld, B. (1969). Blind Children Learn to Read. Springfield: Charles C. Thomas.

• Mani, M.N.G. (1997). Amazing Abacus. Coimbatore: SRVK Vidyalaya.

• Manual on Bharti Braille (1980). Dehradun: NIVH

• Olson, M. R. (1981). Guidelines and Games for Teaching Efficient Braille Reading. New York: AFB.

• Proceedings: National Conference on Past and Present Status of Braille inIndia(2001). New Delhi: All India Confederation of the Blind.

Suggested Readings

• Hampshire, B. (1981). Working with Braille - A Study of Braille as a Medium ofCommunication. Geneva: UNESCO.

• Kusanjima, T. (1974). Visual Reading and Braille Reading. New York: AFB.

• Mani, M.N.G. (1992). Techniques of Teaching Blind Children. N.Delhi: SterlingPublishers.

• Mellor, M. C. (2006). Louis Braille A Touch of Genius. Boston: National BraillePress.

COURSE-21(A): ORIENTATION AND MOBILITY (VI)

Course: 21(A) **Credits: 02**

Contact Hours: 30 **Marks: 50**

Time of Examination: 1.5 Hours **(External-40+Internal-10)**

Note: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions will carry equal marks.

Introduction

Movement with independence in the environment has been stated to be one of the major challenges of vision loss. In order to facilitate their meaningful empowerment, therefore, it is necessary to provide students with visual impairment skills and techniques which enable them to cope with these challenges. Developments, especially during and after World War II, have led to the emergence of a large variety of such strategies, skills and technologies, which are covered under the discipline titled Orientation and Mobility. So, the present course carrying the same title introduces the learners to various crucial aspects of this vital subject. It is hoped that through the study of the course, the student-teachers would be in a better position to understand the implications of vision loss with reference to independent movement. It would also enable them to get insights into basic skills and components essential for meaningful orientation and easy and graceful movement for the visually impaired.

Objectives

After completing the course the student-teachers will be able to

• *Describe the nature and scope of O&M as also the O&M related responsibilities of the special teacher.*

• *Acquire basic knowledge of human guide techniques.*

• *Describe pre-cane and cane travel skills and devices.*

• *Get acquainted with the importance and skills of training in independent living for the visually impaired.*

Unit 1: Introduction to Orientation and Mobility

1.1 Orientation and Mobility -- Definition, Importance and Scope

1.2 Basic Terminologies Associated with O&M: Trailing, Landmarks, Clues, Cues, Shoreline, Squaring Off, Clockwise Direction, Sound Masking, Sound Shadow

1.3 Roles of Other Senses in O&M Training

1.4 Special Responsibilities of Special Teacher/Educator with reference to O&M Training

1.5 Blindfold -- Rationale and Uses for the Teacher

Unit 2: Human/ Sighted Guide Technique

2.1 Grip

2.2 Stance

2.3 Hand Position

2.4 Speed Control

2.5 Negotiating: Narrow Spaces, Seating Arrangements, Staircases, Muddy paths

Unit 3: Pre-Cane Skills

3.1 Upper and Lower Body protection

3.2 Room Familiarization

3.3 Using Oral Description for Orientation
3.4 Search Patterns
3.5 Building Map Reading Skills

Unit 4: Cane Travel Techniques and Devices

4.1 Canes -- Types, Parts, Six Considerations
4.2 Cane Travel Techniques: Touch Technique, Touch and Drag Technique, Diagonal Cane Technique
4.3 Use of Public Transport
4.4 Asking for Help: When and How
4.5 Electronic Devices, Tactile and Auditory Maps -- Description and Uses

Unit 5: Training in Independent Living Skills

5.1 Self Care, Gait and Posture
5.2 Personal Grooming
5.3 Eating Skills and Etiquette
5.4 Identification of Coins and Currency Notes
5.5 Basics of Signature Writing

Course Work/Practical/ Field Engagement

Undertake any two of the following

a. Act as a sighted guide in different situations/settings.

b. Prepare a list of canes and other devices available with various sources along withprices.

c. Undergo an experience of moving under a blindfold for a few minutes and describe it(about 200 words).

d. Make a short PowerPoint/ oral presentation for about 5 minutes on the importance ofO&M for the visually impaired.

e. Draw up a list of important clues/cues/landmarks which the visually impaired studentcan use in the school.

Essential Readings

• Blasch, B. B., Weiner, W. R., & Welsh, R. L. (1997). Foundations of Orientation andMobility (2nd ed.). New York: AFB Press.
• Cutter, Joseph (2006). Independent Movement and Travel in Blind Children.IAP, North Carolina
• Fazzi, D.L. & Petersmeyer, B.A. (2001). Imagining the Possibilities: Creative Approaches to Orientation and Mobility Instruction for Persons who are VisuallyImpaired.: AFB Press, New York.
• Jaekle, Robert C. (1993). Mobility Skills for Blind People: A Guide for Use in RuralAreas. Christoffel Blinden Mission.
• Knott, N.I. (2002). Teaching Orientation and Mobility in the Schools: An Instructor'sCompanion. AFB Press, New York.
• Smith, A.J. & Geruschat, D. R. (1996). Orientation and Mobility for Children andAdults with Low Vision. In A. L. Corn & A. J. Koenig (Eds.), Foundations of Low Vision: Clinical and Functional Perspectives .: AFB Press, New York.

Suggested Readings

• Dodds, Allan (1986). Mobility Training for Visually Handicapped People. London: Croom Helm.
• Hill, Everett and Ponder, Purvis (1976). Orientation and Mobility Techniques. AFB, New York.
• Jacobson, W.H. (1993). The Art and Science of Teaching Orientation and Mobility toPersons with Visual Impairments.AFB Press, New York.
• Singh, J.P. (2003). Technology for the Blind.Kanishka Publication. New Delhi

COURSE-21(B): COMMUNICATION OPTIONS: ORALISM (HI)

Course: 21(B) **Credits: 02**

Contact Hours: 30 **Marks: 50**

Time of Examination: 1.5 Hours **(External-40+Internal-10)**

Note: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions will carry equal marks.

Introduction

Communication, language and speech have always been at the centre stage when education of children with deafness is being discussed. Without going into much of judgmental discussions in the direction of 'either – or' options to be the 'best', this syllabus intends to expose the student-teachers to all the dominant options. However, over and above the said exposure offered through compulsory courses, this optional course offers the student-teachers an additional opportunity to sharpen the skills in one of the categories of options. This is expected to emphasize use of appropriate options rather than advocating one among the many. Moreover, learning this optional course is also expected to provide wider career choices for the student teachers.

Objectives

After learning this course the student-teachers will be able to

• *Discuss the Aural Oral Options with reference to persons with hearing impairment in the context of India.*

• *Discuss the relevant issues like literacy, inclusion and training with reference to Oralism /Oral Rehabilitation.*

• *Exhibit beginner level hands on skills in using these options.*

• *Motivate self to learn and practice more skills leading to linguistic adequacy and fluency to be used while developing spoken language in children with hearing losses.*

Unit 1: Understanding Hearing Loss in Real Life Context

1.1 Basic Awareness on Paradigms of D/Deafness (Medical and Social)

1.2 Basic Awareness on Deafness and Communicative Access: Challenges and Concerns

1.3 Basic Awareness on Autonomy, Inclusion and Identity with reference to Oral Options

1.4 Oral/ Aural Verbal Options and Realistic Expectations of Family and Teachers

1.5 Importance of Neural Plasticity and Early Listening Opportunities

Unit 2: Advance Understanding of Oral Options

2.1 Difference between Uni-Sensory and Multi Sensory Approach in Oralism

2.2 Oracy To Literacy: Why and How

2.3 Speech Reading: Need, Role and Strategies in All Communication Options

2.4 Training and Guidance on Aural Oral Practices for Families and Tuning Home Environment: Current Scenario, Importance and Strategies

2.5 Tuning Mainstream Schools/Classrooms for Aural Oral Communication: Do's and Don'ts

Unit 3: Skill Development Required for Oralism

3.1 Practicing Interpreting Audiograms and Exposure to Goal Setting in Listening Skills

3.2 Practicing Motherese (Addressing/Talking to Young Children) and Age Appropriate Discourse with Children Using Appropriate Language, Turn Taking and Eye Contact

3.3 Practicing Fluency Skills in Verbal Communication: Spontaneous Conversations, Narrations and Loud Reading
3.4 Practicing Skills in Story Telling/ Narrations/ Jokes/ Poems/ Nursery Rhymes
3.5 Ongoing Monitoring and Assessing Auditory Functioning and Speech Development: Reading Model Formats Used for the Purpose (Checklists, Recordings, Developmental Scales)

Unit 4: Skill Development Auditory Verbal (AV) Approach

4.1 AV Approach: Meaning, Misconcepts and Justification
4.2 Stages of Auditory Hierarchy
4.3 Understanding Listening Strategies, Techniques of AV Approach and Their Relation to Listening Environment
4.4 Reading Model Plans and Observing a Few Weekly Individual Sessions
4.5 Developing Instructional Material for AVT Sessions Linking Listening, Language and Cognition

Unit 5: Implementing Oralism and AV Approach in Indian Special Schools & Summing up

5.1 Use of Oralism and AV Approach in Indian Special Schools: Current Scenario
5.2 Oralism / AV Approach: Prerequisites for Special Schools
5.3 Strategies of Implementation Oral Communication Policy and Fulfilling Prerequisites
5.4 Resource Mobilization For Listening Devices: (ADIP, Organized Charity, CSR, Fund Raising Events, Web Based Fund Raising)
5.5 Reflections On The Course: From Theory to Practice to Initiating Change

Course Work/ Practical/ Field Engagement

I. Watching Video's of Individual Sessions and Classroom Teaching
II. Role Play and Dramatization
III. Developing Learning Material for Facilitating Connectivity Among Listening, Language and Cognition
IV. Recording Self Narrated Stories / Poems and Writing Reflections Upon it
V. Interacting with Non Disabled Children for Practicing Expansion of Ideas

Essential Readings

• Borden, Gloria J.,; Harris, Katherine S. & Raphael, Lawrence J. (2005). *Speech Science Primer (4th*) Lippincott Williams aAnd Wilkins: Philadelphia.
• *Dhvani* (English). Balvidyalaya Publication: Chennai.
• Estabrooks, W. (2006). *Auditory-Verbal Therapy And Practi*ce , Ag Bell
• Heller, R. (1999). *Managing Change*. Dk Publishing: New York.
• Ling, D. (1990). *Acoustics, Audition Aand Speech Reception. (Cd)*Alexandria, Auditory Verbal International.
• Paul, P. V. (2009). *Language and Deafness*. Jones And Bartlett: Boston.
• *Communication Options And Students With Deafness*. (2010). Rehabilitation Council of India , New Delhi.

Suggested Readings

• Chaney, A. L., & Burk, T. L. (1998). Teaching Oral Communication In Grades K – 8. Allyn And Bacon. Boston
• Cole, E., & Flexer, C. (2010). Children with Hearing Loss: Developing Listening and Talking, Birth to Six. (2nd Ed.).Plural Publishing Inc,San Diego, CA.
• Dhvani (Marathi). Balvidyalaya – Cym Publication
• Directory of Rehabilitation Resources for Persons with Hearing Impairment in India. (2000). AYJNIHH Publication, Mumbai.

• Estabrooks, W., & Marlowe J, (2000). The Baby is Listening, A. G. Bell Association, Washington D.C.
• Estabrooks , W. (2001). 50 Frequently Asked Questions (Faqs) About Auditory- Verbal Therapy. Learning to Listen Foundation.
• Heller, R. (1999). Effective Leadership. Dk Publishing: New York.
• Heller, R. (1999). Managing Change. Dk Publishing: New York.
• Ling, D. (1989). Foundations of Spoken Language for Hearing Impaired Children. A.G.Bell. Washington D.C.
• Ling, D., & Ling, A.H. (1985). Aural Habilitation: The Foundations of Verbal Learning in Hearing Impaired Children. A.G. Bell Association, Washington D.C.
• Edgar, L. L., & Marguerite, S. (1963). Play it by ear! : auditory training games, John Tracy Clinic Publication, Los Angeles.
• Resource Book on Hearing Impairment. AYJNIHH Publication.
• Unpublished Dissertations and Thesis on Profiling Communication Options in Special Schools in India.

COURSE-21(C): COMMUNICATION OPTIONS: MANUAL (INDIAN SIGN LANGUAGE) (HI)

Course: 21(C) **Credits: 02**

Contact Hours: 30 **Marks: 50**

Time of Examination: 1.5 Hours **(External-40+Internal-10)**

Note: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions will carry equal marks.

Introduction

Communication, language and speech have always been at the centre stage when education of children with deafness is being discussed. Without going into much of judgmental discussions in the direction of 'either – or' options to be the 'best', this syllabus intends to expose the student-teachers to all the dominant options. However, over and above the said exposure offered through compulsory courses, this optional course offers the student-teachers an additional opportunity to sharpen the skills in one of the categories of options. This is expected to emphasize use of appropriate options rather than advocating one among the many. Moreover, learning this optional course is also expected to provide wider Career Choices for the Student Teachers.

Objectives

After learning this course the student-teachers will be able to

• *Discuss the two manual options with reference to Indian special schools.*

• *Discuss the relevant issues like literacy, inclusion and training with reference to manual options.*

• *Describe manual options in the light of issues like language, culture and identify.*

• *Exhibit beginner level hands on skills in using manual options.*

• *Motivate self to learn and practice more skills leading to linguistic adequacy and fluency*.

Unit 1: Understanding Deafness in Real Life Context

1.1 Basic Awareness of Paradigms of D/Deafness (Medical and Social)

1.2 Basic Awareness of Deafness and Communicative Challenges / Concerns

1.3 Basic Awareness on Deafness with Reference to Culture, Language, Identity, Minority Status, Deaf Gain, Literacy and Inclusion

1.4 Basic Awareness of Difference between ISL and ISS; Myths and Facts

1.5 Importance of Neural Plasticity and Early Language Opportunities

Unit 2: Advance Understanding of Manual Options and Indian Scenario

2.1 Use of Simcom and Educational Bilingualism in Indian Schools: Current Scenario

2.2 Challenges, Prerequisites and Fulfilling Prerequisites

2.3 Monitoring and Measuring Development of ISL/ISS in Students: Receptive and Expressive Mode

2.4 Training and Guidance for Families and Tuning Home Environment: Current Scenario and Strategies

2.5 Tuning Mainstream Schools/Classrooms for Students Using Manual Communication: Do's and Don'ts

Unit 3: ISL Skill Development: Middle Order Receptive and Expressive Skills

3.1 Practicing 'Motherese' (Tuning Language to Suit Young Children) and Age Appropriate Discourse with Children with Appropriate Language, Turn Taking and Eye Contact

3.2 Practicing Natural Signing in Short Common Conversations
3.3 Practicing Natural Signing in Stories/Poems/Narrations/Jokes
3.4 Practicing Natural Signing in Discussing Emotions, Expansion of Ideas and Current Affairs
3.5 Practicing Group Dynamics

Unit 4: ISL Skill Development: Towards Higher Order Receptive and Expressive Skills

4.1 Learning to Express Gender, Number, Person, Tense, Aspect
4.2 Practicing Sentence Types: Affirmative, Interjections, Imperative and Interrogative and Negativization
4.3 Practicing Sentence Types: Simple, Complex, Compound
4.4 Observing Using ISL in Classrooms – Social Science
4.5 Observing Using ISL in Classrooms – Science / Mathematics

Unit 5: ISS/ ISL Skill Development and Course Conclusions

5.1 Practicing Markers (Local Language)
5.2 Practicing Syntax in Conversations and Discussions
5.3 Observing Using ISS/ISL in Classrooms for School Subjects
5.4 Resource Mobilization for Skill Development Training (Organized Charity Sources, CSR, Fund Raising Events, Web Based Fund Raising)
5.5 Reflections on the Course: From Theory to Practice to Initiating Change

Course Work/ Practical/ Field Engagement

I. Watching Videos of Individual Sessions and Classroom Teaching of Signing
II. Role Play and Dramatization in ISL
III. Developing Learning Material for Facilitating Connectivity among Signing, Language and Cognition
IV. Recording Self Narrated Stories/ Poems and Writing Reflections
V. Interacting with Deaf for Practicing Expansion of Ideas

Essential Readings

• *Communication Options and Students with Deafness*. (2010). Rehabilitation Council of India, New Delhi.
• Heller, R. (1999). *Managing Change*. DK Publishing: New York.
• ISS Learning Material and Dictionaries
• Paul, P. V. (2009). *Language and Deafness*. Jones And Bartlett: Boston.
• *Teaching Learning ISL Material Developed* at AYJNIHH, Mumbai, SRKV, Coimbatore and NISH, Trivandrum
• Zeshan, U. (2000). *Sign Language in Indo-Pakistan*. John Benjamins Pub. Co, Philadelphia.

Suggested Readings

• Akamatsu, C. T., & Armour, V. A. (1987). Developing written literacy in deaf children through analyzing sign language, American Annals of the Deaf, 132(1), 46- 51.
• Andrews, J.F., Winograd, P., & DeVille, G. (1994). Deaf children reading fables: Using ASL summaries to improve reading comprehension. *American Annals of the Deaf, 139*(3), 378-386.
• Devych, G. N., Bhattacharya, T., Grover, N., & Randhawa, S.P.K. (2014). *Indian Sign Language(S)*. Orient BlackSwan, Hyderabad.
• *Directory of Rehabilitation Resources for Persons with Hearing Impairment in India*. (2000), AYJNIHH Publication.
• Education. Gallaudet Research Institute, Working Paper 89-3, Gallaudet University, Washington, D.C.
• Evans, L. (1982). Total Communication, Structure and Strategy. Washington D.C.: Gallaudet College Press.

• Ezell, H.K., & Justice, L.M.(2005). Programmatic Research On Early Literacy: Several Key Findings. *IES 3rd Annual Research Conference: American Speech Language & Hearing Association (ASHA).*
• Frank, S. (1985). Reading Without Nonsense.: Teachers College Press, New York.
• Ghate, P. (1996). Indian Sign System. AYJNIHH In-House Publication: Mumbai.
• Ghate, R.A. (2009). Survey of Teachers' Opinion on Status of Education of the Deaf. Unpublished Report of RCI, New Delhi.
• Heller, Robert (1999). Effective Leadership. Dk Publishing: New York.
• Huddar, A. (2008).*Language and Communication*. DSE Manuals. Rehabilitation Council of India, New Delhi.
• Improve Reading Comprehension. *American Annals of the Deaf, 139,* 378-386.
• Indian Sign Language Dictionary .(2001). Sri Ramakrishna Mission Vidyalaya, Coimbatore.
• Johnson, R., Liddell, S., & Erting, C. (1989). Unlocking the Curriculum: Principles for Achieving Access in Deaf Language. *American Annals of the Deaf, 132,* 46-51.
• Lewis, Rena B. & Doorlag, Donald H. (1999). (5th Ed) *Teaching Students with Special Needs in General Education Classrooms*. Prentice Hall Inc. New Jersy.
• Woodward, J., Vasishta, M., & de Santis, S. (1985). An introduction to the Bangalore variety of Indian Sign Language. Gallaudet Research Institute Monograph No. 4, Gallaudet Research Institute. Washington, D.C
• Vasishta, M.M., Woodward, J., & De Santis, S. (1981). An Introduction to Indian Sign Language: Focus on Delhi.All India Federation of the Deaf, New Delhi.
• Websites for Signed Dictionaries.
• Woodward, J. (1993). "The Relationship of Sign Language Varieties in India, Pakistan and Nepal". *Sign Language Studies* (78), 15–22.

COURSE-22: BASIC RESEARCH AND STATISTICS (EPC)

Course: 22 **Credits: 02**

Contact Hours: 30 **Marks: 50**

Time of Examination: 1.5 Hours **(External-40+Internal-10)**

Note: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions will carry equal marks.

Objectives

After completing the course student-teachers will be able to

• *Describe the concept and relevance of research in education and special education.*

•*Develop an understanding of the research process and acquire competencies for conducting a research.*

• *Apply suitable measures for data organization and analysis.*

Unit 1: Introduction to Research

1.1 Scientific Method

1.2 Research: Concept and Definition

1.3 Application of Scientific Method in Research

1.4 Purpose of Research

1.5 Research in Education and Special Education

Unit 2: Types of Research and Professional Competencies

2.1 Basic/Fundamental

2.2 Applied

2.3 Action Research in Teaching Learning Environment

2.4 Professional Competencies for Research

Unit 3: Process of Research

3.1 Selection of Problem

3.2 Formulation of Hypothesis

3.3 Collection of Data

3.4vAnalysis of Data & Conclusion

3.5 Tools of Research: Tests, Questionnaire, Checklist and Rating Scale

Unit 4: Measurement, and Organization of Data

4.1 Scale for measurement: Nominal, Ordinal, Interval and Ratio

4.2 Organization of data: Array, Grouped distribution

4.3 Graphic representation of data

Unit 5: Analysis of Data

5.1 Measures of central tendency and Dispersion: Mean, Median and Mode, Standard deviation and Quartile deviation

5.2 Correlation: Product Moment and Rank Order Correlation

Practicum/ Field Engagement

• Develop a teacher made test for a given subject matter

• Develop a questionnaire/checklist

• Develop an outline for conducting action research

Essential Readings

• Best, J. W., & Kahn, J. V. (1996). *Research in Education* Prentice-Hall of India NewDelhi.

• Dooley, D. (1997). *Social Research Methods*. Prentice-Hall of India, New Delhi.
• Grewal, P.S. (1990). *Methods of Statistical Analysis*. Sterling Publishers, New Delhi.
• Guptha, S. (2003). *Research Methodology and Statistical Techniques*. Deep & DeepPublishing, New Delhi.
• Koul, L. (1996). *Methodology of Educational Research*. Vikas Publishing House,New Delhi.
• Potti, L.R. (2004). *Research Methodology*.Yamuna Publications,Thiruvananathapuram.

Suggested Readings

• Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*. AcademicPress, New York.
• Greene, S., & Hogan, D. (2005). Researching children's experience. Sage Publication:London..

SEMESTER – IV

COURSE-23: CROSS DISABILITY & INCLUSION (PRACTICAL)

Course: 23 **Credits: 04**

Hours: 120 **Marks: 100**

Note: The evaluation will be done jointly by the two examiners (one internal and one external).

Sr. No	Task for the student teacher	Disability focus	Educational settings	Specific activities	Hrs.	Marks
1	Classroom Observation For school subjects at different levels	Other than VI	1. Special Schools other than VI	Observation For school subjects at different levels	15	25
		2. Any Disability	2. Inclusive schools	Observation For school subjects at different levels	15	
2	Orientation and Mobility Training	VI	Department of Education, KUK Campus and outside campus	a) Sighted Guide Technique b) Pre Cane skills c) Cane technique d) Direction finding technique	60	50
3	Teaching lessons on O&M and ADL	VI and VIMD	Special and inclusive school	Individualized Teaching lessons on orientation and mobility and activities of daily living	30	25

COURSE-24: OTHER DISABILITY SPECIAL SCHOOL (FIELD WORK)

Course: 24 **Credits: 04**

Hours: 120 **Marks: 100**

Note: The evaluation will be done jointly by the two examiners (one internal and one external).

Sr. No	Task for the student teacher	Disability focus	Educational settings	Hrs.	Marks
1.	1. Classroom teaching, development of TLM, document study, maintenance of record	Other than Visual Impairment	Special Schools for other disabilities	**60**	**50**
	2. Classroom teaching, development of TLM, document study, maintenance of record	VIMD	Special schools or programmes for Multiple disabilities	**60**	**50**

COURSE-25: INCLUSIVE SCHOOL (FIELD WORK)

Course:25 **Credits: 04**
Hours: 120 **Marks: 100**
Note: The evaluation will be done jointly by the two examiners (one internal and one external).

Sr. No	Task for the student teacher	Disability focus	Educational settings	Hrs.	Marks
1	Classroom teaching with special focus on functional academic skills e.g., Braille, special equipments, preparation of TLM to facilitate inclusion and creating awareness about the needs of children with disabilities	Visually Impaired, seeing children and teachers	Inclusive schools	**120**	**100**

Kurukshetra University, Kurukshetra

Master of Education in Special Education (Visual Impairment)

{M.Ed. Spl. Edu. (V.I.)}

Syllabus

Effective from Academic Session 2015-16 in Phased Manner.

Two Years Duration

(04 Semesters)

Semester wise structure

Semester I

Course code	Course title	Credits	Internal marks	External Marks	Total Marks	Duration of Exam
I	Developments in Education and Special Education	4	20	80	100	3 Hour
II	Psychology of Development and Learning	4	20	80	100	3 Hour
III	Identification, Assessment and Needs of Children with Visual Impairment	4	20	80	100	3 Hour
IV	Curriculum And Teaching Strategies for Children with Visual Impairment	4	20	80	100	3 Hour
V	Practical related to Visual Impairment	4	40	60	100	
Total		20	120	380	500	

Semester-II

Course code	Course title	Credits	Internal marks	External Marks	Total Marks	Duration of Exam
VI	Research Methodology and Statistics	4	20	80	100	3 Hour
VII	Curriculum Design & Development	4	20	80	100	3 Hour
VIII	Inclusive Education	4	20	80	100	3 Hour
IX	Application of advanced technology and persons with visual impairment	4	20	80	100	3 Hour
X	Practical related to Visual Impairment	4	40	60	100	
Total		20	120	380	500	

Semester-III

Course code	Course title	Credits	Internal marks	External Marks	Total Marks	Duration of Exam
XI	Perspectives in Teacher Education – In-service & Pre-service	4	20	80	100	3 Hour
XII	Educational Evaluation	4	20	80	100	3 Hour
XIII	Adulthood and Family Issues	4	20	80	100	3 Hour
XIV	**Elective Course(Any One)**	4	20	80	100	3 Hour
XIV A	Educational Management					
XIV B	Educational Technology					
XIV C	Guidance and Counselling					
XV	Dissertation*(synopsis)	2	50	----	50	
XVI	Field Engagement/ Internship as a Teacher Educator	4	40	60	100	
Total		22	170	380	550	

** Teacher Educators need to select a problem for investigations and provide the necessary supportive and explanatory information as needed. Teacher Educators need to present the synopsis of their work.* ***Synopsis and presentation will be evaluated by Departmental Research committee (DRC).***

Semester-IV

Course code	Course title	Credits	Internal marks	External Marks	Total Marks	Duration of Exam
XVII	Dissertation*	14	150	200	350	
XVIII	Field Engagement/ Internship as a Teacher Trainer	4	40	60	100	
Total		**18**	**190**	**260**	**450**	

*** Note: Suggestive/As per the University Regulations**

• Complete a review of related research literature in accordance with the research problems.
• Explain and describe the methodology used to conduct the research problem.
• Explain the significance of the results obtained after conducting the research study.
• Summarize the results, explain the corresponding conclusions derived and the subsequent recommendations formulated for further research and practice.
• Provide a list of references, other supportive documentation used for the study.
• Make an oral presentation on the completed work.

Area E- Practical Related to Disability

1. Elicit information from parents and professionals the relevant information about one child with Specific Disability.
2. Assess the child with Specific Disability, using formal and informal tools and identify the specific learning problems.
3. Write a comprehensive assessment report by analyzing and interpreting the data.
4. Develop an appropriate educational plan (current level, annual goals, short term objectives, methods and material and evaluation).
5. Collaborate with the class teachers and related professional to implement the IEP.
6. Implement IEP for a period of minimum 15 sessions (each session lasting for not less than 45 minutes).
7. Make class visits to support the student when the regular teacher teaches and collaborate with the class teachers.
8. Evaluate the child and write a report.

Area F- Field Engagement/ Internship as Teacher Educators

Each student trainee is expected to teach 10 lectures in Third & Fourth Semester to student trainees undergoing training in B.Ed.Spl.Ed. level in topics from the curriculum of B.Ed. Spl. Edu.

DEVELOPMENTS IN EDUCATION AND SPECIAL EDUCATION

Course Code: I **Credits: 04**
Time of Examination: 3 Hours **Marks: 100**
Extranal-80; Internal-20

NOTE: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions carry equal marks.

Introduction

This course will enable learners to explore education both general and special from historical perspective leading to contemporary India. The course also includes various commissions and policies and issues and trends in the field of education, special education and inclusive education in the national and international contexts covering all aspects of quantity and quality.

Objectives

After completing the course teacher educators will be able to

• *Trace development of general and special education system (PwDs) in India.*

•*Appreciate implications of recommendations made by the various Committees and Commissions for educational (General and Special) developments in India.*

•*Develop insight into the issues and challenges of present day education system.*

•*Understand important quality related issues which need to be taken into account for revision/ development of new education policy.*

Unit 1: An Overview of Development of Education System

1.1 Shaping of Education in Pre-Independence India
1.2 Shaping of Education in Post-Independence India
1.3 Emerging Education in India and in the Global Context
1.4 Perspectives of Education for the Persons with Disabilities
1.5 Constitutional Provisions and Directive Principles Related to Education and Special Education

Unit 2: Issues in Indian Education with Special Reference to Persons with Disabilities

2.1 Accessibility to School, Curriculum & Learning Resources and Attitudinal Barriers
2.2 Analysis of the Status of Elementary & Secondary Education for All. (SSA, RMSA,) and Issues for Bridging Gaps
2.3 Ensuring Equity Principles across Disabilities, Gender, Caste, Socially Disadvantaged Groups, Marginalized and their Specific Educational Problems
2.4 Challenges of Special Education, Inclusion, Systemic Reforms, Provisions and Support System, Public Private Partnership & NGO Initiatives
2.5 Support Systems to Meet Diverse Learning Needs- Family, Community, School, Peer, Administrative and Resource Support

Unit 3: Policies and Legislations for Education & Special Education Development of Special Education in India

3.1 National Legislations (RCI Act 1992, PWD Act 1995, National Trust Act, Biwako Millennium Framework)
3.2 International Legislations for Special Education and International Organisations (UNESCAP, UNCRPD, WHO, UNICEF, NESCO, UNDP, Action Aid, CBM)
3.3 National Policies (POA 1992, SSA, RMSA and RUSA) & Government Schemes and Provisions for Persons with Disabilities
3.4 Role of Governmental and non-governmental agencies in general and special education
3.5 Current issues– Identifications, Labelling, cultural and linguistic diversity & advocacy

Unit 4: Quality Issues in Education

4.1 Indicators of quality related to teaching - learning strategies, classroom environment, and Student Assessment

4.2 Linking pedagogy with curriculum, contextual constructivism

4.3 Ensuring standards in Open & Distance Learning system – Non-formal education, face-to-face *vs*. Distance mode

4.4 Special and Inclusive education - Adopting flexible strategies for the acquisition and use of inputs and monitoring performance in inclusive set up

4.5 Quality enhancement in service delivery and community rehabilitation

Unit 5: Current Trends and Future Perspective

5.1 Education as a development indicator, and enhancer of development indicators

5.2 Education for sustainable development & Right based approach

5.3 International curriculum framework in the light of changing priorities and international perspectives

5.4 Education for conservation of environment and social change

5.5 Education for individual and national development

Course Work/ Assignments

• Trace development of education in India during pre-Independence

• Identify Constitutional provisions ensuring equity and protection of human rights as well as non-discrimination

• Study factors influencing special education as a discipline in India

• Identify quality related issues of your State and suggest strategies to address them

Suggested Readings

• Anand, C.L. et.al. (1993). Teacher and Education in Emerging Indian Society, NCERT, New Delhi.

•Compendium of Schemes (2014). Department of Empowerment of Persons with Disabilities, Ministry of Social Justice and Empowerment, Govt. of India.

• Education Commission. (1964-1966). Ministry of Education, Government of India, New Delhi.

•Julka, A. (2014). Evaluation of the Implementation of the Scheme IEDSS in India. Department of Education of Groups with Special Needs. NCERT, New Delhi.

•Julka, A., Mukhopadhyay, S., Vyas, S., Sharma, M, Anupriya, C., & Salin, D. (2014). Including Children with Special Needs: Primary Stage. NCERT, New Delhi.

•Kumar, A. (2003). Environmental challenges of the 21st century, APH Publishing Corporation, New Delhi.

• Mohanty, J., (1986). School Education in Emerging Society, sterling Publishers MacMillan, New Delhi.

• National Policy on Education (1986). Ministry of Human Resource Development Govt. of India, New Delhi.

• National University of Educational Planning and Administration (2014). Education for All Towards Quality with Equity: INDIA. NUEPA, New Delhi.

• Ozial, A.O. (1977). Hand Book of School Administration and Management. Macmillan, London.

• Programme of Action (1992). Ministry of Human Resource Development. Govt. of India, New Delhi.

• Report of Core group on value orientation to education (1992). Planning commission, Govt of India.

• Salamatullah, (1979). Education in Social context, NCERT, New Delhi.

• School Education in India – Present Status and Future Needs (1986). NCERT, New Delhi.

• Seventh All India School Education Survey (2002). NCERT, New Delhi.

• UNDP (1996). Human Development Reports. Oxford University Press. New York.

• UNESCO (2004). Education for All: The Quality Imperative. EFA Global Monitoring Report. Paris.

• UNESCO (2009). Report on Education for sustainable development.
• Varghese, N.V. (1995). School Effects on Achievement: A Study of Government and Private Aided Schools in Kerala. In Kuldip Kumar (Ed.) School effectiveness and learning achievement at primary stage: International perspectives. NCERT. New Delhi.

PSYCHOLOGY OF DEVELOPMENT AND LEARNING

Course Code: II **Credits: 04**
Time of Examination: 3 Hours **Marks: 100**
Extranal-80; Internal-20

NOTE: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions carry equal marks.

Introduction

This course exposes learners to the critical understanding of theoretical perspectives of development and implications for in teaching learning process. Through close observation of children in their natural environments would situate the theoretical knowledge within realistic frames. This course would also be able to equip them to reflect and critique the cognitive and information processing.

Objectives

After completing the course teacher educators will be able to

• *Explain the psychological principles and their application in specific context of education and special education.*
• *Explain the principles and their implication for growth and development.*
• *Critically analyse the process from the point of view of cognitive psychology.*
• *Explain role of motivation in learning, learning processes and theories of personality.*
• *Apply psychological aspects to teaching - learning situations.*

Unit 1: Overview Educational Psychology

1.1 Nature and scope of educational psychology
1.2 Principles of educational psychology
1.3 Methods of Educational Psychology
1.3.1 Observation
1.3.2 Experimental method
1.3.3Correlational
1.3.4 Clinical
1.3.5 Case Study
1.4 Applications of educational psychology to person with disabilities
1.5 Contemporary trends

Unit 2: Understanding the Development of the Learner

2.1 Concept of Growth and Development
2.2 Methods of studying development: Longitudinal, Cross-sectional, Cohort sequence
2.3 Physical, social, emotional, moral development, play and language development
2.4 Cognitive Development: Piaget, Vygotsky and Kohlberg
2.5 Factors affecting Growth and Development

Unit 3: Cognition and Information Processing

3.1 Sensation, Perception and Attention
3.2 Memory - Nature and types, factors affecting memory
3.3 Thinking: Concept Formation, Reasoning, Problem solving
3.4 Intelligence: Nature, types, theories and assessment
3.4.1 Creativity
3.5 Individual differences and its educational implications for children with disabilities

Unit 4: Motivation, Learning and Personality

4.1 Concept, definition and theories of Motivation

4.2 Classical and Contemporary Learning Theories: Behavioural, Cognitive and Social
4.3 Concept, definition and principles of personality development
4.4 Personality Theories-
4.4.1 Psychoanalytic-Freud & Neo-Freudians, Trait, Humanistic
4.4.2 Assessment of Personality
4.5 Implications in teaching-learning with reference to children with disabilities

Unit 5: Psychological Aspects of Teaching

5.1 Individual differences in cognitive and affective areas and its educational Implications
5.2 Classroom climate, group dynamics
5.3 Peer tutoring, co-operative learning, self-regulated learning
5.4 Teacher effectiveness and competence
5.5 Guiding children with disabilities

Course Work/ Assignments/ Practicum

• Plan and conduct a survey about attitudes/ practices regarding one or more of the following: children with disabilities, prenatal development, prenatal hazards, school drop-out, motivation of children
• Conduct an experiment with Piagetian methods of evaluating cognitive development and submit a report
• Analyze any autobiography to explain human development
• Design a behaviour modification plan for a specific child
• Present information on cognitive styles and their effects on learning

Transaction

Lecture Method, Seminar, Group Discussion, Practical and Field work

Essential readings

• Agarwal, I.J.C (1994). Essentials of Educational Psychology. Vikas Publishing House, Pvt.Ltd., New Delhi.
• Chatterjee, S.K. (2000). Advanced Educational Psychology. Arunabhasen Books and ALLIED(P) Ltd.,
• Freud, S (1935). A general Introduction to psychoanalysis. Live right, New York.
• Mangal, S.K. (1997). Advanced Educational Psychology. Prentice Hall of India Pvt., Ltd., New Delhi.
• Maslow, A.M. (1954). Motivation and Personality. Harper Press, New York.
• Morgan, C.T. (1961). Introduction to Psychology. McGraw Hill, New York.
• Mussen, P.H., Conger, J.J., & Kagan, J.(1969). Child development and personality. Harper & Row, New York.

Suggested Readings

• Bernard, H.W. (1972). Psychology of Learning and Teaching. Mc Grow Hill, New York.
• Chauhan, S.S. (1996). Advanced Educational Psychology. Vikas Publishing House, New Delhi.
• DeCecco, J.P., & Crawford, W. (1977). Psychology of Learning and Instruction. Prentice Hall, New Delhi.
• Driscoll, P.M. (1994). Psychology of Learning for Instruction. Allyn & Becon, Boston.
• Hurlick, E.B. (1992). Child Development. Mc Grow Hill, New York.
• Joyce, M., & Others (1992). Models of Teaching. Holt Rinehart and Winston, New York.
• Lindgren, H.C. (1976) Educational Psychology in the Classroom. John Wiley, New York.
• Mildred, C.R.F. (1978). Infants, Children: Their Development and Learning. Gran Hill, New York. (Indian Reprint).
• Panda, K.C. (1997). Elements of Child Development. Kalyani Publishers, New Delhi.
• Sharma, P. (1995). Basics on Development and Growth of a Child. Reliance Publication, New Delhi.

• Slavin, E.R. (2003). Educational Psychology: Theory and Practice (7th ed.). Allyn & Becon, Boston.
• Wilson, A.R., Rockbeck, M.C., & Michael, N.B. (1979). Psychological Foundations of Learning and Teaching. Mc Grand Hill, New York.

IDENTIFICATION, ASSESSMENT AND NEEDS OF CHILDREN WITH VISUAL IMPAIRMENT

Course Code: III **Credits: 04**
Time of Examination: 3 Hours **Marks: 100**
Extranal-80; Internal-20

NOTE: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions carry equal marks.

Introduction

Assessment is a multifaceted process of gathering information by using appropriate tools and techniques in order to make educational decisions about placement and the educational programme for that student. A comprehensive functional assessment employs a combination of tools and techniques selected to be consistent with the purposes of the assessment. The interpretation and integration of information gathered from these various sources is a key factor in comprehensive assessment of visually impaired children to make informed decisions about their individualized education programme. To participate fully in this process, the learners must have an understanding of the needs of children with visual impairment and those with additional disabilities, at different stages of the growth and development; knowledge of the potential impact of the visual impairment on behaviour and functioning; and a thorough understanding of the assessment instruments and procedures.

Objectives

After completing the course teacher educators will be able to

• *Trace the historical development of visual impairment and discuss the attitudinal change of society over time.*
• *Describe the causes and implications of different eye disorders.*
• *Critically examine the needs arising at different stages of persons with visual impairment.*
• *Develop skills to identify and assess children with blindness, low vision, and children with VIMD.*
• *Develop skills to plan and implement vision efficiency training for children with low vision.*

Unit 1: Evolving Concept and Definition of Visual Impairment

1.1 History of visual impairment
1.2 Attitudinal and behavioural change of the society towards the persons with visual impairment
1.3 Paradigm shift from charity through medical and social to right based approach
1.4 Factors affecting changing societal attitude and policy perspectives with reference to persons with visual impairment: Self-help movements, Service delivery organizations, Judiciary and quasi-judicial bodies, UN Bodies, and media
1.5 Classification of visual Impairment: WHO, International Classification of Functioning, Disability and Health (ICF), and domestic legislations

Unit 2: Eye Disorders: Etiology and Implications

2.1 Neurological causes of visual impairment: cortical visual impairment
2.2 Disorder related to refraction: myopia, hyperopia, presbyopia, astigmatism
2.3 Disorders related to receptive aspects of the eye: retinal detachment, retinitis pigmentosa, Retinipathy of prematurity,optic atrophy, aninidia, and macular degeneration, and albinism
2.4 Muscular and related disorders: nystagmus, strabismus, amblyopia
2.5 Vitamin A deficiency, cataract, glaucoma, corneal ulcer, trachoma, and colour blindness

Unit 3: Identification and Assessment Procedures of Children with Blindness and Low Vision

3.1 Methods and tools for assessment of children with blindness: Functional Skills Inventory for the Blind, Oregon project for visually impaired and Pre-schoolers, A short Scale IQ measure for the

visually impaired based on WISC-R, Adapted EPQ, Adapted Blind Learning Aptitude Test, Concept development for blind Children, Reading Preference Test, Cornell Medical Index on Visually Handicapped children

3.2 Identification of children with low vision and psychosocial implications of low vision

3.3 Functional vision assessment: selection of methods and tools for functional vision assessment of persons with low vision: low vision assessment by Jill Keeffe, Lea Tests

3.4 Concept and methods of visual efficiency training

3.5 Preparation of teacher made tools for functional assessment of vision and skills

Unit 4: Identification and Assessment Procedures of Children with Visual Impairment and Multiple Disabilities

4.1 Concept of VIMD

4.2 Role of multidisciplinary team of professionals in assessment of children with VIMD

4.3 Functional assessment methods and tools for VIMD: physical, vision, hearing, tactual, and communication skills assessment

4.4 Implications of vision loss in adapting available tools of assessment for persons with Visual impairment

4.5 Preparation of teacher made tools for functional assessment of VIMD

Unit 5: Needs of Persons with Visual Impairment

5.1 Infancy and early childhood: early stimulation and early intervention

5.2 School age: placement alternatives, collaboration of special and regular teacher

5.3 Transition Period: self-identity, self-esteem, and self-image

5.4 Vocational Development: emerging job opportunities

5.5 Adulthood issues: sexuality and marriage, recreation and leisure; geriatric groups: disintegrating family system, social security, CBR and community support

Course Work/ Practical/ Field Engagement (Any Three)

• Prepare a questionnaire to identify the approach followed by an inclusive school towards the education of children with disabilities

• Visit an eye hospital/primary health centre/ compository rehabilitation camp and observe persons with different eye disorders and write a report

• Prepare and administer a teacher made tool for functional assessment of vision and visual skills of a child with low vision and submit a report

• Prepare and administer a teacher made tool for functional assessment of Vision, Hearing, Tactual, Communication and functional skills of children with VIMD and submit a report

• Critically analyse any psychological test you have studied for its applicability and identify items to be adapted for the persons with visual impairment in Indian context

Essential Readings

• Barraga, N. C. (1980). Sequences of Visual Development. University of Texas. Austin.

• Bhan, S., & Swarup, S. (2010). Functional skills inventory for the blind. National association for the blind,Mumbai.

• Bhandari, R., & Narayan J. (2009).Creating learning opportunities: a step by step guide to teaching students with vision impairment and additional disabilities, including deafblindness. Voice and vision: India.

• Corn, A. L., & Koenig, A.J. 2000. Foundation of Low Vision: Clinical & Functional Perspective. AFB Press, New York.

• Dimri, A. (2002). Prepration of Norms of WISC-R (Verbal) for the Visually Handicapped. NIVH, Dehradun.

• Hyvarinen, L., & Jacob, N. (2011).What and how does this child see: assessment of visual functioning for development and learning. Vistest Ltd. Finland.

• Leat, S.J., Shute R.H., & Westall, C.A. (1999). Assessing children's vision: A Handbook. Butterworth-Heinemann: Oxford.
• Lueck, A. H. (2004). Functional Vision- A practitioner guide to Evaluation & Intervention,.AFB Press. New York.
• Mani, M.N.G. (1992). Concept development of blind children. SRK Vidyalaya. Coimbatore.
• Mani, M.N.G. (1993).Concept Development of Blind Children: A Research Study. Shri Ramakrishna Mission Vidyalaya. Printing Press. Coimbatore.
• Mani, M.N.G. (2001). Reading Preference Test (REPT) for Children with Low Vision. Coimbatore: International Human Resource Development Centre for the Disabled.
• Mukhopadhyay, M., Jangira, N.K., Mani M.N.G., & RoyChoudary, M. (1988). Source Book For Training Teachers Of Visually Impaired. NCERT. New Delhi.
• Reynolds, C.R. , & Janzen, E.F. (Ed.)(2007). Encyclopaedia of Special Education. Vol. I A-D, John Wiley, Canada.
• Sacks. S. Z., & Silberman, R.K. (2005). Educating Students who have Visual Impairments with other Disabilities, Paul H Brookes, Maryland.
• Salvia, J., Ysselduke, J.E., & Bolt, S. (2007), Assessment in Special & Inclusive Education. Houghton Mifflin: USA.
• Scheiman, M., Scheiman, M., & Whittaker, S.G. (2007). Low Vision Rehablitation, SLACK Incorporated: USA.
• Scholl, G. T. (Ed.) (1986). Foundations of the education for blind and visually handicapped children and youth: Theory and Practice. AFB Press. New York.
• Singh, T.B. (1986). A short Scale I.Q Measure for the Visually Handicapped. NIVH, Dehradun.
• Singh, T.B. (1986). Eyssenck Personality Questionnaire (EPQ) for the Visually Handicapped. NIVH, Dehradun.
• Singh, T.B. (1986).Standardisation of Cornell Medical Index on Visually Handicapped children. NIVH, Dehradun.
• Singh, T.B., & Sati, G. (1992). Use of Blind Learning Aptitude Test as a performance measure for the assessment of Visually Handicapped Children in India. NIVH Dehradun.
• Warren, D.H. (1983). Blindness and Early Childhood Development.: AFB Press, New York.

Suggested Readings

• Aitken, S., Buultjens, M., Clark, C., Eyre, J.T. (2000), Teaching Children who are Deaf blind. David Fulton Publisher: London,
•Batshaw, M.L., Pellegrino, L., & Roizen, N.J. (2007), Children with Disabilities. Paul. H. Brookes: Maryland,
•Holbrook M. C. &Koenig A. J. (Eds.) (2000). Foundations of Education, Vol I: History and Theory of Teaching Children and Youths with Visual Impairments, (2nd Ed): AFB Press, New York.
• Kundu, C.L. (2000). Status of Disability in India. Rehabilitation Council of India, New Delhi.
• National Institute for the Visually Handicapped (1990). Handbook for Teachers of the Blind, NIVH Dehradun.
• Punani, B., & Rawal, N. (1993). Handbook: Visual Impairment. Ashish Publishing House, New Delhi.

CURRICULUM AND TEACHING STRATEGIES FOR CHILDREN WITH VISUAL IMPAIRMENT

Course Code: IV **Credits: 04**
Time of Examination: 3 Hours **Marks: 100**
Extranal-80; Internal-20

NOTE: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions carry equal marks.

Introduction

The purpose of the curriculum is encapsulated in the four capacities - to enable each child or young person to be a successful learner, a confident individual, a responsible citizen and an effective contributor. The general education curriculum should be universally designed to meet the educational needs of most students, including those with visual impairment. However, some adaptations to the learning materials and the teaching approaches have to be made so that the learning needs of visually impaired children can be met. This course prepares the learners to develop a balanced curriculum with due consideration given to the children's intellectual, personal, emotional and social developments. Learners will acquire skills to adopt a consistent, realistic and flexible approach in curriculum planning and implementation. They will be able to plan possible adaptations to the curriculum, taking into account the children's visual impairment, their abilities and learning needs.

Objectives

After completing the course teacher educators will be able to

• *Appreciate the importance of various basis to curriculum development.*

• *Develop an expanded core curriculum for children with visual impairment on the basis of situational analysis.*

• *Adapt the school curriculum keeping in mind the principles of curriculum adaptation in different curricular skill areas.*

• *Demonstrate appropriate teaching strategy in teaching reading, writing, and math*

• *Critically examine approaches to curriculum development for VIAD.*

Unit 1: Basic Curriculum Areas and Skills

1.1 Curricular skills related to cognitive domain
1.2 Curricular skills related to psychomotor domain
1.3 Curricular skills related to affective domain
1.4 Core curriculum, collateral curriculum, and support curriculum
1.5 Curriculum adaptation: Need and principles

Unit 2: Introduction to Expanded Core Curriculum

2.1 From plus curriculum to expanded core curriculum and Introduction and Orientation to Unified English Braille
2.2 Philosophical basis
2.3 Psychological basis
2.4 Sociological basis
2.5 Ethical considerations

Unit 3: Steps in Expanded Core Curriculum Development

3.1 Assessment of needs with reference to accessing school curriculum
3.2 Designing a need based curriculum: situational analysis for selection of skills and method of teaching
3.3 Developing a collaborative curriculum
3.4 Implementation of the curriculum

3.5 Critical evaluation of the curriculum

Unit 4: Strategies for Teaching

4.1 Specific teaching strategies: task analysis, co-activity, pre teaching, self verbalization, direction giving, generalization, feature enhancement, and use of kinaesthetic movement

4.2 Teaching reading to students with visual impairment: Reading aloud, peer reading, organic reading, and whole language approach

4.3 Strategies for writing skills: guided and independent writing

4.4 Strategies for teaching math: concrete, experiential, role play, and origami

4.5 Strategies for teaching use of ICT: demonstration, verbal instruction, and peer tutoring

Unit 5: Approaches to Curriculum Development for VIAD

5.1 Ecological

5.2 Multisensory

5.3 Thematic

5.4 Functional

5.5 Experiential

Course Work/ Practical/ Field Engagement (Any Two)

• Identify and present various curricular domains in the given chapter from a text book

• Adapt the school curriculum in any one subject keeping in mind the principles of curriculum adaptation

• Design the curriculum for a child with visual impairment

• Develop a thematic curriculum for a child with VIAD

Essential Readings

• Aggarwal, J.C. (2005). Curriculum development 2005. Shipra Pub. Delhi.

• Bhandari, R., & Narayan J. (2009).Creating learning opportunities: a step by step guide to teaching students with vision impairment and additional disabilities, including deaf-blindness. Voice and vision: India.

• Biwas, P.C. (2004). Education of children with Visual Impairment: in inclusive education. Abhijeet Publication, Delhi.

• French, S., & Swain, J. (1997). From a different view point: the lives and experiences of visually impaired people. Jessica Kinsey Pub, London.

• Grover , U., & Chaudhari. M. (2009). Curricular Strategies. Kanishka Publication, New Delhi.

• Hodapp, R. M. (1998). Developmental and disabilities: Intellectual, sensory and motor impairment. Cambridge Uni. Press, New York.

• Jain, P. (2006). Curriculum & teaching. Kanishka Publication, New Delhi.

• Joyce, B., Weil, M., & Calhoun, E. (2009). Model of teaching. PHI learning Pvt. New Delhi.

• Lowenfeld, B. (1973). The Visually Handicapped Child in School. John Day Company, New York.

• Mangal. S.K. (2007). Educating exceptional children-an introduction to special education. PHI Learning Pvt. New Delhi.

• Rao, V. (2009). Curriculum development. Saurabh Pub, New Delhi.

• Scholl, G.T. (1986). Foundations of the education for blind and visually handicapped children and youth: Theory and Practice. AFB Press, New York.

• Sharma, R.A. (2011). Curriculum development and instruction. R. Lal Book Depot, Meerut.

• Shrivastava, N. (2010). Blind and mentally handicapped children: problems and coping strategies. Ritu Publication, Jaipur.

• Srivastava, H.S. (2011). Curriculum & method of teaching. Shipra Pub., Delhi.

• Vijayan, P., & Victoria, G. (2009). Education of visually impaired children with additional disabilities. Kanishka Publication, New Delhi.

Suggested Readings

• Agrawal, S. (2004). Teaching mathematics to blind students through programmed learning strategies. Abhijeet Publication, Delhi.

• Baratt, S. H. (2008). The special education tool kit. Sage Publication, New Delhi.
• Bhan, S., & Swarup, S. (2010). Functional skills inventory for the blind. National association for the blind, Mumbai.
• Maitra, K. (2010). Inclusion: Issues and Perspective. Kanishka Publication, New Delhi.
• Mani, M.N.G. (1992). Concept development of blind children. SRK Vidyalaya: Coimbatore.
• Mani, M.N.G. (1992). Techniques of teaching blind children. Sterling Publishers Pvt. Ltd. New Delhi.
• Mukhopadhyay, M., Jangira, N.K., Mani M.N.G., & RoyChoudary. M. (1988). Source Book For Training Teachers Of Visually Impaired. NCERT. New Delhi.
• Niemann, S., & Jacob, N. (2009). Helping children who are blind. California: The Hesperon/ Chetana Charitable Trust, Chennai.
• Pandey,V.P. (2004). Teaching of mathematics. Sumit Publication, New Delhi.
• Punani, B., & Rawal, N. (2000). Handbook for Visually Impaired. Blind Peoples' Association, Ahmedabad.
• Adaptations to the curriculum for the visually impaired children, Retrieved on May 28th 2015, from URL: https://cd.edb.gov.hk/la_03/chi/curr_guides/Visually/ev-3.htm

PRACTICAL RELATED TO VISUAL IMPAIRMENT

Course: V **Credit: 4** **Marks: 100**

Internal: 40; External:60

Learning of Unified English Braille(UEB) literary code and use of advance Braille mathematics and science code.

Semester II

RESEARCH METHODOLOGY AND STATISTICS

Course Code: VI **Credits: 04**

Time of Examination: 3 Hours **Marks: 100**

Extranal-80; Internal-20

NOTE: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions carry equal marks.

Introduction

This course aims to develop within the student a temperament for scientific thinking and research. It orients the student to the methods of conducting research, analysis of data, and enables him/her to prepare research proposal and report subscribing to the standard norms and criteria.

Objectives

After completing the course teacher educators will be able to

• *Develop a conceptual understanding of research, its need and ethical research practices.*

• *Describe the types, methods and process of research.*

• *Apply statistical techniques for analysis of data.*

• *Explain the methods and techniques of qualitative research.*

• *Prepare research proposal and report.*

Unit 1: Scientific Knowledge and Research

1.1 Sources and philosophy of knowledge

1.2 Scientific thinking and research

1.3 Role of theory in research

1.4 Need for research in Education and Special Education

1.5 Ethics in research

Unit 2: Types and Methods of Research

2.1 Types of research- Quantitative, Qualitative, Fundamental, Applied, Action

2.2 Methods of Research:

• Descriptive

• Correlational

• Ex-post facto

• Experimental; Designs (i) Pre-experimental, (ii) Pre-Post designs, (iii) Quasi Experimental design, (iv) single subject design

2.3 Variables- Types and threats

2.4 Process of research- Selection of problem, Review of literature, Sampling; Types and selection process, Hypothesis

- Instruments; tests, questionnaire, interview, observation schedule, rating scale

- Data collection and analysis

2.5 Standardization of research instrument- Selection of items, reliability and validity and norms

Unit 3: Methods of Quantitative Analysis

3.1 Parametric and non-parametric tests: Concept and difference

3.2 Descriptive Statistics:

- Measures of Central Tendency

- Correlations; Product-moment, Biserial-r, Point-biserial, Phi-coefficient, Regression analysis

3.3 Inferential statistics

- Underlying concepts: Sampling error, standard error of mean, confidence level, degrees of freedom, one tail-two tail test, type I and type II errors

- Student t- test, ANOVA, Ancova, Chi-square, Sign Test, Mann Whitney U test, Kruskal-Wallis test
3.4 Computer applications for analysis
3.5 Tabulation and graphic representation

Unit 4: Qualitative Research Methods and Analysis

4.1 Grounded theory
4.2 Ethnography and case study
4.3 Narrative/discourse and visual methodologies
4.4 Mixed method
4.5 Themes, coding and presentation

Unit 5: Preparing Research Proposal & Report

5.1 Components of research proposal
5.2 Presentation of proposal
5.3 Writing of thesis/dissertation
5.4 Writing technical paper for publication
5.5 Research management

Assignments/ Course Work/ Practicum

• Review a research paper published in refereed journal
• Prepare and present a research proposal
• Review a text book and submit a report
• Analyze a set of data using computer application

Transaction

The research concepts and processes included in this course should be taught using examples from special education and disability studies. The topics from statistics should be explained through variables, hypothesis and type of data collected in selected research studies. Evaluation may be done by asking students to select and apply suitable statistical measure to a given set of data.

Essential Readings

• Agarwal, A.N. (2002). Quantitative Methods. Vrinda Publishing, New Delhi.
• Best, J.W., & Kahn, J.V. (1996). Research in Education. Prentice-Hall, New Delhi.
• Cohen, J. (1988). Statistical Power Analysis for the Behavioral Sciences. Academic Press, New York.
• Desu, M.M., & Raghavarao, D. (1990) Sample Size Methodology. Academic Press, Boston.
• Dooley, D. (1997). Social Research Methods. Prentice-Hall, New Delhi.
• Gaur,A.S., & Gaur, S. S.(2009). Statistical Methods for Practice and Research: A Guide to Data Analysis Using SPSS. Sage Publishers, New Delhi.
• Greene, S., & Hogan, D. (2005).Researching children's experience. Sage Publication, London.
• Grewal, P.S. (1990). Methods of Statistical Analysis. Sterling Publishers, New Delhi.
• Guptha, S. (2003). Research Methodology and Statistical Techniques. Deep & Deep Publishing, New Delhi.
• Hegde, M. N. (2003). Clinical research in communicative disorders. PRO-ED: Austin, Texas
• Khan, M.S. (2005). Educational research. Ashish Publishing House: New Delhi
• Koul, L. (1996). Methodology of Educational Research. Vikas Publishing House, New Delhi.
• Potti, L.R. (2004). Research Methodology. Yamuna Publications, Thiruvananathapuram.
• Siegel, A., & Castellen, N.J. (1988). Non Parametric statistics for Behavioural Sciences. McGraw-Hill, New York.
• Silverman, D. (2012). Qualitative Research. Sage Publication, London.

Suggested Readings

• Berg, B.L., & Lune, H. (2011). Qualitative Research Methods for the Social Sciences

Pearson Publication, Boston.
• Bogdan, R. C., & Biklen, S. K. (2007). Qualitative research for education: An introduction to theory and methods (5th ed). Pearson, Boston.
• Lipsey, M.W. (1990). Design Sensitivity: Statistical Power for Experimental Research. Sage Publications, Newbury Park, CA.
• Singh, A. K. (2004).Tests Measurement and Research Methods in Behavioural Science. Tata McGraw-Hill Publishing, New Delhi.

CURRICULUM DESIGN & DEVELOPMENT

Course Code: VII **Credits: 04**
Time of Examination: 3 Hours **Marks: 100**
Extranal-80; Internal-20

NOTE: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions carry equal marks.

Introduction

Changes in society constantly demand new knowledge and skills and require the continuous development of our educational system. This course will provide the trainee the foundational know-how and theoretical underpinning of curriculum development from design and implementation to evaluation and an informed and critical understanding about curriculum differentiation

Objectives

After completing the course teacher educators will be able to

• *Define and identify different components of curriculum.*
• *Understand and analyse various approaches to curriculum development.*
• *Explain and demonstrate curriculum differentiation*.

Unit 1: Nature of Curriculum

1.1 Definition and scope of curriculum
1.2 Bases of Curriculum-philosophical, sociological and psychological
1.3 Principles of curriculum transaction
1.4 Fundamentals of curriculum development: knowledge based, activity based, skill based and experience based
1.5 Historical and contemporary evolution of curriculum

Unit 2: Approaches & Types of Curriculum Development

2.1Developmental Approach
2.2 Functional Approach
2.3 Eclectic Approach
2.4 Ecological Approach
2.5 Expanded Core Curriculum
2.6 Hidden Curriculum

Unit 3: Principles of Curriculum Construction

3.1 Curriculum & Ideology
3.2 Curriculum as a Social Construct
3.3 Differentiating between Curriculum Design and Curriculum development
3.4 Theories of Curriculum Development
3.5 Universal Design of Learning for Curriculum Development

Unit4: Curriculum Development & Instructional Design

4.1 Differentiation of Curriculum
4.2 Pedagogical Theories and curriculum transaction
4.3 Material and Instructional Adaptations
4.4 Assessment and Evaluation

Unit 5: Critical Issues in Curriculum

5.1 Organisation of learning opportunities for diverse needs
5.2 Designing integrated and inter-disciplinary learning experiences
5.3 Collaborative curriculum
5.4 Alignment of curriculum and modes of assessment

5.5 Curricular trends

Transaction

Group discussion, lecture-cum-discussion, panel discussion, school visits and teaching observations, individual assignment of lesson planning based on learning needs in the classroom.

Course Work/ Practical/ Field Engagement

• Write a 2000 word essay describing a curriculum in action in an inclusive school

• Adapt any one lesson in collaboration with a regular teacher within a secondary school text book (using one of the approaches to curriculum development) to meet the needs of children with disabilities

Essential Readings

• Aggarwal, D. (2007).Curriculum development: Concept, Methods and Techniques. Book Enclave, New Delhi.

• Alexander, R. J. (2001). Culture and pedagogy: International comparisons in primary education. Oxford and Boston, Blackwell.

• Daniels, H., & Goodland, J. (1979). Curriculum Enquiry the Study of Curriculum Practices. McGraw Hill, New York.

• Daniels, H., & Porter, J. (2011). Educational theories, cultures and learning: A critical perspective. Routledge, London.

• Ornstein, A. C., Pojak, E. F., & Ornstein, S. B. (2006). Contemporary issues in curriculum. Allyn & Bacon, Boston.

• Wiles, J. (2009). Leading Curriculum Development. Corwin Press, New Jersey.

• Wiles, J.W., & Joseph, B. (2006). Curriculum Development: A Guide to Practice. Pearson Publication, London.

Suggested Readings

• CIET(2006). The process of Making National Curriculum Framework-2005: A Video documentary both in Hindi and English, CIET,NCERT, New Delhi.

• Jacobs, H. H. (1997). Mapping the Big Picture: Integrating Curriculum and Assessment K-12 (Professional Development). Association for Supervision & Curriculum Development, Alexandria.

• Westbrook, J., Durrani, N., Brown, R., Orr D., Pryor J, Boddy, J., & Salvi, F. (2013). Pedagogy, Curriculum, Teaching Practices and Teacher Education in Developing Countries. Final Report. Education Rigorous Literature Review. Department for International Development.

• Wiggins, G., & Mc Tighe, J. (2005). Understanding by Design. Association for Supervision and Curriculum Development, Alexandria.

• Wiles, J. W., & Bondi, J. C. (2010). Curriculum Development: A Guide to Practice. Prentice Hall, New Jersey.

INCLUSIVE EDUCATION

Course Code: VIII **Credits: 04**
Time of Examination: 3 Hours **Marks: 100**
Extranal-80; Internal-20

NOTE: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions carry equal marks.

Introduction

This course will prepare teacher trainees to develop insights into models, evolution, current issues and strategies for developing inclusive learning environments. This course will promote collaborative skills in the trainees in order to address special learning needs in the classroom.

Objectives

After completing the course teacher educators will be able to

• *Explain the philosophical, sociological and rights perspective of inclusive education.*

•*Develop skills in using a wide range of tools, instructional strategies, and social supports to assist students with disabilities learn effectively.*

•*Develop the skills associated with inter-personal relationships, managing relations in educational settings, problem-solving in educational settings, leadership and working in teams to promote inclusion.*

Unit 1: Perspectives in Inclusive Education

1.1 Historical perspective of Inclusive education globally and in India
1.2 Approaches to disability and service delivery models
1.3 Principles of inclusive education
1.4 Key debates in special and inclusive education
1.5 Research evidence on efficacy and best practices associated with inclusive education

Unit 2: Covenants and Policies Promoting Inclusive Education- A Critique

2.1 International Declarations: Universal Declaration of Human Rights (1948), World Declaration for Education for All (1990)
2.2 International Conventions: Convention Against Discrimination (1960), United Nations Convention on Rights of a Child (1989), United Nations Convention of Rights of Persons with Disabilities (UNCRPD) (2006), Incheon Strategy (2012)
2.3 International Frameworks: Salamanca Framework (1994)
2.4 National Commissions & Policies: Kothari Commission (1964), National Education Policy (1968), National Policy on Education (1986), Revised National Policy of Education (1992), National Curricular Framework (2005), National Policy for Persons with Disabilities (2006)
2.5 National Acts & Programs: IEDC (1974), RCI Act (1992), PWD Act (1995), National Trust Act (1999), SSA (2000), RTE (2009) and amendment 2012, RMSA (2009), IEDSS (2013)

Unit 3: Building Inclusive learning Environments (I)

3.1 Identifying barriers to Inclusion- Attitudinal, Systemic and Structural
3.2 Ensuring Physical, Academic and Social Access
3.3 Leadership and Teachers as Change Agents
3.4 Assistive Technology
3.5 Whole School Development

Building Inclusive Learning Environments (II)

3.6 Classroom Management
3.7 Effective Communication
3.8 Promoting Positive Behaviour

3.9 Reflective Teaching
3.10 Peer mediated instruction: Peer tutoring, Co-operative learning

Unit 4: Planning for Including Diverse Learning Needs

4.1 Universal design of learning
4.2 Adaptations and accommodations for sensory impairments
4.3 Adaptations and accommodations for children with multiple disabilities
4.4 Adaptations and accommodations for children with neuro-developmental disabilities
4.5 Adaptations and accommodations for children with intellectual impairment
4.6 Adaptations and accommodations for gifted children

Unit 5: Collaborations

5.1 Models of collaboration
5.2 Working with Parents
5.3 Managing Conflict
5.4 Co-teaching
5.5 Mentoring and Coaching

Transaction

Interactive course with discussion as well as field work to get first-hand experience of coteaching mainstream classrooms with children with disability

Course Work/ Practical/ Field Engagement

• Study the impact of UNCRPD on RTE's provisions for children with disabilities
• Review of research in any one area in inclusive education and highlight its implications for the practitioner
• Develop a differentiated lesson with content, process, and products adapted to suit a specific learner
• Implement the lesson plan above in a regular school using one of the models of collaborative teaching. Write your reflections in a journal

Essential Readings

• Clough, P., & Corbett, J. (2000). Theories of Inclusive Education. Paul Chapman Publishing, London.
• Constitution of India (1950). Article 41, Ministry of Law and Justice, New Delhi.
• Jha, M. M. (2002). School Without Walls: Inclusive Education for All. Oxford, Heinemann.
• Jorgensen, C. M., Mc Sheehan, M., & Sonnenmeier, R. M. (2009). Essential best practices in inclusive school. Institute on Disability/UCE, University of New Hampshire
• Mukhopadhyay, S., & Mani, M. N. G. (2002). Education of Children with Special Needs, in Govinda, R. (2002) (Ed) India Education Report. Oxford University Press, New Delhi.
• Peterson, M., & Hittie, M. (2009). Inclusive teaching: The journey towards creating effective schools for all learners. Merrill, New Jersery.
• Skidmore, D. (2004) Inclusion: The Dynamic of School Development, Open University Press, Buckingham.
• Villa, R. A., & Thousand, J. S. (2005) Creating An Inclusive School, Association for Supervision and Curriculum Development. ASCD, Alexandria.
• Wade, S. E. (2000). Inclusive Education: A Casebook and Readings for Prospective and Practicing Teachers. Lawrence Erlbaum Associates, New Jersery.

Suggested Readings

• Berry, B., Daughtrey, A., & Weider, A. (2010). Teacher leadership: Leading the way to effective teaching and learning. Centre for Teaching Quality, Washington, DC.
• Carr, J. F., Herman, N., & Harris, D. E. (2005) Creating Dynamic Schools through Mentoring, Coaching, and Collaboration. ASCD, Alexandria.

• Carter, E. W., Cushing, L. S., & Kennedy, C. H. (2009). Peer support strategies: Improving all students' social lives and learning. Paul H. Brookes, Baltimore.
• Kunc, N. (2000). Rediscovering the right to belong. In R. A. Villa & J. Thousand (Eds.), Restructuring for caring and effective education: Piecing the puzzle together Brookes. Baltimore.
• Mastropieri, M. A., & Scruggs, T. E. (2006). The inclusive classroom: Strategies for effective instruction. Prentice-Hall, New Jersery.
• Odom, S. L., McConnell, S. R., Ostrosky, M., Peterson, C., Skellenger, A., Spicuzza, R., Chandler, L. K., McEvoy, C. A., & Favazza, P. C. (1993). Play time/social time: Organizing your classroom to build interaction skills. Communication Skill Builders, Tucson, AZ.
• UNESCO (1994).The Salamanca statement and framework for action on special needs education. Paris.

APPLICATION OF ADVANCED TECHNOLOGY AND PERSONS WITH VISUAL IMPAIRMENT

Course Code: IX **Credits: 04**
Time of Examination: 3 Hours **Marks: 100**
Extranal-80; Internal-20

NOTE: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions carry equal marks.

Introduction

Developments in the sphere of assistive technologies and ICT have opened up a wide array of exciting opportunities and possibilities for persons with visual impairment. These technologies must, now, form the basis of all activities for effective empowerment of the visually impaired. It is, therefore, in the fitness of things that technology solutions should form the subject matter of the present course. The course familiarizes the M.Ed. students with devices in the fields of education, independent living, employment and related aspects. So extensive, in fact, is the scope and range of technology applications for the visually impaired, today that it is well-neigh impossible to list each and every solution here. Therefore, the course seeks to present a representative sampling with a view to providing the students an indication of the trends and developments in the field. It is hoped that the students would find the devices most fascinating and would be motivated to move further ahead on their own to know of various other technology applications.

The course also focuses on enabling the students to develop the capacity of ascertaining the efficacy of these devices in the Indian conditions. It also provides them an insight on how they could help in resource-mobilization for the acquisition of these technologies, many of which are extremely costly from the Indian perspective.

Objectives

After completing the course teacher educators will be able to

• *Explain the relevance of technology for persons with visual impairment.*
• *Illustrate various devices to facilitate the education of persons with visual impairment.*
• *Describe various technological devices for promoting quality of life of persons with visual impairment.*
• *Critically analyse suitability/ appropriateness for various technological devices for persons with visual impairment.*
• *Discuss various trends in research on technology for persons with visual impairment.*

Unit 1: Introduction to Technology for the Visually Impaired

1.1 Historical perspective of assistive technology in the rehabilitation of persons with visual impairment
1.2 Concept, need and importance of assistive technology with specific reference to the Indian context
1.3 Types of Assistive Technologies
1.4 Special roles of technology for facilitating empowerment of persons with visual impairment
1.5 Hardware, software, cybernetics and systems, with special reference to persons with visual impairment- an overview

Unit 2: Technological Devices– Traditional and Modern for the Education of the Visually Impaired

2.1 Writing Technologies: Braille Slates of different types, Brailler– mechanical and electrical, computers with screen readers and computer-based screen magnifiers and screen readers for Indian languages, Braille Note takers and Smart Brailler

2.2 Reading Technologies: Braille, Refreshable Braille Displays, Stand-Alone reading machines, OCR systems, scanner/ camera-based OCR systems, Indian languages scanning software and Text to Speech (TTS), screen readers for phones and tablets, Smart Phone and DAISY players
2.3 Technology for Mathematics and Science Education: Abacus, Taylor Frame, Geo Kit, measuring tapes-- strengths and limitations; softwares for accessing Mathematics and Science text, hardwares and softwares for making Science Lab accessible: Automatic Stir Station (hardware), Drop Counter(hardware), Sci-Voice (software),Talking Interferential Therapy Machine(hardware), Talking Lab Quest and Talking Logger
2.4 Braille Production Technologies: Stero typing Machines- mechanical and electrical, Braille translation software with special reference to Indian languages, embossers and printers, Braille labeling systems, tactile diagrams and graphics production devices
2.5 Critical analysis of the devices mentioned under Unit 2.1 to 2.4 in the context of the Indian situation

Unit 3: Technologies for Facilitating Independent Living for Persons with Visual Impairment

3.1 Mobility Devices: canes - rigid, collapsible, folding and Smart Canes; Global Positioning Systems (GPS), ultra sonic devices, vibrating technologies
3.2 Fitness and Health: Thermometer - tactile and audio, Talking Blood Glucose Meter, Talking Blood Pressure Device, Talking Medcenter Pill Organizer System, Talking Pedometer, weighing machine- Braille and Talking
3.3 Recreational Devices - Chess Board, playing cards, adapted Ludo and Snakes and Ladders, adapted Scrabble, adapted puzzles, Talking Chess, audio Cricket Ball and audio Football, adapted Table Tennis/ Show Down, Goleball, adapted Volley Ball
3.4 Home management Devices: audible/ vibratory Liquid Level Indicator, Talking Measuring Cup, Talking Food Thermometer, Talking Kitchen Scale, Talking Microwave Oven, Talking Timer, Braille and Talking Alarm Clocks and Watches, Needle Threader
3.5 Critical analysis of devices mentioned under Unit 3.1 to 3.4

Unit 4: Employment-related Technologies for the Visually Impaired

4.1 Braille Shorthand Machine
4.2 Dictaphone
4.3 Dictation Software
4.4 Application of screen reading technologies for promoting/ diversifying employment opportunities
4.5 Making workplaces and available workshop equipment and other machines accessible to persons with visual impairment– Guidelines and Principles

Unit 5: Procurement and Assessment of Technological Devices for Persons with Visual Impairment

5.1 Sources of availability and maintenance of technology devices
5.2 Resource mobilization for procurement of devices
5.3 ADIP scheme of the Government of India, Department of Empowerment of Persons with Disabilities
5.4 Parameters for assessing efficacy/ suitability of devices in the Indian context
5.5 Recent trends in research on technology for visually impaired

Course Work/ Practical/ Field Engagement

• Analyze critically the efficacy of any two traditional/modern devices from Unit 2 to Unit 4
• Draw up a list of addresses of suppliers of technological devices for persons with visual impairment
• Survey the availability and use of technology in one special school and one inclusive school and prepare a critical report

Essential Readings

•Taraporevala, S., & D'Sylva, C. (2014). Equip Your World: A Synoptic View of Access Technology for the Visually Challenged. Joint Publication of NIVH, Dehradun & XRCVC, Mumbai.

• Mani. M.N.G. (1997). Amazing Abacus. S.R.K. Vidyalaya Colony, Coimbatore.

• Singh, J.P. (2003). Technology for the Blind- Concept and Context, Kanishka Publication, New Delhi.

•Proceedings: Asian Conference on Adaptive technologies for the Visually Impaired (2009). Asian Blind Union, New Delhi.

Suggested Readings

• Fernandez, G., Koening. C., Mani. M.N.G., & Tensi, S. (1999). See with the Blind Books for Change, Banglalore.

• Scheiman, M., Scheiman, M., & Whittaker, S.G. (2007). Low Vision Rehabilitation. SLACK Incorporated, New Jersey.

• https://www.afb.org/prodmain.asp

• http://www.independentliving.com/products.asp?dept=141&deptname=New-Products

• http://shop.rnib.org.uk

• http://shop.lighthouseguild.org

PRACTICAL RELATED TO VISUAL IMPAIRMENT

Course: X **Credits: 04** **Marks: 100**
Internal:40; External:60

• 5 lectures with B.Ed. students (1 in pedagogy subject, 1 in inclusive education, and 3 in specialization papers) -- 50 Marks (@ 10)

• Teaching of ICT to B.Ed. students 5 classes -- 50 marks

SEMESTER III
PERSPECTIVES IN TEACHER EDUCATION - IN-SERVICE AND PRE-SERVICE

Course Code: XI **Credits: 04**
Time of Examination: 3 Hours **Marks: 100**
Extranal-80; Internal-20

NOTE: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions carry equal marks.

Introduction

This course intends to orient the student about the aims and purpose of teacher education and critically reflect on its' status in India with specific reference to the developments in the field of special and inclusive education as well as identify the issues and challenges. A critical understanding of pre-service and in-service education of teachers in special and inclusive education would promote skills of designing and evaluating curriculum as well as capacities in transacting teacher training programs with essential inputs.

Objectives

After completing the course teacher educators will be able to

• *Gain insight and understand development of Teacher Education with reference to education of children with disabilities.*

• *Reflect on issues and problems related with teacher preparation for education of children with disabilities.*

• *Familiar with responsibilities of different organisations in preparation of competent teachers and critically examine it.*

• *Appreciate importance of in-service programmes and develop capacity to plan and execute it as per specific need and purpose.*

• *Appraise the existing teacher education curriculum and its relevance, issues and challenges.*

Unit 1: Understanding Teacher Education (TE)

1.1 Concept, Aims and Objectives of TE
1.2 Significance of TE in India
1.3 Types of TE: Pre-service and In-service; Continued development of Teacher as a Professional
1.4 Structure of TE in India and Organizations/Agencies involved
1.5 Factors influencing the practices in TE and quality

Unit 2: TE and Education of Children with Disabilities

2.1 Early Initiatives in preparing teachers for children with disabilities in India
2.2 Establishment of various national institutes and development of TE in special education
2.3 Establishment of RCI as a statutory body in standardizing and promoting TE in special education
2.4 Changes in School Education for Children with Disabilities and its Impact on TE
2.5 Paradigm shift from Segregation to Inclusion Impacting TE

Unit 3: Pre-service TE in Education of Children with Disabilities

3.1 Changing scenario of teacher education curriculum and evolving priorities
3.2 Characteristics of TE framework developed by RCI, structure and organisation of different components of TE Curriculum
3.3 Components of Pre-service TE: overview of courses at different levels, weight age of course work and evaluation
3.4 Various components of TE curriculum and their transactional modalities

3.5 Organisation, transaction and evaluation of different components of TE curriculum including school based practicum, and internship

Unit 4: Continued Teacher Development Program

4.1Need and modalities for continuing professional development of a teacher (Continuing Rehabilitation Education (CRE), Workshop, Seminar, Conferences, Projects, Exchange programmes) and their advantages and limitations

4.2 Structures and models of in-service teacher education- sub-district, district, State, regional and national level organisations and their role, voluntary efforts

4.3 Modes (face to face, distance modes, on line and mixed modes) and models (induction, one shot, recurrent, cascade, multi-site, school based, and course work) of in-service TE

4.4 Planning an in-service TE programme- preliminary considerations (purpose, duration, size of group, activities and budget)

4.5 Designing and organizing an in-service TE programme- assessment of training needs, identifying essential components, guidelines

Unit 5: Issues and Challenges in TE for Education of Children with Disabilities

5.1 Teacher motivation and working conditions; opportunities for professional development

5.2 Organizing TE: Conventional versus ODL

5.3 Collaboration/linkage between MHRD/ NCTE and MSJE/ RCI

5.4 Single disability versus cross disability approach in TE and addressing disability issues in general education curriculum

5.5 ICT and TE

Course Work/ Practical/ Field Engagement

• Prepare a checklist/schedule to collect information about curriculum transaction either in Diploma or B.Ed. in Special Education Courses in any Training Institute. Take interview of at least 10 student teachers and analyses the data to suggest improvement in quality of training

• Prepare a checklist/schedule to collect information from employer about competency of passed out student teachers. Take interview of at least 5 principals of schools having children with disabilities and analyses the data to suggest improvement in quality of training and the need for in-service training

Suggested Readings

• NCTE (1998). Policy Perspectives in Teacher Education: Critique and Documentation, New Delhi.

• Saxena, N.R., Mishra, B.K., & Mohanty, R.K. (1998). Teacher Education, R-Lall Book Depot, Meerut.

• Sharma, R.A. (2002). Teacher Education. International Publication House, Meerut.

EDUCATIONAL EVALUATION

Course Code: XII **Credits: 04**
Time of Examination: 3 Hours **Marks: 100**
Extranal-80; Internal-20

NOTE: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions carry equal marks.

Introduction

Education is a continuous process which begins with evaluation and ends with evaluation. This course intends to orient the learners with the foundation, scope and practices followed in educational evaluation and undertaking adaptations to suit the needs of children with disabilities. The course also takes the learners one step ahead by building an understanding of the contemporary evaluation practices as well as programme evaluation.

Objectives

After completing the course teacher educators will be able to

- *Explain the key concepts of evaluation and describe the developments in evaluation.*
- *Describe the scope of evaluation in education.*
- *Describe the use of evaluation as an effective tool in teaching-learning process.*
- *Describe the ways & means of evaluation of programmes.*
- *Explain the current trends in evaluation.*

Unit 1: Foundations in Evaluation

1.1 Concept of testing, measurement, assessment and evaluation
1.2 Difference between investigation, auditing, monitoring & evaluation
1.3 Principles of Evaluation
1.4 Areas of Evaluation
1.5 The evolution of the evaluation function; i) Measurement/ comparison, Transparency/ accountability, ii) Understanding/ learning/ decision making/ positive accountability

Unit 2: Scope of Evaluation

2.1 Problem-solving and decision-making
2.2 Positive accountability and excellence in education
2.3 Knowledge construction and capacity building of learners
2.4 Organizational learning and change, and strategic planning
2.5 Advocacy & communication

Unit 3: Teaching-learning and Evaluation

3.1 Evaluation of learning, for learning and in learning- Contexts, Need & Nature
3.2 Tools for evaluation and process of standardization
3.3 Equity & fairness in evaluation including adaptations & Accommodations
3.4 Report writing: Format, Content & Mechanics
3.5 Mastery Level Learning

Unit 4: Programme Evaluation & Review

4.1 Concept, need, goals and tools
4.2 Evaluation of instructional programmes
4.3 Techniques of programme evaluation
4.4 Reliability, validity and sensitivity in programme evaluation
4.5 Reviewing outcomes

Unit 5: Current Trends in Evaluation

5.1 Knowledge based evaluation

5.2 Performance Based Evaluation: Role play, Concept maps
5.3 Authentic Evaluation: Interviews, Writing samples, Projects, Exhibitions, Reflective Journals
5.4 Self evaluation: Rubrics & Rating scales
5.5 Exams: Online, On-demand, Take-home Power Tests & Open book

Transaction & Evaluation

• Lecture-cum-demonstration, Workshops on developing tools for content and programme evaluation
• Assignments, Presentations and Class Tests

Practicum

• Observe and prepare a report on evaluation practices at any two levels in (i) a Mainstream and (ii) a Special school. Critically analyze the evaluation practices.
• Develop a format for self evaluation for teachers in special or mainstream.
• Develop tools one each for Knowledge based, Performance based & Authentic evaluation for children with disabilities studying in a class or a subject of your choice.

Essential Readings

• Airasian, P.W. (1991). Classroom Assessment. Mc Graw-Hill, New York.
• American Educational Research Association, American Psychological Association, and National Council on Measurement and Education. (1999). Standards for educational and psychological testing. Washington, DC: American Educational Research Association.
• American Federation of Teachers, National Council on Measurement in Education, and the National Education Association. (1990). Standards for teacher competence in educational assessment of students. Washington, DC: Author.
• Gipps, (1996). Assessment for learning. In Little, A. and Wolf, A. (eds) Assessment in transition: Learning, monitoring and selection an international perspective. Oxford Pergamon Press, London.
• Gronlund, N.E., & Linn, R. (1990). Measurement and evaluation in teaching (6^{th} Edition). Macmillan, New York.
• Hamayan, (1995). Approaches to alternative assessment. "Annual Review of Applied Linguistics," 15, 212-226.
• Headington (2003). Monitoring, Assessment, Recording, Reporting & Accountability. II-Ed, David Fulton Pub. , London.
• Hibbard, K. M. and others. (1996). A teacher's guide to performance-based learning and assessment. Alexandria, VA: Association for Supervision and Curriculum Development.
• Mathew, S. (2005). Evaluation: curricular strategies and adaptations for children with hearing impairment. Kanishka: New Delhi.
• Mathew, S. & Mishra, A. (2010). Knowledge based evaluation of students with hearing impairment. Journal of NCED, 2(1), 26-33.
• Mathew, S. (2010). Educational Evaluation .Curriculum and teaching strategies for CWHI. MED SEDE (HI) Manual, IGNOU, New Delhi.
• Mehrens, W. A., & Lehmann, I. J. (1991). Measurement and evaluation in psychology (IVED). Harcourt Brace College Publishers, New York.
• NSW syllabuses: Assessment for, as and of Learning. Retrieved from syllabus.bos.nsw.edu.au/support.../assessment-for-as-and-of-learning on 10.4.2015
•Programme evaluation and review technique. Retrieved from http://www.inc.com/encyclopedia/program-evaluation-and-review-techniquepert.
html on 10.4.2015
•School self-evaluation. http://www.education.ie/en/Schools-Colleges/Services/Quality-Assurance/SSE-Primary-and-Post-Primary/School-Self-Evaluation.html on 10.4.2015

•School self-evaluation. Retrieved from http://schoolself-evaluation.ie/postprimary/index.php/what-school- selfevaluation/?doing_wp_cron=1429505616.9318289756774902343750 on 10.4.2015
•UNICEF (2006). New trends in development evaluation. Retrieved from http://www.unicef.org/ceecis/New_trends_Dev_EValuation.pdf on 16.4.2015
• Wiggins, G. (1993) Assessing studentsperformance.SanFrancisco:Jossey-Bass.

Suggested Readings

• Braden, J. (2001). The clinical assessment of deaf people's cognitive abilities. In clark,M. D.; Marschark, M., & Kretchmer, M.(Eds.). Context, cognition and deafness, Galludet University press, Washington. Pg.14-37.
• Elliot, S.N., Kratochwill, T. R., & Gilbertson, A. G. (1998). The Assessment Accommodation Checklist: Who, What, Where, When, Why and Who? Teaching Exceptional Children, 31(2), 10 –14.
• Eriksen, S.C. (1969). The teacher made test. Memo to the Faculty, no.35. AnnArbor: Centre for Research on learning and teaching, University of Michigan.
• Fernandez, H. (2008). Knowledge based achievement of students with hearing impairment on different types of assessment. Unpublished Master Disseratation, University of Mumbai.
• Frechtling, J.A. (1991). Performance assessment: Moonstruck or the real thing? Educational Measurement: Issues and Practices, 10(4), 23-25.
• Jacob, L. C., Chase, C. N. (1992). Developing and using tests effectively: A guide for faculty. Josse-Bass Publishers, San Francisco.
• Junaid, I.M., & Muhammad, D. N. (2002). Assessing nomadic children's learning achievement: what tools and which strategies? Retrieved from curriculum.pgwc.gov.za/resource_files/22153409_16.doc
• Linn. R.L, Baker, E. L., & Dunbar, S. B. (1991). Complex Performance based assessment. Educational Researcher, 20(8), 15-21.
• Mathew, S. (2010). Impact of Knowledge Based Evaluation on Achievement of Students with Hearing Impairment: An Experimental Study. A PhD Thesis (Unpublished), MJP Rohilkhand University.
• Meyer, C.A. (1992) .What is the difference between Authentic and Performance assessment? Educational Leadership,49(8),39-40
• Mountain, A. (2005). Science assessment of deaf students: Considerations and implications of state accountability. Measurements. MSSE Masters Project. Submitted to the National Technical Institute for the Deaf, Rochester Institute of Technology, New York.
• Musselman, C.R., Lindsey. P. H., & Wilson A. K. (1988). An evaluation of recent trends in preschool programming for hearing impaired children. Journal of Speech and Hearing Disorders, 53, 71-88.
• Nair, P. (2005). A study of the effectiveness of individualized instructional material on mastery of mathematical concepts related to time in children with hearing impairment. Unpublished Master Dissertation, University of Mumbai.
• Stiggins, R.J. (1994). Student-Centered classroom assessment. MacMillan, New York
• Tannenbaum, J.E. (1996). Practical Ideas on Alternative Assessment for ESL Students. ERIC Clearinghouse on Languages and Linguistics Washington DC, ERIC Identifier ED395500, 1-6.

ADULTHOOD AND FAMILY ISSUES

Course Code: XIII **Credits: 04**
Time of Examination: 3 Hours **Marks: 100**
Extranal-80; Internal-20

NOTE: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions carry equal marks.

Introduction

Parents are advocates, teachers, and nurturers for their children. Family members of any person with visual impairment are at a risk for emotional difficulties if their support systems or coping skills are inadequate. Learners must understand the challenges that are often associated with a family of a person with visual impairment from birth till adulthood focusing on periods of transition. Learners should be able to empower the parents with information regarding the array of educational services and supports available to the families of children with visual impairment.

Objectives

After completing the course teacher educators will be able to

• *Analyze the role of family as a support system from birth to adulthood.*
• *Discuss the concerns of the family of a person with visual impairment.*
• *Meet the challenges faced at different stages of transition of a person with visual impairment.*
• *Develop the skills to prepare an ITP and IFSP.*
• *Develop a critical understanding of schemes for equal opportunities.*

Unit 1: Role of Family in the Continuum of Support System

1.1 Adjustment and accommodation to the birth of a special child
1.2 Organization and family functioning
1.3 Family involvement in infancy and early childhood
1.4 Family involvement in school age
1.5 Family involvement in transition to adulthood

Unit 2: Transition Issues

2.1 Transition from home to school
2.2 Transition from school to college
2.3 Transition from education to work
2.4 Meaning and Definition of Individualized Transition Plan (ITP)
2.5 Role of family in developing ITP

Unit 3: Family Issues in Adulthood

3.1 Higher Education
3.2 Career Education
3.3 Life Skills Education
3.4 Marriage and home skill management
3.5 Rehabilitation of adventitious visually impaired

Unit 4: Planning Family Support Services

4.1 Concept and objectives of family support services
4.2 Components of family support services
4.3 Identifying family needs
4.4 Individualized Family Service Plan (IFSP) under PL 99-457
4.5 Preparing an IFSP in Indian context

Unit 5: Equal Opportunity Provisions: Schemes and Facilities

5.1 Schemes for education of children from pre-school to higher and tertiary education

5.2 Schemes and facilities for vocational training and skill development
5.3 Schemes and statutory provisions to promote employment, self-employment, and livelihoods
5.4 Concessions for persons with visual impairment
5.5 Concept and types of parent family partnerships

Course Work/ Practical/ Field Engagement (Any Two)

• The teacher trainees should develop an individualized transition plan for a given person with visual impairment
• The teacher trainees should develop an individualized family service plan for a family of a person with visual impairment
• The teacher trainees should critically examine any two schemes under equal opportunity schemes

Essential Readings

• Bhandari, R., & Narayan, J. (2009).Creating learning opportunities: a step by step guide to teaching students with vision impairment and additional disabilities, including deafblindness. Voice and vision: India.
• Educational Concessions and Facilities for Blind Students. National Association for the Blind: Mumbai Foundation for the Blind.
• Kirk, S.A., Gallagher, J.J., & Anstasiow, N.J. (2000). Educating Exceptional Children. Houghton Mifflin Company: New York
• Lowenfeld, B. (1973).Visually Handicapped Child in School. American Foundation for the Blind. New York.
• Lowenfeld, B. (1975). The Changing Status of the Blind from Separation to Integration. Charles C. Thomas, Springfield.
• Narayan, J., & Riggio, M. (2005). Creating play environment for children Hilton/Perkins: USA.
• Patil, H.J. (2008). (5 Ed). Concession for the Blind. National Association for the Blind: Mumbai
• Shah, A. (2008). Basics in guidance and Counselling. Global Vision Publishing House, New Delhi.
• Smith, D. D. & Luckasson, R. (1995). Introduction to Special Education – Teaching in an age of Challenge. (2 Ed). Allyn & Bacon, Boston.

Suggested Readings

• Fernald, L.D. & Fernald, P.S. (2001). Introduction to Psychology (5th ed.). A.I.T.B.S Publishers, New Delhi.
• Morgan, C.T., King, R.A., Weisz, J.R., & Schopler, J. (2002). Introduction to Psychology. (7Ed.). Tata McGraw Hill Publishing, New Delhi.
• Kundu, C.L. (2000). Status of Disability in India 2000, RCI: New Delhi.
• Lowenfeld, B. (1971). Psychological problems of children with impaired vision, Prentice-Hall, New Jersey.
• Furlong, M.J., Gilman, R. & Huebner, E.S. (2014). Handbook of Positive Psychology in Schools. Routledge, New York.
• Hilgard, E.R., Atkinson, R.C. & Atkinson, R. L. (1975). Introduction to Psychology (6th ed.) Oxford, New Delhi.

EDUCATIONAL MANAGEMENT

Course Code: XIV A **Credits: 04**
Time of Examination: 3 Hours **Marks: 100**
Extranal-80; Internal-20

NOTE: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions carry equal marks.

Introduction

Educational management is a field of study and practice concerned with the operation of educational organizations. The field draws links from diverse disciplines such as economics, general management & Information technology. The course content included in the present program hence includes inputs from varied disciplines and is envisaged to equip the learners to understand the know- how's of managing educational institutes on the basis of total quality management principles.

Objectives

After completing the course teacher educators will be able to

- *Explain the basic fundamental areas of management.*
- *Describe the skills required for enhancing institutional quality for sustained development.*
- *Enumerate the skills required for capacity building of human resources.*
- *Explain the skills needed to manage data for various information management processes.*
- *Prepare cost effective budgets, proposals and describe ways of managing financial resources.*

Unit 1: Foundations in Educational Management

1.1 Definition & Concept: Management as an art, science, organization, person & a discipline
1.2 Approaches to management; a) Classical approach, b) Human relation approach, c) Systems approach, d) Contingency approach
1.3 Principles & processes of management
1.4 Styles of management; autocratic, laissez-faire, transactional, contingency
1.5 Leader *vs.* Manager; role competencies

Unit 2: Total Quality Management in Education

2.1 Concept of Quality and issues in Quality management of educational institutes
2.2 Educational applications
2.3 Assessment of educational institutions
2.4 Strategic planning & Sustainable development
2.5 Implementing TQM

Unit 3: Human Resource Management

3.1 Manpower planning, talent acquisition & management
3.2 Employee benefits, welfare & Performance appraisals systems- 360 degree approach
3.3 Training, development & capacity building
3.4 Organisational behaviour; climate & culture
3.5 Individual & group dynamics, conflict management & negotiations

Unit 4: Educational Management Information Systems (EMIS)

4.1 Need, relevance and National agencies for EMIS
4.2 Internal & external stakeholders of EMIS
4.3 Tools & process for collecting and disseminating data & using information
4.4 Constituting indicators & data monitoring plans
4.5 Dissemination, distribution & publication of data

Unit 5: Financial Management

5.1 Need &Importance of financial management in educational institutes

5.2 Basic concepts in accounting
5.3 Importance & types of budgeting
5.4 Resource mobilisation& allocation
5.5 Proposal writing for funding in educational institutes

Transaction

Lectures, Field visits, Self-study

Course Work/ Field Work

• Proposal writing for fund raising of an educational institution
• Review performance appraisals from 2 educational institutions one each from a teacher training college and other from special school

Suggested Readings

• Bhardwaj, K. S., (2014). Human Resource Development in Education. Partridge Publication, Gurgaon.
• Bush, T., & Paul, L. S. (2006). Principles and Practice of Educational Management Chapman A Sage Publications Company, London.
• Chatterjee, B. K. (2011). Finance for Non – Finance Managers. Jaico Publishing House, New Delhi.
• Deshmukh, A.V., & Naik. A. P. (2010). Educational Management. Himalaya Publishing House Pvt. Ltd., Mumbai.
• Dessler, G. (2012). Human Resource Management. Prentice Hall, London.
• Dimmock, C. (2012). Leadership in Education: Concept, Themes and Impact. Routledge, New York.
• Leithwood, K., & Jantzi, D. (1999). Changing Leadership for Changing Times. Open University Press, London.
• Lewls, T. (2012). Financial Management Essentials: A Handbook for NGOs.
• Mathis, R. L., & Jackson, J. H. (2010). Human resource management (13th ed.).
• Mukhopadhya, M. (2011). Total Quality Management in Education. Sage publications India Pvt. Ltd. New Delhi.
• Nkomo, S. M., Fottler, M. D., & McAfee, R. B. (2010). Human resource management applications: Cases, exercises, and skill builders (7th ed.).
• Pande, S., & Basak, S. (2012). Human Resource Management. Text and Cases. Amazon Digital South Asia Services, Inc.
• Rayner, S. (2007). Managing Special and Inclusive Education. Sage Publications Ltd. London.
• Senge, P. (2007). A Fifth discipline Resource. Schools that lead: Nicholas Brealey Publishing, London.
• Senge, P.M. (1994). The fifth Discipline; The Art & Practice of The Learning Organization. Currency Doubleday, New York.
• Shapi, J. (N.K). Writing a Funding Proposal.
• Ulrich, D., & Brockbank, W. (2005). The HR Value Proposition. Boston: Harvard Business School Press. (ISBN-13: 978-1591397076 or ISBN-10: 1591397073).

EDUCATIONAL TECHNOLOGY

Course Code: XIV B **Credits: 04**
Time of Examination: 3 Hours **Marks: 100**
Extranal-80; Internal-20

NOTE: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions carry equal marks.

Objectives

After completing the course teacher educators will be able to

• *Discuss roles of Educational Technologists in various contexts.*
• *Apply appropriate instructional strategies.*
• *Develop appropriate instructional media.*
• *Integrate suitable ICT effectively in teaching-learning-evaluation.*
• *Suggest suitable modality of instruction (Online, Blended, etc.).*

Unit 1: Educational Technology

1.1 Concept, Definition and Scope of Educational Technology
1.2 Need and Role of Educational Technologists in India
1.3 Growth of conceptual framework of Educational Technology: ET1, ET2, ET3 …
1.4 Systems Approach; Meaning, Scope and Components
1.5 Communication Process
1.5.1 Meaning and components
1.5.2 Models of communication: Simple, Osgood and Schramm, Gerbner's mode
1.5.3 Interaction analysis: Equivalent Category System and Flander's Interaction Analysis System

Unit 2: Instructional Technology

2.1 Concept and Definition of Instructional Technology
2.2 Theories and Models of ISD: Dick & Carrey, Gagne, Kirk and Guftason
2.3 Steps in developing Instructional design :Learner analysis, Content analysis, Deciding entry and terminal behaviour, Preparing test, Selection of method, Selection of media, Development of material, Tryout, Formative and summative evaluation
2.4 Methods & Models Instructional designs for Large Group and Individual Instructions
2.5 Co-operative and Individual Learning Strategies for children with disabilities

Unit 3: Instructional and Interactive Learning

3.1 Interactive learning: concept, need and components
3.2 Instructional Media for children with Special needs
3.3 Interactive learning Material for children with disabilities
3.4 Development of Interactive learning Material
3.5 Integrating ICTs for children with special needs (e.g. Social Media, Collaborative tools and techniques such as Blogging, ICT tools for research, bibliography, etc)

Unit 4: ICT For Inclusion

4.1 ICT for 21st century learning
4.2 Dilemmas and Realities about applications in ICT in inclusive education
4.3 Potentials of ICT in inclusive education-Access, equity, participation, Skill development and life-long learning
4.4 ICT for teaching-learning
4.5 Role of ICT in curriculum transaction

Unit 5: Recent Trends in Technology

5.1 Online Learning

5.2 Blended Learning
5.3 M-Learning
5.4 MOOC
5.5 OER

Course Work/ Practical/ Field Engagement

• Prepare an observation report of classroom teaching based on Flanders Interaction analysis
• Prepare and plan an edcational display on a bulletin board using charts, diagrams, graphs, posters, cartoons and comics
• Prepare a story board in any one unit of a subject for a child with disability
• Present a research paper on appilcation of any one recent trend in inclusive education
• Seminar on issues in application of ICT in inclusive education

Suggested Readings

• Bhatt, B. D., & Sharma, S. R. (2003). Educational Technology concept and Technique (Modern Education Series). Kanishka Publisher, New Delhi.
• Diana, L. O. (2001). Multimedia – Based Instructional Design: Computer – Based Training. Jossey – Bass
• Horton, W. (2001). Designing web-based Training. John Wiley & Sons. New Jersey.
• Kumar, K., Kumar, S. (2004). ICT Skill Development. GBD Publications, Gurusar Sadhar.
• Mukhopadhyay, M (1990). Educational Technology Challenging Issues. Sterlings Publisher's Pvt. Ltd. New Delhi.
• Rosenberg, M.J. (2001). E-Learning. McGraw Hill, New York.
• Sallis, E., & Jones, G. (2002). Knowledge Management in Education London: Kogan Page Ltd.
• Santhosh, V. (2009). Information communications technology for teacher education. Kanishka Publisher, New Delhi.
• Schank, R.C. (2001). Virtual Learning. McGraw Hill. London.
• Shehzad, A. (2007). Teacher's Handbook of Educational Technology. Anmol, Pubishing Pvt. Ltd., New Delhi.
• Singh, T. (2009). ICT Skill Development. Tandon Brothers, Ludhiana.
• Venkataiah, N. (2002), Educational Technology. APH Publication Corporation, New Delhi.

GUIDANCE AND COUNSELLING

Course Code: XIV C **Credits: 04**
Time of Examination: 3 Hours **Marks: 100**
Extranal-80; Internal-20

NOTE: Paper setter will set 10 questions in all i.e. two from each unit. The students will be required to attempt five questions, selecting one from each unit. All questions carry equal marks.

Objectives

After completing the course teacher educators will be able to

- *State the basic concepts in Guidance & Counselling.*
- *Discuss Educational, Vocational and Personal Guidance.*
- *Describe testing devices and non-testing techniques of guidance.*
- *Analyze the problems faced by students in the contemporary world.*
- *Discuss the problems faced by children with disabilities.*

Unit 1: Education and Career Guidance

1.1 Concept, principles, Objectives and need for guidance at various educational levels
1.2 Types of Guidance: Individual and group, Personal, Educational and Vocational
1.3 Career Development needs of students. Changing scenarios in a global world
1.4 Tests and Techniques for Guidance: Testing techniques (Aptitude, Interest, Achievement & Personality) Non-testing techniques (Interview, Case study, observation, Diary, anecdotal and commutative record)
1.5 Essential services in a school guidance program

Unit 2: Vocational Guidance

2.1 Factors influencing choice of career
2.2 Theories: Vocational Choice, Vocational development and Career development theories
2.3 Assessment of Vocational maturity
2.4 Occupational information in Guidance
2.5 Guidance for students with disabilities.

Unit 3: Fundamentals of Counselling

3.1 Concept and nature of counselling
3.2 Scope and objectives of counselling
3.3 Stages of the counselling process
3.4 Counselling techniques
3.5 Ethical principles and issues

Unit 4: Group approaches in Vocational Counselling and Guidance

4.1 Types, areas and approaches of Counselling
4.2 Steps and skills in the counselling process
4.3 Advantages and Disadvantages of Group Guidance techniques
4.4 Essential services in school and community based guidance programs
4.5 Placement, research, evaluation services and Job study- i) Job description, ii) Job specification, iii) Job analysis, iv) Job satisfaction

Unit 5: Assessment in Educational and Vocational Guidance and Counselling

5.1 Assessment of underachievement and challenges
5.2 Assessment of giftedness and special strengths
5.3 Career test construction, administration, scoring and interpretation
5.4 Crisis Intervention; Grief, relationships, depression, Academic, stress, violence, abuse
5.5 Role of counsellor in the contemporary context

Course Work/ Practical/ Field Engagement

• Visit different Guidance Centres and write a report
• Review a film for counselling
• List the resources required and their optimum use in managing a school guidance programme
• Develop a career choice assessment tool in view of personal characteristics of any
• Child with disabilities and available opportunities
• Prepare a brochure on career opportunities for children with different disabilities

Essential Readings

• Naik, P.S. (2013). Counselling Skills for Educationists. Soujanya Books, New Delhi.
• Nayak, A.K. (1997). Guidance and Counselling. APH Publishing, Delhi.
• Rao, V. K., & Reddy, R.S. (2003). Academic Environment: Advice, Counsel and Activities. Soujanya Books, New Delhi.
• Shah, A. (2008). Basics in Guidance and Counselling. Global Vision Publishing House.
• Sharma, V.K. (2005). Education and Training of Educational and Vocational Guidance. Soujanya Books, New Delhi.

Suggested Readings

• Kapunan, R.R. (2004). Fundamentals of Guidance and Counselling. Rex Printing Company, Phillipines.
• Pal, O.B. (2011). Educational and Vocational Guidance and Counselling. Soujanya Books, New Delhi.

DISSERTATION

COURSE: XV **Total Credits: 2** **Marks: 50(Internal)**

Synopsis will be compulsory for all regular students. The students will work under the guidance of a supervisor to be allotted by the HOD of the Department of Education.

Synopsis Submission

The students have to develop the Research proposal (Synopsis) and present the same in the Faculty Seminar at the end of the semester.

NOTE: Synopsis and Presentation will be evaluated by Departmental Research committee (DRC)

FIELD ENGAGEMENT / INTERNSHIP
AS A TEACHER EDUCATOR

Course: XVI **Credits: 04** **Marks: 100**
Internal: 40; External:60

One Month Internship

• Internship 15 days in B.ED special education (VI). During this period the students will teach two lectures on core papers, 4 lectures in specialization papers and 2 lectures each in 2 pedagogy papers. (50 Marks)

• Plan and demonstrate co-operative teaching strategy 7 lessons in inclusive School. -- (50 Marks)

• Submit a comprehensive report on challenges faced during internship and strategies followed to address them.

SEMESTER IV

DISSERTATION

COURSE: XVII **Total Credits: 14** **Marks: 350**

Internal: 150
External: 200 (Dissertation:150+ viva-voce:50)

Dissertation will be compulsory for all regular students. The students will work under the guidance of a supervisor to be allotted by the HOD of the Department.

- **Review of Literature and Development of Tools:** The student have to conduct review of literature and develop relevant tools for their research projects. Students have to present a seminar on collected review of literature and tools developed in the faculty seminar and seek feedback and incorporate suggestions given by the faculty.
- **Data collection: S**tudents must complete data collection and data analysis.
- **Data analysis, Results Discussion and Thesis Submission: S**tudents must complete Data analysis, Results and Discussion and report writing and submit the final report at the end of the semester. The students have to submit three typed copies of Dissertation to the Department by the end of IV Semester. The viva-voce will be held on a date to be fixed by the University. Dissertation will be evaluated & viva-voce conducted by an External examiner.

NOTE: Synopsis is completed in semester III.

Field Engagement/ Internship as a Teacher Trainer

Course: XVIII **Credits: 04** **Marks: 100**
Internal:40; External:60

Field engagement

• Prepare community participatory programme (workshops for awareness programmes for public using multimedia/charts/street plays etc.) -- (50 Marks)
• conduct seminar on ICT -- (25 Marks)
• Guide and observe B.Ed. trainees in their practice lessons (at least 5 lessons) – (25 Marks @5)

OR

Work out a critical study of the teachers' training institute on quality management, resources, time table, etc. – (25 Marks)

• Prepare a Report

SYLLABUS

B.A. VOCATIONAL SEMESTER-V

MARKETING

Rural Marketing

w.e.f. 2014-2015

External Marks: 80
Internal Marks: 20
Time : 3 Hours

Note: The paper setter will set 10 questions and the candidates are required to attempt any five questions.

Nature, characteristics, opportunities and challenges to rural market in India; Rural marketing environment; Rural marketing research; Rural consumer behaviour; Segmenting rural markets; Rural marketing strategies; Rural market vs. urban market; New Product development for the rural market.

Rural marketing mix; Media planning for rural markets; Personal selling in rural market; Marketing of consumer durables and non durables; Marketing of agricultural produce; Role of information technology in rural markets.

REFERENCES

Badi, R.V and Badi, N.V: *Rural Marketing*, Himalaya Publishing House, New Delhi.
Dogra Balram and Ghuman Karminnder: *Rural Marketing*, Tata McGraw Hill New Delhi.
Gopalaswamy, T.P: *Rural Marketing*, Wheeler Publisher, New Delhi.
Gupta, S.L: *Rural Marketing*, Wisdom Publication, New Delhi.
Krishnamacharylu, C.S.G and Ramakrishnan Lalitha: *Rural Marketing*, Pearson Education, New Delhi.
Rajagopal: *Rural Marketing Management*, Discovery Publication House, New Delhi.
Singh, Sukhpal: *Rural Marketing Management*, Vikas Publishing House, New Delhi.

SYLLABUS

B.A. VOCATIONAL SEMESTER-VI

MARKETING

Retail Management

w.e.f. 2014-2015

External Marks: 80
Internal Marks: 20
Time : 3 Hours

Note: The paper setter will set 10 questions and the candidates are required to attempt any five questions.

Retailing: Concept, Characteristics, importance and functions; Theories of retailing: Retailing in India. Strategic Planning in retailing.

Retailing Formats: Classifying retail institutions according to ownership, store based and non-store based retail organizations.

Planning location of retail institution; Trading area analysis, deciding the most desirable type of location, choice of a general location, choosing and evaluating a particular site.

Human Resource Management in retailing: Objectives and function; setting up a retail organization, organizational patterns in retailing; Managing store employees.

Store Operations Management; deciding stores layout.

Store design and displays; energy management; loss prevention and security issues.

Applications of information technology in retailing.

REFERENCES

Gilbert David: *Retail Marketing Management,* Pearson Education, Delhi.
Pradhan Swapna: *Retailing Management: Text & Cases.* Tata McGraw Hill, New Delhi.
Bermans & Evans: *Retail Management – A Strategic Approach*, Prentice Hall of India, New Delhi.
Lamba: *The Art of Retailing,* Tata McGraw Hill, New Delhi.
Mcgoldrick, P.: *Retail Marketing,* McGraw Hill, U.K.

SYLLABUS

B.A. VOCATIONAL SEMESTER-V

OFFICE MANAGEMENT

Financial Accounting

w.e.f. 2014-2015

External Marks: 80
Internal Marks: 20
Time : 3 Hours

Note: The paper setter will set 10 questions and the candidates are required to attempt any five questions.

Accounting: Meaning, types, objectives, advantages and limitations; principles of financial accounting; Double entry system of book-keeping; Posting of Journal, Ledger and Subsidiary books; Bank Reconciliation Statement; Bank reconciliation statement; Trial balance; Capital and Revenue; Final accounts; Types of accounting errors; Bill of Exchange; Role of Computers in Accounting.

REFERENCES

Gupta R.L., and Radhaswamy M, *Financial Accounting*, Sultan Chand & Sons, N. Delhi.
Monga J.R., Ahuja Girish and Sehgal Ashok, *Financial Accounting*, Mayur Paper Back, Noida.
Mittal, R.K., and Bansal, M.R., *Financial Accounting*, V.K. Publications, N. Delhi.
Shukla, M.C., Grewal, T.S. and Gupta, S.C., *Advanced Accounts*, S. Chand & Company, N. Delhi.

SYLLABUS

B.A. VOCATIONAL SEMESTER-VI

OFFICE MANAGEMENT

Computer Applications in Office Management

w.e.f. 2014-2015

Max Marks: 80
Internal Assessment: 20
Time: 3 hours

Note: The paper setter will set 10 questions and the candidates are required to attempt any five questions.

Computer System: Meaning, scope, types; Basic computer organization: Central Processing Unit, input, output, and storage devices; Introduction to software; System software - operating system, user interface and its types; Application software - word processing, spreadsheets; Introduction to databases, tables, queries, reports and form generation.

Information Technology in Business: Concept of information technology; Local Area Network– media & topologies and Wide Area Networks; Electronic data processing; World Wide Web; Multimedia technologies; Video conferencing.

REFERENCES

Pradeep K Sinha, (2010) *Computer Fundamentals*,
Bajaj, Kamlesh K and Debjani Nag: *E-commerce – The Cutting Edge of Business*, Tata McGraw Hill (P) Ltd., New Delhi.
Greenstein, *Electronic Commerce*, Tata McGraw Hill, New Delhi
Leon, Alexis: *Fundamental of Information Technology*, Vikas Publication House (P) Ltd., New Delhi
Mansfield, Ron: *The Compact Guide to Microsoft Office*, BPB Publication, Delhi.
Norton, Peter: *Introduction to Computer 4/E*, Tata McGraw Hill (P) Ltd., New Delhi
Saxena, Sanjay: *A First Course in Computer*, Vikas Publication House (P) Ltd., New Delhi.

B.COM.

FOR

DISTANCE EDUCATION & PRIVATE CANDIDATES

KURUKSHETRA UNIVERSITY

KURUKSHETRA —136119

(Established by the State Legislature Act XII of 1956)

("A" Grade, NAAC Accredited)

SYLLABUS AND SCHEME OF EXAMINATION OF

B.COM. - I

w.e.f. Session 2016-17

Paper No.	Name of Paper	Internal Assessment	Theory Paper Marks	Total Marks	Time
BC-101	Business Communication	**20**	**80**	**100**	**3 Hrs.**
BC-102	Business Mathematics	**20**	**80**	**100**	**3 Hrs.**
BC-103	Financial Accounting	**20**	**80**	**100**	**3 Hrs.**
BC-104	Business Economics	**20**	**80**	**100**	**3 Hrs.**
BC-105	Business Management	**20**	**80**	**100**	**3 Hrs.**
BC-106	Basics of Computer Practical	**10** **-**	**60** **-**	**70** **30**	**3 Hrs.**
BC-107	Environmental Studies (Compulsory Qualifying Subject)			**100**	**3 Hrs.**

BC-101 **BUSINESS COMMUNICATION**

External: 80
Internal: 20
Time : 3 Hours

Note: Ten questions shall be set in the question paper with at least three questions from each unit. The candidates shall be required to attempt five questions in all, selecting at least one question but not more than two from each unit.

UNIT-I Introduction to Communication: Meaning, Concept, Importance, Basic form of communication, Process of communication, Communication Models, Theories of communication, Effective communication, Audience analysis.

Self Development and Communication: Concept, objectives, functions and importance, Development of positive personal attitudes, SWOT analysis, Interdependence, Whole communication.

Corporate Communication: Formal and informal communication networks, Barriers in communication, Kinds of barriers, Remedies to miscommunication.

Practices in Business Communication: Group discussion, Mock interview, Seminars, Effective listening exercises, individual and group presentation, Report writing.

UNIT-II Effective Communication: Meaning, importance, principles.

Writing Skills: Planning business messages, Rewriting and editing; The first draft; Reconstructing the final draft, Formats of Business letters and memo, request letters, Good news and bad news letters, Persuasive letters, Sales letters, Collection letters, Office memorandum.

Report Writing: Meaning of report, characteristics, importance, kinds of reports, format of report, report preparation.

UNIT-III Oral Presentation: Principles of oral presentation, factors affecting presentation, sales presentation, training presentation, conducting surveys, speeches to motivate effective presentation skills.

Non-Verbal Aspects of Communicating: Kinesics, Proxemics, Para language.

Effective Listening: Principles of effective listening; Factors affecting listening exercises; Oral, written and video sessions.

Interviewing Skills: Appearing in interviews; Conducting interviews; Writing resume and letter of application.

Modern Forms of Communicating: Fax, E-mail; Video conferencing; etc.

International Communication: Cultural sensitiveness and cultural context; Writing and presenting in international situations; Inter-cultural factors in interactions; Adapting to global business.

Time Management and Stress Management: Meaning, Causes and Techniques

Suggested Readings:

1. Bovee and Thill: *Business Communication Today,* Tata Mc-Graw Hill, New Delhi.
2. Balasubramanyam: *Business Communications;* Vikas Publishing House, Delhi.
3. Kaul: *Business Communication;* Prentice Hall, New Delhi.
4. Kaul: *Effective Business Communication;* Prentice Hall, New Delhi.
5. Patri VR: *Essentials of Communication;* Greenspan Publications, New Delhi.
6. Ronald E. Dulek and John S. Fielder: *Principles of Business Communication;* Macmillan Publishing Company, London.
7. Randall E. Magors: *Business Communication;* Harper and Row, New York.
8. Robinson, Netrakanti and Shintre: *Communicative Competence in Business English;* Orient Longman, Hyderabad.
9. Senguin J: *Business Communication;* The Real World and Your Career, Allied Publishers, New Delhi.
10. *Webster's* Guide to *Effective Letter Writing;* Harper and Row, New York.

BC-102 BUSINESS MATHEMATICS

External: 80
Internal: 20
Time : 3 Hours

Note: Ten questions shall be set in the question paper with at least three questions from each unit. The candidates shall be required to attempt five questions in all, selecting at least one question but not more than two from each unit.

UNIT-I Calculus: (Problems and theorems involving trigonometrical ratios are not to be done).

Differentiation: Partial derivatives up to second order; Homogeneity of functions and Euler's theorem; Total differentials; Differentiation of implicit function with the help of total differentials. Maxima and Minima; Cases of one variable involving second or higher order derivatives; Cases of two variables involving not more than one constraint.

Integration: Integration as anti-derivative process; Standard forms; Methods of integration *by* substitution by parts and by use of partial fractions; Definite integration; Finding areas in simple bases, Consumers and producers surplus; Nature of Commodities Learning Curve; Leontiff Input-Output Model.

UNIT-II Matrices and Determinants: Definition of a matrix, Types of matrices; Algebra of matrices; Properties of determinants; Calculation of values of determinants upto third order; Adjoint of a matrix, elementary row or column operations; Finding inverse of a matrix through adjoint and elementary row or column operations; Solution of a system of linear equations having unique solution and involving not more than three variables.

UNIT-III Linear Programming Formulation of LPP: Graphical method of solution; Problems relating to two variables including the case of mixed constraints; Cases having no solution, multiple solutions, unbounded solution and redudant constraints.

Simplex Method: Solution of problems up to three variables, including cases of mixed constraints, Duality; Transportation Problem.

Compound Interest and Annuities: Certain different type of interest rates; Concept of present value and amount of a sum; Types of annuities; Present value and amount of an annuity, including the case of continuous compounding; Valuation of simple loans debentures; Problems relating to sinking funds.

Suggested Readings:

1. Allen, R.G.D. : *Basic Mathematics;* Macmillan, New Delhi.
2. Dowling, E.T. : *Mathematics for Economics;* Schaum Series, McGraw Hill, London.
3. Holden: *Mathematics for Business and Economics;* Macmillan India, New Delhi.
4. Kapoor, V.K.: *Business Mathematics;* Sultan Chand & Sons. Delhi.
5. Loomba, Paul: *Linear Programming.* Tata McGraw Hill, New Delhi.
6. Soni, R.S.: *Business Mathematics;* Pitamber Publishing House.
7. Vohra, N.D.; *Quantitative Techniques in Management;* Tata McGraw Hill, New Delhi.

BC-103 FINANCIAL ACCOUNTING

External: 80
Internal: 20
Time : 3 Hours

Note*:* Ten questions shall be set in the question paper with at least three questions from each unit. The candidates shall be required to attempt five questions in all, selecting at least one question but not more than two from each unit.

UNIT-I Meaning and Scope of Accounting: Need, development and definition of accounting; Book keeping and accounting; Persons interested in accounting; Disclosures; Branches of accounting; Objectives of accounting.

Accounting Principles: International accounting standards (only outlines); Accounting principles; Accounting standards in India (only outlines).

Accounting transactions: Accounting Cycle; Journal; Rules of debit and credit; Compound journal entry, Opening entry; Relationship between journal and ledger; Rules regarding posting; Trial balance; Sub-division of journal.

Capital and Revenue: Classification of Income; Classification of expenditure, Classification of receipts, Accounting concepts and Income measurement; Expired cost and income measurement.

Final accounts: Manufacturing accounts; Trading account; Profit and loss account; Balance Sheet, Adjustment entries.

Rectification of errors: Classification of errors; Location of errors; Rectification of errors; Suspense account; Effect on profit.

UNIT-II Depreciation Provisions, and Reserves: Concept of depreciation; Causes of depreciation; Depreciation depletion, amortization, and dilapidation; Depreciation accounting; Methods of recording depreciation, Methods for providing depreciation; Depreciation of different assets; Depreciation of replacement cost, Depreciation policy as per Accounting Standard; Depreciation Accounting; Provisions and reserves.

Accounts of Non Trading Institutions: Income and expenditure account, Receipt and payment account, Balance Sheet.

Special Accounting Areas

Consignment Accounts: Important terms; Accounting records; Valuation of unsold stock; Conversion of consignment into branch.

Joint Venture Accounts: Meaning of joint venture; Joint venture & partnership; Accounting records.

Branch Accounts: Dependent Branch; Debtors system, stock and debtor system; Final accounts system; Wholesale branch; Independent branch; Foreign branch.

UNIT-III Hire-purchase and installment purchase system: Meaning of hire-purchase contract; Legal provisions regarding hire-purchase contract; Accounting records for goods of substantial sale value, and accounting records for goods of small value; Installment purchase system, After sales service.

Partnership Accounts: Essential characteristics of partnership; Partnership deed; Final accounts; Adjustments after closing the accounts; Fixed and fluctuating capital, Goodwill; Joint Life Policy, Change in Profit Sharing Ratio.

Reconstitution of a partnership firm - Admission of a partner; Retirement of a partner; Death of a partner; Amalgamation of partnership firms; Dissolution of a partnership firm - Modes of dissolution of a firm; Accounting entries; Insolvency of partners; Sale of firm to a company; Gradual realization of assets and piecemeal distribution.

Suggested Readings:

1. Anthony, R.N. and Reece, J.S. : *Accounting Principles;* Richard Irwin Inc.
2. Gupta, R.L. and Radhaswanmy, M.: *Financial Accounting;* Sultan Chand and Sons, New Delhi.
3. Monga, J.R. Ahuja, Girish and Sehgal, Ashok : *Financial Accounting;* Mayur Paper Back, Noida.
4. Shukla, M.C., Grewal, T.S. and Gupta, S.C. : *Advanced Accounts;* S. Chand & Co. New Delhi.
5. *The Institute of Chartered Accountants of India:* Compendium of Statement and Standards of Accounting, New Delhi.

BC-104 BUSINESS ECONOMICS

External: 80
Internal: 20
Time : 3 Hours

Note*:* Ten questions shall be set in the question paper with at least three questions from each unit. The candidates shall be required to attempt five questions in all, selecting at least one question but not more than two from each unit.

UNIT-I Introduction: Concept of business economics, nature, significance and application; Marginal utility analysis; Indifference curves analysis.

Elasticity of Demand: Concept and measurement of elasticity of demand; Price, income and cross elasticities, average revenue, marginal revenue, and elasticity of demand; Determinants of elasticity of demand; Importance of elasticity of demand.

Production Function: Law of variable proportions; Iso-quants; Economic regions and optimum factor combination; Expansion path; Returns to scale; Internal and external economies and diseconomies; Ridge lines.

UNIT-II Theory of Costs: Short-run and long-run cost curves - traditional and modern approaches.

Market Structures: Market structures and business decisions; Objectives of a business firm.

(a) Perfect Competition: Profit maximization and equilibrium of firm and industry; Short run and long-run supply curves; Price and output determination. Practical applications.

(b) Monopoly: Determination of price under monopoly; Equilibrium of a firm, Comparison between perfect competition and monopoly; Multi-plant monopoly; Price discrimination, Practical applications.

(c) Monopolistic Competition: Meaning and characteristics; Price and output determination under monopolistic competition; Product differentiations, Selling costs, Comparison with perfect competition; Excess capacity under monopolistic competition.

(d) Oligopoly: Characteristics, indeterminate pricing and output; Classical models of oligopoly; Price leadership; Collusive oligopoly; Kinked demand curve.

UNIT-III Factor Pricing: Marginal Productivity theory and demand for factors; Nature of supply of factor inputs; Determination of wage rates under perfect competition and monopoly; Exploitation of labour; Rent- concept; Ricardian and modern theories of rent; Quasi-rent. Interests - concept and theories of interest; Profit - nature, concepts and theories of profit.

Suggested Readings:

1. Ahuja, H.L.: *Business Economics:* S. Chand & Co. New Delhi.
2. Browning Edger K. and Browning Jacquenlence, M.: *Micro-economic Theory and Applications;* Kalyani, New Delhi.
3. Fitgler G.: The Theory of Price: Prentice Hall of India.
4. Ferguson, P.R. and Rothschild, R. and Ferguson, G.J.: *Business Economics;* Macmillan, Hampshire.
5. John P. Gonld Jr. and Edward P. Lazear : *Micro-economic Theory;* All India Traveller, Delhi.
6. Koutsoyianni A. : *Modern Micro-economics;* Macmillan, New Delhi.
7. Nellis & Parker: *The Essence of Business Economic' s;* Prentice Hall, New Delhi.

8. Richard G. Lipsly: *An Introduction to Positive Economics;* ELBS, Oxford.
9. Watson Donald S. and Getz Molcolm: *Price Theory and Its Uses,* Khosla Publishing House, New Delhi.

BC-105 BUSINESS MANAGEMENT

External: 80
Internal: 20
Time : 3 Hours

Note*:* Ten questions shall be set in the question paper with at least three questions from each unit. The candidates shall be required to attempt five questions in all, selecting at least one question but not more than two from each unit.

UNIT-I Introduction: Concept, nature, process and significance of management; Managerial roles; An overview of functional areas of management; Development of management thought; Classical and neo-classical systems; contingency approaches.

Planning: Concept, process, and types. Decision-making-concept and process.

Bounded rationality, Management by objectives, Corporate planning; Environment analysis and diagnosis; Strategy formulation.

UNIT-II Organizing: Concept, nature, process, and significance; Authority and responsibility relationships; Centralization and decentralization; Departmentation; Organization structure forms and contingency factors.

Motivation: Motivation concept; Financial and non-financial incentives.

Leadership: Concept and leadership-styles; leadership theories.

Communication: nature, process, networks, and barriers, Effective communication.

UNIT-III Managerial Control: Concept and process; Effective control system; Techniques of control- traditional and modern.

Management of Change: Concept, nature and process of planned change: Resistance of change, Emerging horizons of management in a changing environment.

Suggested Readings:

1. Andrew J. Dubrin, Management, Cengage Learning, New Delhi.
2. Bancevish, J.M. and Matleson, M.T. : *Organizational Behaviour & Management;* Irwin Homewood, Illinois.
3. Drucker, Peter F. : *Management Challenges for the 21st Century;* Butterworth Heinemann, Oxford.
4. Louis A. Allen : *Management and Organization;* McGraw Hill, Tokyo.
5. Maslow, Abraham : Motivation and Personality; Harper & Row, New York, 1954.
6. Stoner and Freeman : Management; Prentice-Hall, New Delhi.
7. Koontz Harold, Cyril O Donnell, and Heinz Weihrich: *Essentials of Management;* Tata McGraw Hill, New Delhi.
8. Thomas S. Bateman and Scott A. Snell: Management, Tata McGraw Hill Publishing Company Ltd., New Delhi.

BC-106 BASICS OF COMPUTER

(A) Theory

External: 60
Internal: 10
Time : 3 Hours

Note*:* Ten questions shall be set in the question paper with at least three questions from each unit. The candidates shall be required to attempt five questions in all, selecting at least one question but not more than two from each unit.

Unit-I Computer: Definition, Characteristics of Computers, Basic Applications of Computer, Generations of computers. Components of Computer System: Central Processing Unit (CPU), input/output Devices, computer Memory: primary and secondary memory, magnetic and optical storage devices, Concepts of Hardware and Software.

Unit-II Software – introduction; Types – Systems, application, utility software. Operating system – definition, types and functions. Introduction to Windows. Operating system for Tabs, mobile

phones – Android, etc. Concept of open source software. Introduction to word-processor and spreadsheet.

Unit-III Computer networks – concept, types and topologies. Software and hardware for computer networking. Internet- concept and evolution, www, URL, etc. E-commerce – concept and types – B2B, B2C, C2C, G2B, G2C, etc. Introduction to M-commerce, e-banking, and e-governance.

Suggested Readings:

1. Rajaraman V.; Adabaka Neegarika, Fundamentals of Computers, 6th ed, Prentice Hall of India, New Delhi

2. Sinha P.K., Sinha Priti, "Computer Fundamentals", Fourth Edition, BPB Publications, New Delhi.

3. Saini A.K., Kumar Pradeep, "Computer Applications in Management", Anmol Publications Pvt. Ltd., New Delhi, 2009.

(B) Practical External: 30

Max. Marks: 30
Time : 3 Hours

(B) **Practical:** Windows 8, MS Word, MS Excel, MS Powerpoint.

BC-107

SCHEME AND SYLLABUS FOR THE SUBJECT OF ENVIRONMENTAL STUDIES

The "Six month module syllabus for Environmental Studies for U.G. Courses" supplied by the UGC for the subject was approved for adoption in the Universities of the State. The subject is to be taught in 1st year of the U.G. Course.

The subject of Environmental studies will be included as a qualifying paper in all UG Courses (including professional courses also) from the session 2004-05 and the students will be required to qualify the same otherwise the **final result** will not be declared and **degree** will not be awarded.

Since the module syllabus for Environmental Studies for U.G. Courses supplied by the UGC has been adopted in to, the scheme of examination proposed by the UGC has been approved by the Vice-Chancellor along with the syllabus of the course under section 11(5) of KU Act, 1986 so that the same becomes operative from the session 2004-05.

Credit System: The core course will be awarded 4 credits.

Exams. Pattern: In case of awarding the marks, the question paper should carry 100 marks. The structure of the question paper being:

Paper-I	PART-A Marks	:	Short Answer Pattern	25
	PART-B Marks	:	Essay type with inbuilt choice	50
Paper -II	PART-C Marks	:	Field Work (Practical)	25

Annual System: The examination of this compulsory qualifying subject of Environmental Studies in case of the DCC candidates will also be conducted by the Examination Branch of the University along with the annual examinations of other theory papers of the DCC candidates of the respective UG streams. With regard to the Field Work (Practical), the DCC candidates will be required to submit a Report of Practical Assignment of around 20 pages neatly written/typed, duly bound by 30 March of the session which will be got evaluated by the Examination Branch of the University as in case of Practical Assignments/Project Report submitted by the DCC candidates of other courses.

SIX MONTHS COMPULSORY CORE MODULE COURSE IN ENVIRONMENTAL STUDIES: FOR UNDERGRADUATES

PCP/Contact Classes:

The subject of Environmental Studies will also be taken up in the PCPs/Contact classes to be arranged by the University/Service Providers at their Study Centres/Study Centres in the affiliated colleges of the University with number of lectures at par with other subjects/papers of the respective courses.

Each candidate will be required to score minimum of 35% marks each in theory and Practical separately. The marks obtained in this qualifying paper will not be included in Determining the percentage of marks/division obtained by them for the award of **'degree'.** However, these will be shown in the detailed marks certificate of the student.

The candidates, who will not be able to pass in the subject of Environmental Studies (Theory and/or Field Work (Practical) in 1st year will have to qualify the same by appearing in the examination of Environmental Studies in 2nd year or 3rd year or thereafter by submitting a separate examination form and examination fee of Rs. 50/- as an ex-student as in the case of 'Reappear/Compartment candidates. There will, however, be no supplementary examination in the subject of Environmental Studies.

Teaching Methodologies

The Core Module Syllabus for Environmental Studies includes class room teaching and Field Work. The syllabus is divided into eight units. The first seven unit will cover lectures to enhance knowledge skills and attitude to environment. Unit eight is based on field activities which will provide students first hand knowledge on various local environmental aspects. Field experience is one of the most effective learning tools for environmental concerns. This moves out of the scope of the next book mode of teaching into the realm of oral learning in the field, where the teacher merely acts as a catalyst to interpret what the student observes or discovers in his/her own environment. Field studies are as essential as class work and form an irreplaceable synergistic tool in the entire learning process.

Course material provided by UGC for classroom teaching and field activities be utilized.

The Universities/colleges can also draw upon expertise of outside resource persons for teaching purposes.

Environmental Core Module shall be integrated into the teaching programmes of all undergraduate courses.

Suggested Readings:

1. Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.
2 Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt. Ltd., Ahmedabad -380013, India, Email: mapin@icenet. net (R).
3. Brunner R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc. 480p.
4. Clerk B.S., Marine Pollution, Clanderson Pross Oxford (TB).
5. Cunningham, W.P.Cooper, T.H. Gorhani, E & Hepworth, M.T.2001, Environmental Encyclopedia, Jaico Pub!. House, Mumbai, 1196p.
6. De A.K., Environmental Chemistry, Wiley Eastern Ltd.
7. Down to Earth, Centre for Science and Environment (R).
8. Gleick, H.P. 1993. Water in crisis, Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute. Oxford University Press. 473p
9. Hawkins RE, Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay (R).
10. Heywood, V.H & Watson, R.T. 1995. Global Biodiversity Assessment. Cambridge University Press 1140p.
11. Jadhav, H. & Bhosale, V.M. 1995. Environmental Protection and Laws. Himalaya Pub. House, De!hi 284p.
12. Mckinney, M.L. & Schoch, R.M. 1996. Environmental Science Systems & Solutions, Web enhanced edition. 639p.
13. Mhaskar A. K., Matter Hazardous, Techno-Science Publications (TB).
14. Miller T.G. Jr., Environmental Science, Wadsworth Publishing Co. (TB).
15. Odum, E.P. 1971. Fundamentals of Ecology, W.B. Saunders Co. USA, 574p.
16. Rao, M.N. & Datta, A.K. 1987. Waste Water treatment. Oxford & IBH Pub!. Co. Pvt. Ltd. 345p.
17. Sharma, B.K., 2001. Environmental Chemistry. Goel Publ. House, Meerut.
18. Survey of the Environment, The Hindu (M).
19. Townsend C., Harper J., and Michael Began, Essentials of Ecology, Blackwell Science (TB).
20. Trivedi R.K., Handbook of Environmental Laws, Rules, Guidelines Compliances and Standards, Vol. I and II, Enviro Media (R).
21. Trivedi R.K. and P.K. Goel, Introduction to air Pollution, Techno-Science Publications (TB)
22. Wagner K.D., 1998. Environmental Management. W.B. Saunders Co. Philadelphia, USA 499p.

(M) Magazine
(R) Reference
(TB) Textbook

CORE MODULE SYLLABUS FOR ENVIRONMENTAL STUDIES FOR UNDER GRADUATE COURSES OF ALL BRANCHES OF HIGHER EDUCATION (AS APPROVED BY THE U.G.C.)

Note: **Part-A** Question 1 is **compulsory** and will contain ten short-answer type question of 2.5 marks each covering the entire syllabus.

Part-B Eight essay type questions (with inbuilt choice) will be set from the entire syllabus and the candidates will be required to answer any four of them. Each essay type question will be of the 12-1/2 marks.

UNIT-1: The Multidisciplinary nature of environmental studies Definition; Scope and importance, Need for public awareness.

UNIT-2: Natural Resources:

Renewable and non-renewable resources:
Natural resources and associated problems.

a) Forest resources: Use and Over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.
b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams benefits and problems.
c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.
e) Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources, Case studies.
f) Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification.

- Role of an individual in conservation of natural resources.
- Equitable use of resources for sustainable lifestyles.

UNIT-3: Ecosystems

- Concept of an ecosystem.
- Structure and function of an ecosystem.

- Producers, consumers and decomposers.
- Energy flow in the ecosystem.
- Ecological succession.
- Food chains, food webs and ecological pyramids.
- Introduction, types, characteristic features, structure and function of the following ecosystem: -
  a. Forest ecosystem
  b. Grassland ecosystem
  c. Desert ecosystem
  d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries).

UNIT-4: Biodiversity and its Conservation

- Introduction-Definition: genetic, species and ecosystem diversity.
- Biogeographical classification of India.
- Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values.
- Biodiversity at global, National and local levels.
- India as a mega-diversity nation.
- Hot-spots of biodiversity.
- Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts.
- Endangered and endemic species of India.
- Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

UNIT-5: Environmental Pollution:
Definition

- Causes, effects and control measures of: -
  a. Air pollution
  b. Water pollution
  c. Soil pollution
  d. Marine pollution
  e. Noise pollution
  f. Thermal pollution
  g. Nuclear hazards
- Solid waste Management: Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution.
- Pollution case studies.
- Disaster management: floods, earthquake, cyclone and landslides.

UNIT-6: Social Issues and the Environment

- From Unsustainable to Sustainable development.
- Urban problems related to energy.
- Water conservation, rain water harvesting, watershed management.
  Resettlement and rehabilitation of people; its problems and concerns. Case studies.
- Environmental ethics: Issues and possible solutions.
- Climate change, global warming, acid rain, ozone layer depletion, nuclear
  accidents and holocaust. Case studies.
- Wasteland reclamation.
- Consumerism and waste products.
- Environment Protection Act.
- Air (Prevention and Control of Pollution) Act.
- Water (Prevention and Control of Pollution) Act.
- Wildlife Protection Act. - Forest Conservation Act.
- Issues involved in enforcement of environmental legislation Public awareness.

UNIT-7: Human Population and the Environment

- Population growth, variation among nations.
- Population explosion-Family welfare Programme.
- Environment and human health.
- Human Rights.
- Value Education.
- HIV/AIDS.
- Women and Child Welfare.
- Role of information Technology in Environment and human health.
- Case Studies.

UNIT-8: Field Work (Practical).

- Visit to a local area to document environmental assets-river/forest/grassland/hill/mountain.
- Visit to a local polluted site-
  Urban/Rural/Industrial/Agricultural.
- Study of common plants, insects, birds.
- Study of simple ecosystems-pond, river, hill slopes, etc.

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SYLLABUS AND SCHEME OF EXAMINATION OF

B.Com. Part-II

w.e.f. Session 2017-18

Paper No.	Name of Paper	Internal Assessment	Theory Paper Marks	Total Marks	Time
BC-201	Business Laws	20	80	100	3 Hours
BC-202	Corporate Accounting	20	80	100	3 Hours
BC-203	Company Law & Auditing	20	80	100	3 Hours
BC-204	Business Statistics	20	80	100	3 Hours
BC-205	(i) Principles of Marketing or (ii) Human Resource Management	20	80	100	3 Hours
BC-206	(i) Indian Financial System or (ii) Fundamental of Insurance	20	80	100	3 Hours

BC-201 BUSINESS LAWS

External: 80
Internal : 20
Time : 3 Hours

Note : Ten questions shall be set in the question paper with at least three questions from each unit. The candidates shall be required to attempt five questions in all, selecting at least one question but not more than two from each unit.

Unit-I The Indian Contract Act, 1872 : Nature of contract; Classification; Offer and acceptance; Capacity of parties to contract; Free consent; Consideration; Legality of object; Agreement declared void; Performance of contract; Discharge of contract, Remedies for breach of contract.
Special Contracts : Indemnity; Guarantee; Bailment and pledge; Agency.

Unit-II Sale of Goods Act, 1930 : Formation of contracts of sale; Goods and their classification, price; conditions, and warranties; Transfer of property in goods; Performance of the contract of sales, Unpaid seller and his rights, sale by auction; Hire purchase agreement.

Partnership Act, 1932, An Overview of Right to Information Act, 2005 (RTI).

Unit-III Negotiable Instrument Act, 1881: Definition of negotiable instruments; Features; Promissory note; Bill of exchange & cheque; types of crossing; Dishonour and discharge of negotiable instrument.
The Consumer Protection Act, 1986: Salient features; Definition of consumer; Grievance redressal machinery.
Foreign Exchange Management Act, 2000: Definitions and main provisions.

Suggested Readings:

1. Chadha, P.R. : Business Law, Galgotia, New Delhi.
2. Desai T.R. : Indian Contract Act, Sale of Goods Act and Partnership Act, S.C. Sarkar & Sons Pvt. Ltd., Kolkata.
3. Khergsamwala, J.S. : The Negotiable Instrument Act; N.M. Tripathi, Mumbai.
4. Kuchhal, M.C. : Business Law, Vikas Publishing House, New Delhi.
5. Kapoor, N.D. : Business Law, Sultan Chand & Sons, New Delhi.
6. Singh, Avtar : The Principles of Mercantile Law , Eastern Book Company, Lucknow.

BC-202 CORPORATE ACCOUNTING

External: 80
Internal : 20
Time : 3 Hours

Note : Ten questions shall be set in the question paper with at least three questions from each unit. The candidates shall be required to attempt five questions in all, selecting at least one question but not more than two from each unit.

Unit-I Final accounts of Companies : Excluding Computation of Managerial Remuneration; Valuation of Goodwill and Shares.

Issue, Forfeiture and Re-issue of Shares : Redemption of Preference Shares; Issue and Redemption of Debentures.

Unit-II Accounting for Amalgamation Absorption of Companies as per Indian Accounting Standard 14; Accounting for internal reconstruction; excluding re-construction schemes; Consolidated Balance Sheet of Holding Companies with one Subsidiary only.

Unit-III Liquidation of companies. Accounts of Banking and Insurance Companies. Accounts relating to Insurance Claims.

Suggested Readings:

1. Agarwala, A.N., Agarwala K.N. : Higher Science of Accountancy : Kitab Mahal.
2. Gupta, R.L. Radhaswamy, M : Company Accounts; Sultan Chand and Sons, New Delhi.
3. Maheshwari, S.N. : Corporate Accounting; Vikas Publishing House, New Delhi.
4. Monga, J.R. : Ahuja, Girish, and Sehgal, Ashok; Financial Accounting; Mayur Paper Back. Noida.
5. Moora, C.L., and Jaedick, R.K. : Managerial Accounting; South Western Publishing Co., Cincinnati, Ohio.
6. Shukla, M.C., Grewal, T.S., and Gupta, S.C. : Advanced Accounts; S. Chand & Co., New Delhi.

BC-203 COMPANY LAW AND AUDITING

External: 80
Internal : 20
Time : 3 Hours

Note : Ten questions shall be set in the question paper with at least three questions from each unit. The candidates shall be required to attempt five questions in all, selecting at least one question but not more than two from each unit.

Unit-I Introduction - Meaning, characteristics & Types of companies; Promotion and incorporation of companies; Memorandum of association, Articles of Association, Prospectus; Share Capital, Membership, Borrowing powers, mortgages and charges.

Unit-II Introduction: Meaning and Objectives of auditing; Types of audit; Internal audit.

Audit process: audit programme; Working papers and evidences;

Routine checking and test checking

Internal Check System

Vouching; Verification of assets and liabilities.

Unit-III Audit of Limited companies-Company auditor-appointment, powers, duties and liabilities, auditor report; Investigation-meaning, nature and importance.

Directors-Appointment, powers and Legal position.

Company meetings-kinds, quorum, voting, resolutions, minutes

Suggested Readings:

1, Gower, L.C.B. : Principles of Modern Company Law : Stevens & Sons, London.

2. Gupta, Kamal : Contemporary Auditing; Tata McGraw Hill, New Delhi.

3. Kuchal, M.C. : Modern India Company Law, Shri Mahavir Books, Noida.

4. Kapoor, N.D. : Company Law- Incorporating the Provision of the Companies Amendment Act, 2000; Sultan Chand & Sons New Delhi.

5. Ramaiya, A. : Guide to the Companies Act; Wadhwa & Co., Nagpur.

6. Singh, Avtar : Company Law : Eastern Book Co., Lucknow.

7. Tandon B.N. : Principles of Auditing; S. Chand and Co., New Delhi.

BC-204 BUSINESS STATISTICS

External: 80
Internal : 20
Time : 3 Hours

Note : Ten questions shall be set in the question paper with at least three questions from each unit. The candidates shall be required to attempt five questions in all, selecting at least one question but not more than two from each unit.

Unit-I Introduction : Statistics as a subject; Statistical Data: meaning and types, Collection and Rounding of data, Classification and Presentation of data.

Analysis of Univariate Data: Construction of a frequency distribution; concept of central tendency and dispersion-and their measures; Skewness and measures; Kurtosis and measures.

Analysis of Bivariate Data: Regression and Correlation Analysis.

Unit-II Index Numbers: Meaning, types and uses; Methods of constructing price and quantity indices (simple and aggregate); Tests of adequacy; chain-base index numbers; Base shifting, splicing, and deflating; Problems in constructing index numbers; Consumer price index.

Time Series: causes of Variations in time series data; Components of a time series; Decomposition-additive and multiplicative models; determination of trend, Moving averages method and method of least squares (including linear second degree, parabolic and exponential trend); Computation of seasonal-indices by sample averages, ratio-to-trend, ratio-to moving average and link relative methods.

Unit-III Theory of Probability: Probability as a concept; approaches of probability; addition and multiplication laws of probability; Conditional probability; Bayes' Theorem.

Probability distributions: Binomial, Poisson and Normal distributions-their properties and parameters.

Suggested Readings:

1. Hooda, R.P.: Introduction to Statistics, Macmillan, New Delhi, 2002.
2. Hooda, R.P.: Statistics for Business and Economics, Macmillan, New Delhi, 1999.

3. Hoel & Jassen : Basic Statistics for Business and Economics; John Wiley and Sons, New York, 1992.
4. Lewin and Rubin: Statistics for Management; Prentice-Hall of India, New Delhi, 2000.
5. Sancheti, D.C. and Kapoor, V.K. : Statistics (Theory, Methods & Application); Sultan Chand 86 Sons, Delhi, 2000.
6. Ya-Lin Chau : Statistical Analysis with Business and Economics : Applications, Holt, Reinhart & Winster, 1997.

BC-205 (i) PRINCIPLES OF MARKETING

External: 80
Internal : 20
Time : 3 Hours

Note : Ten questions shall be set in the question paper with at least three questions from each unit. The candidates shall be required to attempt five questions in all, selecting at least one question but not more than two from each unit.

Unit-I Introduction : Nature and scope of marketing, Importance of marketing as a business function, and in the economy; Marketing concepts-traditional and modern; Selling vs. Marketing, marketing mix; Marketing environment.

Consumer Behaviour and Market Segmentation : Nature, scope, and significance of consumer behaviour; Market segmentation-concept and Importance; Bases for market segmentation.

Unit-II Product : Concept of product, consumer and industrial goods; Product planning and development; Packaging-role and functions; Brand name and trade mark; after-sales service; Product life cycle concept.

Price: Importance of price in the marketing mix. Factors affecting price of a product/service; Discounts and rebates, Pricing methods.

Unit-III Distributions Channels and Physical Distribution : Distribution channels-concept and role; Types of distribution channels; Factors affecting choice of a distribution channel; Retailer and wholesaler; Physical distribution of goods; transportation; Warehousing. Inventory control; Order processing.

Promotion : Methods of promotion; Optimum Promotion Mix; Advertising Media, their relative merits and limitations; Characteristics of an effective advertisement; Personal selling, publicity; Sales promotion and public relations.

Recent trends in marketing; Online marketing; Changing retailing scenario.

Suggested Readings:

1. Kotler, Phillip and Gary Armstrong: Principles of Marketing; Prentice-Hall of India, New Delhi.
2. Pride, Willian M. and Ferrel, O.C. : Marketing; Houghton, Mifflin, Boston.
3. Stanton, W.J., Etzel Michael J. and Walker Bruce J.: Fundamentals of Marketing, Tata McGraw-Hill.
4. Saxena, Rajan: Marketing Management, Tata McGraw Hill.
5. Ramaswamy V.S., Namakumari S., Marketing Management: Global Perspective Indian Context, McGraw Hill, New Delhi.

BC-205 (ii) HUMAN RESOURCE MANAGEMENT

External: 80
Internal : 20
Time : 3 Hours

Note : Ten questions shall be set in the question paper with at least three questions from each unit. The candidates shall be required to attempt five questions in all, selecting at least one question but not more than two from each unit.

Unit-I Human Resource Management: Concept, benefits and prerequisites. Difference between personnel management and HRM. Functions and status of human resource manager; Role of line managers in developing human resources; Personnel policies, procedures and programmes; Human resource planning; Job analysis; Job evaluation.

Unit-II Recruitment: Steps in recruitment, recruitment policy, sources and methods of recruitment.

Selection Process and Policy; Career Planning: objective and responsibilities, process, prerequisites, advantages and limitations of career planning, career problems and their solutions; Training and development: concept and importance of training, training methods/techniques; Performance appraisal: objectives, importance, process, appraisal methods.

Unit-III Wage and Salary Administration; promotion, transfer, demotion, separation; Employee absenteeism and labour turnover; HRD practices in Indian Industries;

Concept of Industrial relations in India.

Suggested Readings:

1. B.P. Singh, T.N. Chhabra and P.L. Taneja: Personnel Management and Industrial Relations, Dhanpat Rai and Co., New Delhi.
2. C.B. Mamoria: Personnel Management, Himalaya Publishing House, New Delhi.
3. K. Aswathappa: Human Resource and Personnel Management; Tata McGraw Hill; New Delhi.
4. R.S. Dwivedi: Management of Human Resources. Galgotia Publications.
5. V.S.P. Rao: Human Resource Management: Text and Cases, Excel Books.

BC-206 (i) INDIAN FINANCIAL SYSTEM

External: 80
Internal : 20
Time : 3 Hours

Note : Ten questions shall be set in the question paper with at least three questions from each unit. The candidates shall be required to attempt five questions in all, selecting at least one question but not more than two from each unit.

Unit-I Money : Functions theories and money supply in India. Finance : sources and role of finance in Economic development, Indian Financial system : Components, financial intermediaries, capital and money markets and their instruments. Methods for Note issues in India.

Unit-II Indian Banking System : Definition of bank, commercial banks-importance, functions and problems of Non-performing assets, structure of commercial banking system in India. Regional Rural Banks, cooperative banking in India.

Credit Creation : Process of Credit creation functions and its limitations.

Development Banks-their features and functions. State Level Development Banks : Objectives, functions and their role. Non Banking Financial Institutions.

Unit-III Reserve Bank of India: Functions, regulation and Control of credit, monetary policy.

Determination and regulation and Interest rates in India.

Venture capital, credit rating. Merchant Banking.

Institutional financing in India: UTI, LIC and GIC; Objectives, functions investment policies, and role in Industrial financing.

Mutual Fund: Meaning, Role, Importance, Types, SEBI Guidelines.

Suggested Readings:

1. Chandle, L.V. and Goldfeld, S.M.: The Economic of Money and Banking, Harper and Row, New York.
2. Gupta, S.B.: Monetary Planning of India; S. Chand, New Delhi.
3. Khan, M.Y.: India Financial System-Theory and Practice; Tata McGraw Hill, New Delhi.
4. Report on Currency and Finance.
5. Sengupta, A.K. and Agarwal, M.K.: Money Market Operations in India; Skylark Publication, New Delhi.

BC-206 (ii) FUNDAMENTALS OF INSURANCE

External: 80
Internal : 20
Time : 3 Hours

Note : Ten questions shall be set in the question paper with at least three questions from each unit. The candidates shall be required to attempt five questions in all, selecting at least one question but not more than two from each unit.

Unit-I Introduction to Insurance: life and general insurance; purpose, need and principles of insurance; Insurance as a social security tool; insurance and economic development. An overview of IRDA Act 1999; Regulation of Insurance Business in India.

Contract of Life Insurance: principles and practice of life assurance; Parties to the contract and their rights and duties. Conditions and terms of policy and effects of non-compliance thereof. Present structure & growth of Life insurance in India. Claims settlement procedure.

Unit-II Fire Insurance: basic principles of Fire Insurance contracts. Fire insurance policy, conditions, assignment of policy, claims settlement procedure.

Marine Insurance – Marine insurance policy and its conditions, premium, double insurance; assignment of policy warranties, voyage; loss and abandonment; partial losses and particular charges; salvage; total losses and measures of indemnity; claims settlement procedure.

Unit-III Accident and motor insurance: policy and claims settlement procedure.

Insurance Intermediaries – role of agents and procedure for becoming an agent; cancellation of license; revocation / suspension / termination of agent appointment; code of conduct; unfair practices.

Suggested Readings:

1. Godwin – *Principles and Practices of Fire Insurance*.
2. Gupta, O.S., *Life Insurance, Frank Brothers*, New Delhi.
3. *Insurance Regulatory Development Act*, 1999.
4. Karam Pal, Bodla B.S. & Garg M.C., *Insurance Management,* Deep & Deep Publications, New Delhi.
5. Life Insurance Corporation Act, 1956.
6. Mishra, M.N., *Insurance Principles and Practice*; S. Chand and Co., New Delhi.
7. Mishra, M.N., *Life Insurance Corporation of India*, Vols. I, II & III, Raj Books, Jaipur.
8. Vinayakam N. Radhaswamy and Vasudevan, S.V.: *Insurance-Principles and Practice*, S. Chand and Co., New Delhi.

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SYLLABUS AND SCHEME OF EXAMINATION OF

B.COM. Part-III

w.e.f. Session 2018-19

Paper No.	Name of Paper	Internal Assessment	Theory Paper Marks	Total Marks	Time
BC-301	Income Tax	20	80	100	3 Hours
BC-302	Cost Accounting	20	80	100	3 Hours
BC-303	Financial Management	20	80	100	3 Hours
BC-304	Business Environment	20	80	100	3 Hours
BC-305	(i) Financial Market Operations or (ii) Investment Management	20	80	100	3 Hours
BC-306	(i) Advertising and Sales Management or (ii) International Marketing	20	80	100	3 Hours

BC-301 **INCOME TAX**

External Marks: 80
Internal Marks: 20
Time : 3 Hours

Note: Ten questions shall be set in the question paper with at least three questions from each unit. The candidates will be required to attempt five questions in all, selecting at least one question but not more than two from each unit.

Unit-I Basic Concepts; Income, agricultural income, casual income, assessment year, previous year, gross total income, total income, Assessee; Tax evasion, avoidance, and tax planning.
Basis of Charges: Scope of total income, residence and tax liability, income which does not form part of total income.
Heads of Income: Salaries, Income from house property.

Unit-II Profit and gains of business or profession, including provisions relating to specific business, Capital gains; Income from other sources. Deduction under section 80C to 80U in Computing Total Income.

Unit-III Clubbing and Aggregation of Income, Set-off and Carry Forward of Losses. Tax Management; Tax deduction at source; Advance of tax; Assessment procedures. Tax Administration; Authorities, appeals, and revision, penalties and prosecution. Recovery of Tax and Refund of Tax Fringe benefits.

Suggested Readings:

1. Chandra Mahesh and Shukla D.C.: Income Tax.
2. Dinker Pagare: Income Tax Law and Practice.
3. Girish Ahuja and Ravi Gupta: Systematic Approach.
4. Mehrotra H.C.: Income Tax Law & Account.
5. Prasad, Bhagwati: Income Tax Law & Practice.
6. Singhania V.K.: Student's Guide to Income Tax.

BC-302 **COST ACCOUNTING**

External Marks: 80
Internal Marks: 20
Time : 3 Hours

Note: Ten questions shall be set in the question paper with at least three questions from each unit. The candidates will be required to attempt five questions in all, selecting at least one question but not more than two from each unit.

Unit-I Introduction: Nature and scope of cost accounting; Cost concepts and classification; Methods and techniques; Installation of costing system; Concept of cost audit.
Accounting for Material: Pricing of material issues; Treatment of material losses, Material control: Concept and techniques.
Accounting for Labour: Labour cost control procedure; Labour turnover; Idle time and overtime; Methods of wage payment-time and piece rates; Incentive schemes.

Unit-II Accounting for Overheads: Classification and departmentalization; Absorption of overheads; Determination of overhead rates; under and over absorption and its formations.
Cost Ascertainment: Unit costing including tender price and reconciliation of cost and financial accounts.

Unit-III Operating costing; Process costing-including inter-process profits (excluding equivalent production) and joint and by-products; Cost records: Integral and non-integral system: Standard Costing and variance analysis-Material and labour variance only; Budgetary control. Marginal Costing and Break-even analysis.

Suggested Readings:

1. Anthony Robert, Reece, Principles of Management Accounting; Richard D. Irwin Inc. Illinois.
2. Arora M.N., Cost Accounting-Principles and Practice, Vikas, New Delhi.
3. Horngren, Charles, Foster and Dalar, Cost Accounting – A Managerial Emphasis, Prentice Hall of India, New Delhi.
4. Jain S.P. and Narang K.L., Cost Accounting Kalyani, New Delhi.
5. Kaplan R.S. and Atkinson A.A., Advanced Management Accounting, Prentice India International, New Delhi.
6. Khan M.Y. and Jain P.K., Management Accounting; Tata McGraw Hill, New Delhi.
7. Maheshwari S.N., Advanced Problems and Solutions in Cost Accounting, Sultan Chand & Co., New Delhi.
8. Tulsian P.C., Practical Costing, Vikas, New Delhi.

BC-303 **FINANCIAL MANAGEMENT**

External Marks: 80
Internal Marks: 20
Time : 3 Hours

Note: Ten questions shall be set in the question paper with at least three questions from each unit. The candidates will be required to attempt five questions in all, selecting at least one question but not more than two from each unit.

Unit-I Financial Management: Meaning, nature, scope and significance of financial management. Objectives of financial management: Profit vs. Wealth maximization. Functions of financial manager. Financial planning: Need, types and importance of financial planning. Process of financial planning. Determination of financial needs of a business.
Sources of finance – short term and long-term. Capitalisation: Over capitalization and under capitalization

Unit-II Cost of Capital: Significance of cost of capital; Calculating cost of debt, equity and preference share capital and retained earnings. Weighted (combined) cost of capital.
Management of working capital: Need of working capital, nature and significance of working capital. Excess and inadequate working capital. Factors determining working capital, Estimation of working capital.
Capital Structure, Determinants and Theories.

Unit-III Capital Budgeting Decisions: Nature of capital budgeting decisions, Capital budgeting methods, Payback period, Accounting rate of return. NPV and IRR & Profitability index method.
Leverage: Operating, financial and combined.
Dividend Decisions: Nature and issues in dividend decisions, Forms & determinants of dividend, Dividend models: Walters Model, Gordon's model and M.M. hypothesis.

Suggested Readings:

1. Anthony Robert, Reece, Principles of Management Accounting; Richard D. Irwin Inc. Illinois.
2. Arora M.N., Cost Accounting-Principles and Practice; Vikas, New Delhi.
3. Horngren, Charles, Foster and Dalar, Cost Accounting – A Managerial Emphasis, Prentice Hall of India, New Delhi.
4. Jain S.P. and Narang K.L., Cost Accounting, Kalyani, New Delhi.
5. Khan M.Y. and Jain P.K., Management Accounting; Tata McGraw Hill, New Delhi.
6. Kaplan R.S. and Atkinson A.A., Advanced Management Accounting, Prentice India International, New Delhi.
7. Kishore Ravi, M., Financial Management, Taxmanns Publication, New Delhi.

BC-304 **BUSINESS ENVIRONMENT**

External Marks: 80
Internal Marks: 20
Time : 3 Hours

Note: Ten questions shall be set in the question paper with at least three questions from each unit. The candidates will be required to attempt five questions in all, selecting at least one question but not more than two from each unit.

Unit-I Business Environment: Concept, components, and importance. Environmental scanning techniques; Special Economic Zones, SEZ ACT 2005.
Economics Systems, Economic Planning- Concept, Types of plans, five year plans. Planning Mechanism for developing five year plans in India.
Economic Trends (overview): Income, Savings and investment, Industry, Trade and balance of payments, Money, Finance, Prices.
Problems of growth: Unemployment; Poverty; Regional imbalances; Social Injustice; Inflation; Parallel economy, Industrial sickness-meaning, causes, remedial measures, SICA.

Unit-II Role of Government in Indian Economy: Monetary and fiscal policy; Industrial policy; Industrial Licensing; Export-Import Policy, Foreign Investment and Collaborations.
SEBI – Objectives and Functions.

Unit-III International Business Environment: International environment (overview); Trends in world trade and the problems of developing countries; Foreign trade and economic growth.
International Economic Institutions –WTO, UNCTAD, World Bank, IMF; Regional Economic groupings: meaning, types and advantages.

Suggested Readings:

1. Aggarwal A.N., Indian Economy, Vikas Publishing House, Delhi.
2. Dutt R. and Sundharam K.P.M., Indian Economy, S. Chand, Delhi.
3. Dutt Ruddar: Economic Reforms in India-A Critique; S. Chand, New Delhi.
4. Hedge Ianl, Environment Economics, Macmillan, Hampshire.
5. Khan Farooq A.L., Business and Society, S.Chand, Delhi.
6. Misra S.K. and Puri V.K., Indian Economy, Himalaya Publishing House, New Delhi.
7. Mishra, S.K. and Puri V.K., Business Environment, Himalaya Publishing House, New Delhi.
8. Sundaram & Black, The International Business Environment, Prentice Hall, New Delhi.
9. Saleem Seikh, Business Environment, Pearson Education, Delhi.
10. Faisal Ahmed and M. Absar Alam: Business Environment, Prentice Hall of India Ltd., Delhi.

BC-305(i) **FINANCIAL MARKET OPERATIONS**

External Marks: 80
Internal Marks: 20
Time : 3 Hours

Note: Ten questions shall be set in the question paper with at least three questions from each unit. The candidates will be required to attempt five questions in all, selecting at least one question but not more than two from each unit.

Unit-I An overview of financial markets in India
Money market; Indian Money Market's composition and structure; Acceptance houses, discount houses, and Call money market, Recent trends in Indian Money Market.
Capital Market: New issue market, Secondary market; Functions and role of stock exchange; Listing procedure and legal requirements; Public issue-pricing and marketing; Stock exchanges – National Stock Exchange and over-the-counter exchange.

Unit-II Securities Contracts (Regulation) Act, 1956: Main provisions.
Investors Protection: Grievances concerning stock exchange dealings and their removal; grievance cells in stock exchanges; SEBI; Company Law Board; Press; Remedy through courts.

Unit-III Functionaries on stock exchanges: Brokers, sub-brokers, market makers, jobbers, portfolio consultants, institutional investors, and NRIs.
Financial services: Merchant banking-functions and roles, SEBI guidelines; Credit rating-concepts, functions and types.

Suggested Readings:

1. Bhole L.M., Financial Markets and Institutions, Tata McGraw Hill, New Delhi.
2. Chandler M.V. and Goldfeld S.M., Economics of Money and Banking, Harper and Row, New York.
3. Gupta Suraj B., Monetary economics, S. Chand and Co., New Delhi.
4. Gupta Suraj B., Monetary Planning in India, Oxford, Delhi.
5. Hooda R.P., Indian Securities Market-investors view point, Excel Books, New Delhi.
6. R.B.I., Functions and Working.
7. R.B.I., Report of the Committee to Review the Working of the Monetary System: Chakravarty Committee.
8. R.B.I., Report on Currency and Finance.

BC-305(ii) **INVESTMENT MANAGEMENT**

External Marks: 80
Internal Marks: 20
Time : 3 Hours

Note: Ten questions shall be set in the question paper with at least three questions from each unit. The candidates will be required to attempt five questions in all, selecting at least one question but not more than two from each unit.

Unit-I Investment: meaning, nature and process; Investment alternatives; Concept and measurement of Investment risk and return, Identification of Investment Opportunity; Stock Exchange; Functions, trading system, Regulation and listing of securities.

Unit-II Fundamental analysis: Company analysis, industry analysis and economy analysis; Technical vs Fundamental analysis; Implications for investment decision-making; Technical analysis; Dow theory, charting techniques, volume indicators

Valuation of Securities: equity, bonds and convertible securities; Random Walk Theory, Meaning and forms of Stock Market Efficiency: weak form, semi-strong form and strong form, Bond analysis: Yield to maturity, term structure of interest rates and bond market efficiency.

Unit-III Diversification: meaning, gains from diversification; Markowitz's mean-variance criterions, Sharpe Model, Capital Assets Pricing Model (CAPM); capital market line, securities market line; Investment performance evaluation-Sharpe, Treynor and Jensen models.

Options and Futures: Meaning, nature and difference between options and Futures, Forms and types of Option and Futures contracts, advantages and limitations of options and futures.

Suggested Readings:

1. Bhalla, V.K. Security Analysis and Portfolio Management, Sultan Chand, New Delhi.
2. Fischer, Donald E. and Jordan, Ronald J. Security analysis and Portfolio Management, Prentice Hall, New Delhi.
3. Fuller, Russell J. and Farrell, James L. Modern Investments and Security analysis. McGraw Hill, International Edition (finance services) New York.
4. Sharpe, William F., Alexander, Gordon, J. and Baily, Jafery vs. Investments Prentice Hall of India, New Delhi.

BC-306(i) ADVERTISING AND SALES MANAGEMENT

External Marks: 80
Internal Marks: 20
Time : 3 Hours

Note: Ten questions shall be set in the question paper with at least three questions from each unit. The candidates will be required to attempt five questions in all, selecting at least one question but not more than two from each unit.

Unit-I Communication Process: Basic communication process, role of source; Encoding and decoding of message, media, audience, feedback, and noise.
Advertising and Communication mix: Different advertising functions; Types of advertising; Economic and social aspects of advertising; advertising process-an overview; setting advertising objectives and budget.

Unit-II Creative aspects of Advertising: Advertising appeals, copy writing, headlines, illustration, message, copy types.
Advertising Media: Different types of media; Media planning and scheduling.
Impact of Advertising: Advertising agency roles, relationship with clients, advertising department; Measuring advertising effectiveness; Legal and ethical aspects of advertising.

Unit-III Sales Management: Personal Selling and Salesmanship, Organising the sales efforts; Sales Budget, Sales Quotas; and Sales Territories.

Suggested Readings:

1. Aaker David A, Batra Rajeev, Myers G., Advertising Management, Prentice Hall of India, New Delhi.
2. Asker, David and Myers John G., Advertising Management, Prentice Hall of India, New Delhi.
3. Border W.H., Advertising, John Wiley, N Y.
4. Cundiff Still and Govani: Sales Management, Prentice Hall, New Delhi.
5. Oglvy D., Ogivy on Advertising, Longman Publication.
6. Rorsiter John R. and Percy Larry, Advertising and Promotion Management; McGraw Hill , New York.
7. Sengupta Subroto, Brand Positioning Strategies for Competitive Advantage, Tata McGraw Hill, New Delhi.
8. Skill, Richarcd R., Gundiff, Edwars W & Govani, Norman A.P., Sales Management, PM.
9. Sundage, Fryburger, Rotzoll, Advertising Theory and Practice, AITBS, New Delhi.

BC-306(ii) **INTERNATIONAL MARKETING**

External Marks: 80
Internal Marks: 20
Time : 3 Hours

Note: Ten questions shall be set in the question paper with at least three questions from each unit. The candidates will be required to attempt five questions in all, selecting at least one question but not more than two from each unit.

Unit-I Introduction: meaning, scope and importance of International Marketing; Domestic marketing vs International marketing; International Marketing Environment: economic, cultural, political & legal environment; Identifying and selecting foreign markets, foreign market entry mode decision.

Unit-II Product Planning for International Market: Product designing; Standardisation and Adaptation, New Product Development, Branding, Packaging and Labelling and Quality issues.

International Pricing: Factors influencing international price; Pricing process, International price quotation and payment terms.

Unit-III Promotion of Product Abroad: Sales Literature, Direct Mail, Personal Selling, Advertising, Trade Fairs and Exhibitions

International Distribution: Management of Distribution Channels and Logistics, Selection and Appointment of Foreign sales Agents

Suggested Readings:

1. Bhattacharyya and Varsney, *International Marketing Management*, Sultan Chand
2. Bhattacharyya, *Export Marketing Strategies for Success*, Global Press
3. Cateora, Philip, *International Marketing*, Tata McGraw Hill
4. Joshi, R M, *International Marketing*, Oxford University Press
5. Keegan, *Multinational Marketing Management*, Prentice Hall
6. Kotler, *Principles of Marketing*, Prentice Hall
7. Kriplani*, International Marketing,* Prentice Hall
8. Paliwala, *The Essence of International Marketing*, Prentice Hall
9. Paul, Justin and Ramneek Kapoor, *International Marketing*, Tata McGraw Hill.

Kurukshetra University, Kurukshetra

Scheme of Examination for Master in Physical Education

Semester-I

Credits= 26 **Total Marks = 800**

Paper Code	Subjects	Type of Course	Contact Hours Per Week			Credit			Examination Scheme			Total	Duration of Exam
			Theory	Practical	Total	Theory		Total	Internal Assessment	Theory	Practical		
MPEd-101	Research Process in Physical Education	CCC	04	--	04	04	3 hours	04	20	80	--	100	3 hours
MPEd-102	Principles of Sports Training	CFC	04	--	04	04	3 hours	04	20	80	--	100	3 hours
MPEd-103	Kinesiology	CFC	04	--	04	04	3 hours	04	20	80	--	100	3 hours
MPEd-104	Health Education and Sports Nutrition	CCC	04	--	04	04	3 hours	04	20	80	--	100	3 hours
MPEd-105	Yogic Science	CCC	04	--	04	04	3 hours	04	20	80	--	100	3 hours
MPEd-106	Practicum: (i) Athletics	CCC	--	05	05	--	2.5	2.5	--	--	100	100	--
MPEd-107	(ii) Game	CCC	--	05	05	--	2.5	2.5	--	--	100	100	--
MPEd-108	(iii) Health Education	CCC	--	01	01	--	0.5	0.5	--	--	50	50	--
MPEd-109	(iv) Yoga	CCC	--	01	01	--	0.5	0.5	--	--	50	50	--
Total			20	12	32	20	06	26	100	400	300	800	

C.C.C = Compulsory Core Course **C.F.C = Compulsory Foundation Course**

Kurukshetra University, Kurukshetra

Scheme of Examination for Master in Physical Education

Semester-II

Credits= 26 **Total Marks = 800**

Paper Code	Subjects	Type of Course	Contact Hours Per Week			Credit			Examination Scheme			Total	Duration of Exam
			Theory	Practical	Total	Theory		Total	Internal Assessment	Theory	Practical		
MPEd -201	Research Process in Physical Education	CCC	04	--	04	04	3 hours	04	20	80	--	100	3 hours
MPEd -202	Physiology of Exercise	CFC	04	--	04	04	3 hours	04	20	80	--	100	3 hours
MPEd -203	Applied Statistics in Physical Education and sports	CFC	04	--	04	04	3 hours	04	20	80	--	100	3 hours
MPEd -204	Physical Fitness and Wellness	CCC	04	--	04	04	3 hours	04	20	80	--	100	3 hours
MPEd -205	Information & Communication Technology(ICT) in Physical Education	CCC	04	--	04	04	--	04	20	80	--	100	3 hours
MPEd -206	Practicum: (i) Athletics	CCC	--	05	05	--	2.5	2.5	--	--	100	100	--
MPEd -207	(ii) Game	CCC	--	05	05	--	2.5	2.5	--	--	100	100	--
MPEd -208	(iii) Exercise Physiology	CCC	--	01	01	--	0.5	0.5	--	--	50	50	--
MPEd -209	(iv) Applied Statistic and ICT	CCC	--	01	01	--	0.5	0.5	--	--	50	50	--
Total			20	12	32	20	06	26	100	400	300	800	--

C.C.C = Compulsory Core Course **C.F.C = Compulsory Foundation Course**

Kurukshetra University, Kurukshetra

Scheme of Examination for Master in Physical Education

Semester-III

Credits= 26 **Total Marks = 800**

Paper Code	Subjects	Type of Course	Contact Hours Per Week			Credit			Examination Scheme			Total	Duration of Exam
			Theory	Practical	Total	Theory	Practical	Total	Internal Assessment	Theory	Practical		
MPEd -301	Sports Psychology	CCC	04	--	04	04	--	04	20	80	--	100	3 hours
MPEd -302	Sports Medicine	CFC	04	--	04	04	--	04	20	80	--	100	3 hours
MPEd -303	Tests, Measurement and Evaluation in Physical Education	CFC	04	--	04	04	--	04	20	80	--	100	3 hours
MPEd -304	Athletic Care and Rehabilitation	CCC	04	--	04	04	--	04	20	80	--	100	3 hours
MPEd -305	Education Technology in Physical Education	CCC	04	--	04	04	--	04	20	80	--	100	3 hours
MPEd -306	Practicum: (i) Game – I	CCC	--	05	05	--	2.5	2.5	--	--	100	100	--
MPEd -307	(ii) Game - II	CCC	--	05	05	--	2.5	2.5	--	--	100	100	--
MPEd -308	(iii) Sports Psychology	CCC	--	01	01	--	0.5	0.5	--	--	50	50	--
MPEd -309	(iv) Tests, Measurement and Evaluation in Physical Education	CCC	--	01	01	--	0.5	0.5	--	--	50	50	--
Total			20	12	32	20	06	26	100	400	300	800	--

C.C.C = Compulsory Core Course **C.F.C = Compulsory Foundation Course**

Kurukshetra University, Kurukshetra

Scheme of Examination for Master in Physical Education

Semester-IV

Credits= 26 **Total Marks = 800**

Paper Code	Subjects	Type of Course	Contact Hours Per Week			Credit			Examination Scheme			Total	Duration of Exam
			Theory	Practical	Total	Theory	Practical	Total	Internal Assessment	Theory	Practical		
MPEd -401	Sports Journalism and Mass Media	CCC	04	--	04	04	--	04	20	80	--	100	3 hours
MPEd -402	Value and Environmental Education	CFC	04	--	04	04	--	04	20	80	--	100	3 hours
MPEd -403	Sports Engineering	CFC	04	--	04	04	--	04	20	80	--	100	3 hours
MPEd -404	Sports Management and Curriculum Designs in Physical Education	CCC	04	--	04	04	--	04	20	80	--	100	3 hours
MPEd -405	Dissertation	CCC	04	--	04	04	--	04	20	80	--	100	--
MPEd -406	Practicum: (i) Game – I	CCC	--	05	05	--	2.5	2.5	--	--	100	100	--
MPEd -407	(ii) Game - II	CCC	--	05	05	--	2.5	2.5	--	--	100	100	--
MPEd -408	(iii) Class Room Teaching	CCC	--	02	02	--	01	1.0	--	--	100	100	--
Total			20	12	32	20	06	26	100	400	300	800	--

C.C.C = Compulsory Core Course **C.F.C = Compulsory Foundation Course**

M. P. Ed. –Syllabus

Semester – I

Theory Courses

M.P.Ed- 101: Research Process in Physical Education

Time: Three Hours Total Marks: 100 (Theory Marks: 80 + Internal Assessment :20)

Note: *Paper setter is required to set 2 questions from each Unit - I, II, III and IV. Unit - V consists of 10 questions of short answers distributed from all over the syllabus. The candidates are required to attempt one question from each Unit – I, II, III & IV carrying 15 marks for each question. Unit - V is compulsory for all consisting 2 marks of each short answer.*

Unit – I: Introduction

Meaning and Definition of Research, Need and importance of Research in Physical Education and Sports, Characteristics of Research in Physical Education & Sports.

Types of Research: Analytical, Descriptive, Experimental, Qualitative and Meta Analysis.

Research Problem: Meaning of the term Research Problem, location and criteria of Selection of Problem, Formulation of a Research Problem, Limitations and Delimitations.

UNIT II – Concept of Sampling and Hypothesis

Meaning and Definition of Sample and Population.

Types of Sampling: Probability Methods- Systematic Sampling, Cluster sampling, Stratified Sampling. Area Sampling, Multistage Sampling.

Non- Probability Methods: Convenience Sample, Judgement Sampling, Quota Sampling.

Meaning and definition of Hypothesis, Importance Hypothesis in research, Types of Hypothesis, Type 1 and Type 2 errors in Hypothesis testing.

UNIT-III Review of related literature

Survey of Related Literature: Need for surveying related literature, Kinds of Related Literature, Literature Sources – Primary and Secondary, Steps in Literature Search. Writing of Literature review.

Variables: Meaning and Definition of Variables, types of variables: Dependent, Independent, Control, Extraneous, Moderator and Predictor, Source of variables.

Unit – IV Ethical Issues and tools in Research

Ethical Issues in Research: Areas of Scientific Dishonesty, Ethical Issues regarding Copyright, Responsibilities of Researchers, Working Ethics with Faculty, Protecting Human Participants.

Tools of Research: Observation, Interviews, questionnaires, opinion or attitude scales, Psychological Tests and Personality Inventories.

Suggested Readings:

Best J. W (1971) Research in Education, New Jersey; Prentice Hall, Inc
Clarke David. H & Clarke H, Harrison (1984) Research processes in Physical Education, New Jersey; Prentice Hall Inc.

Craig Williams and Chris Wragg (2006) Data Analysis and Research for Sport and Exercise Science, Londonl Routledge Press
Jerry R Thomas & Jack K Nelson (2000) Research Methods in Physical Activities; Illonosis; Human Kinetics;
Kamlesh, M. L. (1999) Reserach Methodology in Physical Education and Sports, New Delhi Moses, A. K. (1995) Thesis Writing Format, Chennai; Poompugar Pathippagam
Rothstain, A (1985) Research Design and Statistics for Physical Education, Englewood Cliffs: Prentice Hall, Inc
Subramanian, R, Thirumalai Kumar S & Arumugam C (2010) Research Methods in Health, Physical Education and Sports, New Delhi; Friends Publication
Moorthy A. M. Research Processes in Physical Education (2010); Friend Publication, New Delhi

Semester – I
Theory Courses
M.P.Ed- 102: Scientific Principles of Sports Training

Time: Three Hours Total Marks: 100 (Theory Marks: 80 + Internal Assessment: 20)

Note: *Paper setter is required to set 2 questions from each Unit - I, II, III and IV. Unit - V consists of 10 questions of short answers distributed from all over the syllabus. The candidates are required to attempt one question from each Unit – I, II, III & IV carrying 15 marks for each question. Unit - V is compulsory for all consisting 2 marks of each short answer.*

Unit-I: Training load, adaptation and recovery:

a) Training of Load: Meaning and Charactertics of training load

b) Adaptation - Meaning, conditions for adaptation of training load.

c) Over load - Meaning and causes, Symptoms of overload, tackling overload.

d) Recovery - Meaning and phases of recovery, Methods of recovery.

UNIT –II: Development of various motor components:

a) Strength: - Meaning, Different types of Strength**,** Methods of improving different forms of Strength (Maximum Strength, Explosive Strength and Strength Endurance).

b) Speed: - Different types of Speeds, Methods of improving different types of Speed abilities.

c) Endurance: - Different types of Endurance**,** Methods of improving different types of Endurance abilities.

d) Flexibility: - Different types of Flexibility, Methods of improving different types of Flexibility abilities.

e) Co-ordinative Abilities: - Methods of improving different forms of co-ordinative abilities.

UNIT – III: Technique and Tactical Training:

a) Meaning and definition of technique, skill, and style.

b) Aim of technique and tactical training in different sports.

c) Different phases of technique training.

d) Charactertics and implications of different phases of technique training.

e) Methods of technique and tactical training.

UNIT – IV: Training Plans, Periodisation and Competition

a) Meaning of Training Plan and cyclecity of training: - Macro Cycle, Meso Cycle and Micro Cycle. Training session plan.

b) Periodisation: Meaning, Aim, Contents/Parts of Periodisation, Type of Periodisation.

c) Competition: Importance and Preparation (Direct and Psychological preparations)

REFERENCES:

Beotra Alka, (2000), Drug Education Handbook on Drug Abuse in Sports. Delhi: Sports Authority of India

Bunn, J.N. (1998) Scientific Principles of Coaching, New Jersey Engle Wood Cliffs, Prentice Hall Inc.

Cart, E. Klafs & Daniel, D. Arnheim (1999) Modern Principles of Athletic Training St. Louis C.V. Mosphy Company

Daniel, D. Arnheim (1991) Principles of Athletic Training, St. Luis, Mosby Year Book

David R. Mottram (1996) Drugs in Sport, School of Pharmacy, Liverpool: John Moore University

Gray, T. Moran (1997) – Cross Training for Sports, Canada: Human Kinetics

Hardayal Singh (1991) Science of Sports Training, New Delhi, DVS Publications

Jensen, C.R. & Fisher A.G. (2000) Scientific Basic of Athletic Conditioning, Philadelphia

Ronald, P. Pfeiffer (1998) Concepts of Athletics Training 2nd Edition, London: Jones and Bartlett Publications

Yograj Thani (2003), Sports Training, Delhi: Sports Publications

Semester – I
Theory Courses
M.P.Ed- 103: Kinesiology

Time: Three Hours **Total Marks: 100 (Theory Marks: 80 + Internal Assessment: 20)**

Note: *Paper setter is required to set 2 questions from each Unit - I, II, III and IV. Unit - V consists of 10 questions of short answers distributed from all over the syllabus. The candidates are required to attempt one question from each Unit – I, II, III & IV carrying 15 marks for each question. Unit - V is compulsory for all consisting 2 marks of each short answer.*

Unit – I: Introduction

(i) Meaning, importance and scope of Kinesiology in Physical Education.
(ii) Meaning of axis and planes.
(iii) Types of axis and planes.
(iv) Medical Terminology of Body Position
(v) Terminologies of different Body movements

Unit – II: Muscles of various regions

(i) Functional classification of Skelton Muscles
(ii) Origin, Insertion and Actions of Muscles present on back and abdominal region:
Latissimus Dorsi, Trapezius, Rhomboid Major, Rhomboid Minor and Rectus Abdominal
(iii) Origin, Insertion and Actions of Muscles of Hip region
Gluteus maximus, Gluteus medius and Gluteus minimus Muscles
(iv) Origin, Insertion and Action of Muscles present on Neck region
Sternocleidomastoid muscle

Unit - III: Joints of Upper Extremity

(i) Shoulder joint – Structure, Ligaments, Muscle reinforcement and Movements.
(ii) Elbow joint - Structure, Ligaments, Muscle reinforcement and Movements.
(iii) Origin, Insertion and Actions of Muscles present on upper extremity:
Deltoid, Biceps, Triceps and Pactroralis Major.

Unit - IV: Joints of Lower extremity

(i) Hip Joint - Structure, Ligaments, Muscle reinforcement and Movements.
(ii) Knee joint – Structure, Ligaments, Muscle reinforcement and Movements.
(iii) Origin, Insertion and Action of Muscles present on lower extremity:
Hamstrings group of Muscles, Quadriceps group of Muscles, Sartorius Muscle, Gastrocnemius Muscle

Suggested Readings:

1. Gowitzke, B.A and Milner, M (1988). Scientific Basis of Human Movement (3rd. ed.) Baltimore: Williams and Wilkins.
2. Groves, R and Camaine, D. (1983). Concepts in Kinesiology. (2nd.ed) Philadelphia: Saunders College Publishing.
3. Hay, J. & Reid, J (1982). The Anatomical and Mechanical Basis of Human Motion. Englewood Cliffs: Prentice – Hall
4. Luttegens, Kathryn, Deutsch, Helga, Hamilton, Nancy. Kinesiology- Scientific Basis of Human Motion. 8th. Ed., Brown & Bench mark.
5. Rasch, P. (1989) Kinesiology and Applied Anatomy. Philadelphia: Lea & Febiger.
6. Thompson, C. (1985). Manual of Structural Kinesiology. (10th. ed.) St. Louis: Times Mirror/ Mosby College Publishing.

Semester – I
Theory Courses
M.P.Ed- 104: Health Education and Sports Nutrition

Time: Three Hours Total Marks: 100 (Theory Marks: 80 + Internal Assessment: 20)

Note: *Paper setter is required to set 2 questions from each Unit - I, II, III and IV. Unit - V consists of 10 questions of short answers distributed from all over the syllabus. The candidates are required to attempt one question from each Unit – I, II, III & IV carrying 15 marks for each question. Unit - V is compulsory for all consisting 2 marks of each short answer.*

Unit – I: Health Education

Definition of Health, Dimensions and Determinants of Health, Health Education, Health Instruction, Health Supervision Aim, objective and Principles of Health Education, Health Service and guidance instruction in personal hygiene, Care of skin, Nails, Eye health service, Nutritional service, Health appraisal, Health record, Healthful school environment, first- aid and emergency care in different conditions.

Unit – II: Health Problems in India

Effect of Alcohol on Health, Effect of Tobacco on Health, Effect of different types of drugs on Health, Meaning of Hypertension, Causes of Hypertension, Management of Hypertension, Meaning of Diabetics, Types of Diabetics, Causes of Diabetics, Management of Diabetics, Meaning of Stress, Causes of stress, management of Stress, Objective of school/college health service, Role of health education in school/college.

Unit – III- Introduction to Sports Nutrition

Meaning and Definition of Sports Nutrition, Role of nutrition in sports, Basic Nutrition guidelines, Nutrients: Ingestion to energy metabolism (Carbohydrate, Protein and Fat), Role of carbohydrates, Fat and protein during exercise. Calories in different food stuffs. Preparation of diet chart for Sports personal, normal male and female, children and elderly persons.

Unit – IV Nutrition and Weight Management

Concept of BMI (Body mass index), Meaning of Obesity, Causes of Obesity, Management of Obesity, Obesity and its hazard, Dieting versus exercise for weight control, maintaining a Healthy Lifestyle, Weight management program for children, adolescence, adulthood and elderly. Role of diet and exercise in weight management, Design diet plan and exercise schedule for weight gain and loss.

Suggested Readings:

Bucher, Charles A. "Administration of Health and Physical Education Programme". Delbert, Oberteuffer, et. al." The School Health Education".
Ghosh, B.N. "Treaties of Hygiene and Public Health".

Hanlon, John J. "Principles of Public Health Administration" 2003. Turner, C.E. "The School Health and Health Education".

Moss and et. At. "Health Education" (National Education Association of U.T.A.) Nemir A. 'The School Health Education" (Harber and Brothers, New York). Nutrition Encyclopedia, edited by Delores C.S. James, The Gale Group, Inc.

Boyd-Eaton S. et al (1989) The Stone Age Health Programme: Diet and Exercise as Nature Intended. Angus and Robertson.
Terras S. (1994) Stress, How Your Diet can Help: The Practical Guide to Positive Health Using Diet, Vitamins, Minerals, Herbs and Amino Acids, Thorons.

Semester – I
Theory Courses

M.P.Ed - 105: Yogic Science

Time: Three Hours **Total Marks: 100 (Theory Marks: 80 + Internal Assessment: 20)**

Note: *Paper setter is required to set 2 questions from each Unit - I, II, III and IV. Unit - V consists of 10 questions of short answers distributed from all over the syllabus. The candidates are required to attempt one question from each Unit – I, II, III & IV carrying 15 marks for each question. Unit - V is compulsory for all consisting 2 marks of each short answer.*

Unit- I Philosophy and types of Yoga

Philosophy of Yoga

Types of Yoga – Ashtang Yoga, Raj Yoga, Karma Yoga, Bhakti, Yoga, Hath Yoga, Kriya Yoga, Gyan Yoga and Mantra Yoga.

Yogic Practice: Place, Time, Clothes, Bathing, Diet before and after.

Unit- II

Spiritual development through Yogic Practices.

Naturopathy: Meaning, concept and philosophy, brief history of naturopathy, basic principles of nature cure. Various methods of Naturopathy

Chakras: Major Chakaras- Benefits of clearing and balancing Chakras

Unit III – Kriyas, Bandhas and Mudras

Shat Kriyas: Meaning of Kriya, Techniques and Benefits of Neti, Dhati, Kapalapathi, Trataka, Nauli, Basti.

Bandhas: Meaning, Techniques and Benefits of Jalendra Bandha, Jihva Bandha, Uddiyana Bandha, Mula Bandha.

Mudras: Meaning, Techniques and Benefits of Hasta Mudras, Asamyukta hastam, Samyukta hastam , Mana Mudra, Kaya Mudra, Banda Mudra, Adhara Mudra.

Unit IV – Psychological, Physiological and Meditative effects of yoga

Role of Yoga in Psychological Preparation of athlete: Mental Wellbeing, Anxiety, Depression Concentration, Self Actualization.

Effect of Yoga on Physiological System: Circulatory, Skeletal, Digestive, Nervous, Respiratory, Excretory System.

Meditation: Meaning, Techniques and Benefits of Meditation – Passive and active.

Suggested Readings:

George Feuerstein, (1975). Text Book of Yoga. London: Motilal Bansaridass Publishers (P) Ltd.

Gore, (1990), Anatomy and Physiology of Yogac Practices. Lonavata: Kanchan Prkashan. Helen Purperhart (2004), The Yoga Adventure for Children. Netherlands: A Hunter House book.

Iyengar, B.K.S. (2000), Light on Yoga. New Delhi: Harper Collins Publishers.

Karbelkar N.V.(1993) Patanjal Yogasutra Bhashya (Marathi Edition) Amravati: Hanuman Vyayam Prasarak Mandal

Kenghe. C.T. (1976). Yoga as Depth-Psychology and para-Psychology (Vol-I): Historical Background, Varanasi: Bharata Manishai.

Kuvalyananada Swami & S.L. Vinekar, (1963), Yogic Therapy – Basic Principles and Methods. New Delhi: Govt. of India, Central Health Education and Bureau.

Moorthy A.M. & Alagesan. S. (2004) Yoga Therapy. Coimbatore: Teachers Publication House.

Swami Kuvalayanda, (1998), Asanas. Lonavala: Kaivalyadhama.

Swami Satyananada Sarasvati. (1989), Asana Pranayama Mudra Bandha. Munger: Bihar School of Yoga.

Swami Satyananda Saraswathi. (1984), Kundalini and Tantra, Bihar: Yoga Publications Trust.

Swami Sivananda, (1971), The Science of Pranayama. Chennai: A Divine Life Society Publication.

Thirumalai Kumar. S and Indira. S (2011) Yoga in Your Life, Chennai: The Parkar Publication.

Tiwari O.P. (1998), Asanas-Why and How. Lonavala: Kaivalyadham.

Part – B
Practical Courses

Semester – I

M.P.Ed – 106: Athletics **Marks - 100**

Track Events and Jumps

i. Teaching ability of different types of Starts (with & without starting blocks) (Marks –20)
ii Teaching ability of Long Jump (hang Style), Triple Jump and High Jump (Marks – 20)
iii. Interpretation of rules related to jumps (Marks – 20)
iv. Marking of Track 400m and 200m. (Marks – 20)
v. Closing, opening and medal ceremony of Athletic Meet (Marks – 20)

Note: Candidate have to take at least 5 teaching lessons on various techniques.

M.P.Ed – 107: Game – **Marks - 100**

i) Handball **Marks – 50**

1. Marking of Handball Court (Marks – 10)
2. Teaching ability of various Basic skills of Handball (Marks – 10)
3. Interpretation of Various rules of Handball (Marks – 10)
4. Filling the score sheet of Handball (Marks – 10)
5. Officiating Symbols (Marks – 10)

ii) Cricket **Marks – 50**

1. Marking of Cricket Court (Marks – 10)
2. Teaching Ability of various Basic skills of Cricket (Marks – 10)
3. Interpretation of Various rules of Cricket (Marks – 10)
4. Filling the score sheet of Cricket (Marks – 10)
5. Officiating Symbols (Marks – 10)

Note: Candidate have to take at least 5 teaching lessons of each game.

MPEd – 108 Health Education (Marks – 50)

i. Method of keeping health record
ii. First Aid for various conditions and articles of first aid box
iii. Identification of various forms of postural deformities and their remedial exercises

M.P.Ed – 109: Yoga (Marks –50)

LIST OF YOGIC PRACTICES

ASANA	**PRANAYAMA**
1. Shirsh Asana	1. Anulome-vilome
2. Vipratakarani	2. Ujjai
3. Hal Asana	3. Bhastrika
4. Bhujang Asana	4. Shitali
5. Ardh-Shalbh Asana	5. Kapalbhati
6. Vakra Asana	6. Suryabhedan
7. Ardha Matasyaendrasana	7. Bhramri
8. Paschimottan Asana	
9. Vajra Asana	
10. Supta Vajra Asana	
11. Yoga Mudra	
12. Nauka Asana	
13. Bak Asana	
14. Mayur Asana	
15. Ustra Asana	
16. Vriksh Asana	
17. Padma Asana	
18. Trikon Asana	
19. Sarvang Asana	
20. Manduk Asana	
21. Pavan Muket	
22. Chakra Asana	
23. Pad-hast Asana	
24. Katichakra Asana.	
25. Surya Namaskar	

Note: Students are required to do any 10 asana from above mentioned Asanas and three Pranayama

M. P. Ed. –Syllabus

Semester – II

Theory Courses

M.P.Ed- 201: Research Process in Physical Education

Time: 3 Hours Total Marks: 100 (Theory Marks: 80 + Internal Assessment: 20)

Note: *Paper setter is required to set 2 questions from each Unit - I, II, III and IV. Unit - V consists of 10 questions of short answers distributed from all over the syllabus. The candidates are required to attempt one question from each Unit – I, II, III & IV carrying 15 marks for each question. Unit - V is compulsory for all consisting 2 marks of each short answer.*

Unit – I: Historical and Philosophical Research

Historical Research: Meaning and definition of Historical Research, Sources of Historical Research: Primary Data and Secondary Data, Historical Criticism: Internal Criticism and External Criticism.

Philosophical Research: Meaning of Philosophical Research, Tool of Philosophical Research, Steps in Critical Thinking.

UNIT-II: Survey Research

Survey Studies: Meaning of Survey, Tools of Survey Research: Questionnaire and Interview, Meaning of Questionnaire and Interview, Construction, Appearance and Development of Questionnaire, Procedure of Conducting interview, Suggestions to enhance response.

Normative Survey: Meaning of Normative Survey, Factors affecting Normative Survey.

Case Studies: Meaning of Case Studies, steps of case studies.

UNIT-III Experimental and Research Proposal

Experimental Research – Meaning, Nature and Importance, Experimental Design - Single Group Design, Reverse Group Design, Repeated Measure Design, Static Group Comparison Design, Equated Group Design and Factorial Design.

Research Proposal: Meaning and Significance of Research Proposal, Steps of preparing Research proposal/synopsis, Format of a synopsis.

Unit – IV Research Report

Research Report: Meaning of Research Report, Chapterization of Thesis/ Dissertation, Title page, Preliminary documents, Text (introductions and chapters), Back matter (notes, bibliography or references, appendices, glossary.

Method of writing abstract , method of writing full paper for presenting in a conference and to publish in journals ,technicalities of writing: Footnote and Bibliography.

Suggested Readings:

Best J.W.Research in Education, Prentice Hall Inc. : Delhi-1982

Clarke, H.David., Research Processes in Physical Education , Recreation & Health Prentice Hall Inc.1985.

Thomas Jerry R. and Nelson Jack K., Research Methods, Physical Activity. Human Kinetics Champaign, 1996.

Weimer, Jon, Research Techniques in Human Engineering. Prentice Hall: New Jersy.1994.

C.V.Good : Methods of Research , Appleton Century Crofts Inc., New York,1954.

W.R.Mouly : Educational Research Introduction, David Making CO. Inc. Yew York, 1975.

J.W.Best : Research in Education, Prentice Hall, 1980.

D.H. Clarke: Research Processes in Physical Education, Recreation and Health , Premice Hall, 1970.

M. P. Ed. –Syllabus

Semester – II

Theory Courses

M.P.Ed- 202: Physiology of Exercise

Time: 3 Hours Total Marks: 100 (Theory Marks: 80 + Internal Assessment: 20)

Note: *Paper setter is required to set 2 questions from each Unit - I, II, III and IV. Unit - V consists of 10 questions of short answers distributed from all over the syllabus. The candidates are required to attempt one question from each Unit – I, II, III & IV carrying 15 marks for each question. Unit - V is compulsory for all consisting 2 marks of each short answer.*

UNIT – I: Skeletal Muscles and Exercise:

Macro & Micro Structure of the Skeletal Muscle, Chemical Composition of Skeletal Muscle, Sliding Filament Theory of Muscular Contraction, Composition of slow and fast twitch muscle fibers, Muscle Tone, Short and long term Effects of exercises and training on the muscular system

UNIT – II: Cardiovascular System and Exercise

Conduction system of the Heart, Blood Circulation and its classification, Cardiac Cycle – Stroke Volume, Cardiac Output, Heart rate, Effect of different types of training on the Cardio-vascular system, E**lectrocardiogram (ECG),** Method of reading ECG

UNIT – III: Respiratory System and Exercise

Mechanism of Breathing, Respiratory Muscles, Mechanism of Exchange of Gases in the Lungs and Tissues, Ventilation at rest and during exercise, Oxygen debt, Effect of Exercise on Respiratory System, Aerobic and Anaerobic metabolism

UNIT – IV: Body Composition and Sports

Body Build, Body Size, Body Composition, Techniques of Assessing Body Composition (Skin Fold Fat Thickness and Bioelectric impedance), Sports performance in hot climate, Cool Climate and high altitude.

Suggested Readings:

Amrit Kumar, R, Moses. (1995). Introduction to Exercise Physiology. Madras: Poompugar Pathipagam.

Beotra Alka, (2000) Drug Education Handbook on Drug Abuse in Sports: Sports Authority of India Delhi.

Clarke, D.H. (1975). Exercise Physiology. New Jersey: Prentice Hall Inc., Englewood Cliffs.

David, L Costill. (2004). Physiology of Sports and Exercise. Human Kinetics.

Fox, E.L., and Mathews, D.K. (1981). The Physiological Basis of Physical Education and Athletics. Philadelphia: Sanders College Publishing.

Guyton, A.C. (1976). Textbook of Medical Physiology. Philadelphia: W.B. Sanders co. Richard, W. Bowers. (1989). Sports Physiology. WMC: Brown Publishers.

Sandhya Tiwaji. (1999). Exercise Physiology. Sports Publishers.

Shaver, L. (1981). Essentials of Exercise Physiology. New Delhi: Subject Publications. Vincent, T. Murche. (2007). Elementary Physiology. Hyderabad: Sports Publication. William, D. Mc Aradle. (1996). Exercise Physiology, Energy, Nutrition and Human Performance. Philadelphia: Lippincott Williams and Wilkins Company.

M. P. Ed. –Syllabus

Semester – II

Theory Courses

M.P.Ed- 203: Applied Statistics in Physical Education and sports

Time: 3 Hours Total Marks: 100 (Theory Marks: 80 + Internal Assessment: 20)

Note: *Paper setter is required to set 2 questions from each Unit - I, II, III and IV. Unit - V consists of 10 questions of short answers distributed from all over the syllabus. The candidates are required to attempt one question from each Unit – I, II, III & IV carrying 15 marks for each question. Unit - V is compulsory for all consisting 2 marks of each short answer.*

Unit – I: Introduction to Statistics and Measures of Central Tendency

Meaning of Statistics. Need and importance of statistics in Physical Education,
Meaning of Data, Methods of organizing Data through Frequency Distribution.
Meaning of the Measures of Central Tendency, Computation of Measures of Central Tendency i.e. Mean, Median and Mode.
Merits and limitations of Mean, Median and Mode

Unit-II: Introduction of Variability

Meaning of Variability, Meaning of Measures of variability: Range, Quartile Deviation, Average Deviation and Standard Deviation.
Computation of Range, Quartile Deviation, Average Deviation and Standard Deviation.
Meaning of term Percentile, Computation of Percentile & Quartiles.
Meaning of Percentile Rank, Computation of Percentile Rank.

Unit – III: Introduction to Normal Probability Curve and Correlation

Meaning of Normal Probability Curve, Properties of Normal Curve.
Meaning and types of Skewness and kurtosis, Sigma Scores, Z- Scores, Hull Scores
Calculation of probability for various combinations of Heads and Tails.
Meaning and Types of Linear Correlation. Computation of Correlation Coefficient with Product Movement Method and Rank Difference Method.

Unit – IV: Graphical representation of data and testing of Hypothesis

Meaning and advantage of Graphical Representation of Data, Principle of Graphical Representation of Data. Types of Bar Diagrams, Method of preparing Histogram, Frequency Polygon, Cumulative-Frequency Graph, Bar-Diagram and Pie Diagram.

Meaning of two – tailed and one tailed test of significance, computing significance of difference between two means with t – Test (independent samples), One way ANOVA Test.

REFERENCES:

Clarke.HH.The Application of Measurement in Health and Physical Education,1992.

Clarke,David H.and Clake H.Hares N. Research Process in Health Education Physical Education and Recreation . Englewood Cliffs, New Jersey, Prentice Hall, Inc.1986.

Shaw. Dhananjoy. Fundamental statistics in Physical Education & Sports sciences, sports publication,2007.

Margaret J. Safrit : Introduction to Measurement in Physical Education and Exercise Science, Time Mirror/ Mosy, College Publishing St. Louis. Toronte Bosion (2Nd. Edition-1998.

Morey E. Garrett : Statistics in Psychology and Educated, David Meka Company Inc.

Devinder K. Kansal : Test and Measurement in Sports and Physical Education, D.V.S.Publications, Kalkaji, New Delhi –110019.

M. P. Ed. –Syllabus

Semester – II

Theory Courses

M.P.Ed- 204: Physical Fitness and Wellness

Time: 3 Hours Total Marks: 100 (Theory Marks: 80 + Internal Assessment: 20)

Note: *Paper setter is required to set 2 questions from each Unit - I, II, III and IV. Unit - V consists of 10 questions of short answers distributed from all over the syllabus. The candidates are required to attempt one question from each Unit – I, II, III & IV carrying 15 marks for each question. Unit - V is compulsory for all consisting 2 marks of each short answer.*

Unit I – Introduction of Physical Fitness and Wellness

Meaning and Definition of Physical Fitness and Wellness, Dimensions of Wellness, Principles of physical fitness and wellness, Primary and Secondary components of fitness, Assessment of wellness, Meaning of recreation, Types of recreation activities, Principles of recreation and Leisure time physical activity.

Unit II – Sports Nutrition

Categorisation of sports according to energy requirements, Body Weight and Energy Expenditure for different categories of sports, Pre event Meal (3-4 hrs. , 1-2 hrs and less than 1 hr), Diet plan for sports requiring 7000 k.cal., 6000 k.cal., 5200k. Cal., 4500 k.cal. and 3600 k. Cal.

Role of Fluid and electrolytes balance in sports performance, Symptoms and Results of Dehydration, Fluid Replacement Guidelines: before, during and after exercise.

Unit III – Aerobic and Anaerobic Exercise

Difference between aerobic and anaerobic fitness, aerobic and anaerobic metabolic threshold, Health benefits of aerobic and anaerobic exercise, calculation to aerobic and anaerobic training zone, Monitoring of heart rates during activity. Assessment of aerobic and anaerobic fitness, aerobic and anaerobic training methods, goal setting to maintain or improve aerobic and anaerobic fitness levels.

Unit IV – Ergogenic Aids and doping

Meaning of Ergogenic Aids, Ergogenic Aids: Mechanical Aids, Pharmacological Aids, Physiological Aids, Nutritional Aids and Psychological Aids.

World and National Anti Doping Agency, Anti doping rules of WADA, Category of Banned substances and methods. Side effects of doping on health.

Reference:

David K. Miller & T. Earl Allen, Fitness, A life time commitment, Surjeet Publication Delhi 1989.

Dificore Judy, the complete guide to the postnatal fitness, A & C Black Publishers Ltd. 35 Bedford row, London 1998

Dr. A.K. Uppal, Physical Fitness, Friends Publications (India), 1992. Warner W.K. Oeger & Sharon A. Hoeger, Fitness and Wellness, Morton Publishing Company, 1990.

Elizabeth & Ken day, Sports fitness for women, B.T. Batsford Ltd, London, 1986.

Emily R. Foster, Karyn Hartiger & Katherine A. Smith, Fitness Fun, Human Kinetics Publishers 2002.

Lawrence, Debbie, Exercise to Music. A & C Black Publishers Ltd. 37, Sohe Square, London 1999

Robert Malt. 90 day fitness plan, D.K. publishing, Inc. 95, Madison Avenue, New York 2001

M. P. Ed. –Syllabus

Semester – II

Theory Courses

M.P.Ed- 205: INFORMATION & COMMUNICATION TECHNOLOGY (ICT) IN PHYSICAL EDUCATION

Time: 3 Hours Total Marks: 100 (Theory Marks: 80 + Internal Assessment: 20)

Note: *Paper setter is required to set 2 questions from each Unit - I, II, III and IV. Unit - V consists of 10 questions of short answers distributed from all over the syllabus. The candidates are required to attempt one question from each Unit – I, II, III & IV carrying 15 marks for each question. Unit - V is compulsory for all consisting 2 marks of each short answer.*

Unit - I Information & Communication Technology in Physical Education

i) Meaning & Nature of Information & Communication Technology

ii) Scope of ICT in Physical Education

a) Teaching Learning Process b) Publication c) Evaluation d) Research

e) Administration f) Organisation of sports tournaments

iii) Challenges in integrating Information & Communication Technology in Physical Education.

iv) Visual Classroom: Meaning of visual class room, Audio-visual aid and equipments of class room.

Unit - II Introduction to Computer and Internet

i) Computer - Definition & structure

Hardware - i) Input devices - Key Board, Mouse, Scanner, Microphone, Digital camera.

ii) Output devices - Monitor, Printer, Speaker, Screen image projector

ii) Storage devices - Hard Disk, CD & DVD, Mass Storage, Device (Pen drive)

Software - i) Operating System - Concept and function.

ii) Application Software (It uses in Physical Education)

1) Word Processors 2) Presentation 3) Spread sheet, 4) Database Management

ii) Internet: Facilities available for Communication - E-mail, chat, online Conferencing, e- Library, websites, Blog etc.

Search Engines - Concept and uses.

Unit III – MS Office Applications

MS Excel: Main Features & its Applications in Physical Education

MS Access: Main features and its Uses in Physical Education

MS Power Point: Preparation of Slides with Multimedia Effects

MS Publisher: Newsletter & Brochure

Unit- IV ICT supported teaching / learning strategies and E – Learning

Computer Assisted Learning, Project Based Learning, Collaborative Learning, Technology Aided Learning E - Learning - Concept & Nature, Web Based Learning, Role of EDUSAT, Viruses & its Management.

REFERENCES:

B. Ram, New Age International Publication, Computer Fundamental, Third Edition-2006 Brain under IDG Book. India (p) Ltd Teach Yourself Office 2000, Fourth Edition- 2001

Douglas E. Comer, The Internet Book, Purdue University, West Lafayette in 2005.

Irtegov, D. (2004). Operating system fundamentals. Firewall Media.

Marilyn, M.& Roberta, B.(n.d.).Computers in your future. 2nd edition, India: Prentice Hall. Milke, M.(2007). Absolute beginner's guide to computer basics. Pearson Education Asia. Sinha, P. K. & Sinha, P. (n.d.).Computer fundamentals. 4th edition, BPB Publication.

Heidi Steel Low price Edition, Microsoft Office Word 2003- 2004

ITL Education Solution Ltd. Introduction to information Technology, Research and Development Wing-2006

Pradeep K. Sinha & Priti; Sinha, Foundations computing BPB Publications -2006. Rebecca Bridges Altman Peach pit Press, Power point for window, 1999

Sanjay Saxena, Vikas Publication House, Pvt. Ltd. Microsoft Office for ever one, Second Edition-2006

Part – B
Practical Courses
Semester – II

M.P.Ed – 206: Athletics **Marks - 100**

Track Events

i.	Marking of Short Put, Discus and Javelin throw Sector	(Marks – 20)
ii.	Teaching ability of Short Put Techniques (Standing and Parry O'brien Technique)	(Marks – 20)
iii.	Teaching ability of Discus Throw Technique	(Marks - 20)
iv.	Teaching ability of Javelin Throw Technique	(Marks - 20)
v.	Interpretation of various rules of Throwing Events (Preparation of result sheet of Short Put, Discus and Javelin throw)	(Marks – 10)
vi	Baton exchange of relay races	(Marks – 10)

Note: Candidate have to take at least 5 teaching lessons of Throwing Events.

M.P.Ed – 207: (Games) **Marks - 100**

i) Volleyball **Marks – 50**

1. Marking of Volleyball Court	(Marks – 10)
2. Teaching ability of various basic skills of Volleyball	(Marks – 10)
3. Interpretation of Various rules of Volleyball	(Marks – 10)
4. Filling the score sheet of Volleyball	(Marks – 10)
5. Officiating Symbols	(Marks – 10)

ii) Wrestling & Boxing **Marks – 50**

1. Teaching ability of various basic skills of Wrestling & Boxing	(Marks – 20)
3. Interpretation of Various rules of Wrestling & Boxing	(Marks – 10)
4. Filling the score sheet of Wrestling & Boxing	(Marks – 10)
5. Officiating Symbols of Wrestling & Boxing	(Marks – 10)

Note: Candidate have to take total 5 teaching lessons of different skills of both games.

M.P.Ed – 208: Exercise Physiology **Marks - 50**

i. Assessment of respiratory profile (Marks – 20)
ii. Assessment of body composition (Marks – 20)
iii. Assessment of Blood pressure, pulse and oxygen saturation level (Marks – 10)

Note: Candidate have to take measure above physiological Parameters of at least five Subjects and record it in a note book.

MPED - 209 Applied Statistic and ICT **Marks – 50**

Following statistical techniques with Excel & SPSS

i) Calculation of Mean, Median & Standard Deviation (Marks = 10)
ii) t - test, ANOVA & Correlation (Marks = 20)
iii) Plotting different types of graphs (Marks = 20)

B. Tech 2nd year (3rd Semester) Mechatronics

Course No.	Course Title	Teaching Schedule				Allotment Marks				Duration of Exam
		L	T	P	Total	Sessional	Theory	Practical	Total	
MT - 201	Digital Electronics	3	1	-	4	50	100	-	150	3
MT – 203	Essential Mechanics & Fluids	3	1	-	4	50	100	-	150	3
MT – 205	Instrumentation and Measurements	3	1	-	4	50	100	-	150	3
MT – 207	Mathematical Foundations for Engineers	3	1	-	4	50	100	-	150	3
HUM-201 E/ MATH-201E	Basics of Economics & Management/ Mathematics IIIrd	3	1	-	4	50	100	-	150	3
MT – 209	Theory of Machines-I	3	1	-	4	50	100	-	150	3
MT – 211	Digital Electronics Lab	-	-	2	2	25	-	25	50	3
MT – 213	Instrumentation and Measurements Lab	-	-	2	2	25	-	25	50	3
MT – 215	Essential Mechanics & Fluids Lab	-	-	2	2	25	-	25	50	3
MT - 217	Theory of Machines-I lab	-	-	3	3	50	-	50	100	3
	Total	18	6	9	33	425	600	125	1150	

Students are allowed to use single memory, non-programmable scientific calculator during examination.

B. Tech 2nd year(4th Semester) Mechatronics

Course No.	Course Title	Teaching Schedule				Allotment Marks				Duration of Exam
		L	T	P	Total	Sessional	Theory	Practical	Total	
MT – 202	Computer Aided Design and Manufacturing	3	1	-	4	50	100	-	150	3
MT – 204	Electronic Principles	3	1	-	4	50	100	-	150	3
MT – 206	Design Basics	3	1	-	4	50	100	-	150	3
MT – 208	Software for Engineers	3	1	-	4	50	100	-	150	3
HUM-201 E/ MATH-201E	Basics of Economics & Management/ Mathematics IIIrd	3	1	-	4	50	100	-	150	3
MT – 210	Theory of Machines-II	3	1	-	4	50	100	-	150	3
MT – 212	Electronic Principles Lab	-	-	2	2	25	-	25	50	3
MT – 214	Software for Engineers Lab	-	-	2	2	25	-	25	50	3
MT – 216	Computer Aided Design and Manufacturing Lab	-	-	2	2	25	-	25	50	3
MT- 218	Theory of Machines-II lab	-	-	2	2	50	-	50	100	3
	Total	18	6	8	32	425	600	125	1150	

Students are allowed to use single memory, non-programmable scientific calculator during examination.

B. Tech 3rd year(5th Semester) Mechatronics

Course No.	Course Title	Teaching Schedule				Allotment Marks				Duration of Exam
		L	T	P	Total	Sessional	Theory	Practical	Total	
MT-301	Communications	3	1	-	4	50	100	-	150	3
MT-303	Signal Processing	3	1	-	4	50	100	-	150	3
MT-305	Digital & Embedded Softw. (RT sys) 1	3	1	-	4	50	100	-	150	3
MT-307	Engineering Mathematics Apps 1	3	1	-	4	50	100	-	150	3
MT-309	Production Technology-1	3	1	-	4	50	100	-	150	3
MT-311	Organizational Management	3	1	-	4	50	100	-	150	3
MT-313	Signal Processing Lab	-	-	3	3	25	-	25	50	3
MT-315	Digital & Embedded Softw. (RT sys) 1 Lab	-	-	2	2	25	-	25	50	3
MT-317	Communications Lab	-	-	2	2	50	-	50	100	3
MT-319	Practical Training Report	-	-	-	-	50	-	-	50	3
	Total	18	6	7	31	450	600	100	1150	

Students are allowed to use single memory, non-programmable scientific calculator during examination.

B. Tech 3rd year(6th Semester) Mechatronics

Course No.	Course Title	Teaching Schedule				Allotment Marks				Duration of Exam
		L	T	P	Total	Sessional	Theory	Practical	Total	
MT-302	Applications of Control	3	1	-	4	50	100	-	150	3
MT-304	Digital & Embedded Softw. (RT sys) 2	3	1	-	4	50	100	-	150	3
MT-306	Engineering Mathematics Apps 2	3	1	-	4	50	100	-	150	3
MT-308	Pneumatic And Hydraulic Instrumentation	3	1	-	4	50	100	-	150	3
MT-310	Production Technology-II	3	1	-	4	50	100	-	150	3
HUT-302E	Fundamentals of management	3	1	-	4	50	100	-	150	3
MT-312	Production Technology-II lab	-	-	3	3	50	-	50	100	3
MT-314	Digital & Embedded Softw. (RT sys) 2 Lab	-	-	2	2	25	-	25	50	3
MT-316	Applications of Control Lab	-	-	2	2	50	-	50	100	3
	Total	18	6	7	31	425	600	125	1150	

Students are allowed to use single memory, non-programmable scientific calculator during examination.

B. Tech 4th year (7th Semester) Mechatronics

Course No	Course Title	Teaching Schedule				Allotment Marks				Duration of Exam
		L	T	P	Total	Sessional	Theory	Practical	Total	
MT-401	Digital Signal Processing	3	1	-	4	50	100	-	150	3
MT-403	Systems Engineering	3	1	-	4	50	100	-	150	3
	Elective 1*	3	1	-	4	50	100	-	150	3
	Elective II*	3	1	-	4	50	100	-	150	3
MT-405	Sensors and Actuators	3	1	-	4	25	100	-	125	3
MT-407	Digital Signal Processing Lab	-	-	3	3	25	-	25	50	3
MT-409	The Professional Engineer (Project 1)	2	-	3	5	100	-	100	200	3
MT-411	Sensors and Actuators lab	-	-	3	3	25	-	25	50	3
MT-413	Seminar	2	-	-	2	25	-	-	25	
MT-415	In Plant Training report	-	-	-	-	125	-	-	125	
	Total	19	5	9	33	525	500	150	1175	

Students are allowed to use single memory, non-programmable scientific calculator during examination.

ELECTIVE – I

1. MT 417 Advanced Manufacturing Technology
2. MT 419 Finite Element Method
3. MT 421 Applied Numerical Techniques and Computer Programming
4. MT 423 Advanced Microprocessor

ELECTIVE – II

1. MT 425 Renewable Energy Resources
2. MT 427 Computational Fluid Dynamics
3. MT 429 Mechatronics Engineering
4. MT 431 Antenna & Wave Propagation

B. Tech 4th year (8th Semester) Mechatronics

Course No.	Course Title	Teaching Schedule				Allotment Marks				Duration of Exam
		L	T	P	Total	Sessional	Theory	Practical	Total	
MT-402	Data Communication Systems	3	1	-	4	50	100	-	150	3
MT-404	Digital System Design	3	1	-	4	50	100	-	150	3
MT-406	Sound and Noise Control	3	1	-	4	50	100	-	150	3
	Elective III*	3	1	-	4	50	100	-	150	3
	Elective IV*	3	1	-	4	50	100	-	150	3
MT-408	Data Communication Systems Lab	-	-	3	3	25	-	25	50	3
MT-410	The Professional Engineer (Project 2)	-	-	9	9	100	-	100	200	3
MT-412	Digital System Design lab	-	-	3	3	25	-	25	50	3
MT-414	Comprehensive viva	-	-	-	-	50	-	-	50	
MT-416	General Fitness and Professional aptitude (viva-voce)	-	-	-	-	-	-	75	75	
	Total	15	5	15	35	450	500	225	1175	

Students are allowed to use single memory, non-programmable scientific calculator during examination.

ELECTIVE - III

1. MT 418 Non Conventional Manufacturing
2. MT 420 Industrial Robotics
3. MT 422 Manufacturing Management
4. MT 424 Fuzzy Logic & Neural Networks

ELECTIVE - IV

1. MT 426 Management Information System
2. MT 428 Automatic controls
3. MT 430 Digital Image Processing
4. MT 432 Digital Hardware Design

Semester 3

MT-201

Digital Electronics

L	T	P	
3	1	-	**Sessional: 50 Marks**
			Theory: 100 Marks
			Total: 150 Marks
			Exam Duration: 3 Hours

UNIT 1

FUNDAMENTALS OF DIGITAL TECHNIQUES: Digital signal, logic gates: AND. OR, NOT. NAND. NOR- EX-OR, EX-NOR, Boolean algebra. Review of Number systems. Binary codes: BCD, Excess-3. Gray codes. COMBINATIONAL DESIGN USING GATES: Design using gates. Karnaugh map and Quine Mcluskey methods of simplification.

UNIT 2

COMBINATIONAL DESIGN USING MST DEVICES Multiplexers and Demultiplexers and their use as logic elements. Decoders. Adders / Subtracters. BCD arithmetic Circuits. Encoders. Decoders / Drivers for display devices.

SEQUENTIAL CIRCUITS: Flip Flops: S-R- J-K. T. D, master-slave, Conversion of one flip-flop to another flip flop, excitation table, edge triggered- shift registers, its types: SISO, PISO,PIPO,SIPO. Counters. Asynchronous and Synchronous Ring counters and Johnson Counter, Design of Synchronous and Asynchronous sequential circuits.

UNIT 3

DIGITAL LOGIC FAMILIES: Switching mode operation of p-n junction, bipolar and MOS-devices. Bipolar logic families: RTL, DTL, DCTL. HTL, TTL, ECL, MOS, and CMOS logic families. Tristate logic. Interfacing of CMOS and TTL families.

UNIT 4

A/D AND D/A CONVERTERS: Sample and hold circuit, weighted resistor and R -2 R ladder D/A Converters, specifications for D/A converters. A/D converters: Quantization, parallel -comparator, successive approximation, counting type. Dual-slope ADC, specifications of ADCs. PROGRAMMABLE LOGIC DEVICES: ROM, PLA. PAL, Introduction to FPGA and CPLDs.

TEXT BOOK: 1. Modem Digital Electronics (Edition III): R. P. Jain; TMH

REFERENCE BOOKS: 1. Digital Integrated Electronics: Taub & Schilling: MGH 2. Digital Principles and Applications: Malvino & Leach: McGraw Hill. 3. Digital Design: Morris Mano: PHI,

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Assignment :- Assignment based upon learning outcomes, as mention below, will be set by lecturer where the student will be required to achieve the LO's as mentioned below. The assessment of assignment will be done based upon the learning made by the student.

Learning outcomes(LO's)

1. Solve a range of problems in electronics choosing an appropriate solution procedure and making use of the underlying concepts and principles	Application, Knowledge & Understanding
2. Interpret qualitative and quantitative data relating to electronics practical work and Communicate the results of the work by written reports and presentations, Incorporating structured coherent argument	Knowledge, Understanding, Reflection and Team working

MT-203

Essential Mechanics & Fluids

L	T	P	Sessional: 50 Marks
3	1	-	Theory: 100 Marks
			Total: 150 Marks
			Exam Duration: 3 Hours

Unit 1

Simple stresses & strains : Concept & types of Stresses and strains, Polson's ratio, stresses and strain in simple and compound bars under axial loading, stress strain diagrams, Hooks law, elastic constants & their relationships, temperature stress & strain in simple & compound bars under axial loading, Numerical.

Compound stresses & strains: Concept of surface and volumetric strains, two dimensional stress system, conjugate shear stress at a point on a plane, principle stresses & strains and principal- planes, Mohr's circle of stresses, Numerical.

Unit II

Shear Force & Bending Moments : Definitions, SF & BM diagrams for cantilevers, simply supported beams with or without over-hang and calculation of maximum BM & SF and the point of contraflexture under (i) concentrated loads, (ii) uniformly distributed loads over whole span or a part of it, (iii)combination of concentrated loads and uniformly distributed loads, (iv) uniformly varying loads and (v) application of moments, relation between the rate of loading, the shear force and the bending moments, Problems.

Torsion of circular Members : Torsion of thin circular tube, Solid and hollow circular shafts, tapered shaft, stepped shaft & composite circular shafts, combined bending and torsion, equivalent torque, effect of end thrust. Numerical.

Unit III

Fluid Properties and Fluid Statics: Concept of fluid and flow, ideal and real fluids, continuum concept, properties of fluids, Newtonian and non-Newtonian fluids. Pascal's law, hydrostatic equation, hydrostatic forces on plane and curved surfaces, stability of floating and submerged bodies, relative equilibrium. Problems. Fluid Kinematics: Eulerian and Lagrangian description of fluid flow; stream, streak and path lines; types of flows, flow rate and continuity equation, differential equation of continuity in cylindrical and polar coordinates, rotation, vorticity and circulation, stream and potential functions, flow net. Problems.

Unit IV

Fluid Dynamics: Concept of system and control volume, Euler's equation, Bernoulli's equation, venturimeter, orifices, orificemeter, mouthpieces, kinetic and momentum correction factors, Impulse momentum relationship and its applications. Problems.Potential Flow:

Uniform and vortex flow, flow past a Rankin half body, source, sink, source-sink pair and doublet, flow past a cylinder with and without circulation. Problems.

TEXT BOOKS

1. Ramamurtham.S and Narayanan.R, "*Strength of material"*, Dhanpat Rai Pvt. Ltd., New Delhi, 2001.
2. Bansal.R.K, "*Strength of Material"*, Lakshmi publications Pvt. Ltd., New Delhi, 1996.
3. Kumar.K.L, "*Engineering Fluid Mechanics"*, Eurasla publishers Home Ltd., New Delhi, 1995.
4. Bansal.R.K, "*Fluid Mechanics and Hydraulic Machines"* , Laxmi publications (P) Ltd., New Delhi, 1995.
5. Popov.E.P, "*Mechanics of Materials"*, Prentice Hall, 1982.
6. Timoshenko.S.P and Gere .M.J, "*Mechanics of Materials"*, C.B.S. publishers, 1986.

REFERENCES

1. Ferdinand P. Beer and Russell Johnston.E, "*Mechanics of Materials"*, SI metric Edition McGraw Hill, 1992
2. Srinath.L.N, "*Advanced Mechanics of Solids",*Tata McGraw Hill Ltd., New Delhi.
3. Ramamurthan.S, "*Fluid Mechanics and Hydraulics"*, Dhanpat Rai and Sons, Delhi, 1988.
4. Fox R.W and Mc. Donald .A.T, "*Introduction to fluid Mechanics"*, 5th Ed. John Wiley and Sons, 1999.

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Assignment :- Assignment based upon learning outcomes, as mention below, will be set by lecturer where the student will be required to achieve the LO's as mentioned below. The assessment of assignment will be done based upon the learning made by the student.

Learning outcomes(LO's)

4. Understand the concepts and to solve problems in fluid statics, fluid kinematics and incompressible fluid dynamics.

MT - 205

Instrumentation and Measurements

L	T	P	
3	1	-	**Sessional: 50 Marks**
			Theory: 100 Marks
			Total: 150 Marks
			Exam Duration: 3 Hours

UNIT-I:

MEASUREMENT AND ASSOCIATED ERRORS: Methods of Measurement, Classifications of instruments, Errors in measurements and their analysis.

MEASUREMENT OF LOW, MEDIUM AND HIGH RESISTANCES: Wheat stone bridge, Carey-Foster Bridge, Kelvin double bridge, Measurement of Insulation resistance.

UNIT-II:

MEASUREMENT OF INDUCTANCES AND CAPACITANCES: A-C BRIDGES: Maxwell Inductance bridge. Maxwell Inductance Capacitance Bridge, Anderson's Bridge, Hay's Bridge, De-Sauty's Bridge, Schering's bridge and Wein's bridge.

INDICATING AND RECORDING DEVICES: Analog voltmeters, X-Y recorder, D.C Crompton's potentiometer, Oscillographs, Cathode - Ray Oscilloscopes, Energy Meter. Magnetic Measurements: Ballistic Galvanometers, Flux Meter, B-H Loop.

UNIT-III:

ELECTRONIC INSTRUMENTS: Wave analyzer, Distortion meter: Q-meter, CRO: Lissojous Pattern, CRT, Op-Amp circuits.

DIGITAL MEASUREMENTS:Concept of digital measurements,Comparison between analog type and digital display methods, digital voltmeter, frequency meter, spectrum analyzer.

UNIT-IV:

TRANSDUCERS: Classification of Transducers and their signal conditioning, Measurement

of displacement, velocity and acceleration (translational and rotational), force, torque, vibration and shock. Measurement of pressure, flow, temperature and liquid level. Measurement of pH, conductivity, viscosity and humidity.

DATA ACQUISITION SYSTEMS: Elements of data acquisition systems, Analog to Digital and Digital to Analog converters, Analog and Digital Data Acquisition Systems, Interfacing of transducers, Multiplexing, Telemetry.

TEXT BOOK: A Course in Electrical and Electronics Measurements and Instrumentation: A.K. Sawhney; Dhanpat Rai & Sons.

REFERENCE BOOKS: 1. Electronics Instrumentation and Measurement Techniques: Cooper W.D & Helfrick A.D.; PHI 2. Doeblin E.O., Measurement Systems: Application & Design, Mc Graw Hill.

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Assignment :- Assignment based upon learning outcomes, as mention below, will be set by lecturer where the student will be required to achieve the LO's as mentioned below. The assessment of assignment will be done based upon the learning made by the student.

Learning outcomes(LO's)

1. Describe the basic principles of instrumentations and measurements associated with Engineering, design and the general technology applications.	Knowledge & Understanding
2. Use and calibrate common sensors and instruments.	Application & Enquiry
3. Select an appropriate sensor/s and instrument/s for the task under consideration.	Team Working

Mathematical Foundations For Engineers

MT-207

L	T	P	
3	1	-	**Sessional: 50 Marks**
			Theory: 100 Marks
			Total: 150 Marks
			Exam Duration: 3 Hours

UNIT – I

Principle of Mathematical Induction:
Process of the proof by induction, motivating the application of the method by looking at natural numbers as the least inductive subset of real numbers. The principle of mathematical induction and simple applications.

Sets :
Sets and their representations. Empty set. Finite and Infinite sets.Equal sets.Subsets.Subsets of a set of real numbers especially intervals (with notations). Power set. Universal set. Venn diagrams. Union and Intersection of sets. Difference of sets. Complement of a set. Properties of Complement Sets.

UNIT-II

Binomial Theorem: Statement and proof of the binomial theorem for positive integral indices. General and middle term in binomial expansion, simple applications.

Sequence and Series: Sequence and Series. Arithmetic Progression (A. P.). Arithmetic Mean (A.M.) Geometric Progression (G.P.), general term of a G.P., sum of first n terms of a G.P., infinite G.P. and its sum, geometric mean (G.M.), relation between A.M. and G.M.

UNIT-III

Mathematical Reasoning: Mathematically acceptable statements. Connecting words/ phrases - consolidating the understanding of "if and only if (necessary and sufficient) condition", "implies", "and/or", "implied by", "and", "or", "there exists" and their use through variety of examples related to real life and Mathematics.

Validating the statements involving the connecting words, Difference between contradiction, converse and contrapositive.

UNIT-IV

Statistics: Measures of position - mean, median, mode,

Measure of dispersion - range, inter-quartile range, variance, standard deviation, Measure of skewness

Text Book

1. Foundation Mathematics, A. Croft and R. Davidson, Addison-Wesley 1997, ISBN: 0201178044
2. Discrete Mathematics for Computer Scientists, J. Truss, Addison-Wesley 1999, ISBN: 0201360616

Reference Book

1. Advanced Engg. Mathematics : E. Kreyzig
2. Higher Engg. Mathematics : B.S. Grewal

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Assignment :- Assignment based upon learning outcomes, as mention below, will be set by lecturer where the student will be required to achieve the LO's as mentioned below. The assessment of assignment will be done based upon the learning made by the student.

Learning outcomes(LO's)

1) Understand about Binomial Theorem, PMI and Sets
2) Understand about Mathematical Reasoning & Statistics

MATH-201E

L	T	P
3	1	-

Sessional: 50 Marks
Theory: 100 Marks
Total: 150 Marks
Exam Duration: 3 Hours

UNIT – I

Fourier Series : Euler's Formulae, Conditions for Fourier expansions, Fourier expansion of functions having points of discontinuity, change of interval, Odd & even functions, Half-range series.

Fourier Transforms : Fourier integrals, Fourier transforms, Fourier cosine and sine transforms. Properties of Fourier transforms, Convolution theorem, Perseval's identity, Relation between Fourier and Laplace transforms, Fourier transforms of the derivatives of a function, Application to boundary value problems.

UNIT-II

Functions of a Complex Variables : Functions of a complex variable, Exponential function, Trigonometric, Hyperbolic and Logarithmic functions, limit and continuity of a function, Differentiability and analyticity.

Cauchy-Riemann equations, Necessary and sufficient conditions for a function to be analytic, Polar form of the Cauchy-Riemann equations, Harmonic functions, Application to flow problems, Conformal transformation, Standard transformations (Translation, Magnification & rotation, inversion & reflection, Bilinear).

UNIT-III

Probability Distributions : Probability, Baye's theorem, Discrete & Continuous probability distributions, Moment generating function, Probability generating function, Properties and applications of Binomial, Poisson and normal distributions.

UNIT-IV

Linear Programming : Linear programming problems formulation, Solution of Linear Programming Problem using Graphical method, Simplex Method, Dual-Simplex Method.

Text Book

3. Higher Engg. Mathematics : B.S. Grewal
4. Advanced Engg. Mathematics : E. Kreyzig

Reference Book

1. Complex variables and Applications : R.V. Churchil; Mc. Graw Hill
2. Engg. Mathematics Vol. II: S.S. Sastry; Prentice Hall of India.
3. Operation Research : H.A. Taha
4. Probability and statistics for Engineer : Johnson. PHI.

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Assignment :- Assignment based upon learning outcomes, as mention below, will be set by lecturer where the student will be required to achieve the LO's as mentioned below. The assessment of assignment will be done based upon the learning made by the student.

Learning outcomes(LO's)

1) Understand about Fourier Transforms and series and Probability Distributions.
2) Understand about Functions of a Complex Variables and Linear Programming.

MT 209

L	T	P
3	1	-

Sessional: 50 Marks
Theory: 100 Marks
Total: 150 Marks
Exam Duration: 3 Hours

UNIT I

Kinematics, introduction to analysis and 1, Kinematics' pairs, Degree of freedom, Dynamitic chain mechanism, Machine, Four-bar chain, inversions, Single and double slider crank chain, Quick return mechanisms, Introduction to function generation, Path generation and rigid bodied guidance.

Velocity determination; Relative velocity methods, Instantaneous center method Acceleration determination, Kennedy's Space cent rode and body cent rode,

UNIT II

Centripetal and tangential accelerations, Acceleration determination by graphical method using velocity polygons, Cariole's component of acceleration, Klein's and other constructions.

Introduction, Velocity and Acceleration of a Particle Moving with Simple Harmonic Motion, Differential Equation of Simple Harmonic Motion, Terms Used in Simple Harmonic Motion, Simple Pendulum, Laws of Simple Pendulum, Closely-coiled Helical Spring. Compound Pendulum, Centre of Percussion, Bifilar Suspension, Trifilar Suspension (Torsional Pendulum).

UNIT III

Pantograph, straight-line motion mechanisms (Peculiar, Hart, Scott Russell, Grasshopper, Watt, Kemp's Tchybishev, Parallel linkages) Indicator mechanisms (Simplex Crosby, Thomson, etc) Automobile steering gears (Davis and Ackerman), Hooks joint (universal coupling), Double hooks joints.

Types of friction, Laws of dry friction, Motion along inclined plane Screw threads, Wedge, Pivots and collars, Plate and cone clutches, Antifriction bearings, friction circle and friction axis, bearings and lubrication. Motion along inclined plane and screws, Pivots and Collars Thrust Bearings lubrication

UNIT IV

Types of cams and followers, various motions of the follower, Construction of cam profiles, Analysis for velocities and accelerations of tangent and circular arc cams with roller and flat –faced followers.

Open and crossed belt drives, velocity ratio, slip , material for belts, crowning of pulleys, law of belting, types of pulleys, length of belts ratio of tensions, centrifugal tension, power transmitted by belts and ropes, initial tension, creep, chain drive, chain length, classification of chains

Suggested reading:

1. Theory of machines: S. S. Rattan, Tata McGraw Hill Publications
2. Theory of Mechanism and Machines: Jagdish Lal, Metropolitan Book Co.
3. Mechanism synthesis and analysis: A.H. Soni, McGraw Hill Publications.
4. Mechanism: J.S. Beggs.
5. Mechanics of Machines: P.Black, Pergamon Press.
6. Theory of Machines: P.L.Ballaney, Khanna Publisher.

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Assignment :- Assignment based upon learning outcomes, as mention below, will be set by lecturer where the student will be required to achieve the LO's as mentioned below. The assessment of assignment will be done based upon the learning made by the student.

Learning outcomes(LO's)

1) Understand about Velocity determination
2) Understand about Pantograph, straight-line motion mechanisms
3) Understand about Types of cams and followers and various motions

MT-211

Digital Electronics Lab

L	T	P
-	-	2

Sessional: 25 Marks
Practical: 25 Marks
Total: 50 Marks
Duration of Exam:3 Hrs

List of Experiment

Note:- Student will be required to perform total of 10 experiment. 7 experiments will be from the below given list and 3 experiments will be designed based upon the curriculum.

- For Learning outcomes refer to Digital Electronics (MT-201).

1. Familiarization with Digital Trainer Kit and associated equipment.
2. Verify Truth Table of TTL gates AND, OR, NOT, NAND, NOR, EX-OR, EX-NOR.
3. Design and realize a given function using K-Maps and verify its performance.
4. To verify the operation of Multiplexer and Demultiplexer.
5. To verify the operation of Comparator.
6. To verify the truth table of S-R, J-K, T, D Flip-flops.
7. To verify the operation of Bi-directional shift register.
8. To design and verify the operation of 3-bit asynchronous counter.
9. To design and verify the operation of synchronous Up/down counter using J-K flipflops & drive a seven-segment display using the same
10. To design and verify the operation of asynchronous Decade counter.
11. Study of TTL logic family characteristics.
12. Study of Encoder and Decoder.
13. Study of BCD to 7 segment Decoder.

MT - 213

Instrumentation and Measurement Lab

L	T	P
-	-	2

Sessional: 25 Marks
Practical: 25 Marks
Total: 50 Marks
Duration of Exam:3 Hrs

Note:- Student will be required to perform total of 10 experiment. 9 experiments will be from the below given list and 1 experiments will be designed based upon the curriculum.

- For Learning outcomes refer to Instrumentation and Measurement (MT-205).

List of Experiments

1. To measure the unknown Inductance in terms of capacitance and resistance by using Maxwell's Inductance bridge.
2. To measure unknown Inductance using Hay's bridge.
3. To measure unknown capacitance of small capacitors by using Schering's bridge.
4. To measure 3-phase power with 2-Wattmeter method for balanced and unbalanced bridge.
5. To measure unknown capacitance using De-Sauty's bridge.
6. To measure unknown frequency using Wein's frequency bridge.
7. To measure unknown low resistance by Kelvin's Double bridge.
8. To test the soil resistance using Meggar (Ohm meter).
9. To calibrate Energy meter using standard Energy meter.
10. To plot the B-H curve of different magnetic materials.
11. To calibrate the Voltmeter using Crompton Potentiometer.
12. To convert the Voltmeter into Ammeter using Potentiometer.
13. Insulation testing of cables using Digital Insulation Tester.

MT - 215

Essential Mechanics and Fluids Lab

L	T	P
-	-	2

Sessional: 25 Marks
Practical: 25 Marks
Total: 50 Marks
Duration of Exam:3 Hrs

NOTE:

1. At least ten experiments/ jobs are to be performed/ prepared by students in the semester.

2. At least 8 experiments/ jobs should be performed/ prepared from the below list, remaining two may either be performed/ prepared from the above list or designed & set by the concerned institution as per the scope of the syllabus of Essential Mechanics and Fluids and facilities available in the institute.

3. For Learning outcomes refer to Essential Mechanics and Fluids (MT-203).

LIST OF EXPERIMENTS

1. To perform Torsion test on mild steel specimen
2. To perform tensile test in ductile and brittle materials and to draw stress-strain curve and to determine various mechanical properties.
3. To perform any one hardness test (Rockwell, Brinell & Vicker's test) and determine hardness of materials.
4. To perform compression test on C.I. and to determine ultimate compressive strength.
5. A simply supported beam is carrying point loads, Uniformly distributed load and uniformly varying loads. Draw the SFD and BMD for the beam.
6. To find the moment of inertia of fly wheel.
7. To compare the actual value of pressure with calculated value with centre of pressure apparatus.
8. To determine the hydrostatic force on a curved surface under partial submerge and full submerge condition.
9. To perform Charpy and Izod impact test on steel specimen
10. To perform Double shear test on steel specimen
11. To perform Compression test on brick
12. Determination of coefficient of discharge of orifice meter
13. Determination of coefficient of discharge of venturi meter
14. Major losses in pipe flow
15. Verification of Bernoulli's theorem
16. Minor losses - expansion and contraction losses in pipes

THEORY OF MACHINES-I LAB.

MT 217

L	T	P
-	-	3

Sessional: 50 Marks
Practical: 50 Marks
Total: 100 Marks
Duration of Exam: 3 Hrs

NOTE:

1. At least ten experiments/ jobs are to be performed/ prepared by students in the semester.

2. At least 7 experiments/ jobs should be performed/ prepared from the below list, remaining three may either be performed/ prepared from the above list or designed & set by the concerned institution as per the scope of the syllabus of Kinematics of Machine and facilities available in the institute.

3. For Learning outcomes refer to Theory of Machine (MT-209).

List of experiments

1. To determine the modulus of rigidity of the material of a closed coil helical spring and the stiffness of a spring
2. To determine the value of coefficient of friction for a given pair of surfaces using friction apparatus
3. To determine the modulus of rigidity of horizontal shaft
4. To determine experimentally the ratio of the cutting time to idle time (cutting stroke to idle stroke) of the crank and slotted lever (QRM)/ Whitworth and compare the result to theoretical values plot the following
    a. θ v/s X (displacement of slider).
    b. θ v/s velocity.
    c. θ v/s Acceleration and to compare the values of velocities
    (Take angles θ =45˚, 90˚, 135˚, 225˚, 270˚ &335˚, ω = 1 rad/s)
5. To determine the value of coefficient of friction between the screw and nut of the jack, while:
    a. Raising the load
    b. Lowering the load
6. To draw experimentally a curve of the follower-displacement v/s cam-angle. Differentiate the above curve to get velocity and acceleration plot and compare the values with those obtained analytically.
7. To determine the coefficient of friction between belt and pulley and plot a graph between $\log_{10} T_1/T_2$ v/s, θ.
8. To determine the displacement, velocities, & accelerations of the driven shaft of a Hooke's joint for a constant speed of the driver shaft.
9. Study of bifilar and trifilar suspension system
10. Study of the inversions of the single slider crank mechanism.
11. To verify the law of moment using Bell- crank lever.

Semester 4

MT - 202

Computer Aided Design and Manufacturing

L	T	P	
3	1	-	**Sessional: 50 Marks**
			Theory: 100 Marks
			Total: 150 Marks
			Exam Duration: 3 Hours

PURPOSE

To expose the learner to the fundamentals of CAD/CAM and the concepts and techniques used in CAD and CAM.

INSTRUCTIONAL OBJECTIVES

1. Understand the fundamentals of CAD/CAM
2. Understand the graphics display techniques in 2D/3D view of various mechanical components.
3. Create solid modeling of various components.

UNIT I

INTRODUCTION TO CAD/CAM

Fundamentals of CAD / CAM, product cycle and CAD/CAM, Basic components of CIM, Distributed communication system, Computer networks for manufacturing, Role of computer in CAD/CAM. Benefits of CAD/CAM. Concurrent Engineering, Design for Manufacturability

UNIT II

SOLID MODELING AND GRAPHICS SYSTEM

Geometric modeling - wire frame, Surface and Solid models - CSG and B-Rep techniques - Wire frame versus Solid modeling - Introduction the software Configuration of Graphics System, Functions of Graphics Packages, Graphic standards - Introduction to Finite Element Analysis.

UNIT III

CNC MACHINES

Basic principles of numerical control; Methods of coding, Computer Numerical Control (CNC) System, Machine Structure, drive system, CNC programming, Machining centre, CNC Tooling. Direct Numerical control (DNC), Adaptive control machining systems: Adaptive control optimization, Adaptive control constraints.

UNIT IV

COMPUTER AIDED PLANNING SYSTEMS

Principle of computer integrated manufacturing, Approaches to Computer aided Process Planning (CAPP) - Generative and Retrieval CAPP systems, benefits of CAPP, Material Requirement Planning (MRP), mechanism of MRP, Capacity Planning, Computer integrated production planning and control, Shop floor control.

Suggested Reading:

TEXT BOOKS

1. Sadhu Singh. "*Computer Aided Design and Manufacturing*", Khanna Publishers, New Delhi, 1998.
2. Ibrahim Zeid, CAD/CAM, "*Theory and Practice"*, Tata McGraw Hill Ed, 1998.
3. David F. Rogers and Alan Adams. J, "*Mathematical Elements for Computer Graphics*", McGraw - Hill Publishing Company International Edition, 1990.
4. William M. Newman, Robert F.Sproull, "*Principles of Interactive Computer Graphics*", McGraw-Hill International Book Company, 1984.
5. Groover and Zimmers, CAD/CAM; "*Computer Aided Design and Manufacturing, Prentice*" Hall of India, New Delhi, 1994.
6. Groover.M.P, "*Automation Production systems and Computer Integrated Manufacturing, Prentice*" - Hall of India Pvt. Ltd., New Delhi, 1996.

REFERENCES

1. Paul G. Ranky, "*Computer Integrated Manufacture, Prentice*" – Hall International, UK, 1986.
2. Radha Krishnan.P and Kothandaraman.C.P, "*Comuter Graphics and Design*", Dhanpat Rai and sons, New Delhi, 1991.
3. Radha Krishnan.P and Subramanian.S, "*CAD/CAM/CIM*", Wiley Eastern Ltd, New Age International Ltd., 1994

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Assignment :- Assignment based upon learning outcomes, as mention below, will be set by lecturer where the student will be required to achieve the LO's as mentioned below. The assessment of assignment will be done based upon the learning made by the student.

Learning outcomes(LO's)

1) Apply basic draughting /layout techniques.	Application
2) Use a 3d cad package.	Application
3) Demonstrate a knowledge of concept of manufacturing techniques and Assemblies.	Knowledge & Understanding
	Communication Team working

MT-204

Electronic Principles

L	T	P	Sessional: 50 Marks
3	1	-	Theory: 100 Marks
			Total: 150 Marks
			Exam Duration: 3 Hours

UNIT-I

P-N JUNCTION DIODE: - P-N junction and its characteristics, the load line concept, Applications: half-wave and full-wave rectifiers, capacitor-filter circuit, clipping and clamping circuits. Special Diodes: Zener diode, Schottky barrier diode, Varactor diode, Photodiode, Light emitting diode

REGULATED POWER SUPPLIES: - Concept of DC Power supply, line and load regulations, three terminal IC regulators, SMPS.

UNIT-II

TRANSISTORS: - Review of BJT and its characteristics, variation of operating point and stability. Transistor as amplifier, small signal equivalent circuit and Hybrid pi model, Emitter follower, Miller's theorem, R-C coupled amplifier, Multistage amplifier. Transistor Biasing: fixed bias, emitter bias with and without emitter resistance, limitations on BJT'S (at high frequency), Large signal model: Ebers-Moll Model. Large Signal Amplifier: Class A and Class B.

UNIT-III

FEEDBACK OSCILLATORS AND POWER AMPLIFIERS: - basic principles and types of feedback in amplifiers. Effect of feedback, Sinusoidal Oscillators: Use of positive feedback, Barkhausen's criterion, Different oscillator circuits-tuned collector, Hartley Colpitts, phase shift,Wien's bridge, and crystal oscillator.

MULTIVIBRATORS: Concept of multi-vibrator: astable, monostable, and bistable and their applications, IC555.

UNIT-IV

FIELD EFFECT TRANSISTORS: - JFET, pinch-off voltage, Volt-ampere characteristics, small signal model, MOSFET-Enhancement & Depletion mode, V-MOSFET, MOSFET amplifiers: C-S Amplifiers, C-D Amplifiers, C-D Amplifier. Biasing of JFETS and MOSFETS.

TEXT BOOKS:

1. Integrated Electronics: Millman & Halkias; Mc Graw Hill. 2. Electronic circuit analysis and design (Second Edition): D.A. Neamen; TMH

REFERENCE BOOKS:

1. Electronics Principles: Malvino; Mc Graw Hill. 2. Electronics circuits: Donald L. Schilling & Charles Belove: Mc Graw Hill. 3. Electronics Devices & Circuits: Boylestad & Nashelsky; Pearson.

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Assignment :- Assignment based upon learning outcomes, as mention below, will be set by lecturer where the student will be required to achieve the LO's as mentioned below. The assessment of assignment will be done based upon the learning made by the student.

Learning outcomes(LO's)

1. Solve a range of problems in electronic principles choosing an appropriate solution Procedure and making use of the underlying concepts and principles	Enquiry, Knowledge & Understanding
2. Interpret qualitative and quantitative data in electronic principles relating to Practical work and communicate the results of the work by written reports and Presentations, incorporating structured coherent argument	Application and Team working

MT-206

Design Basics

L	T	P	
3	1	-	**Sessional: 50 Marks**
			Theory: 100 Marks
			Total: 150 Marks
			Exam Duration: 3 Hours

UNIT I

Kinematics of simple vibrating motion, Simple harmonic motions, Vectorial representation of harmonic motion. Degree of freedom, Equations of motions, general solution of free vibration, Phase plane method

Damped free vibration, undamped and damped forced vibrations, Vibrating isolation, Vibrating instruments.

UNIT II

Undamped free vibration ,Principle modes , Influence coefficients, Coordinate coupling, Orthogonality, Vibration absorbers.

Geometric method, Stability of equilibrium points, Method of harmonic balance.

Influence coefficients, Dunkerleys equation, Matrix iteration, Holzer method, Rayleigh method, and Rayleigh-Ritz method.

Unit III

Bending & shear Stresses in Beams: Bending stresses in beams with derivation & application to beams of circular, rectangular, I,T and channel sections, composite beams, shear stresses in beams with derivation combined bending torsion & axial loading of beams. Numericals.

Columns & Struts: Column under axial load, concept of instability and buckling, slenderness ratio, derivation of Eulers formulae for the elastic buckling load, Eulers, Rankine, Gordom's formulae Johnson's empirical formula for axial loading columns and their applications, eccentric compression of a short strut of rectangular & circular sections, Numerical.

Unit IV

Slope & Deflection : Relationship between bending moment, slope & deflection, Mohr's theorem, moment area method, method of integration, Macaulay's method, calculations for slope and deflection of (i) cantilevers and (ii) simply supported beams with or without overhang under concentrated load, Uniformly distributed loads or combination of concentrated and uniformly distributed loads, Numerical.

Fixed Beams: Deflections, reactions and fixing moments with SF & BM calculations & diagrams for fixed beams under (I) concentrated loads, (ii) uniformly distributed load and (iii) a combination of concentrated loads & uniformly distributed load.

REFERENCE AND TEXT BOOKS: -

- Mechanical vibration - By G.K. Grover; Nemchand Chand and Sons
- Mechanical Vibration – By Thomson; Prentice Hall
- Mechanical Vibration - By Den Hartog; Mc Graw Hill
- Introductory course to mechanical vibrations – By Rao and Gupta; Wiley Eastern
- Strength of Materials – G.H.Ryder, Third Edition in SI Units 1969 Macmillan, India.
- Mechanics of Materials – (Metric Edition) : Ferdinand P. Beer and E. Russel Johnston,
  Jr. Second Edition, McGraw Hill.
    - Book of Solid Mechanics – Kazmi, Tata Mc Graw Hill
- Strength of Materials – D.S. Bedi - S. Chand & Co. Ltd.
- Advanced Mechanics of Solids and Structures – N. Krishan Raju and D.R.Gururaje-Narosa Publishing House.
- Strength of Materials – Andrew Pytel and Fredinand L. Singer Fourth Edition, Int. Student Ed. Addison – Wesley Longman.

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Assignment :- Assignment based upon learning outcomes, as mention below, will be set by lecturer where the student will be required to achieve the LO's as mentioned below. The assessment of assignment will be done based upon the learning made by the student.

Learning outcomes(LO's)

1) Solve a range of statistics, dynamics and/or kinematics problems and make use of the Underlying concepts and principles	Enquiry, Knowledge & Understanding
2) Interpret qualitative and quantitative data relating to practical work and Communicate the results of the work by written reports, incorporating structured Coherent argument	Application and Team working

MT - 208

Software for Engineers

L	T	P	
3	1	-	**Sessional: 50 Marks**
			Theory: 100 Marks
			Total: 150 Marks
			Exam Duration: 3 Hours

Unit-I

Overview of C Language: C Fundamental : Introduction to C, character set, identifiers, keywords, data types, constants, variable, user defined data types, arithmetic, unary, relational, logical, assignment and conditional operators & expression. Basic structure of a C program. Data I/O statement: single character I/O, formatted I/O, string I/O functions

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Unit-II

Control Structure: Control Statement: sequencing, alteration (if-else, switch, break, continue, go to, iteration, while, do-while, for) and nested loops

Pointers and Structures: Pointers: Character pointers, pointer to arrays, array of pointers. Structure and Unions: Defining and processing structure, Unions Preprocessor Directives

.

Unit-III

Functions : Defining and accessing a function, passing arguments to a function, specifying arguments data types, function prototypes, recursion. Storage Classes- Automatic, External, Static, Register.

Unit –IV

Maple: Solving problems of linear algebra **,**vectors Matrices, Determinants, Cayley Hamilton theorem, root of an algebraic equation , partial fraction, differential equation of single and higher order,

Text Book:

1. Byron Gottfried , "Programming with C, Second edition, Schaum' s outline series" TMH

References:

1. Tenenbaum, Y. Lanhghsam and A. J. Augenstein, "Data Structures Using C and C++", Prentice Hall of India, 1990.
2. B.W. Kerrighan and D.M.Richie, " The C programming language", 2nd edition, PHI

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Assignment :- Assignment based upon learning outcomes, as mention below, will be set by lecturer where the student will be required to achieve the LO's as mentioned below. The assessment of assignment will be done based upon the learning made by the student.

Learning outcomes(LO's)

1. Demonstrate an understanding of an algebraic mathematical package	Knowledge & Understanding
2. Use an algebraic mathematical package to solve problems analytically and Numerically.	Analysis, Application Problem solving
3. Use a programming language.	Application, Knowledge & Understanding Problem solving

BASICS OF INDUSTRIAL SOCIOLOGY, ECONOMICS & MANAGEMENT

HUM – 201 E
L T P
3 1 -

Sessional : 50
Theory : 100
Total : 150
Duration of Exam. : 3 Hrs.

UNIT-I

Meaning of social change, nature of social change, theories of social change. The direction of social change, the causes of social change, the process of social change. Factors of social change – the technological factors, the cultural factors, effects of technology on major social institutions, social need of status system, social relations in industry.

UNIT-II

Meaning of Industrial Economic, Production Function, its types, Least Cost Combination, Law of Variable Proportion, Laws of Return – Increasing, Constant & Diminishing. Fixed & variable costs in short run & long run, opportunity costs, relation between AC & MC, U-shaped short run AC Curve. Price & Output Determination under Monopoly in short run & long run. Price Discrimination, Price Determination under Discriminating Monopoly. Comparison between Monopoly & Perfect Competition.

UNIT – III

Meaning of Management, Characteristics of Management, Management Vs. Administration, Management – Art, Science & Profession, Fayol's Principles of Management.Personnel Management – Meaning & Functions, Manpower – Process of Manpower Planning, Recruitment & Selection – Selection Procedure. Training – Objectives & Types of Training, Various Methods of Training. Labour Legislation in India – Main provisions of Industrial disputes Act 1947;

UNIT – IV

Marketing Management – Definition & Meaning, Scope of Marketing Management, Marketing Research – Meaning, Objectives. Purchasing Management – Meaning & Objectives, Purchase Procedure, Inventory Control Techniques. Financial Management – Introduction, Objectives of Financial decisions, Sources of Finance.

Note : Eight questions are to be set taking two from each unit. The students are required to attempt five questions in all, taking at least one from each unit.

TEXT BOOKS :

1. "Modern Economic Theory" Dewett, K.K., S. Chand & Co.
2. "Economic Analysis" K.P. Sundharam & E.N. Sundharam (Sultan Chand & Sons).
3. "Micro Economic Theory" M.L. Jhingan (Konark Publishers Pvt. Ltd.).
4. "Principles of Economics" M.L. Seth (Lakshmi Narain Aggarwal Educational Publishers – Agra).
5. "An Introduction to Sociology", D.R. Sachdeva & Vidya Bhusan.
6. "Society – An Introductory Analysis", R.M. Maclver Charles H. Page.
7. "Principles and Practices of Management : R.S. Gupta; B.D. Sharma; N.S. Bhalla; Kalyani.

REFERENCE BOOKS

1. "Organization and Management : R.D. Aggarwal, Tata McGraw Hill.
2. Business Organization and Management : M.C. Shukla

MT –210

L	T	P
3	1	-

Sessional: 50 Marks
Theory: 100 Marks
Total: 150 Marks
Exam Duration: 3 Hours

UNIT I

Types of gears, terminology, condition for correct gearing, cyclical and involutes profiles of gear teeth, pressure angle, path of contact, arc of contact, Interference, undercutting, minimum number of teeth, number of pairs of teeth in contact, helical, spiral, worm and worm gear, bevel gear. Gear trains; simple, compound, reverted, and epicyclical, Solution of gear trains, sun and planet gear, bevel epicyclical gear, compound epicyclical gear, pre-selective gear box, differential of automobile, torque in gear taints.

UNIT II

Types of brakes, friction brakes, external shoe brakes, band brakes, band and block brakes, internal expanding shoe brake, dynamometers; absorption, and tensional. Types of governors; watt, Porter, Proell, spring loaded centrifugal, Inertia, Sensitiveness, Stability, Isochronism's, Hunting, Effort and power of governor, controlling force, Static and dynamic balancing of rotating parts, balancing of I. C. Engines, balancing of multi-cylinder engine; V-engines and radial engines, balancing of machines.

UNIT III

Gyroscope, Gyroscopic couple and its effect on craft, naval ships during steering, pinching and rolling, Stability of an automobile (2-wheeers), Introduction, open and closed lop control, terms related to automatic control, error detector, actuator, amplification, transducers, lag in responses, damping, block diagrams, system with viscous damped output, transfer functions, relationship between open –loop and closed loop transfer function.

UNIT IV

Introduction, Terms Used in Vibratory Motion, Types of Vibratory Motion, Types of free Vibrations, Natural frequency of free Longitudinal Vibrations, Natural frequency of free Transverse Vibrations, Effect of Inertia of the Constraint in Longitudinal and Transverse Vibrations, Natural frequency of free Transverse Vibrations Due to a Point Load Acting Over a Simply Supported Shaft, Natural frequency of free Transverse Vibrations Due to Uniformly Distributed Load Over a Simply Supported Shaft, Natural frequency of free Transverse Vibrations of a Shaft fixed at Both Ends and Carrying a Uniformly Distributed Load, Natural frequency of free Transverse Vibrations for a Shaft Subjected to a Number of Point Loads.

Suggested reading:

1. Theory of machines: S. S. Rattan, Tata McGraw Hill Publications.
2. Theory of Mechanism and Machines: Jagdish Lal, Metropolitan Book Co.
3. Mechanism synthesis and analysis: A.H. Soni, McGraw Hill Publications.

4. Mechanism: J.S. Beggs.
5. Mechanics of Machines: P.Black, Pergamon Press.
6. Theory of Machines: P.L.Ballaney, Khanna Publisher

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Assignment :- Assignment based upon learning outcomes, as mention below, will be set by lecturer where the student will be required to achieve the LO's as mentioned below. The assessment of assignment will be done based upon the learning made by the student.

Learning outcomes(LO's)

1) Understand about the uses of gear trains and brake, governors.
2) Understand and learn use of Gyroscope.
3) Understand and learn balancing of IC engines.
4) Understand vibrations (transverse and longitudinal)

MT-212

Electronic Principles Lab

L	T	P
-	-	2

Sessional: 25 Marks
Practical: 25 Marks
Total: 50 Marks
Duration of Exam: 3 Hrs

NOTE:

1. At least ten experiments/ jobs are to be performed/ prepared by students in the semester.

2. At least 7 experiments/ jobs should be performed/ prepared from the below list, remaining three may either be performed/ prepared from the above list or designed & set by the concerned institution as per the scope of the syllabus of Electronic Principles and facilities available in the institute.

3. For Learning outcomes refer to Electronic Principles (MT-204).

List of Experiment

1. Measurement & study of P-N junction diode-I-V and C-V characteristics.
2. Study of Half-wave and Full-wave rectifier.
3. Measurement and study of solar cell –I-V characteristics.
4. Study of Active filters.
5. Study of diode as Clipper and Clamper.
6. Study of Zener diode as Voltage Regulator.
7. Measurement and study of Input and Output characteristics of a BJT.
8. Study of CE amplifier-Current & Power gains and Input, Output Impedances.
9. To study the frequency response of RC coupled amplifier.
10. Measurement and study of Output characteristics of JFET.
11. Measurement and study of Output characteristics of MOSFET.
12. Study of SCR/Thyristor characteristics.
13. Study of UJT characteristics.
14. Study of Push-Pull amplifier.

MT - 214

Software for Engineers lab

L	T	P
-	-	2

Sessional: 25 Marks
Practical: 25 Marks
Total: 50 Marks
Duration of Exam: 3 Hrs

NOTE:

1. At least ten experiments/ jobs are to be performed/ prepared by students in the semester.
2. At least 7 experiments/ jobs should be performed/ prepared from the below list, remaining three may either be performed/ prepared from the above list or designed & set by the concerned institution as per the scope of the syllabus of Software for Engineers and facilities available in the institute.
3. For Learning outcomes refer to Software for Engineers (MT-208).

List of Experiment

1. Determinant of matrix, Rank of matrix
2. Eigen value &vector of matrix. Ad joint and inverse of matrix.
3. Characteristic and minimal polynomial of matrix.
4. Plot the graph in 2D and 3d of any function.
5. Solve algebraic equation
6. Find mean, median mode of given data set.
7. Find variance and standard deviation of given data set.

Text Book:

1. Byron Gottfried , "Programming with C, Second edition, Schaum' s outline series" TMH

References:

1. Tenenbaum, Y. Lanhghsam and A. J. Augenstein, "Data Structures Using C and C++", Prentice Hall of India, 1990.
2. B.W. Kerrighan and D.M.Richie, " The C programming language", 2nd edition, PHI

MT-216

Computer Aided Design and Manufacturing Lab

L	T	P
-	-	2

Sessional: 25 Marks
Practical : 25 Marks
Total: 50 Marks
Duration of Exam: 3 Hrs

PURPOSE

To provide hands on experience on geometric modeling, assembling and drafting using computers and also on part programming.

INSTRUCTIONAL OBJECTIVES

1. Draw various views of a component assembly.
2. Model the components.
3. Assemble the components.
4. Manufacture small components using CNC lathe and mill.

NOTE:

1. At least ten experiments/ jobs are to be performed/ prepared by students in the semester.

2. For Learning outcomes refer to **Computer Aided Design and Manufacturing** (MT-202).

List of Experiments/ jobs

CAD LABORATORY

1. Computer Aided Drafting of Machine Elements Orthographic views - Isometric Views - Sectional views. Dimensioning - Annotations - symbols - welding - surface finish - threads. Text - Bill of Materials - Title Block. Script writing.
2. **Exercise:** Knuckle joint, Gib and Cotter Joint, Screw jack, Footstep bearing, Isometric views with their orthographic views.
3. Geometric modeling of machine components Protrusion - cut - sweep – draft and loft - Modify /edit pattern - Transformation - Boolean operation
4. **Exercise:** Individual parts of universal joint - Flange coupling - Piston and Connecting rod. (Using a popular commercial package)
5. Design any ten entities/machine parts (e.g. Plumber block, Steam stop valve, tail stock, drill machine, universal testing machine, screw jack, bench vice, press die assembly, clamp assembly, flywheel, surface grinder, bevel gear, rack and pinion gear) in 2D and 3D with PRO-E design software/ any other suitable software.
6. Assemble the designed entities/machine parts (e.g. Plumber block, Steam stop valve, tail stock, drill machine, universal testing machine, screw jack, bench vice, press die assembly, clamp assembly, flywheel, surface grinder, bevel gear, rack and pinion gear) to understand the assembly operations in design software.

CAM LABORATORY

1. Manual programming for CNC machines using standard G and M codes CNC Lathe - Part programming for Turning, Facing, Chamfering, Step turning, Taper turning circular interpolation. CNC Milling machine - Part programming for PTP motions, Line motions, Contour motions, Pocketing - Circular, Rectangular and Mirror commands.
2. Part programming using fixed / canned cycles. Drilling, Peck Drilling, Boring, Tapping, Thread cutting
3. Simulation of Tool Path for different operations
4. Machining of small components using CNC Lathe and CNC Milling Machine
5. To study the characteristic features of CNC machine.

6. Part programming (in word address format) experiment for turning operation (including operations such as grooving and threading) and running on CNC machine.

7. Part programming (in word address format or ATP) experiment for drilling operation (point to point) and running on CNC machine.

Recommended books:

1. Engineering Drawing with CAD Applications, D Ostrowsky, 1997, ISBN: 0340706023
2. CADCAM Theory and Practice, I Zeid, 1991, ISBN 0-07-072857-7
3. Pro/Engineer Wildfire, Louis Gary Lamit, 2003, ISBN 0534400833
4. Pro/ENGINEER Wildfire for Designers, Sham Tickoo, Cadcim Technologies, 2003, ISBN 0966353765

Theory of Machines-II lab
MT 218

L	T	P
-	-	2

Sessional: 50 Marks
Practical : 50 Marks
Total: 100 Marks
Duration of Exam: 3 Hrs

NOTE:

1. At least ten experiments/ jobs are to be performed/ prepared by students in the semester.

2. At least 7 experiments/ jobs should be performed/ prepared from the below list, remaining three may either be performed/ prepared from the above list or designed & set by the concerned institution as per the scope of the syllabus of Dynamics of Machine and facilities available in the institute.

3. For Learning outcomes refer to Theory of Machines-II (MT-210).

LIST OF EXPERIMENT

1. To determine experimentally, the moment of inertia of a flywheel and axle compare with theoretical values.
2. To find out critical speed experimentally and to compare the whirling speed of a shaft with theoretical values.
3. To find experimentally the Gyroscopic couple on motorized gyroscope and compare with applied couple.
4. To calculate the torque on a planet carrier and torque on internal gear using epicyclic gear train and holding torque apparatus.
5. To study the different types of centrifugal and inertia governors and demonstrate any one.
6. To study the automatic transmission unit.
7. To study the differential types of brakes.

Semester 5

MT – 301

Communications

L	T	P
3	1	-

Sessional: 50 Marks
Theory: 100 Marks
Total: 150 Marks
Exam Duration: 3 Hours

Unit-1

NOISE: Classification of Noise, Various sources of Noise, Methods of Noise Calculation in networks and inter connected networks. Addition of noise due to several sources; noise in amplifiers in cascade, noise in reactive circuits, Noise figure, its calculation and measurement. Noise temperature, Mathematical representation of random noise, narrow band noise and its representation. Transmission of noise through linear systems, signal to noise ratio, noise bandwidth.

Unit-2

Analog Modulation techniques Information source, encoder, transmitter, channel/medium, receiver, decoder and information sink. Need for modulation, Baseband and Pass band signals, Amplitude Double side band with Carrier (DSB-C), Double side band without Carrier,Single Side Band Modulation, DSB-SC, DSB-C, SSB Modulators and Demodulators, Vestigial Side Band (VSB), Quadrature Amplitude Modulator, Frequency Modulation. Radio Transmitter and Receiver.

Unit-3

Digital Data transmission, Line coding review, Pulse shaping, Scrambling, PCM.Method of generation and detection of coherent & non-coherent binary ASK, FSK & PSK Pulse Modulation Digital Transmission of Analog Signals: Sampling Theorem and its applications, Pulse Amplitude Modulation (PAM), Pulse Width Modulation, Pulse Position Modulation. Their generation and Demodulation., Pulse Code Modulation (PCM), Frequency Division Multiplexing, Time Division Multiplexing ,Line Coding and their Power Spectral density and Code Division Multiplexing.

Unit-4

Optical Fibre communications and Noises in Communication systems Basic Block Diagram, Advantages & Disadvantages of Optical Fiber Communication, Ray Theory, Electromagnetic Mode Theory, Step Index Fiber, Graded Index Fiber, Attenuation- Bending Loses, Scattering, Absorption, Dispersion. Application of optical fibers, Noise in communications, performance comparisons in the presence of noise, Noise in Amplitude Modulation: Analysis ,Signal to Noise Ratio, Figure of Merit, Noise in Frequency Modulation: Pre emphasis ,De Emphasis and SNR Improvement, Phase Locked Loops .

Text Books:-

1. Haykin S., Mohr M., 2006, An Introduction to Analog and Digital Communications, 2nd Ed, Wiley, ISBN: 978-0-471-43222-7
2. Haykin S., 2009, Communication Systems, International Student Version, 5th Ed, Wiley, ISBN: 978-0-470-16996-4
3. Otung I., 2001, Communication Engineering Principles, Palgrave Macmillan, ISBN: 9780333775226
4. Proakis J. G., Salehi M., Bauch G., 2004, Contemporary Communication Ssytems Using MATLAB, 2nd Edition, Thomson Boos/Cole, ISBN: 97805344061

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Assignment :- Assignment based upon learning outcomes, as mention below, will be set by lecturer where the student will be required to achieve the LO's as mentioned below. The assessment of assignment will be done based upon the learning made by the student.

Learning outcomes(LO's)

1) Explain analogue and digital communication principles and systems.	Knowledge & Understanding
2) Apply appropriate analytical techniques to critically evaluate communication Processes and systems.	Analysis
3) Use equipment and simulation models and the analytical skills to critically. Evaluate results and relate them to theory.	Application
4) Communicate ideas effectively.	Communication

MT - 303

Signal Processing

L	T	P	
3	1	-	**Sessional: 50 Marks**
			Theory: 100 Marks
			Total: 150 Marks
			Exam Duration: 3 Hours

UNIT-I

Introduction to signal and its types: Deterministic and Stochastic, periodic and a periodic, impulse functional sequences, analog and discrete, singular functions. Signal representation in terms of singular functions, orthogonal functions and their use in signal representation. Fourier series, Fourier and Laplace Transform, its properties.Convolution threorem, geometrical interpretation and application. introduction to z- transform and inverse z transform, some basic operation in z transforms, initial value theorem and final value theorem.

UNIT-II

Signal representation Correlations and Convolution : time domain representation, frequency domain representation, concept of angular frequency, time period and angular period, continues time representation and discrete time representation of signals, different types of representation of signals, trigonometric representation and exponential representation, rectangular representation and vector representation, phasor diagram representation on digital signals, time shifting of a signal, time scaling of signal, differentiation and integration of the signal, properties of these operation, convolution and correlation of two digital signals, difference between convolution and correlation.

UNIT-III

Sampling, Quantization, A/D Conversion: Need of sampling and what is the basic condition for perfect sampling, sampling theorem, different sampling techniques, sample and hold circuit, flat top sampling, Nyquist criterion and its significance, quantization and concept of step size, some drawback of working with analog signal and benefits of digital signals, conversion of analog signal to digital signal, minimizing the quantization error. Quantization and its significance, effect of quantization on analog to digital signal conversion, step size, quantization error and signal to quantization noise.

UNIT-IV

Probability concepts: random variable, pdf, cdf, moments, distributions, correlation functions.
Characterization of stochastic signals.
System modeling in terms of differential, equations, state variables, difference equations and transfer functions.
Linear time invariant system properties, elementary idea of response determination to deterministic and stochastic signals. Concept of impulse response.

TEXT BOOKS:

1. Andreas A., 2005, Digital Signal Processing: Signals, Systems and Filters, McGraw-Hill, ISBN: 9780071454247.
2. Benoit B., 2005, Fundamentals of Signals and Systems, Course Technology, ISBN: 9781584503811 .
3. Ingle V. K., Proakis J. G., 2007, Digital Signal Processing Using MATLAB, 2nd Edition, Cengage Learning, ISBN-13: 9780495073116.
4. Roberts M. J., 2004, Signals and Systems Analysis of Signals Through Linear Systems, 1st Edition, McGraw Hill, ISBN-13: 9780072930443.

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Assignment :- Assignment based upon learning outcomes, as mention below, will be set by lecturer where the student will be required to achieve the LO's as mentioned below. The assessment of assignment will be done based upon the learning made by the student.

Learning outcomes(LO's)

1) Demonstrate a critical understanding of analogue and digital signal representation and processing techniques.	Knowledge & Understanding
2) Apply appropriate analytical techniques to critically evaluate signals and their Processing.	Analysis
3) Use equipment and simulation models and the analytical skills to critically evaluate results and relate them to theory.	Application
4) Communicate ideas effectively.	Communication

MT - 305

Digital and Embedded Softw.(RT sys) 1

L	T	P	
3	1	-	**Sessional: 50 Marks**
			Theory: 100 Marks
			Total: 150 Marks
			Exam Duration: 3 Hours

UNIT-I

Evolution of Microprocessors and computers, CISC versus RISC, Applications of Microprocessors. Introduction to Embedded System Technology.

Intel 8085 Microprocessor: Architecture-Functions ofvarious blocks and signals, Pin Description, Addressing modes, Instruction set, Simple programs and Basic timingdiagrams.

UNIT-II

8085 Assembly Language Programming, Subroutines, Look up Tables, Time Delays.

Intel 8086 Microprocessor: Architecture, EU, BIU, register set, memory segmentation and physical address computation.

UNIT III

Intel 8086 Pin Description, Minimum Mode and Maximum mode CPU module and its timing diagrams. Reset and Clock generation using 8284, Wait State.

8086 Instruction Format, Addressing Modes, Instruction Set, Assembler Directives. Comparison of 8085 and 8086.

UNIT IV

Writing Assembly Language Programs for 8086, Time Delays, Procedures and Macros.

Memory Devices, Address Decoding Techniques, Interfacing DRAM, Intel's 8255 – Description and interfacing with 8086. Interfacing ADC and DAC. Interfacing Keypad.

Text/Reference Books

1.Microprocessor Architecture, Programming & Applications with 8085 : Ramesh S Gaonkar; Wiley Eastern Ltd
2.D.V.Hall , Microprocessors and Interfacing , McGraw Hill 2nd Edition.

3.J Uffenbeck , The 8086/8088 family , (PHI).

4. Dr K.V.K.K..Prasad,Embedded /Real-Time systems :Concepts ,Design &Programming.,DreamTech Publishers.,2004

Note:-

Examination :-The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Assignment :- Assignment based upon learning outcomes, as mention below, will be set by lecturer where the student will be required to achieve the LO's as mentioned below. The assessment of assignment will be done based upon the learning made by the student.

Learning outcomes(LO's)

1. Explain the hardware design of a simple microprocessor based product.	Application and Problem Solving
2. Design and develop an assembly language program.	Application and Problem Solving

Engineering Mathematics Apps 1

MT-307

L	T	P
3	1	-

Sessional: 50 Marks
Theory: 100 Marks
Total: 150 Marks
Exam Duration: 3 Hours

UNIT – I

Continuity and Differentiability: Introduction, Continuity, Differentiability, Exponential and Logarithmic Functions, Logarithmic Differentiation,

Derivatives of Functions in Parametric Forms, Second Order Derivative, Mean Value Theorem.

UNIT-II

Application of Derivatives: Introduction, Rate of Change of Quantities, Increasing and Decreasing Functions, Tangents and Normals.

UNIT-III

Integrals: Introduction, Integration as an Inverse Process of Differentiation, Methods of Integration, Integrals of some Particular Functions, Integration by Partial Fractions, Integration by Parts.

Definite Integral, Fundamental Theorem of Calculus, Evaluation of Definite Integrals by Substitution, Properties of Definite Integrals.

UNIT-IV

Application of Integrals: Introduction, Area under Simple Curves, Area between Two Curves.

Reduction Formulae: RF of nth order trigonometric functions ($\sin^n x$, $\cos^n x$, $\tan^n x$ and their multiplication with x^n)

Text Book

1. Higher Engg. Mathematics : B.S. Grewal
2. Advanced Engg. Mathematics : E. Kreyzig
3. Golden Integral Calculus: N.P. Bali

Reference Book

1. Engg. Mathematics Vol. II: S.S. Sastry; Prentice Hall of India.

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Assignment :- Assignment based upon learning outcomes, as mention below, will be set by lecturer where the student will be required to achieve the LO's as mentioned below. The assessment of assignment will be done based upon the learning made by the student.

Learning outcomes(LO's)

1) Understand about Integrals and Reduction Formulae
2) Understand about Differentiation and its applications

Production Technology – 1

MT-309

L	T	P
3	1	-

Sessional: 50 Marks
Theory: 100 Marks
Total: 150 Marks
Exam Duration: 3 Hours

UNIT I Metal cutting & Tool life

Basic tool geometry, single point tool nomenclature, chips-various types and their characteristics, mechanism of chip formation, theoretical and experimental determination of shear angle, orthogonal and oblique metal cutting, metal cutting theories, relationship of velocities, forces and power consumption.
Effect of operating parameters life tool geometry, cutting speed, feed depth of out, coolant, materials etc on forces temp. tool life, surface finish etc., tool life relationship, tailor equation of tool life , tool material and mechanism.

UNIT II Economics of metal machining & Multi edged tools

Element of machining cost, tooling economics, machines economics and optimization. Broach tools-types materials and applications, geometry of twist drills, thrust torque and power calculation in drills, form tools-application.

UNIT III Jigs and Fixtures & Tool Layout for Capstans and Turrets

Tool engineering, types of tools, usefulness, principles of lactation, locating and clamping devices, Jigs bushes, drilling Jigs, milling fixtures, turning fixtures, boring and broaching fixtures, different materials for Jigs and fixtures, economic of jigs and fixtures.
Types of turret lathes, main parts, work holding equipment, standard equipment and tools, machine operations, advantages of turret lathes, tool layout, bar stock feeding mechanism,

UNIT IV Metrology

Measurements, linear and angular simple measuring instruments various clampers, screw gauge, sine bar, auto- collimator, comparator-mechanical, electrical, optical, surface finish and its measurement, micro and macro deviation, factors influencing surface finish and evaluation of surface finish.

Suggested reading:

1. Manufacturing science: Ghosh and Malik, E.W. Press
2. Principles of metal cutting: Sen and Bhattacharya, New Central Book.
3. Metal cutting principles: Shaw, MIT Press Cambridge
4. Manufacturing analysis: Cook, Adisson-Wesley
5. Modern machining processes: Pandey and Shan, Tata McGraw Hill Publications

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Assignment :- Assignment based upon learning outcomes, as mention below, will be set by lecturer where the student will be required to achieve the LO's as mentioned below. The assessment of assignment will be done based upon the learning made by the student.

Learning outcomes(LO's)

1) Understand basic Metal cutting process & Tool life and metal forming operations.
2) Understand economics of metal machining.
3) Understand geometry of multi edged tools.
4) Understand and learn different measuring instruments.

MT-311

Organizational Management

L	T	P	
3	1	-	**Sessional: 50 Marks**
			Theory: 100 Marks
			Total: 150 Marks
			Exam Duration: 3 Hours

UNIT -1

Overview of Management:

Understanding of the management terminologies. A general management overview and assessment briefing. Students will recognize the role of management in organization. The different roles of management and the functions of management Planning Organizing Staffing Leading Controlling

UNIT –II

Nature of Organization:

Formation and Classification of Organizations. Basic forms of organization, their role and structure in the economy. Types of organization: sole proprietorship, partnership, joint venture and corporation. Control: To describe the control process, types of control and control as a management function

UNIT–III

Management Theory and Practice:

An overall understanding of organizational theory. To fully appreciate the different classification of organization. From the era of scientific management to Contingency theory. Motivation: To describe the role of motivation in management. To describe the different theories of management relating to motivation Theories of leadership. Different types of structure of organization

UNIT IV

Planning and Decision Making:

Students will be able to learn the types of planning and the overall planning process. The nature of Managerial Decision making, effective decision making and overcoming barriers to making decisions. Planning for recruitment and people composition. Use of budgets for planning and control

TEXT BOOKS:

Stephen P. Robbins and Mary Coulter, (2002), Management; Int. Ed., Prentice-Hall
Kathryn K. Bartol and David C. Martin, (1998), Management; Int. Edition, McGraw-Hill

REFERNCE BOOKS:

Jones G.R., George J.M., Hill C.W.L., (2000), Contemporary Management; 2nd Ed. McGraw-Hill
Davis, D, (1997) The Art of Managing Finance; Third Edition; McGraw-Hill
Drucker P. (1999). Innovation and Entrepreneurship. Butterworth

Note:-

Examination:- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

MT - 313
Signal Processing Lab

L	T	P
-	-	3

Sessional : 25Marks
Practical : 25 Marks
Total: 50 Marks
Duration of Exam: 3 Hrs

NOTE:

1. At least ten experiments/ jobs are to be performed/ prepared by students in the semester.

2. At least 8 experiments/ jobs should be performed/ prepared from the below list, remaining 2 may either be performed/ prepared from the above list or designed & set by the concerned institution as per the scope of the syllabus of Signal Processing and facilities available in the institute.

3. For Learning outcomes refer to Signal Processing (MT-303).

LIST OF EXPERIMENTS

1. Introduction to MATLAB and to generate different type of signals.
2. Write a MATLAB script to find average value, root mean square value, mean square value of a given signal.
3. Write a MATLAB script to find average power of a given signal.
4. Write a MATLAB script to find energy of a given signal.
5. Write a MATLAB script to find commutation of even and odd symmetries in a signal with algebraic operations.
6. Write a MATLAB script to find signal parameters (amplitude-scaling, time-scaling and time-shifting).
7. Write a MATLAB script to find different operations on a given sequence.
8. Write a MATLAB script to obtain sampling and find out sample rate.
9. Write a MATLAB script to find out quantization of a given signal.
10. Write a MATLAB script to obtain linear convolution of two signals.
11. Write a MATLAB script to obtain circular convolution of two signals.
12. Write a MATLAB script to obtain correlation of two signals.
13. Write a MATLAB script to find Z-transform of a given sequence.

TEXT BOOKS:

1. Andreas A., 2005, Digital Signal Processing: Signals, Systems and Filters, McGraw-Hill, ISBN: 9780071454247.
2. Benoit B., 2005, Fundamentals of Signals and Systems, Course Technology, ISBN: 9781584503811 .
3. Ingle V. K., Proakis J. G., 2007, Digital Signal Processing Using MATLAB, 2nd Edition, Cengage Learning, ISBN-13: 9780495073116.
4. Roberts M. J., 2004, Signals and Systems Analysis of Signals Through Linear Systems, 1st Edition, McGraw Hill, ISBN-13: 9780072930443.

MT - 315

Digital and Embedded Software(RT sys) 1 Lab

L	T	P
-	-	2

Sessional: 25 Marks
Practical: 25 Marks
Total: 50 Marks
Duration of Exam: 3 Hrs

NOTE:

1. At least ten experiments/ jobs are to be performed/ prepared by students in the semester.

2. At least 8 experiments/ jobs should be performed/ prepared from the below list, remaining 2 may either be performed/ prepared from the above list or designed & set by the concerned institution as per the scope of the syllabus of Digital and Embedded Software 1 and facilities available in the institute.

3. For Learning outcomes refer to Digital and Embedded Software 1 (MT-305).

List Of Experiments

1. Familiarization with 8085 trainer kit.

2. Write an Assembly Language Program for the Addition of two 8-bit numbers.

   (a) without carry

   (b) with carry

3. Write an Assembly Language Program for the Subtraction of two 8-bit numbers.

4. Write an Assembly Language Program for calculating the smallest number in a string.

5. Write an Assembly Language Program to arrange a set of given numbers in ascending order.

6. Write a program to generate a delay of 2 msec in 8085 Microprocessor.

7. Familiarization of 8086 trainer kit.

8. Write an Assembly Language Program for the subtraction of two 16-bit numbers.

9. Write an Assembly Language Program for arranging a string in descending order.

10. Write an Assembly Language Program for generating Fibonacci Series.

11. Write an Assembly Language Program for calculating the largest number in a string.

12. Write a program to generate a delay of 10 msec in 8086 microprocessor.

This laboratory also involves the practical implementation of real life challenges using 8051/68hc11. Here problem is described along with necessary flow chart and block diagram. Students are required to integrate software and hardware and provide a suitable solution. The technique used by one student for finding the solution cannot be used by others. So by this way multiple solutions of the same problem can be achieved.

Text/Reference Books

1. Microprocessor Architecture, Programming & Applications with 8085 : Ramesh S Gaonkar; Wiley Eastern Ltd

2. D.V.Hall , Microprocessors and Interfacing , McGraw Hill 2nd Edition.

3. J Uffenbeck , The 8086/8088 family , (PHI).

4. Dr K.V.K.K..Prasad, Embedded /Real-Time systems :Concepts ,Design &Programming., DreamTech Publishers.,2004

MT - 317

Communications lab

L	T	P
-	-	2

Sessional: 50 Marks
Practical : 50 Marks
Total: 100 Marks
Duration of Exam: 3 Hrs

NOTE:

1. At least ten experiments/ jobs are to be performed/ prepared by students in the semester.

2. At least 8 experiments/ jobs should be performed/ prepared from the below list, remaining two may either be performed/ prepared from the above list or designed & set by the concerned institution as per the scope of the syllabus of Communications and facilities available in the institute.

3. For Learning outcomes refer to Communications (MT-301).

List of Experiment

1.To Study the AM modulation Techniques

2.To Study the FM modulation Techniques

3. To Study the ASK modulation/Demodulation Techniques.

4. To Study the FSK modulation/Demodulation Techniques

5. To Study the PSK modulation/Demodulation Techniques

6. To Study the PCM modulation Techniques

7. To Study Numerical Aperture in optical fiber communication system.

8. To Study FDM and TDM modulation Techniques

Text Books:-

1. Haykin S., Mohr M., 2006, An Introduction to Analog and Digital Communications, 2nd Ed, Wiley, ISBN: 978-0-471-43222-7
2. Haykin S., 2009, Communication Systems, International Student Version, 5th Ed, Wiley, ISBN: 978-0-470-16996-4

3. Otung I., 2001, Communication Engineering Principles, Palgrave Macmillan, ISBN: 9780333775226
4. Proakis J. G., Salehi M., Bauch G., 2004, Contemporary Communication Ssytems Using MATLAB, 2nd Edition, Thomson Boos/Cole, ISBN: 97805344061

Practical Training Report

MT 319

L	Total	
-	-	**Sessional : 50 marks**
		Duration of Exams. : 03 hours

Student will submit summer training (about 8 weeks' industrial training) report for his/her assessment.

Semester 6

MT - 302

Applications of Control

L	T	P	Sessional: 50 Marks
3	1	-	Theory: 100 Marks
			Total: 150 Marks
			Exam Duration: 3 Hours

Unit 1

INTRODUCTION

Concepts of Control Systems- classifications of control system and their differences. Different examples of control systems. Modeling of typical elements of a servo mechanism (motor, gearbox, amplifier and sensors). Block diagram reduction and Signal flow graph algebra. .

Unit II

TIME RESPONSE ANALYSIS

Standard test signals - Time response of first order and second order systems. Steady state response: Steady state errors and error constants. Effect of addition of poles and zeros to transfer functions. Responses with P, PI and PID Controllers

Unit III

STABILITY ANALYSIS

Concepts of Stabiltiy -S-plane and frequency response analysis-gain and phase margins. Routh Stability Criterion-Necessary and sufficient condition of stability-special cases. Root Locus Technique: The root locus concept - construction of root loci-effects. Frequency response analysis - Bode plots – GM and PM -Stability Analysis from Bode Plots. Nyquist Plots: Nyquist Stability Criterion, Assessment of relative stability. Compensation techniques –classifications-Lag, Lead and Lag lead compensator.

Unit IV

STATE SPACE ANALYSIS OF CONTINUOUS SYSTEMS

Concepts of state, state variables and state model, derivation of state models from block diagrams- State space representations– Solutions of state equations. Concepts of Controllability and Observability.

TEXT BOOKS:

1. Linear control system with MATLAB Applications- B.S Manke, Khanna Publishers

2. Automatic Control Systems 8th edition– by B. C. Kuo 2003– John Wiley and son's.,

3. Control Systems Engineering – by I. J. Nagrath and M. Gopal, New Age International

(P) Limited, Publishers, 2nd edition.

REFERENCE BOOKS:

1. Modern Control Engineering – by Katsuhiko Ogata – Prentice Hall of India Pvt. Ltd., 3rd edition, 1998.

2. Control Systems Engg. by NISE 3rd Edition – John Wiley

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Assignment :- Assignment based upon learning outcomes, as mention below, will be set by lecturer where the student will be required to achieve the LO's as mentioned below. The assessment of assignment will be done based upon the learning made by the student.

Learning outcomes(LO's)

1. Derive theoretical models for the study of engineering control systems.	Knowledge & Understanding
2. Improve on an undamped control system in order for it to exhibit a stable response.	Enquiry and Problem Solving
3. Investigate and report upon the use of control in improving a system's response.	Communication

MT - 304

Digital and Embedded Softw. (RT sys) 2

L	T	P	Sessional: 50 Marks
3	1	-	Theory: 100 Marks
			Total: 150 Marks
			Exam Duration: 3 Hours

UNIT-1

Introduction to Microcontroller: -Evaluation of Microcontrollers. Classification of Microcontroller – On the basis of architecture andinstruction set.Embedded processor.Comparison between Microprocessor and Microcontrollers.A brief history of 8051.Overview of 8051 microcontroller family.Block Diagram and Architecture of 8051. Pin Description of 8051 microcontroller.

UNIT-2

Assembly and C programming of Microcontroller :- 8051 Instruction Format,Addressing modes, Data transfer instructions. Logical operations, Arithmetic operations, looping, jumpand call instructions, Time Delay programming. SFR (Special Function Registers).Development of different programs.Data types and Time Delays in 8051 C. Logic and Arithmetic operation in C.

UNIT-3

8051 Internal Architecture: - I/O port programming. Serial communication using 8051.Counter andTimers programming.Different modes of timer.Serial data input / output,Setting Baud Rate.Interrupt Programming –timer interrupts, external hardware interrupts, serial communication interrupt, priority interrupt. External memory interfacing.

UNIT-4

Interfacing of microcontroller:-Microcontroller based seven segment numeric displays.Microcontroller interfacing with keypad, Microcontroller based D/A& A/D converters andMicrocontroller based LCD display.Motor interfacing with microcontroller 8051.

TEXT BOOKS

1. The 8051 Microcontroller And Embedded Systems Using Assembly And C: Muhammad Ali Mazidi.
2. The 8051 Microcontroller: Kenneth J. Ayala

REFERENCE BOOKS

1. The 8051 Microcontroller: Mackenzie
2. 8051 Microcontroller: Internals, Instructions, Programming & Interfacing: GhoshalSubrata

Note:-

Examination :-The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Assignment :- Assignment based upon learning outcomes, as mention below, will be set by lecturer where the student will be required to achieve the LO's as mentioned below. The assessment of assignment will be done based upon the learning made by the student.

Learning outcomes(LO's)

1. Extend C programming to interface to microcontroller hardware(electro/mechanical).	Analysis, Application and Problem Solving
2. Understand the connection between C and the embedded engineering product.	Analysis, Application and Problem Solving
3. Apply the development cycle of embedded system design to an engineering application.	Analysis, Application and Problem Solving

Engineering Mathematics Apps 2

MT-306

L	T	P
3	1	-

Sessional: 50 Marks
Theory: 100 Marks
Total: 150 Marks
Exam Duration: 3 Hours

UNIT – I

Trignometric Functions: Positive and negative angles. Measuring angles in radians and in degrees and conversion from one measure to another. Definition of trigonometric functions with the help of unit circle. Truth of the identity basic trigonometric identities, for all angles. Signs of trigonometric functions.
Expressing sum and difference of trigonometric angles and their simple applications.

UNIT-II

Trignometric Identities & Equations: Identities related to multiple trigonometric angles. General solution of trigonometric equations.

Inverse Trigonometric Functions: Introduction, Basic Concepts, Properties of Inverse Trigonometric Functions.

UNIT-III

Numerical solution of Differential Equation: Introduction, Taylor's series method, Euler's and Modified Euler's method, RungeKutta Method, Milne's Predictor and Corrector Method, Picard's Method of Successive Approximation, .ABM Method

UNIT-IV

Three Dimensional Geometry: Introduction, Direction Cosines and Direction Ratios of a Line, Equation of a line in space, Angle between two lines, shortest distance between two lines.

Plane, Co-planarity of Two lines, Angle between two planes, Distance of a Point from a Plane, Angle between a line and a plane.

Text Book

1. Higher Engg. Mathematics : B.S. Grewal
2. Advanced Engg. Mathematics : E. Kreyzig

Reference Book

1. Engg. Mathematics Vol. II: S.S. Sastry; Prentice Hall of India.

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Assignment :- Assignment based upon learning outcomes, as mention below, will be set by lecturer where the student will be required to achieve the LO's as mentioned below. The assessment of assignment will be done based upon the learning made by the student.

Learning outcomes(LO's)

1) Understand about Trignometry and inverse trigonometric functions
2) Understand about numerical methods and Introduction to 3D

Pneumatic And Hydraulic Instrumentation

MT-308

L	T	P
3	1	-

Sessional: 50 Marks
Theory: 100 Marks
Total: 150 Marks
Exam Duration: 3 Hours

UNIT – I

Introduction: Basic requirement for Pneumatic System, Servicing compressed air: Air compressors, air treatment stages, pressure regulation(FRL unit) Introduction to hydraulic system comparison of pneumatic & hydraulic system.

UNIT – II

Pneumatic & hydraulic Actuators, cylinders Spring, spring less, spring with positioner piston & motor actuators, electro pneumatic actuators, cylinder lubrication, cylinder with sensors, hydraulic actuators, control valves types of control valves, basic pneumatic circuits.

UNIT – III

Timing & sequence diagram : Cylinder sequencing hydraulic & pneumatic Accessories pneumatic telemetry systems: Pneumatic temperature & pressure transmitters their working & applications, electrical control in pneumatic circuit. Introduction to PLC, architecture of PLC , Programming of PLC.

UNIT – IV

Pneumatic & Hydraulic Controllers(P,PI,PID),P&ID diagrams, converters :I/P,P/I, Pneumatic Relay, Pneumatic Sensors Flapper nozzle assembly. Maintenance & troubleshooting of pneumatic & hydraulic systems. Introduction to Mechatronics & its approach.

TEXT BOOKS:

1. Process Control Instrumentation Technology, C. D. Johnson ,PHI, 2002
2. Computer based Industrial Control, Krishankant PHI,2004
3. Pneumatic & Hydraulic, Andrew Parr PHI, 1999.

REFERENCE BOOKS:

1. Process Industrial Instruments & Control Handbook D.Considine , McGraw Hill ,1993.
2. Instrument Engineers Handbook ,B.G liptak ,BH Publication ,1999.

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Assignment :- Assignment based upon learning outcomes, as mention below, will be set by lecturer where the student will be required to achieve the LO's as mentioned below. The assessment of assignment will be done based upon the learning made by the student.

Learning outcomes(LO's)

1) Understand about basic elements of Pneumatic System and hydraulic Actuators
2) Understand about Timing & sequence diagram.
3) Learn about Pneumatic & Hydraulic Controllers(P,PI,PID).

Production Technology-II
MT-310

L	T	P	
3	1	-	Sessional: 50 Marks Theory: 100 Marks Total: 150 Marks Exam Duration: 3 Hours

UNIT I

Kinematics of Machine Tools.

Drives in machine tools for rotation movement, stepped and step less drives, mechanical and hydraulic drives, Individual and group drives, selection of extreme values of spindle speed on a lathe, principle of stepped regulation, Layout of spindle speeds. A.P., G.P. and Logarithmic progressions, Kinematics advantage of G. P. for gear box design, selection of common ratio, Number of steps in a given speed range, design of all geared head stock.

UNIT II

Gear manufacturing and layout for Automatics

Classification of gear production methods, gear generation, gear hobbling gear shaping, gear finishing methods; shaving, burnishing grinding, Lapping gear shaping, gear finishing methods; shaving, burnishing grinding, honing.

Automatic lathes, classification of automatic machines, setting up of automatics, tooling layout and operation sheet, cam design, tool layout of automatic screw machine, programmed automatic lathes, bar stock feeding.

UNIT III

Unconventional Machining Processes & Press Working Tools

Need for unconventional processes, Ultrasonic machining, electrochemical machining, electrochemical grinding, Laser beam machining their process parameters, principle of metal removal, applications advantages and limitations.

Introduction, classifications of presses and dies, hear, action in die cutting operations, center of pressure, mathematical calculation of center of pressure, clearances, cutting forces, punch dimensioning.

UNIT-IV

Machine Tools Vibration and Dynamometry

Introduction, effects of vibration no-machine tools, cutting conditions, work piece and tools life, source of vibration, machine tool chatter, Need for measuring forces, basic requirements of measuring techniques, design requirements of dynamometers, 3-divisional turning dynamometer and its calibration, drill dynamometers.

Suggested reading:

1. Manufacturing science: Ghosh and Malik, E.W. Press

2. Principles of metal cutting: Sen and Bhattacharya, New Central Book.
3. Metal cutting principles: Shaw, MIT Press Cambridge
4. Manufacturing analysis: Cook, Adisson-Wesley
5. Modern machining processes: Pandey and Shan, Tata McGraw Hill Publications

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Assignment :- Assignment based upon learning outcomes, as mention below, will be set by lecturer where the student will be required to achieve the LO's as mentioned below. The assessment of assignment will be done based upon the learning made by the student.

Learning outcomes(LO's)

1) Understand Kinematics of Machine Tools and tool layout of automatics
2) Understand Unconventional Machining Processes & Press Working Tools.
3) Understand Machine Tools Vibration and Dynamometry.

FUNDAMENTALS OF MANAGEMENT

HUT-302E

L	T	P	
3	1	-	**Sessional: 50 Marks**
			Theory: 100 Marks
			Total: 150 Marks
			Exam Duration: 3 Hours

UNIT-I Financial Management

Introduction of Financial Management Objectives of Financial Decisions, Status and duties of Financial Executives Financial Planning – Tools of financial planning Management of working capital Factors affecting requirements of working capital. Sources of finance Use of financial ratios for analyzing performance of company

UNIT-II Personnel Management

Personnel Management – Meaning, Nature and Importance; Functions of Personnel Management – (a) Managerial Functions and (b) Operative functions Job Analysis: Meaning and Importance; Process of Job Analysis; Job Description and Job specification. Job rotation and Job enlargement, Job enrichment, Human Resource Development-Meaning and concept

UNIT-III Production Management

Production Management: Definition and Objectives
Plant location: Ideal plant location. Factors affecting plant location.
Plant Layout: Ideal plant layout, factors affecting plant layout
Work Measurement: Meaning, Objectives and Essentials of work measurement. Production Control: Meaning and importance of production control and steps involved in production control Inventory management, ABC analysis, Economic order quantity, Just in Time

UNIT-IV Marketing Management

Nature, scope and importance of marketing management. Modern Marketing concepts. Role of marketing in economic development. Marketing Mix. Marketing Information System Meaning, nature and scope of International Marketing Supply chain management

Note:-

Examination:- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Text Books:

Financial Management, IM Pandey, Vikas Publishing House Pvt Ltd

Marketing Management, Philip Kotler, Kevin Lane Keller, Abraham Koshy, Mithileshwar Jha, Pearson Education Inc.

Human Resource Management: Text and Cases, K.Aswathapa Tata McGraw Hill, New Delhi,

Chunawalla & Patel Production and Operations Management, Himalaya Publishing House

Production Technology-II Lab

MT-312

L	T	P
-	-	3

Sessional : 50 Marks
Practical : 50 Marks
Total : 100 Marks
Duration of Exam : 3 Hrs

NOTE:

1. At least ten experiments/ jobs are to be performed/ prepared by students in the semester.
2. At least 8 experiments/ jobs should be performed/ prepared from the below list, remaining 2 may either be performed/ prepared from the above list or designed & set by the concerned institution as per the scope of the syllabus of Production Technology 2 and facilities available in the institute.
3. For Learning outcomes refer to Production Technology 2 (MT-310).

List of Experiments:

Introduction to milling machines its types functions applications etc.

1. Practice of slab milling on milling machine.
2. Practice of slotting on milling machine.
3. To cut gear teeth on milling machine using dividing head.
4. Introduction to gear hobber, demonstration of gear hobbing and practice.
5. Introduction to various grinding wheels and demonstration on the surface grinder.
6. Introduction to tool and cutter grinder and dynamometer.
7. Study the constructional detail and working of CNC lathes Trainer.
8. To carry out welding using TIG/MIG welding set.
9. Introduction, demonstration & practice on profile projector & gauges.
10. To make a component on lathe machine using copy turning attachment.
11. To cut external threads on a lathe.
12. To cut multi slots on a shaper machine.
13. To perform drilling and Boring operation on a Component.

Suggested reading:

1. Manufacturing science: Ghosh and Malik, E.W. Press
2. Principles of metal cutting: Sen and Bhattacharya, New Central Book.
3. Metal cutting principles: Shaw, MIT Press Cambridge
4. Manufacturing analysis: Cook, Adisson-Wesley
5. Modern machining processes: Pandey and Shan, Tata McGraw Hill Publications

MT - 314

Digital And Embedded Softw. (RT sys) 2 Lab

L	T	P
-	-	2

Sessional: 25 Marks
Practical : 25 Marks
Total: 50 Marks
Duration of Exam: 3 Hrs

NOTE:

1. At least ten experiments/ jobs are to be performed/ prepared by students in the semester.

2. At least 8 experiments/ jobs should be performed/ prepared from the below list, remaining 2 may either be performed/ prepared from the above list or designed & set by the concerned institution as per the scope of the syllabus of Digital And Embedded Software -2 and facilities available in the institute.

3. For Learning outcomes refer to Digital And Embedded Software -2 (MT-304).

1. Introduction to microcontroller and interfacing modules.
2. To interface the seven segment display with microcontroller 8051.
3. To create a series of moving lights using 8051 on LEDs.
4. To interface the stepper motor with microcontroller.
5. To display the digital output of ADC on 16*2 LCD Module.
6. To display character ‘A’ on 8*8 LED Matrix.
7. To display the data and time on LCD Module.
8. To switch on and off relay by using keys.
9. To interface the DC motor using H-Bridge.
10. To interface a keypad with microcontroller.

This laboratory involves the practical implementation of real life challenges using 8051/68hc11.Here problem is described along with necessary flow chart and block diagram. Students are required to integrate software and hardware and provide a suitable solution. Most important the technique used by one student cannot be used by others. So by this way multiple solutions of the same problem can be achieved.

REFERENCE BOOKS

1. The 8051 Microcontroller: Mackenzie
2. 8051 Microcontroller: Internals, Instructions, Programming & Interfacing: Ghoshal Subrata

MT - 316

Applications of Control lab

L	T	P
-	-	2

Sessional: 50 Marks
Practical: 50 Marks
Total: 100 Marks
Duration of Exam: 3 Hrs

NOTE:

1. At least ten experiments/ jobs are to be performed/ prepared by students in the semester.

2. At least 8 experiments/ jobs should be performed/ prepared from the below list, remaining 2 may either be performed/ prepared from the above list or designed & set by the concerned institution as per the scope of the syllabus of Applications of Control and facilities available in the institute.

3. For Learning outcomes refer to Applications of Control (MT-302).

LIST OF EXPERIMENTS

MATLAB based experiments

1. For the second order systems below, find ξ_n, T_s, T_p, T_r, % overshoot, and plot the step response using MATLAB.

$$T(s) = \frac{130}{s^2 + 15s + 130}$$

2. A plant to be controlled is described by a transfer function

$$T(s) = \frac{s + 5}{s^2 + 7s + 25}$$

Obtain the root locus plot using MATLAB.

3. Write a program in MATLAB to obtain the Nyquist plots for the following transfer function for k = 30.

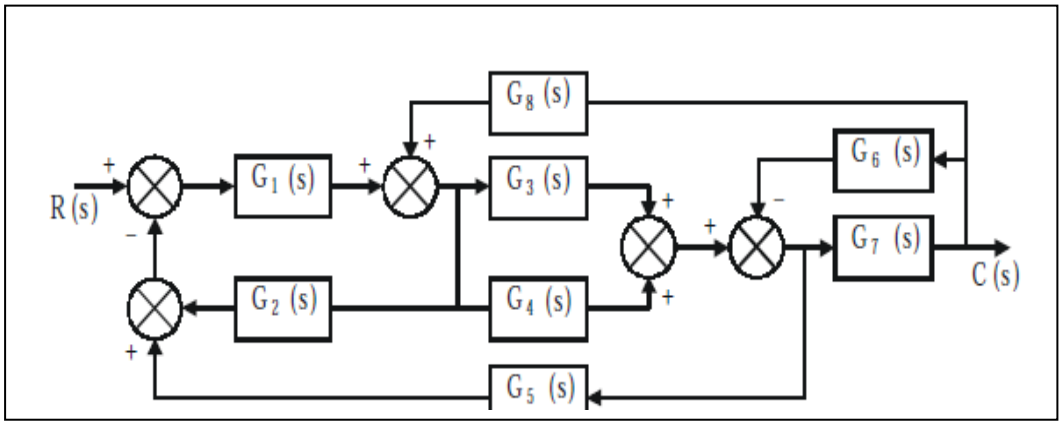
$$G(s) = \frac{k(s+1)(s+3+7i)(s+3-7i)}{(s+1)(s+3)(s+3+7i)(s+3-7i)}$$

4. A PID controller is given by

$$G_c(s) = 29.125\frac{(s+0.57)^2}{s}$$

Draw a Bode diagram of the controller using MATLAB.

5. Reduce the system shown below to a single transfer function, T(s) = C(s)/R(s) using MATLAB.



The transfer functions are given as

$$G1(s) = \frac{1}{s+7}$$

$$G2(s) = \frac{1}{s^2+3s+5}$$

$$G3(s) = \frac{1}{s+8}$$

$$G4(s) = \frac{1}{s}$$

$$G5(s) = \frac{7}{s+3}$$

$$G6(s) = \frac{1}{s^2+7s+5}$$

$$G7(s) = \frac{5}{s+5}$$

$$G8(s) = \frac{1}{s+9}$$

Hardware based experiments

1. DC SPEED CONTROL SYSTEM

(a) To study D.C. speed control system on open loop and close loop.
(b) To study of Transient performance, another time signal is added at the input of control Circuit.
(c) To study how eddy current breaking is being disturbance rejected by close and open loop.

2. DC MOTOR POSITION CONTROL

(a) To study of potentiometer displacement constant on D.C. motor position control.
(b) To study of D. C. position control through continuous command.
(c) To study of D.C. position control through step command.
(d) To study of D.C. position control through Dynamic response.

3. SYNCHRO TRANSMITTER / RECEIVER

(a) To study of Synchro Transmitter in term of Position v/s Phase and voltage magnitude with respect to Rotor Voltage Magnitude/Phase.
(b) To study of remote position indication system using synchro transmitter/receiver.

4. PID CONTROLLER

(a) To observe open loop performance of building block and calibration of PID Controls.
(b) To study P, PI and PID controller with type 0 system with delay.
(c) To study P, PI and PID controller with type 1 system.

5. LEAD LAG COMPENSATOR

(a) To study the open loop response on compensator.

(b) Close loop transient response.

REFERENCE BOOKS:

1. Modern Control Engineering – by Katsuhiko Ogata – Prentice Hall of India Pvt. Ltd., 3rd edition, 1998.

2. Control Systems Engg. by NISE 3rd Edition – John Wiley

Semester 7

MT-401
Digital Signal Processing

L	T	P
3	1	-

Sessional: 50 Marks
Theory: 100 Marks
Total: 150 Marks
Exam Duration: 3 Hours

UNIT – I:

DISCRETE TRANSFORMS: Z- transform and its properties, Inversion of Z-transform, One sided Ztransform and solution of differential equations. Analysis of LTI systems in Z-domain, causality, stability, schur-cohn stability test; relationship between Z-transform and Fourier transform. Frequency selective filters; all pass filters, minimum-phase, maximum-phase and mixed-phase systems. Frequency domain sampling and DFT; properties of DFT, Linear filtering using DFT, Frequency analysis of signals using DFT, radix 2, radix-4, goertzel algorithm, Chirp Z-transform, applications of FFT algorithm, computation of DFT of real sequences. Quantization effects in computation of DFT.

UNIT – II:

IMPLEMENTATION OF DISCRETE TIME SYSTEMS: Direct form, cascade form, frequency sampling and lattice structures for FIR systems. Direct forms, transposed form, cascade form parallel form. Lattice and lattice ladder structures for IIR systems. State space structures Quantization of filter co-efficient structures for all pass filters.

UNIT – III:

DESIGN OF FIR FILTERS: Characteristics of practical frequency selective filters. Filters design specifications peak pass band ripple, minimum stop band attenuation. Four types of FIR filters Design of FIR filters using windows. Kaiser window method comparison of design methods for FIR filters Gibbs phenomenon, design of FIR filters by frequency sampling method, design of optimum equiripple FIR filters, alternation theorem.

UNIT – IV:

DESIGN OF IIR FILTERS: Design of IIR filters from analog filters, Design by approximation of derivatives, Impulse invariance method bilinear transformation method characteristics of Butterworth, Chebyshev, and Elliptical analog filters and design of IIR filters, Frequency transformation, least square methods, design of IIR filters in frequency domain.

Suggested Books:

1. John G. Proakis, Digital Signal Processing, PHI

2. S. K. Mitra, Digital Signal Processing , TMH
3. Rabiner and Gold, Digital Signal Processing, PHI
4. Salivahan, Digital Signal Processing , TMH
5. Digital Signal Processing: Alon V. Oppenhelm;PHI

Note:-

Examination :- The Examiners will set eight questions, taking two from each UNIT. The students are required to attempt five questions in all selecting at least one from each UNIT. All questions will carry equal marks.

Assignment :- Assignment based upon learning outcomes, as mention below, will be set by lecturer where the student will be required to achieve the LO's as mentioned below. The assessment of assignment will be done based upon the learning made by the student.

Learning outcomes(LO's)

1) Demonstrate systematic knowledge and understanding of key aspects and Concepts o f digital signal processing techniques, devices and architectures.	Knowledge & Understanding
2) Apply and extend appropriate analytical techniques to signal processing Processes and critically evaluate the outcomes.	Analysis
3) Use of simulation software and the key analytical skills and understanding to Evaluate arguments and assumptions in relating results to theory.	Application
4) Communicate ideas effectively.	Communication

MT - 403

Systems Engineering

L	T	P	
3	1	-	**Sessional: 50 Marks**
			Theory: 100 Marks
			Total: 150 Marks
	`		**Exam Duration: 3 Hours**

UNIT-I

System, its objectives, quality, optimization and reliability**,** different types of problems: Importance, value, timing, accountability, and Organizational structure in the systems with its definition and environment, multi-objective analysis: Multi-Objective Decision Analysis (MODA) and trade-offs,

UNIT-II

Multidisciplinary Design Optimization (MDO), Trade space Exploration, Design structure matrices, System Dynamics, parameters for optimization of system and planning and analysis with mathematical optimization techniques, simulation techniques to understand system modeling using Monte Carlo Simulation Method

UNIT-III

Shortest path problem including Project Evaluation and Review Technique / Critical Path Method, Allocation of scarce resources: Assignment using Hungarian Method, Decision analysis with the help of decision trees, Dynamic programming and numerical on Dynamic programming

UNIT-IV

Advanced problems of Project Evaluation and Review Technique/Critical Path Method, IDEF and IDEF0-14 techniques, different dimensions of quality of the system and its assurance with control charts: R and $\bar{x}$ -charts and standards, TQM with its stages: inspection, quality control, quality assurance and TQM and Taguchi methods, reliabilities of the system in context with design and analysis. Explanation of Reliability with three tests: failure-terminated, time-terminated and sequential.

Text Books/ Reference Books

- Systems Engineering - An Introduction, J Boardman, 1990, Prentice Hall, ISBN: 0-13-504424-3
- Systems Engineering and Analysis, BS Blackford and WJ Fabrycky, 1990, Prentice Hall, ISBN: 0-13-880840-6

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Assignment :- Assignment based upon learning outcomes, as mention below, will be set by lecturer where the student will be required to achieve the LO's as mentioned below. The assessment of assignment will be done based upon the learning made by the student.

Learning outcomes(LO's)

1) Specify problems and design generic frameworks requiring systems solutions.	Application Knowledge & Understanding
2) Use systems optimisation techniques in industrial and societal environments.	Application
3) Use decision making and problem solving tools including statistical techniques in Contextual situations.	Problem solving
4) Critically appraise systems engineering in context.	Knowledge & Understanding Reflection

MT-405
Sensors and Actuators

L	T	P	
3	1	-	**Sessional: 25 Marks**
			Theory: 100 Marks
			Total: 125 Marks
			Exam Duration: 3 Hours

UNIT I - INTRODUCTION AND DISPLACEMENT MEASUREMENT

Sensors - Basic requirements of a sensors- Classification of sensors- Static and Dynamic characteristics of sensors- Displacement Sensors- Linear and Rotary displacement sensors- Potentiometer, Capacitive and Inductive type displacement sensor- position sensors- Optical encoder, Photoelectric sensor, Hall Effect Sensor.

UNIT II - MEASUREMENT OF PROXIMITY, FORCE AND PRESSURE

Eddy current proximity sensor- Inductive Proximity sensor- Capacitive Proximity sensor - Pneumatic Proximity sensors- Proximity Switches- Contact and Noncontact type – Strain Gauge – Diaphragm Pressure Sensor- Capsule Pressure sensors- Bellows Pressure Sensor- Bourdon tube pressure sensor- Piezoelectric Sensor- Tactile sensor.

UNIT III - MEASUREMENT OF VELOCITY, FLOW AND LEVEL

Tachogenerator - Pyroelectric sensors - Ultrasonic sensor – Resistive sensor- Pitot tube – Orificeplate - flow nozzle- Venturi tubes – Rotameter- Electromagnetic flow meter. Float level sensor- Pressure level sensor- Variable capacitance sensor.

UNIT IV - MEASUREMENT OF TEMPERATURE, MOTION AND LIGHT SENSORS

Thermocouples- Thermistors -Thermodiodes - Thermotransistors- Bimetallic Strip- Resistance Temperature Detector- Infrared Thermography. Vibrometer and accelerometer- seismic accelerometer. Photoresistors -Photodiodes - Phototranistors- Photocondutors.

UNIT V - MICRO SENSORS AND ACTUATORS

Micro Sensors: Principles and examples, Force and pressure micro sensors, position and speed micro sensors, acceleration micro sensors, chemical sensors, biosensors, temperature micro sensors and flow micro sensors. Micro Actuators: Actuation principle, shape memory effects-one way, two way and pseudo elasticity. Types of micro actuators- Electrostatic, Magnetic, Fluidic, Inverse piezoeffect, other principles.

TEXT BOOKS

1. Sawhney.A.K, *"Course in Mechanical Measurements and Instrumentation"*, Dhanpat Rai and Sons, 1997.
2. Patranabis.D, "*Sensors and Transducers"*, Wheeler publisher, 1994.
3. Sergej Fatikow and Ulrich Rembold, *Microsystem "Technology and Microbotics"* First edition, Springer -Verlag NEwyork, Inc, 1997.
4. Gupta.I.C, "*A Text book of Engineering Metrology"*, Dhanpat Rai and Sons, 1996.
5. *"ASTE Hand Book of Industries Metrology"*, Prentice Hall of India, 1992.

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Assignment :- Assignment based upon learning outcomes, as mention below, will be set by lecturer where the student will be required to achieve the LO's as mentioned below. The assessment of assignment will be done based upon the learning made by the student.

Learning outcomes(LO's)

1) To Understand the basic concepts of sensors.
2) To study about the various sensors types based on their applications.
3) To study about the micro level sensors and actuators.

MT - 407
Digital Signal Processing Lab

L	T	P
-	-	2

Sessional: 25 Marks
Practical: 25 Marks
Total: 50 Marks
Duration of Exam: 3 Hrs

NOTE:

1. At least ten experiments/ jobs are to be performed/ prepared by students in the semester.

2. At least 8 experiments/ jobs should be performed/ prepared from the below list, remaining 2 may either be performed/ prepared from the above list or designed & set by the concerned institution as per the scope of the syllabus of Digital Signal Processing and facilities available in the institute.

3. For Learning outcomes refer to Digital Signal Processing (MT-401).

LIST OF EXPERIMENTS

1. Define a function to compute DTFT of a finite length signal. Plot the magnitude and phase plots using subplots. Use this function to obtain DTFT of a 21 point triangular pulse over the domain 10<n<10: Plot the results over -1t<w<1t.
2. Write a program to plot the following functions: a)impulse function b)unit step c)unit ramp d) exponential e) sinusoidal
3. Verify the Symmetry, time shifting and modulating properties of DTFT with a rectangular pulse of length 21.
4 Study the aliasing effect by using a Sinusoidal Signal. Show the plots of' continuous time Signal. Sampled Signal and reconstructed signals by using subplot.
5. Study different window functions available in signal processing toolbox and their Controlling parameters.
6. Write a program to plot real, imaginary phase and magnitude of exponential function.
7 Verify the properties of Discrete Fourier Transform (DFT).
8 Write a program to find the convolution of two sequences using in built convolution function
9 Study of Digital Signal Processing Kit (TMSI ADSP)
10. Implementation of FlR/digital filter using DSP Kit.

TEXT BOOKS

1. Digital Signal Processing A Practical Approach, Emmanuel Ifeachor & Barrie Jervis, 2001, Prentice Hall, ISBN: 0201569199
2. Linear System s and Signal, B. P. Lathi, Berkeley Cam bridge Press, 1992, ISBN: 0941413349.
3. Signal Analysis and Signal Processing, Philip Denbeigh, 1998, Addison Wesley, ISBN:0201178605.
4. Principles of Signals and System s, Fred Taylor, 1994, McGraw Hill, ISBN: 0079111718.

MT - 409

The Professional Engineer (Project 1)

L	T	P
2	-	3

Sessional: 100 Marks
Practical: 100 Marks
Total :- 200 Marks
Duration of exam: 03 hrs

Unit-1

Ethics-scope and issues in the engineering sector: What are research ethics, Importance of research ethics, Plagiarism Avoidance, Referencing and citation

Unit 2

Project Management and Scheduling Techniques: Planning Activities, Estimating the time requirements of a project, Project Milestones, Project Quality, Project Management, Gantt Chart, Pert Chart, COCOMO model, Function Point Analysis,

Unit 3

Research Methodologies: Designing a Research Programme, Research Approaches, Quantitative Methods, Qualitative Methods.

Data Gathering Methods: Questionnaire, Interview, Focus Groups, Observation, Studying Documentation

Unit 4

Abstract and Literature Review: Writing an abstract, Structure of a Literature Review, Guidelines for writing a literature review, Identifying a good literature review and a bad literature review, Literature searching techniques and sources.

Text Books

1. Research Methodology: Methods and Techniques- C R Kothari
2. Project Management: Planning and Control Techniques- Rory Burke

Reference Books

1. Research Methodology- R. Panneerselvam

Note: Students will have to submit a preparatory report for a proposed project, including literature survey, data gathering methods, ethical assessment, project plan and resources and a logbook detailing background work, sources and reflective comment on the work undertaken.

MT-411

Sensors and Actuators lab

L	T	P	
-	-	3	**Sessional: 25 Marks**
			Practical: 25 Marks
			Total: 50 Marks
			Duration of Exam: 3 Hrs

NOTE:

1. At least ten experiments/ jobs are to be performed/ prepared by students in the semester.
2. At least 5 experiments/ jobs should be performed/ prepared from the below list, remaining 5 may either be performed/ prepared from the above list or designed & set by the concerned institution as per the scope of the syllabus of Sensors and Actuators and facilities available in the institute.
3. For Learning outcomes refer to Sensors and Actuators (MT-405).

LIST OF EXPERIMENTS

Characteristics of

1. Displacement sensors
a. LVDT
b. RVDT
2. Position sensors
a. Potentiometer
b. Synchro and resolver
c. Rotary encoders – absolute and incremental
3. Speed sensors
a. Tachogenerator
b. Hall effect sensor
4. Force and pressure sensors
a. Strain gauge
b. Load cell
5. Torque sensors
a. Load cell
b. Hall effect sensors
c. Stroboscope
6. Proximity and range sensors
a. Infra red sensors
b. SONAR
c. Inductive, Capacitive, Magnetic and Optical Proximity Sensors
7. Temperature Sensors
a. Thermocouple
b. Resistance Temperature detectors
c. Thermistors
d. IC Temperature sensors
8. Flow measurement
a. Venturimeter
b. Hot wire anemometer

9. Vibration measurement using Accelerometer

10. Miscellaneous measurements

LIST OF EXPERIMENTS

1. Stepper motors (Unipolar and Bipolar)– Modes of operation

2. DC motor characteristics (Armature controlled and BLDC)

3. DC Servo motor characteristics

4. Characteristics of Solenoids and relays

5. Electro pneumatic actuators – Linear and rotary (full and limited rotation)

6. Exercises involving mechanical drives (gear trains, lead screw and ball

screw, belt drives etc.,)

TEXT BOOKS

1. Sawhney.A.K, *"Course in Mechanical Measurements and Instrumentation"*, Dhanpat Rai and Sons, 1997.

2. Patranabis.D, "*Sensors and Transducers"*, Wheeler publisher, 1994.

3. Sergej Fatikow and Ulrich Rembold, *Microsystem "Technology and Microbotics"* First edition, Springer -Verlag NEwyork, Inc, 1997.

4. Gupta.I.C, "*A Text book of Engineering Metrology"*, Dhanpat Rai and Sons, 1996.

5. *"ASTE Hand Book of Industries Metrology"*, Prentice Hall of India, 1992.

Seminar
MT – 413

P/D	Total	Sessional: 25
2	2	

Student will give a talk on some technical topics.

Note: The seminar will continue in eighth semester and will be evaluated in eighth semester.

In Plant Training Report
MT – 415

L	T	P/D	Total
	-	-	

Sessional: 125 marks

Student will submit a summer training report (about 8 weeks industrial training) for his/her assessment.

Advanced Manufacturing Technology
MT 417

L	T	P
3	1	-

Sessional: 50 Marks
Theory: 100 Marks
Total: 150 Marks
Exam Duration: 3 Hours

UNIT I

Hot machining, Machining of Plastics, Unit heads, Plastics cooling, electro forming, Surface Cleaning and Surface Treatments, Surface Coatings, Paint Coating and Slushing, Adhesive Bonds, Adhesive Bond Joints, Adhesives, Surface Coating for Tooling, Graphite Mould Coating, Vacuum Mould Process.

Introduction, Types of Composites materials, Agglomerated Materials, Reinforced materials, Laminates, Surface Coated Materials, Production of Composite Structures, Fabrication of particulate composite Structures, Fabrication of reinforced Composite, Fabrication of Laminates, Machining, Cutting and Joining of Composites.

UNIT II

Introduction, Polymers, Polymerization, Addition of Polymers, Plastics, Types of plastics, Properties of Plastics, Processing of Thermoplastic Plastics, Injection Moulding, Extrusion Process, Sheet forming processes, Processing of Thermosetting Plastics, Compression Moulding, Transfer Moulding, Casting of Plastics, Machining of plastics, other processing methods of plastics

Introduction, casting, thread chasing, Thread Rolling, Die Threading and Tapping, Thread Milling, Thread Measurement and Inspection

UNIT III

Theoretical basis of metal forming, classification of metal forming processes, cold forming, hot working, Warm working, Effect of variables on metal forming processes, Methods of analysis of manufacturing processes, Open Die forging, Rolling Power Rolling, Drawing, Extrusion.

UNIT IV

Introduction, Product Application, Limitation of Die Casting, Die Casting Machines, Molten metal Injection systems, I lot chamber machines, Cold chamber machines, Die casting Design, Design of Die casting Dies, Types of Die casting Dies, Die design, Die material, Die Manufacture, Die Lubrication and Coating, Preheating of Dies, Vacuum Die Casting, Recent trends In Die Casting Process.

Quality Control, CMM, Application of AI in CAD/CAM/CIM., Reverse Engineering, Rapid Prototyping and Tooling.

Reference and Text Books:

1. Principles of Manufacturing
   - By J.S.Campbell, Tata McGraw-Hill
2. Production Engineering Sciences
   - By Pandey and Sinh Standard Pub.
3. A text book of Production Technology
   - By P.C. Sharma S.Chand & Company.
4. Manufacturing Materials and Processes
   - By Lindberg Prentice Hall
5. A text book of Production Engineering
   - By P.C. Sharma S.Chand & Company.
6. Manufacturing Technology
   - Radhakrishnan,Scitech
7. Manufacturing Science
   - A.Ghosh, East-West Publications.

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Finite Element Method
MT 419

L	T	P
3	1	-

Sessional: 50 Marks
Theory: 100 Marks
Total: 150 Marks
Exam Duration: 3 Hours

UNIT I

Basic Concept, Historical background, Engineering applications, general description, Comparison with other methods.
Need for weighted-integral forms, relevant" mathematical concepts and formulae, weak formulation of boundary value problems, variational methods, Rayleigh-Ritz method, and weighted residual approach.

UNIT II

Model boundary value problem, finite element discretization, element shapes, sizes and node locations, interpolation functions, derivation of element equations, connectivity, boundary conditions, FEM solution, post-processing, compatibility and completeness requirements, convergence criteria, higher order and isoparametric elements, natural coordinates, Langrange and Hermite polynomials.

UNIT III

External and internal equilibrium equations, one-dimensional stress-strain relations, plane stress and strain problems, axis-symmetric and three dimensional stress-strain problems, strain displacement relations, boundary conditions, compatibility equations, computer programs.

UNIT IV

Weighted residual methods: Galerkin FE formulation – axially loaded bar – heat flow in a bar. Isoparametric formulation: Natural coordinates – linear and quadratic bar element – linear triangle and plane bilinear elements for scalar fields – jacobian matrix – element matrices - Gauss quadrature – requirements for isoparametric elements – accuracy and mesh distortion. Advanced topics: Introduction to non-linear and dynamic finite element procedures, error estimation, coupled problems (only brief details are needed).

Reference and Text Books:

1. The Finite Element Method
- By Zienkiewicz, Tata McGraw
2. The Finite Element Method for Engineers
-By Huebner, John Wiley
3. An Introduction to the Finite Element Method
-By J.N.Reddy, McGraw Hill

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Applied Numerical Techniques and Computer Programming
MT 421

L	T	P	
3	1	-	**Sessional: 50 Marks**
			Theory: 100 Marks
			Total: 150 Marks
			Exam Duration: 3 Hours

Unit I

Interpolation and Curve Fitting : Lagrangian Polynomials, Divided differences, Interpolating with a cubic spline, Bezier Curves and B-Spline Curves, Polynomial approximation of surfaces, Least Square approximations, Flow Chart for Computer Programmes.

Unit II

Solving Non-Linear Equations: Bisection Method, Linear Interpolation Methods, Newton's Methods, Muller's Methods, Fixed-point Iteration Method, Flow Chart for Computer Programmes.

Solving Sets of Equations: The Elimination Method, Gauss and Gauss Jordan Methods, Other Direct Methods, Iterative Methods, The Relaxation Methods, Flow Chart for Computer Programmes.

Unit III

Numerical Differentiation and Integration: Derivatives from difference tables. High Order Derivative, Extra-polation Techniques. The Trapezoidal Rule, Simpson's Rules. Flow Chart for Computer Programmes.

Numerical Solution of Ordinary Differential Equations:The Taylor-Series Method, Euler and modified Euler methods,Range-Kutta methods,Miline's Method.The adams-Moulton method, Convergence Criteria, Errors and error Propagation. Flow Chart for Computer Programmes.

Unit IV

Numerical Solution of Ordinary and Partial Differential Equations Taylor series method, Euler and modified Euler method, Runge Kutta methods, Milne's method, Finite differences approximations of partial derivatives,Solution of Laplace equation(Elliptic)by standard5–point formula, solution of one dimensional heat equation(Parabolic)by Bender-Schmidt method, crank–Nicolson method, Solution of one dimensional wave equation(Hyperbolic) by iterative method.

Text Books :

1. Applied Numerical Analysis by Curtis f. Gerald and Patrick O. Wheatley – Published by Addison Wesley.
2. Introductory Methods of Numerical Methods – S.S. Sastry, PHI, New Delhi.
3. Numerical Method : E. Balagurusamy ,Tata McGraw Hill Publication.

Reference Books :

1. MATHEMATICA – A system for doing mathematics by Computer by Wolfram, Stephen – Published by Addition – Wesley.
2. Applied Numerical Methods by Camahan, Brice,Et.al, Published by Wiley, York.

3. Numerical Solution of partial differential equations by Smith, G.D. Published by Oxford University Press London.
4. Iterative Methods for the solution of Equations by J.F. Traub – Published by Prentice Hall.
5. Numerical Methods in Engineering and Science by B.S. Grewal- Published by Khanna Publishers.
6. Numerical Methods in Engineering by M.G. Salvadori and M.L. Baron- Published by Prentice Hall India.

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

MT - 423

Advanced Microprocessor

L	T	P
3	1	-

Sessional: 50 Marks
Theory: 100 Marks
Total: 150 Marks
Exam Duration: 3 Hours

UNIT-I

INTEL'S X86 FAMILY :Introduction, Register set, data formats, addressing modes, interrupts, memory hierarchy, pipelining, segmentation, paging, real and virtual mode execution, protection mechanism, task management.

UNIT-II

ARCHITECTURE OF INTEL X86 F AMIL Y :CPU block diagrams, Pin diagrams and internal descriptions of -80286.386,486 and Pentium. Instruction formats. Intel X86 Instruction set. Assembler directives.

UNIT-III

ARITHMETIC CO-PROCESSORS: Data formats; 80287 architecture - Pin diagram, internal architecture, status register, control register; tag register. Instruction set - data transfer, arithmetic, comparison, transcendental operations, constant operations and control instructions. Interfacing 80287 with 80286 Programming examples.

UNIT-IV

HIGHER- CO-PROCESSORS : Introduction to 80387,80487, pentium processors

NOTE: The question paper shall have eight questions in all organized into four sections, each section having two questions from each of the four units. The candidate shall have to attempt five questions in all , selecting at least one question tram each unit.

Suggested Books:

Daniel Tabak, Advanced Microprocessors (2nd cd) Mc Graw Hill Pub. Barry B.Brey,

The Intel Microprocessors (4'" ed) PHI Pub. , DV-Hall, Microprocessors & Interfacing (2nd ed) Mc Graw Hill Pub.

Renewable Energy Resources

MT - 425

L	T	P	
3	1	-	**Sessional: 50 Marks**
			Theory: 100 Marks
			Total: 150 Marks
			Exam Duration: 3 Hours

UNIT-I

Direct energy conversion, description, working principle, magneto hydrodynamic systems (MHD), thermoelectric generators, thermionic generator, fuel cells, solar cells, EMF generated, power output, losses and efficiency, applications, hydrogen conversion and storage systems.

UNIT-II

Extraterrestrial solar radiation, components of radiation, geometry of earth and sun, geometry of collector arid the solar beam, effects of earth's atmosphere, measurements of solar radiation, calculation of heat balance for a solar collector, type of water heaters, selective surfaces, crop heaters, space heating, space cooling, water desalination, solar

solar cell construction
type and adaptations of photovoltaic, other types of photoelectric and thermo electric generation, problems.

UNIT III

Principles of hydro power, assessing the resource for small installations, an impulse turbine, reaction turbines, hydro electric systems, the hydraulic rain pump, wind turbine types and terms, linear momentum and basic theory, dynamic matching, steam tube theory, characteristics of the wind, power extraction by a turbine, electricity generation, mechanical power, problems.

Introduction, tropic level photosynthesis, photosynthesis at the plant level, thermodynamic considerations, photosynthesis, molecularlevel photosynthesis, synthetic photosynthesis, bio fuel classification, bio-mass production for energy farming, direct combustion for heat, pyrolysis (destructive distillation), alcoholic fermentation, anaerobic digestion for bio-gas, agrochemical fuel extractions, problems.

UNIT IV

Introduction, wave motion, wave energy and power,wave patterns, devices, the causes of tides, enhancement of tides flow power, tidal range power, world range power sites, problems.

Principles of Ocean Thermal Energy Conversion (OTEC), heal exchangers, pumping requirements, other practical considerations, introduction to geothermal energy, geophysics, dry rock and hot aquifer analysis, harnessing geothermal resources, problems.

Text Books:

1. Renewable Energy Rsources by John W. Twidell and Anthony D. Weir, published by E.& F. N. Spon Ltd. London.
2. Non-Conventional energy sources by Rai G D, Khanna Publishers, New Delhi

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Computational Fluid Dynamics

MT - 427

L	T	P
3	1	-

Sessional: 50 Marks
Theory: 100 Marks
Total: 150 Marks
Exam Duration: 3 Hours

UNIT I

Methods of prediction: comparison of experimental investigation Vs theoretical calculation; Mathematical description of physical phenomena; significance of governing differential equations; the general form of governing differential equation.

Classification of problems: Physical classification: Equilibrium problems and Marching problems; Mathematical classification: Elliptic, parabolic and hyperbolic partial differential equations; Nature of co-ordinates; one way and two-way co-ordinates; Proper choice of co-ordinates.

UNIT II

The concept of discretisation; Finite differences; Taylor series formulation; Finite difference discretisation of ordinary and partial derivatives; Truncation error, round-off error, discretisation error; Consistency and stability of numerical schemes; Variation formulation; Method of weighted Residuals, control volume formulation.

UNIT III

Steady one- dimensional Conduction, The inter-face conductivity, Non linearity, Source-Term Linearization, Types of Boundary Conditions. Unsteady one-dimensional Conduction: Explicit, Crank-Nicolson and Fully Implicit scheme's Discretisation of two and three-dimensional problems, Stability analysis.

UNIT IV

Introduction to finite volume method – regular finite volume – approximations in the discretization technique – discretization procedure – semi-explicit method – implementation of boundary conditions (only elementary theory and no direct problems).

Reference and Text Books:

1. Computational Fluid Dynamics
   - By Anderson, McGraw-Hill
2. Numerical Heat Transfer and fluid flow
   - By Patankar, McGraw-Hill

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Mechatronics Engineering

MT- 429

L	T	P
3	1	-

Sessional: 50 Marks
Theory: 100 Marks
Total: 150 Marks
Exam Duration: 3 Hours

UNIT I

What is Mechatronics? A measurement system with its constituent elements, open and closed loop systems, sequential controllers, micro processor based controllers, the Mechatronics approach.

A review of displacement, position velocity, motion, force fluid pressure, liquid flow, liquid level, temperature, light sensors/along with performance terminology, selection of sensors, input data by switches, Signal Conditioning Processes, Inverting Amplifiers, Non Inverting Amplifiers, Summing, Integrating, Differential, Logarithmic Amplifiers, Comparators, Amplifiers Error, Filtering, Wheatstone Bridge, Temperature Compensation, Thermocouple Compensation, Modeling of Mechanical systems and Simulations

UNIT II

Pneumatic and hydraulic systems, directional control valves, valve symbols, pressure control valves, cylinder sequencing, process control valves, rotary actuators, mechanical systems - types of motion, kinematic chains, cams, gear trains, Ratchet & Pawl, belt and chain drives, bearings, mechanical aspects of motor selection, electrical systems, mechanical and solid state switches, solenoids, D.C. & A.C moto4rs, stepper motors, problems.

UNITIII

Electrical Actuation Systems: Switching Devices, Mechanical Switches – SPST, SPDT, DPDT, Debouncing keypads; Relays, Solid State Switches, Diodes, Thyristors, Transistors, Solenoid Type Devices: Solenoid Operated Hydraulic and Pneumatic Valves, Control of DC Motors, Permanent Magnet DC Motors, Bush less Permanent Magnet DC Motors, AC Motors and speed controls, Stepper Motors and Controls, Servo Motors.

System Interfacing and data acquisition:

Data acquisition systems, Data loggers, SCADA, Interfacing requirements, Buffers, Darlington Pair, Handshaking, Serial and Parallel Port Interfacing, Peripheral Interface Adapters, Analog to Digital Conversion, Digital To Analog Conversion, Sample and Hold Amplifiers, Multiplexers, Time Division Multiplexing, Digital Signal Processing, Pulse Modulation, Component Interconnection and Impedance Matching, Interfacing Motor drives. Electrical power supply and protection.

UNIT IV

A review of number systems and logic gates, Boolean algebra, Karnaugh maps, sequential logic basic structure of programmable logic controllers, input/output processing, programming mnemonics; timest, internal relays and counters, master and jump controls, data handling, analog input/output, selection of a PLC, PROBLEMS.

Control, microcomputer structure, micro-controllers, applications, programming languages,

instruction sets, assembly language programs, subroutines, Why C Language? A review of program structure, branches, loops, arrays, pointers, examples of programs, interfacing, input/output, interface requirements. Peripheral interface adapters, serial communication interface, examples of interfacing, problems.

Text Book:

1. Mechatronics by W. Bolton, published by Addition Wesley.
2. Nitaigour Premchand Mahalik, Mechatronics principles, concepts and applications, Tata Mc Graw Hill.
3. Joji P, Pneumatic Controls, Wiley.
4. Dan Necsulescu, Mechatronics, Pearson
5. David g Alciatore, Michael B Histand, "Introduction to Mechatronics and measurement systems", Mc Graw Hill Education.
6. A Smaili, F Mrad, "Mechatronics – Integrated Technologies for Intelligent Machines, Oxford Higher Education.
7. Nitaigour Premchand Mahalik, "Mechatronics Principles, Concepts & Application", Tata McGraw Hill Publishing Co.Ltd., 2003.

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Antenna & Wave Propagation

MT- 431

L	T	P	
3	1	-	**Sessional: 50 Marks**
			Theory: 100 Marks
			Total: 150 Marks
			Exam Duration: 3 Hours

UNIT I :

Basic Principle: Scalar & vector potential for electric & magnetic components, Retardation, retarded vector potential relation between scalar & vector potential current element.

Basic Antennas: Half wave dipole, quarter wave mono pole, short dipole, calculation of radiation resistance, effective length & pointing vector. Current distribution: Linear current & sinusoidal distribution.

UNIT II :

Antenna Parameter: Solid angle, radiation intensity, directive gain directivity, power gain, beam width: HPBW, FNBW, band width, Q factor resonance in antenna, antenna as a transmission line, antenna as active component, antenna temp. Radiation pattern, Eplane H plane, efficiency. Effective aperture, scattering aperture, loss aperture, directivity, polarization. Transmission between two Antenna, Reciprocity theorem application of Reciprocity theorem.

Low Freq Antennas: Monopole, folded, loop antenna, biconical antenna, yagiuda antenna: different antenna used for A.M & FM transmission. VHF & LHF antennas, Resonant Antennas & non-resonant antenna, design parameter of different Antenna.

UNIT III :

Microwave Antenna: Parabolic Antenna, Lens Antenna, horn Antenna, Antenna used for tracking & antenna used for satellite communication. E-plane horn, H-Plane horn circulars Horn, pyramidal Horn.

Radio Wave Propagation: Different technique for radio wave propagation: Ground wave propagation, space wave, sky wave, duct propagation, troposcatter.

UNIT IV :

Ionosphere propagation: Skip distance, LUF, MUF, Critical freq, Variation of refractive index with height, effect of earth magnetize field on ionospheres propagation, calculation of refractive index dielectric constant & Conductivity for ionospheres. Ionospheres abnormalities.

Antenna Array: Multiplication of Pattern, Significance of Antenna Array, Broadside, End fired, Uniform, Parasitic feed in Antenna Array, Calculation of Directivity & B.W for Antenna array. Increased directed directive end fired array. Tapering of Array: Binomial Array, Techepbyshe.

References:

1. Jordan Balmian:- Electromagnetic Field Theory (PHI)
2. Kraus Antenna & Wave propagation (Mc Graw Hill)
3. Antenna & Wave propagation by K.D.Prasad (Satya Prakashan)
4. Collin R.E :- Antenna & Wave Propagation (TMH)

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Semester 8

MT - 402
Data Communication Systems

L	T	P
3	1	-

Sessional: 50 Marks
Theory: 100 Marks
Total: 150 Marks
Exam Duration: 3 Hours

Unit 1

Information Theory Concepts: Information source, encoder, transmitter, channel/medium, receiver, decoder and information sink. Information sources, DMS, Entropy, Types of channels, Channel capacity, Capacity of AWGN channels. Conditional and Joint Entropy, Relationship among different entropies,

Source Encoding Techniques- Shannon-Fano coding, Huffman minimum redundancy coding, Conditional and Joint Entropy, Relationship among different entropies, Source coding techniques- Shannon-Fano coding, Huffman minimum redundancy coding.

Unit 2

Flow & Error Control Techniques: Generation and detection of coded signals, Types of Error control strategies-Forward error correction & ARQ, Transmission errors-random and burst error; Error detection methods- Parity checking, Checksum error detection& Cyclic redundancy check. Classification of error control codes-Block code, Convolution code.

Unit 3

Digital Modulation Techniques: ASK,BPSK BFSK,QPSK, MSK , Error probability in BPSK and BFSK,MSK, Error probability in MSK, PCM, Probability of error in PCM system, calculation of signal-to-noise ratio. Classification of noise, calculation of Noise temperature, signal to noise ratio &Noise figure, Performance of receiver in presence of AWGN.

Unit 4

Cellular systems: mobile radio. Overview of communication networks, mobile communications, Cellular Concept, Frequency Reuse, Multiple access technologies TDM, FDM CDMA and OFDM. Trunking and Grade of Service, Cell Splitting and Sectoring, Doppler Spread, Multipath Fading.

Text /Reference Books:

1. F. M. Reza, Information Theory, McGraw Hill.
2. D.C.Aggarwal, Satellite Communications, Khanna Publishers.
3. Theodore S.Rappaport, Wireless Communications Principles and Practice, IEEE Press, Prentice Hall.
4. Simon Haykin, Communication systems, John Wiley & Sons.
5. Sanjay Sharma, Communication Systems, Kataria Sons.

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Assignment :- Assignment based upon learning outcomes, as mention below, will be set by lecturer where the student will be required to achieve the LO's as mentioned below. The assessment of assignment will be done based upon the learning made by the student.

Learning outcomes(LO's)

1) Demonstrate systematic understanding of data communication techniques and Systems.	Knowledge & Understanding
2) Apply appropriate analytical techniques to critically evaluate communication Processes and systems.	Analysis
3) Use simulation models and the key analytical skills to critically evaluate results And relate them to theory.	Application
4) Communicate ideas effectively.	Communication

MT - 404
Digital System Design

L	T	P
3	1	-

Sessional: 50 Marks
Theory: 100 Marks
Total: 150 Marks
Exam Duration: 3 Hours

UNIT-I

DESIGN FOR: Testability, Estimating Digital System Reliability, Transmission lines, Reflections and Transmissions,

COMBINATIONAL CIRCUIT DESIGN: Timing hazards, Static hazards using Maps, Dynamic hazards, Designing hazards free circuits, Barrel shifter design, Simple Floating point encoder

UNIT-II

CLOCKED SYNCHRONOUS STATE MACHINE ANALYSIS: Clocked Synchronous state Machine Design, Designing state machine using state diagram, State machine synthesis using transition lists , State machine design examples, Decomposing State machine, feedback Sequential Circuits, feedback Sequential Circuit design

UNIT-III

SYNCHRONOUS DESIGN METHODOLOGY: Synchronous system structure, Impediment to Synchronous Design, Synchronizer failure and Meta-stability .

UNIT-IV

Finite State Machine, PLD, and FPGA : Finite State Machine: Describe the sequential behavior using a FSM, Example of FSM, Convert a finite state machine to a Controller: a sequential circuit having a register and combinational logic, analytical modeling of Moore and Mealy machine, Introducing Key Symbols used in PLD Design, Programmable Read Only Memory (PROM), Programmable Logic Arrays (PLA), Programmable Array Logic (PAL) or Generic Array Logic (GAL).

TEXT BOOKS:

1. Digital Logic, Applications and Design, J. M. Yarbrough (1997) West Publishing, ISBN 0-314-06675-6.
2. Contemporary Logic Design, R. H. Katz (1994) Benjamin/Cummings, ISBN 0-805-32703-7.

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Assignment :- Assignment based upon learning outcomes, as mention below, will be set by lecturer where the student will be required to achieve the LO's as mentioned below. The assessment of assignment will be done based upon the learning made by the student.

Learning outcomes(LO's)

1) design and implement small scale, medium scale and programmable logic devices Applying logic minimisation techniques using boolean algebra, karnaugh maps, function Generators and quine-mccluskey algorithm.	Analysis and Application
2) design digital systems using synchronous sequential logic to implement moore & mealy Type state controllers applying state & logic minimisation techniques using state Reduction & state allocation methods.	Analysis and Application Knowledge & Understanding
3) demonstrate an understanding of advanced logic implementation using fpgas and vhdl Programming language.	Knowledge & Understanding Learning

MT - 406

Sound and Noise Control

L	T	P	
3	1	-	**Sessional: 50 Marks**
			Theory: 100 Marks
			Total: 150 Marks
			Exam Duration: 3 Hours

UNIT-I

Review of sound propagation theory and terminology: Introduction, sound waves, speed of sound waves, amplitude and intensity of sound waves, decibels, sound intensity levels, sound propagation, sound measurement, frequency and frequency bands, complex noise patterns and octave bands, acoustics, psycho acoustics, thresh hold of hearing, loudness, pitch, masking, frequency weighting, types of noises, Noise control: administrative control, engineering control, personal protective devices, employee responsibility, management responsibility, advantages and disadvantages of different protective devices, Physiology of hearing, hearing conservation, problems of noise pollution, impact of noise on human, impact of noise on vegetation, impact of noise on animals, impact of noise on property.

UNIT-II

The human ear, sound measurement, Effect of noise on hearing, mechanism of hearing and Hearing Damage Potential to sound energy, effects of noise on hearing: Non-auditory and Auditory effects, Methods of measuring sound, block diagram of sound level meter, Working of sound level meter, Basic parameters of sound, properties of sound, principle of superposition, interference and diffraction.

UNIT-III

Noise and vibration: whole body vibration, controlling vibration risks, control measures, hand arm vibrations, ways to reduce vibrations, active vibration control, passive vibration control, industrial noise control. Effects of noise on task performance, Community reaction to noise and the likely effects of introducing a new noise source to a community environment, concept of soundscape..

UNIT-IV

Legal criteria regulations and international standards relating to sound and noise control using ISO(1999) and Occupational Safety and Health Administration (OSHA), beneficial and diagnostic aspects of sound measurements and control, audiometric test, standard threshold shift, benefits of taking audiometric test.

Text Books/ Reference Books

- L Bernak and I Ver (1992) Noise and Vibration Control Engine e ring: Principle s and Applications,John Wily, ISBN 0-471-61751-2
- D A Bies (2002), Engine e ring Noise Control, Spoon press, ISBN 0-419-20430-X
- B S Smith, R J Peters and S Owe n (1996), Acoustics and Noise Control, Addision-Wesley, ISBN058088646

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Assignment :- Assignment based upon learning outcomes, as mention below, will be set by lecturer where the student will be required to achieve the LO's as mentioned below. The assessment of assignment will be done based upon the learning made by the student.

Learning outcomes(LO's)

1) Use a so und pressure level meter to obtain measurements in a noisy environment, And will be able to critically interpret results.	Knowledge & Understanding
2) Using mathematical modelling, predict so und pressure levels and community Reaction to noise in arrange of circumstances, making due allowance for the Surrounding surfaces and their acoustic properties, and critically appraise the Limitations of their predictions.	Application Knowledge & Understanding
3) Propose and/or implement noise control procedures in a problem situation Through a real 'case study' and present the results of their work.	Application Enquiry

MT - 408

Data Communication System lab

L	T	P
-	-	2

Sessional Work: 25 Marks
Examination: 25 Marks
Total: 50 Marks
Duration of Exam: 3 Hrs

NOTE:

1. At least ten experiments/ jobs are to be performed/ prepared by students in the semester.

2. At least 8 experiments/ jobs should be performed/ prepared from the below list, remaining 2 may either be performed/ prepared from the above list or designed & set by the concerned institution as per the scope of the syllabus of Data Communication System and facilities available in the institute.

3. For Learning outcomes refer to Data Communication System (MT-402).

List of Experiments

1. Simple Mathematical operations using MATLAB.
2. Write a program using MATLAB to implement Sampling theorem for all Nyquist conditions.
3. Write a program using MATLAB to compute self information content of message with given probability of occurrence & also compute entropy of the given source.
4. Write a program using MATLAB to compute joint, marginal & conditional entropies from given joint probability matrix & verify the relation between them.
5. Write a program using MATLAB to plot BER curves for BPSK, QPSK & QAM digital modulation techniques.
6. Write a program using MATLAB to plot Time division multiplexed & demultiplexed signal.
7. Write a program using MATLAB to implement BPSK modulation technique in communication systems.
8. To detect & correct single bit error in linear block codes using inbuilt functions
9. To transmit a multiplexed output of different frequency message signals through a Single channel using TDM system and recover back the original message signals on kit.
10. To convert an analog signal into a pulse digital signal using PCM system and to convert the digital signal into analog signal using PCM demodulation system on kit.
11. To modulate & demodulate signal using BPSK technique on kit.

Text /Reference Books:

1. F. M. Reza, Information Theory, McGraw Hill.
2. D.C.Aggarwal, Satellite Communications, Khanna Publishers.
3. Theodore S.Rappaport, Wireless Communications Principles and Practice, IEEE Press, Prentice Hall.
4. Simon Haykin, Communication systems, John Wiley & Sons.
5. Sanjay Sharma, Communication Systems, Kataria Sons.

The Professional Engineer (Project-2)
MT 410

L	T	P/D	Total
-	-	9	9

Theory : 100 marks

Duration of Exams. : 3 hrs

The student is expected to finish the remaining portion of the project.

The project will be practical and investigative, requiring the student to investigate the existing background, theories and knowledge as applied to a problem in the design and/or operation of an existing or new process or product. By practical measurement, design, implementation and above all, creativity, the student will arrive at a solution based on sound engineering principles. The project will be integrative, deploying and extending the range of skills and knowledge previously and concurrently developed.

MT - 412
Digital System Design Lab

L	T	P
-	-	3

Sessional: 25 Marks
Practical : 25 Marks
Total: 50 Marks
Duration of Exam: 3 Hrs

NOTE:

1. At least ten experiments/ jobs are to be performed/ prepared by students in the semester.

2. At least 8 experiments/ jobs should be performed/ prepared from the below list, remaining 2 may either be performed/ prepared from the above list or designed & set by the concerned institution as per the scope of the syllabus of Digital Systems and facilities available in the institute.

3. For Learning outcomes refer to Digital Systems (MT-404).

LIST OF EXPERIMENTS

1. Introduction to demonstrate and understand the VHDL.
2. Write a VHDL script to understand the basic gate realization.
3. Write a VHDL script to understand the more gate realization using behavioral modeling.
4. Write a VHDL script to understand the gates realization using structural modeling.
5. Write a VHDL script to understand the gates realization using dataflow modeling.
6. Write a VHDL script to design the adders.
7. Write a VHDL script to design the subtractor.
8. Write a VHDL script to design the multiplexer and demultiplexer.
9. Write a VHDL script to design the encoder and decoder.
10. Write a VHDL script to design the flip-flops.
11. Write a VHDL script to design the registers and counters.
12. Write a VHDL script to design the Finite State Machine.
13. Introduction to demonstrate and understand the Field Programmable Gate Arrays.

TEXT BOOKS:

1. Digital Logic, Applications and Design, J. M. Yarbrough (1997) West Publishing, ISBN 0-314-06675-6.
2. Contemporary Logic Design, R. H. Katz (1994) Benjamin/Cummings, ISBN 0-805-32703-7.

Non-Conventional Manufacturing
MT 418

L	T	P
3	1	-

Sessional: 50 Marks
Theory: 100 Marks
Total: 150 Marks
Exam Duration: 3 Hours

UNIT I

Unconventional machining processes, Rapid prototyping processes, their classification, considerations in process selection.

Ultrasonic Machining

Elements of process, design of cutting tool, metal removal mechanism, effect of parameters, economic considerations, limitations and applications, surface finish.

UNIT II

Electrochemical Machining

Elements of process, process chemistry, metal removal mechanism, tool design, accuracy, surface finish and work material characteristics, economics advantages, limitations and applications, Electrochemical grinding, debarring and honing, Chemical machining.

Electric Discharge Machining

Principle and mechanism of metal removal, generators, electrode feed control, electrode material, tool electrode design, EDM wire cutting, surface finish, accuracy and applications.

UNIT III

Jet Machining

Principal and metal removal mechanism of abrasive and water jet machining, process variables, design of nozzle, advantages, limitations and applications.

Plasma arc machining, Electron beam machining, laser beam machining, their principles and metal removal mechanism, process parameters, advantages and limitations, applications.

UNIT IV

Laser Beam Machining

Laser Beam Machining Process, principles, pumping processes, emission types-beam control. Applications Ultrasonic Machining Process-working principles-types of transducersconcentrators- nodal point clamping-feed mechanism-metal removal rate- Process Parameters, Applications

-By G.F. Benedict, Maicel Dekker.

4.

-By Rurnyantsev & Davydov, Mir Pub.

6. Rapid prototyping: Principles and applications in Manufacturing
7. *A Text Book: of Production Engineering*, P.C.Sharma,

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Industrial Robotics
MT 420

L	T	P
3	1	-

Sessional: 50 Marks
Theory: 100 Marks
Total: 150 Marks
Exam Duration: 3 Hours

UNIT I

Automation and robots, Robot classification, Applications, Robot specifications.
Dot and Cross products, Coordinate frames, , Homogeneous coordinates, Link Coordinates, The arm equation, Five-axis articulated robot (Rhino XR-3), Four-axis SCARA robot (Adept One), Six-axis articulated robot (Intelledex 660).

UNIT II

The Inverse kinematics problem, General properties of solutions, Tool Configuration, Inverse kinematics of Five-axis articulated robot (Rhino XR- 3), Inverse Kinematics of Four-axis SCARA robot (Adept One), inverse kinematics of Six- axis articulated robot (Intelledex 660), and Inverse kinematics of a three-axis planar articulated robot, a robotic work cell.

Workspace analysis, Work envelope of a five-axis articulated robot (Rhino XR-3), Work envelope of a four-axis SCARA robot (Adept One), Workspace fixtures, The pick and place operations, Continuous path motion, Interpolated motion, Straight line motion.

UNIT III

The tool configuration and Jacobean matrix, Joint space singularities, Generalized inverses, Resolved motion rate controls, rate control of redundant robots, rate control using {1)-inverses, The manipulator Jacobean, Induced joint torque and forces.
Lagrange's equation, Kinetic and potential energy, Generalized force, Lagrange-Euler dynamic model, Dynamic model of a two-axis planner articulated robot, Dynamic model of a three-axis SCARA robot, Direct and inverse dynamics, Recursive Newton-Euler formulation, Dynamic model of a one-axis robot (inverted pendulum).

UNIT IV

The control problem, State equations, Constant solutions, Linear feedback systems, Single axis PID control, PD gravity control, Computed torque control, Variable structure control

image representation, template matching, polyhedral objects, shape analysis, Segmentation, Iterative processing, Perspective transformations, Structured Illumination, Camera Calibration.
Task level programming, Uncertainty, Configuration space, Gross motion planning, Grasp Planning, Fine motion planning, Simulation of planar motion.

Industrial Robotics - By M.P. Groover, McGraw Hill
2. Industrial Robotics and Automation - By S.R.Deb Tata McGraw Hill

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

MANUFACTURING MANAGEMENT
MT 422

L	T	P
3	1	-

Sessional: 50 Marks
Theory: 100 Marks
Total: 150 Marks
Exam Duration: 3 Hours

Unit I

Manufacturing Systems Designs: Definition, Systems, Subsystems, Systems Approach Fundamentals, Systems Approach for designing, Manufacturing Systems, Systematic Layout Planning (SLP), Computerized Plant Layout-CRAFT, ALDEP, CORELAP, Assembly Line balancing, Problems and solutions of assembly lines, Group Technology & Cellular Systems, Classification & Grouping, overview of FMS. Strategic consideration for comparison of various systems.

Manufacturing Systems Economics: Concept of time value of money, Preparation of time profile of project, Single payment, Equal Series payment, various machine and project selection & evaluation techniques: Payback period, Present worth, Equivalent annual cost, Cost- benefit ratio, Evaluation for both equal & unequal life. Depreciation concept various methods-straight line, declining balance, Sum of the digits, Sinking fund.

Unit II

New Product Development (NPD): Product Development, Customer Need, Strategies for New Product Development, Product life cycle, Product status. Corporate Design Strategies, Japanese Approach to NPD. PUGH total Design approach, PAHL & BEITZ Approach, Project Approach, Cross functional Integration –Design, manufacturing, Marketing, Concurrent Engineering, Modular Design, Standardization Value Engineering & Analysis.

Manufacturing Planning & Control Systems: Overview of Aggregate Planning Models, Linear Decision Rules, Management Coefficient, Direct Search Methods, Master Production Schedule, Modular Bill and Materials, Capacity planning & control, language, medium range, short range capacity planning, Toyota Production System, Just- in Time (JIT), Manufacturing –Philosophy, Elements, KANBAN, effects on layout, workers & vendors, optimized production technology (OPT).

Unit III

Forecasting Methods: Forecasting Framework, Forecasting cost and accuracy, Forecasting Uses and Methods – Delphi, Exponential Smoothing, Forecasting Errors – MAD, Regression Methods-Linear Model for single & multiple variables, Brief idea of computerized forecasting systems.

Material Requirements Planning (MRP): Definition of MRP systems. MRP versus Order point, MRP Elements, Types of MRP – MRP I & II. Structured Bill of Materials. Regenerative & Net change MRP, Operating an MRP, Integration of Production & Inventory Control.

Unit IV

Value Engineering: Origin of Value Engineering, Meaning of value, value analysis and value engineering, uses of value engineering, when to apply value analysis, reason of unnecessary cost, difference between value analysis and other cost reduction techniques, steps in value analysis. Phases and constituents elements of each phase. FAST technique, Ten commandments(principles of value analysis) of value engineering

Text books:

1. Operations management – Schoroeder, Mc Graw Hill International
2. Industrial Engineering and production management – Martand Telsang, S. Chand & Company, New Delhi.
3. Production operations management – chary, TMH, New Delhi.

Reference books:

1. Production Operations Management – Adam & Ebert, PHI, New Delhi
2. Operational Management –Monks, Mcgraw Hill, Int.
3. Production & Operations Management – I. Hill, Prentice Hall Int.
4. Production Planning & Inventory Control – Narasimham etal, PHI, New Delhi
5. Production & Operation Management- Panneerselvam, PHI, New Delhi
6. Managing for Total Quality-Logothetis, PHI, New Delhi
7. Concept of Reliability Engineering –L.S. Srinath, Affiliated East West.
8. Revolutionizing Product Development – Wheelwright & Clark, Free press.
9. Management In Engineering – Freeman-Ball & Balkwill, PHI, New Delhi.
10. Production & operations management – Martinich, John Wiely , New Delhi.
11. The goal by Eliyahu M. Goldratt & Jeff Cox, Productivity Press India Ltd,, Bangalore
12. Toyota Production System by Taichi Ohno, Productivity Press India Ltd, Bangalore

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Fuzzy Logic and Neural Networks
MT 424

L	T	P	
3	1	-	**Sessional: 50 Marks**
			Theory: 100 Marks
			Total: 150 Marks
			Exam Duration: 3 Hours

UNIT I

Neural Networks: Fundamental of neural network, overview of biological Neuro-system, Mathematical Models of Neurons, ANN architecture, Learning Methods, Learning Paradigms-Supervised, Unsupervised and reinforcement Learning, ANN training Algorithms-perceptions, Training rules, Delta, Back Propagation Algorithm, Multilayer Perceptron Model, Radial Basis functions, Hopfield Networks, Associative Memories, Applications of Artificial Neural Networks.

UNIT-II

Fuzzy sets: Introduction to Fuzzy Logic, Classical and Fuzzy Sets: Overview of Classical Sets, Operations on Fuzzy Sets: Compliment, Intersections, Unions, Combinations of Operations, Extension principle and fuzzy relations Fuzzy Logic: Fuzzification and defuzzification, Membership Function, Linguistic Variables, Linguistic hedges, Fuzzy rules and reasoning, lamda cut-sets. Arithmetic operations on Fuzzy numbers.

UNIT-III

Fuzzy Inference System: Fuzzy Modeling, Mamdani Fuzzy model, TSK Fuzzy model, Fuzzy Controller, Industrial Applications.
Introduction of Neuro-Fuzzy Systems, Architecture of Neuro Fuzzy Networks, Hybrid learning algorithms, Neuro-fuzzy Control.

UNIT-IV

Introduction to Evolutionary Techniques: Genetic Algorithm, Basic Concepts, Flow Chart of GA, Genetic representations (Encoding), Initialization and Selection, Genetic Operators, Mutation, Generational Cycle, Convergence of GA and Applications.

References:

1. James A. Anderson " Introduction to Neural Networks", Prentice Hall India.

2. H.J. Zimmermann " Fuzzy set theory & its Applications ", Allied Publishers Ltd.

3. Nil Junbong " Fuzzy Neural Control Principles & Algorithm", PHI.

4. N.K. Bose " Neural Network Fundamental with Graphics ", TATA McGraw Hill.

5. Klir George J. " Fuzzy sets and Fuzzy Logic Theory and Applications", PHI.

6. J.M Zurada , " Introduction to Artificial Neural Network" , Jaico Publishers

7. S. Rajasekaran, "Neural Network, Fuzzy Logic and Genetic Algorithms", PHI Learning India 2011

8. S. N. Sivanandam, S.N. Deepa, "Principles of Soft Computing", Wiley India.

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Management Information System
MT 426

L	T	P	
3	1	-	**Sessional: 50 Marks**
			Theory: 100 Marks
			Total: 150 Marks
			Exam Duration: 3 Hours

UNIT I

Concept of Management Information System, types of systems, Quality of information, value of information, Needs of information by different levels of management, Integrates system, Data and Information, factors influencing MIS and characteristics of MIS, Technology and Structure of MIS, role of Management Information System in decision making, concept of Distributed Data bases, Decision Support System: Concept, components, and classification of MIS, process of constructing a Decision Support System, concept of group decision support system

.

UNIT II

Use of Management Information System for strategic advantage, Role of Information System for strategy, Role of Management Information System to break business barriers, Business Process Reengineering (BPR), Use of Management Information System for improvements in business performance and quality and enhancing quality of products and services

UNIT III

System Development Methodologies, Planning for Management Information System, Detailed design of Management Information System, Analysis and design of Information System, Assessment of hardware and software, System development life cycle, Testing of system, Methods of conversion, Documentation. Decision Making Systems and Modeling, Sensitivity Analysis, Simulation, Operations Research Technique

UNIT IV

Implementation Strategies for MIS, Enterprise Resource Planning, Executive Information System, Implementation of Executive Information System , Customer Relationship Management, Artificial Intelligence, Virtual Reality, Fuzzy logic, Neural Network. Challenges in implementation of MIS

Text Books:

1.. Management Information System by W.S. JawadeKar - Tata McGraw Hill.
2.. Brien, James, Management Information System, Tata McGraw Hill, Delhi.
3.. Kanter, J., Management Information System, PHI, Delhi
4.. Stair, Principles of Management System, Thomson Learning, Bombay.

Note:-

Examination:- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Automatic Controls
MT 428

L	T	P
3	1	-

Sessional: 50 Marks
Theory: 100 Marks
Total: 150 Marks
Exam Duration: 3 Hours

Unit I

Introduction And Applications: Types of control systems ; Typical Block Diagram :Performance Analysis; Applications – Machine Tool Control, Boiler Control, Engine Governing, Aerospace Control, Active Vibration Control; Representation of Processes & Control Elements – Mathematical Modeling, Block Diagram Representation, Representation of Systems or Processes, Comparison Elements; Representation of Feedback Control systems
– Block Diagram & Transfer Function Representation, Representation of a Temperature, Control System, Signal Flow Graphs, Problems. Types Of Controllers: Introduction: Types of Control Action; Hydraulic Controllers; Electronic Controllers; Pneumatic Controllers; Problems.

Unit II

Transient And Steady State Response: Time Domain Representation; Laplace Transform, Representation; System with Proportional Control; Proportional – cum – Derivative control; Proportional – cum – Integral Control; Error Constants; Frequency Response Analysis: Introduction; Closed and Open Loop Transfer Function; Polar Plots; Rectangular Plots; Nichols Plots: Equivalent Unity Feed Back Systems; Problems.

Unit III

Stability Of Control Systems: Introduction; Characteristic Equation; Routh's Criterion; Nyquists Criterion, Gain & Phase Margins, Root Locus Method: Introduction; Root Ioci of a Second Order System; General Case; Rules for Drawing Forms of Root Ioci; Relation between Root Locus Locations and Transient Response; Parametric Variation; Problems.

Unit IV

Introduction – Concepts of state, state variables and state model– State model of linear systems– system realization - State space representation using physical, phase and canonical variables - diagonal canonical form-Jordan canonical form diagonalization- Time domain solution of state equation-State transition matrix - Laplace transform solution of state equations - Derivation of transfer function from the state model - Controllability and Observability; Basics of state feedback controllers and observers.

Text Books:

1. Theory & Applications of Automatic Controls by B.C. Nakra, Published by New Age International Pvt. Ltd. Publishers, New Delhi 1998.
2. Modern Control Engg. By Ugata, Prentice Hall of India, New Delhi.
3. Norman S Nise, "Control Systems Engineering", 5th edition, Wiley publications, 2009.
4. Madan Gopal andNagrath.I.J, "Control Systems Engineering", 5th edition, New Age International, 2011.
5. Benjamin C Kuo andFarid Golnaraghi, "Automatic Control Systems", 8th edition, Wiley Publications, 2007.

Reference Books:

1. Automatic Control Systems by Kuo' Published by Prentice Hall of India, New Delhi.
2. Control System Engineering, I. J. Nagrath and M. Gopal, New Age International limited.

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Digital Image Processing
MT 430

L	T	P
3	1	-

Sessional: 50 Marks
Theory: 100 Marks
Total: 150 Marks
Exam Duration: 3 Hours

UNIT I:

DIGITAL IMAGE FUNDAMENTALS: Introduction, image model, sampling and Quantization, relationship between pixels, imaging geometry, photographic film, discrete, Fourier transform, properties of two dimensional Fourier transform, fast Fourier transform.

UNIT II:

IMAGE ENHANCEMENT AND COMPRESSION: Enhancement by point processing, spatial filtering and enhancement in the frequency domain, pseudo color image processing, image compression models, error free compression, image compression standards.

UNIT III:

IMAGE RESTORATIONS: Degradation, models, diagonalizations of matrices, inverse filtering, interactive estorations, geometric transformations.
IMAGE SEGMENTATION: Detection of discontinuities, edge linking and boundary detection, thresholding, region orienting segmentation.

UNIT IV:

REPRESENTATIONS AND RECOGNITION: Representations schemes, boundary descriptors, regional descriptors, morphology, recognition and interpretation, basics.

TEXT BOOKS

1. Rafael c. Gonzalez and Richard E. Woods, digital image processing, Addison Wesley publishing company, 1987

REFERENCES

1. William K. Pratt, digital image processing, John Wiley and sons, 1978
2. Jain, Fundamentals of digital image processing, PHI, 1996
3. Barrie W. Jervis , “digital signal processing (Pearson education India)
4. Prokis, “ digital signal processing” (PHI)

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Digital Hardware Design
MT 432

L	T	P	
3	1	-	**Sessional: 50 Marks**
			Theory: 100 Marks
			Total: 150 Marks
			Exam Duration: 3 Hours

UNIT I: Combination Circuit Design: Adders Substractor, BCD Adder code converters, 7-segment display, designing using multiplexer, demultiplexer, decoder, encoder. Design of two level NAND only and NOR only networks, Design of multilevel NAND only NOR gate networks.

UNIT II: Synchronous Sequential ckt Design: Flip-flop, FSM. Sequence detector, party checker & Detector and different applicator of sequential ckts, state table state diagram. Moose & mealy sequential ckt with state diagram reduction of state table using merger graph method & moose method, computing M/C, limitation & capabilities of seq. Ckt.

UNIT III: Asynchronous Sequential ckt. : FSM, Racer, state table & flow table diagram, compatibility chart state assignment in Asynchronous ckt.

UNIT IV Iterative networks: iterative networks, design of parity checker, comparator, design of pattern detector, state machine design with SM charts, state machine charts, derivation of SM charts, memories: read only memory, ROM applications, Read write memories, static RAM, Dyanmic RAM, Structure and Timings.

References:

1. Z.Kohavi by Switching & System (McGraw Hill)
2. R.P.Jain By Digital Electronics & Microprocessor (McGraw Hill)
3. W.Fletcher :- An Engineering Approach to Electronic Design (PHI)
4. Floyd: - Digital Fundamentals (UBS)
5. Morris Mano:- Digital Logic &Computer Design(PHI)

Note:-

Examination :- The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

KURUKSHETRA UNIVERSITY

BACHELOR OF SCIENCE (INTERIOR DESIGN)

PROGRAMME CODE: BID

DURATION – 3 YEARS FULL TIME

Programme Structure
&
Curriculum & Scheme of Examination
w.e.f 2015-16

KURUKSHETRA UNIVERSITY KURUKSHETRA
Bachelor of Science (Interior Design)
Duration – 3 years Full Time
SCHEME OF STUDIES & CURRICULUM STRUCTURE (BATCHES 2015 -16 AND ONWARDS)

SEMESTER-1 (odd semester))

TEACHING SCHEME				Teach -ing hours	EXAM DURATION (HRS)		ABSOLUTE MARKS DISTRIBUTION		
SNO	SUBJECT CODE	COURSE TITLE	Total Marks		Theory	Pract.	Internal Assess.	Theory Exam	Pract Exam.
1	BID-101*	Interior Design-I (Principles)	150	6	5	0	30	120	0
2	BID-102	Materials & Construction Details-I	100	4	3	0	20	80	0
3	BID-103	Drawing Techniques & Graphics-I	100	4	4	0	20	80	0
4	BID-104	Art & Drawing-I	100	4	4	0	20	80	0
5	BID-105**	Environmental Studies	100	4	3	0	20	80	0
6	BID-106	Architecture & Interior Design	75	3	3	0	15	60	0
7	BID-107	History of Interior Design-I	100	4	3	0	20	80	0
8	BID-108	Communication Skills – I	75	3	2	0	15	60	0
		TOTAL	**700**	**32**			**140**	**560**	

Note:

***-** This Drawing paper is like a Practical.

**** -** Qualifying paper, marks not to be counted.

KURUKSHETRA UNIVERSITY KURUKSHETRA
Bachelor of Science (Interior Design)
Duration – 3 years Full Time
SCHEME OF STUDIES & CURRICULUM STRUCTURE (BATCHES 2015 -16 AND ONWARDS)

SEMESTER-2 (Even Semester)

TEACHING SCHEME				Teach -ing hours	EXAM DURATION (HRS)		ABSOLUTE MARKS DISTRIBUTION		
SNO	SUBJECT CODE	COURSE TITLE	Total Marks		Theory	Pract.	Internal Assess.	Theory Exam	Pract Exam.
1	BID-201*	Interior Design-II	150	6	5	0	30	120	0
2	BID-202	Materials & Construction Details-II	100	4	3	0	20	80	0
3	BID-203	Drawing Techniques & Graphics-II	100	4	3	0	20	80	0
4	BID-204	Art & Drawing-II	100	4	4	0	20	80	0
5	BID-205	Computer Applications- I	100	4	0	3	20	0	80
6	BID-206	Model Making Workshop	100	4	0	3	20	0	80
7	BID-207	History of Interior Design-II	100	4	3	0	20	80	0
8	BID-208	Communication Skills - II	100	4	2	1	20	50	30
		TOTAL	**850**	**34**			**170**	**490**	**190**

EDUCATIONAL TOUR / TRAINING TO BECONDUCTED DURING VACATION OR HOLIDAYS.

Note:

***-** This Drawing paper is like a Practical.

FIRST SEMESTER

K.U.K. Bachelor of Science (Interior Design) – 1st SEM

Interior Design-I (Principles) (BID-101)

Maximum Marks -150
Uni. Exam. Marks - 120
Sessional Marks - 30
Duration of Exam. - 5 hrs

Instruction to the examiner:
The examiner will set eight questions in all, selecting two questions from each unit.
Instruction to the Candidate:
The candidate will have to attempt five questions in all, selecting atleast one question from each unit.

Course Objective:

The objective of the course is to provide a clear understanding about the basic design elements and principles to be followed while designing any space using different standards, materials and technologies. It enables the students to understand the visual composition in an interior space with color schemes, textures, light, shadow etc. Introduction to human dimensions, functions, space – activities, space standards, relationships of a simple single living unit to understand the minimum space requirement by individual to perform various activities.

Course Contents:

Unit I: Principles of visual composition
Symmetry, Asymmetry, Repetition, Rhythm, Background, Foreground, Sense of Direction, Harmony, Balance and Proportion.

Unit II: Elements of visual composition
Dots, Lines, Planes, Patterns, Shapes, Colors, Textures, Levels, Light, and Fenestration, Exploring color schemes, Textures and Texture schemes.

Unit III: Anthropometrics Study
Human dimensions anthropometry in various postures (in applied form), their relation to everyday utilities like the table, chair, bed , sink etc . To make measured drawing of a bedroom with anthropometrical reference.

Unit IV: Design Exercise
Design of Anthropometrics Cell with minimum space requirements of single unit for a single person and study the interior spaces by making 3-D views (axonometric and isometric). This exercise will include areas like living area, sleeping area, washroom, cooking area with furniture layout in 2-D drawings including elevations covering an area of 25-50 sqm. Using various principles of design, textures and color schemes.

References:

- Drawing a Creative Process, Francis D.K. Ching
- Design Drawing + CD, Francis D.K. Ching
- Architecture Graphics, Francis D.K. Ching 4th Edition
- Interior design & space planning, Dechiara Pabero Zelnik
- Interior design illustrated, Francis D.K. Ching
- Home Plumbing (The David & Charles Manual of), Ernest Hall
- House Book (The Complete Guide to Home Design), Terence Conran
- Illustration + Perspectives (In Pantone Colors), Eiji Mitooka
- Architectural Graphic standards editor, Boaz Joseph
- Neufert's Architect's data
- Time Saver standards for building types, Joseph D.C. and John Callender.
- Kitchen & Bath, Montse Zapata
- Bed room, Lestey Taylor
- The Curtain Book, Mitchll Beazlty
- Interior Design Visual, Maureen Mitton 2nd Edition
- 100 Bright Ideas For color, Sue Rose

K.U.K. Bachelor of Science (Interior Design) – 1st SEM
Materials & Construction Details-I (BID-102)

Maximum Marks -100
Uni. Exam. Marks - 80
Sessional Marks - 20
Duration of Exam. - 3 hrs

Instruction to the examiner:
The examiner will set six questions in all, selecting three questions from each unit.
Instruction to the Candidate:
The candidate will have to attempt four questions in all, selecting atleast two questions from each unit.

Course Objective:

The objective of this course is to make the students understand of all the available materials, which are used in designing the various different interior spaces. It gives a fair knowledge of different furnishings and finishes used for all the interior surfaces of the space.

Course Contents:

Unit I:

Introduction to different building material like : mud,brick, stone, timber, glass etc.

Execute a market survey of different materials in terms of furnishes and finishes (Flooring material/finishes, wall material/finishes, roofing material /finishes).

Unit II:

Paints & varnishes, surface finishes.

Formulate a case study of an existing house to study its interiors along with furnishes and finishes used in it.

References:

- Interior design illustrated, Francis D.K. Ching
- Graphic Interiors
- (Space Designed by Graphic Artists), Corina Dean
- Home Plumbing (The David & Charles Manual of), Ernest Hall
- House Book (The Complete Guide to Home Design), Terence Conran
- Illustration + Perspectives (In Pantone Colors), Eiji Mitooka
- Elements of Architecture – Meiss Pieree Von
- Architecture: Form, Space and Order – Francis D.K. Ching
- A.J. Metric Handbook, editors, Jan Bilwa and Leslie Fair weather
- Architectural Graphic standards editor – Boaz Joseph
- The Curtain Book, Mitchll Beazlty
- Interior Design Visual, Maureen Mitton 2nd Edition
- 100 Bright Ideas For color, Sue Rose
- Window Fashion, Charles T. Randall

K.U.K. Bachelor of Science (Interior Design) – 1st SEM
Drawing Techniques & Graphics-I (BID-103)

Maximum Marks -100
Uni. Exam. Marks - 80
Sessional Marks -20
Duration of Exam. - 3 hrs

Instruction to the examiner:
The examiner will set six questions in all, selecting three questions from each unit.
Instruction to the Candidate:
The candidate will have to attempt four questions in all, selecting atleast two questions from each unit.

Course Objective:

To familiarize the students with basic knowledge of good drafting and lettering techniques and visualizing geometrical forms through plans sections & elevations.

CONTENTS
UNIT-I
• Line, lettering and Dimensioning
• Drafting techniques, principles of good drafting.
• Scales & its use in the Architectural drawing.
• Representation of material and Architectural Elements through Graphic Symbols

UNIT-II
• Projections of point, lines, planes & development of surfaces and Solids in various positions.
• Principles of projection, methods of orthographic projection study of Architectural Plans, Elevation and Section

References:

- A Visual Dictionary of Architecture, Francis D.K. Ching
- Creative Interiors (Design of Enclosed Space), Shashi Jain
- Interior design illustrated, Francis D.K. Ching
- Home Plumbing (The David & Charles Manual of), Ernest Hall
- House Book (The Complete Guide to Home Design), Terence Conran
- Architecture: Form, Space and Order, Francis D.K. Ching
- Window Fashion, Charles T. Randall
- Illustration + Perspectives (In Pantone Colors), Eiji Mitooka
- Elements of Architecture, Meiss Pieree Von
- Architecture: Form, Space and Order, Francis D.K. Ching
- Engineering Drawing, N.D Bhatt

K.U.K Bachelor of Interior Design (1st SEM)
Art & Drawing-I (BID-104)

Maximum Marks --100
Uni. Exam. Marks – 80
Sessional Marks – 20
Duration Of Exam – 4 hours

Instruction to the examiner:
The examiner will set eight questions in all, selecting two questions from each unit.
Instruction to the Candidate:
The candidate will have to attempt five questions in all, selecting atleast one question from each unit.

Unit-I
Introduction of drawing equipments, materials and methods of using them.
Scale & its application for drawing geometric shapes
Lettering different styles
Free-hand sketching: 200 (submit at the final submission)

Unit-II
Exercise to develop the free hand skills of drawing lines, circles, cubes etc.
Different strokes in pencil by using different grades, Tonal values, different textures etc.

Unit-III
Indoor and outdoor sketching, Shading & rendering -Using furniture, human being, vehicles, animals, birds, trees (natural & manmade objects) etc.

Unit-IV
Develop the ability to draw and colour with different mediums -Still live, landscape, interior etc. with (natural & manmade objects).

Medium: pencil, charcoal, crayons, pastel, water colours, pen and inks, Poster colour etc.

Reference Book

Rendering with Pen & Ink by Robert W Gill: Thames & Hudson.
Architectural Rendering Philip Crowe.. Architectural Rendering Albert & Habe
How to paint & draw Jaxtheimer, Themes & Hudson.
Architectural Rendering by Philip Crowe
Architectural Rendering by Albert & Habe
How to paint & draw by Jaxtheimer
Colour Fundamentals by Graves MAintland
Colour for Architects by T Porter, D Mikellides
Anatomy & Drawing by Victor Perard
Fundamentels of Drawing by Barrington Barber
The Big book of Drawing & Painting by Francisco Asensio Cerver
The complete book of Drawing Techniques by peter Stanyer

K.U.K. BACHELOR OF INTERIOR DESIGN (1ST Semester)
ENVIRONMENTAL STUDIES (BID-105)

Maximum Marks --100
Uni. Exam. Marks: --80
Sessional Marks -- 20
Duration of Exam: --3 hrs

Instruction to the examiner:
The examiner will set six questions in all, selecting three questions from each unit.
Instruction to the Candidate:
The candidate will have to attempt four questions in all, selecting atleast two questions from each unit.

OBJECTIVES

- To know about physical environment and its components.
- To acquire knowledge of natural resources and their types.
- To understand the impact of human activities on ecology and need to conserve the resources.

COURSE CONTENTS

UNIT - I

- Definition, Scope and Importance of environmental science.
- Natural Resources-water, mineral, food, energy and land resources.
- Role of individual in conservation of natural resources.
- Equitable use of resources for sustainable lifestyles.
- Concept, structure, function, types and diversity of ecosystems, value of biodiversity.
- India as a mega-diversity nation, threats to bio-diversity, conservation of bio-diversity**.**

UNIT - II

- Definition, causes, effects and control measures of different types of pollution, climate changes, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust disaster management, population explosion
- Sustainable development, water conservation, rain water harvesting, watershed management, re-settlement and rehabilitation of people, environmental ethics, environment protection acts, public awareness
- Role of information technology in environment and human health

REFERENCES

- Down to Earth by Center for Science and Environment.
- Environmental Biology by Agarwal, K.C Nidi Publi.Ltd.Bikaner2001.
- Environmental Encyclopedia Cunningham by W.P. Cooper, Jaico Publ. House, Mumbai, 2001.
- Environmental Chemistry by A.K Wileely Eastem Ltd.
- Hazardous Waste, Incineration Brunner by R.C McGraw Hill Inc. 1989.
- Marine Pollution by Clark R.S, Clanderson Press Oxford .
- The Biodiversity of India by Bharucha, Erach, Mapin Publishing Pvt. Ltd, Ahmedabad, India.
- Water in Crisis by Gleick, H.P Pacifics Institute for Studies in Dev.

K.U.K. Bachelor of Science (Interior Design) – 1st SEM
Architecture & Interior Design (BID-106)

Maximum Marks --75
Uni. Exam. Marks - 60
Sessional Marks - 15
Duration of Exam. - 3 hrs

Instruction to the examiner:
The examiner will set six questions in all, selecting two questions from each unit.
Instruction to the Candidate:
The candidate will have to attempt four questions in all, selecting atleast one question from each unit.

Course Objective:

The course is intended to apprise the students about the role and complexity in interior design with in the larger context of the built environments with special reference to their interiors. The primary aim is to create general awareness about the general and emerging trends in interior design.

Course Contents:

Unit I: Interior Environment
Functional and qualitative aspects of interior environment, integrated relationship of Architecture spaces and Interior spaces.

Unit II: Volumetric spaces
A continue of Architectural volumetric spaces – external and internal, Elements and principles of design related to aesthetics and functional aspects of built forms.

Unit III: Trends
Changing modern trends of interior design, the emerging role of professional interior designers, Training of interior designers related to professional practice aspects.

References:

- Home Plumbing (The David & Charles Manual of), Ernest Hall
- House Book (The Complete Guide to Home Design), Terence Conran
- Architecture: Form, Space and Order, Francis D.K. Ching
- Elements of Architecture, Meiss Pieree Von

K.U.K. Bachelor of Science (Interior Design) – 1st SEM
History of Interior Design-I (BID-107)

Maximum Marks -100
Uni. Exam. Marks - 80
Sessional Marks - 20
Duration of Exam. - 3 hrs

Instruction to the examiner:
The examiner will set six questions in all, selecting three questions from each unit.
Instruction to the Candidate:
The candidate will have to attempt four questions in all, selecting atleast two question from each unit.

Course Objective:

This course focuses on the developmental aspects of Interior designing over the time period in different periods of history.

Course Contents:

UNIT-I

- Interior design elements & principles used during the Indian temples (Orissa, Central India, South India)
- Interior design elements & principles used during Mughal period.

UNIT-2

- Introduction About Company school of Art, Bengal school of art,
- Contemporary styles in art and some Famous works of Contemporary artists, sculptors in India

  & group of artists of that time period(18^{th} to mid 20^{th} century).
- Introduction about mural and sculptures of (caves, Maurayan period, temples of Orissa, Central India(Madhya Pardesh), South India (Dravidian))
- Modern trends in Indian interior design.

References:

- A History Of Fine Arts in India & the West,Edith Tomory
- Interior Design & space Planning, DechiriaPabero Zelnik
- Interior Design Illustrate,Francis D.K. Ching
- Islamic Architecture in Interior, Satish Grover
- History of art by janson H.W., published by Newyork, 1978.
- A history of fine arts in India and the west orient by Tomory Edith, Published by Longman, 1995
- The Best Interior India,Anuradha Mahindra
- Indian Interior AngelikaTaschen
- Sir Fletcher B. A history of Architecture

K.U.K. Bachelor of Science (Interior Design) – 1st. SEM
Communication Skills -I (BID-108)

Maximum Marks -75
Uni. Exam. Marks -60
Sessional Marks -15
Duration of Exam -2 hrs

Instruction to the examiner:
The examiner will set six questions in all, selecting two questions from each unit.
Instruction to the Candidate:
The candidate will have to attempt three questions in all, selecting atleast one question from each unit.

Course Objective:
The course is intended to give a foundation of English Language. The literary texts are indented to help students to inculcate creative & aesthetic sensitivity and critical faculty through comprehension, appreciation and analysis of the prescribed literary texts. It will also help them to respond form different perspectives.
Course Contents:

Unit I:
Phonetics (Basics)
Use of Dictionary
Use of Words: Synonyms - antonyms, Homonyms & Homophones

Essentials of Grammar – I
Articles
Parts of Speech
Tenses

Essentials of Grammar – II
Sentence Structure
Subject -Verb agreement
Punctuation

Unit II:
Communication
The process and importance
Principles & benefits of Effective Communication
Common Errors

Spoken English Communication
Speech Drills
Pronunciation and accent
Stress and Intonation

Communication Skills-I
Developing listening skills
Developing speaking skills

Communication Skills-II
Developing Reading Skills
Developing writing Skills

Contd. On next page

Written English communication
Progression of Thought/ideas
Structure of Paragraph
Structure of Essays

Unit III:
Short Stories
Of Studies, by Francis Bacon
Dream Children, by Charles Lamb
The Necklace, by Guy de Maupassant
A Shadow, by R.K.Narayan
Glory at Twilight, Bhabani Bhattacharya

Poems

All the Worlds a Stage	Shakespeare
To Autumn	Keats
Where the Mind is Without Fear	Rabindranath Tagore
Life	Sarojini Naidu
Night of the Scorpion	Nissim Ezekiel

SECOND SEMESTER

K.U.K. Bachelor of Science (Interior Design) – 2nd SEM
Interior Design-II (BID-201)

Maximum Marks -150
Uni. Exam. Marks - 120
Sessional Marks - 30
Duration of Exam. - 5 hrs

Instruction to the examiner:
The examiner will set six questions in all, selecting two questions from each unit.
Instruction to the Candidate:
The candidate will have to attempt four questions in all, selecting atleast one question from each unit.
Course Objective: The objective of the course is to provide a clear understanding about the design procedures and techniques of interior design of spaces with different activities and uses, using different standards, materials and technologies. It enables the students to understand the visual design in an interior space with color schemes, textures, light, shadow etc. The exercise to be executed in this course enable the students to design the space interiors for a two storey building with the required services, infrastructure, furniture layout, circulation, open-built and exterior-interior relationship in and around the plot boundaries.

Course Contents:

Unit I: Design problem
Introduction to design problem with the methodology to proceed with the concept, Case studies and data collection through primary and secondary sources, Formulation of concept with client's requirements.

Unit II: Design aspects
Introduction to various design aspects like: space configuration, interior circulation, the basic structural requirements, finishes, furniture layout, basic services, and aesthetics.

Unit III: Design Exercise
Design the interiors of an independent residential unit of minimum area of 150 sqm.

Design the interiors for a office space with a floor area of appx. 300sqm. – 400 sqm.
Design should be presented in the form of 2D and 3D drawings (plan, elevations, sections and views) rendered with textures, colors, patterns etc.

References:

- A Visual Dictionary of Architecture, Francis D.K. Ching
- Creative Interiors (Design of Enclosed Space), Shashi Jain
- Commercial Interior Perspectives, Graphic – Sha (Editor)
- Design with Wood , Carol Soucek King
- Drywall (Pro Tips for Hanging & Finishing), John D. Wagner
- Graphic Interiors (Space Designed by Graphic Artists), Corina Dean
- Interior design illustrated , Francis D.K. Ching
- Home Plumbing (The David & Charles Manual of), Ernest Hall
- House Book (The Complete Guide to Home Design), Terence Conran
- Illustration + Perspectives (In Pantone Colors),Eiji Mitooka
- Elements of Architecture, Meiss Pieree Von
- Architecture: Form, Space and Order, Francis D.K. Ching
- A.J. Metric Handbook, Jan Bilwa and Leslie Fair weather
- Architectural Graphic standards, Boaz Joseph
- The Curtain Book, Mitchll Beazlty
- Interior Design Visual, Maureen Mitton 2nd Edition
- 100 Bright Ideas For color, Sue Rose
- Window Fashion, Charles T. Randall
- Illustration + Perspectives (In Pantone Colors), Eiji Mitooka

K.U.K. Bachelor of Science (Interior Design) – 2nd SEM
Materials & Construction Details-II (BID-202)

Maximum Marks -100
Uni. Exam. Marks - 80
Sessional Marks - 20
Duration of Exam. - 3 hrs

Instruction to the examiner:
The examiner will set six questions in all, selecting three questions from each unit.
Instruction to the Candidate:
The candidate will have to attempt four questions in all, selecting atleast two questions from each unit.

Course Objective:

To familiarize the students with construction properties and cases of traditional building materials used in construction. To understand the use of these traditional building materials in simple building works.

Course Contents:

Unit I: Materials
Mud and Clay Products: Mud including stabilized earth, Burnt Brinks, Brick Tiles, Brick Ballest and Surkhi,
Stone, Lime, Sand, flyash, Surkhi, Cement, Mortar, Concrete: Classification, Availability, Preparation, Characteristics, Manufacturing and Uses.
Water Proof Materials: Asphalt, Bitumen, and Synthetic

Unit II: Construction
Element of building: Terminology, nomenclature if various parts of building from foundation to roof.
Brick Works: Brick Terminology, Bonds in Brick work, Detail at junctions, Brick Jalis.

Stone Masonry, hollow block, lightweight concrete and glass block construction.

Foundation: simple, stepped, combined, cantilevered footing, RCC footing and raft foundation.

References:

- A Visual Dictionary of Architecture, Francis D.K. Ching
- Interior design illustrated , Francis D.K. Ching
- House Book (The Complete Guide to Home Design), Terence Conran
- Masonry (Concrete, Brick, Stone), Christine Beall
- Metric Handbook (Planning & Design Data) 2nd Ed. Edited By, David Adler
- Window Fashion, Charles T. Randall
- Illustration + Perspectives (In Pantone Colors), Eiji Mitooka
- Elements of Architecture, Meiss Pieree Von
- Architecture: Form, Space and Order, Francis D.K. Ching
- The Construction of Building Vol- 1 to 5, R. Barry
- Building Construction, N.L. Arora &, B.R. Gupta
- Interior Detail – 1 (Residence), Jeong, Kwang Young
- Interior Spaces Vol – 6 (A Pictorial Review), Image Publishing Group

K.U.K. Bachelor of Science (Interior Design) – 2nd SEM
Drawing Techniques & Graphics-II (BID-203)

Maximum Marks -100
Uni. Exam. Marks - 80
Sessional Marks - 20
Duration of Exam. - 3 hrs

Instruction to the examiner:
The examiner will set six questions in all, selecting three questions from each unit.
Instruction to the Candidate:
The candidate will have to attempt four questions in all, selecting atleast two questions from each unit.

Course Objective:

To enable the students to have a better understanding of the 3-D views and effect of light on the object.

UNIT-I
Pictorial View: Oblique, Isometric, Axonometric views of solid composition & buildings
Definitions of perspective (picture plane, stationery point etc.)

UNIT-II
Perspective: - Normal Eye view & Birds eye view.
• One point & Two point perspective of building forms.(Exterior only)
• Perspectives having more than 2 vanishing points.

Sciography : Study of shadows & shade on building or part of building.

References:

- A Visual Dictionary of Architecture, Francis D.K. Ching
- Creative Interiors (Design of Enclosed Space), Shashi Jain
- Interior design illustrated, Francis D.K.Ching
- Home Plumbing (The David & Charles Manual of), Ernest Hall
- House Book (The Complete Guide to Home Design), Terence Conran
- Architecture: Form, Space and Order, Francis D.K. Ching
- Window Fashion, Charles T. Randall
- Illustration + Perspectives (In Pantone Colors), Eiji Mitooka
- Elements of Architecture, Meiss Pieree
- Engineering Drawing, N.D Bhatt

K.U.K. Bachelor of Science (Interior Design) – 2nd SEM
Art & Drawing-II (BID-204)

Maximum Marks -100
Uni. Exam. Marks - 80
Sessional Marks - 20
Duration of Exam. - 4 hrs

Instruction to the examiner:
The examiner will set eight questions in all, selecting two questions from each unit.
Instruction to the Candidate:
The candidate will have to attempt five questions in all, selecting atleast one question from each unit.

Unit-I
Free hand sketching & rendering of furniture, and interior schemes, landscape etc.
Orthographic projections of geometric forms &furniture items.
Free-hand sketching: 500 (submit at the final submission)

Unit-II
Rendering 2d & 3d with different mediums, colours and techniques -Exercise on still life, composition, pictorial views and landscape, interior, exterior etc. and different views with human beings and others natural & manmade objects

Unit-III
Serigraphy (screen Printing) in interior Space & Furniture, Drawing Solids, voids

Unit-IV
Models, 3D forms: free standing paper models representing motives, shapes.

Medium: pencil, charcoal, crayons, pastel, water colours, pen and inks, Poster colour etc.

Reference Book
Rendering with Pen & Ink by Robert W Gill: Thames & Hudson.
Architectural Rendering Philip Crowe.. Architectural Rendering Albert & Habe
How to paint & draw Jaxtheimer, Themes & Hudson.
Architectural Rendering by Philip Crowe
Architectural Rendering by Albert & Habe
How to paint & draw by Jaxtheimer
Colour Fundamentals by Graves MAintland
Colour for Architects by T Porter, D Mikellides
Anatomy & Drawing by Victor Perard
Fundamentels of Drawing by Barrington Barber
The Big book of Drawing & Painting by Francisco Asensio Cerver
The complete book of Drawing Techniques by peter Stanyer
Watercolour,Oil colour &Gouache by Wendey Jelbert & Ian Sidaway

K.U.K. Bachelor of Science (Interior Design) – 2nd SEM
Computer Applications- I (BID-205)

Maximum Marks -100
Practical exam. Marks - 80
Sessional Marks - 20
Duration of Practical Exam. -3 hrs.

Instruction to the examiner:
The examiner will set eight questions in all, selecting four questions from each unit.
Instruction to the Candidate:
The candidate will have to attempt five questions in all, selecting atleast two questions from each unit.

Course Objective:- The objective of course is give the students an idea & knowledge about the various computer software used in Interior Designing for Visualization

Course Contents:

Unit : 1 Introduction of Basic Computer & Use Of Presentation Software's (Power Point)
Creating a simple Presentation
Type Of Image Format
Viewing
Editing, Text
Different Type Of Image
Transaction
Animation
Audio ,Video Etc

Unit :2 AutoCAD 2D Design
Creating a New Drawing and Introduction
Commands & Option For Creating a new Drawing
layers, Block, & Attributes
Dimensioning
Viewing Existing Drawing.
Commands for zoom, Pan & Snap, Line etc.
Presentation Drawing Introduction to working Drawing.
Plotting Of Drawing.
Section, Elevation

Advance AutoCAD 2D Commands :Line, Circle, Grids, Arch, Middle, End, Poly Line, Polygon, & Its Application.

REFERENCES:

1. Inside Auto CAD.
2. Omura, G. 2005, Mastering Auto CAD 2005 and Auto CAD LT 2005, BPB Publications, New Delhi.
3. Saxena, S. (2003), A first course in computers, Vikas Publishing house, New Delhi.

K.U.K. Bachelor of Science (Interior Design) – 2nd SEM
Model Making Workshop (BID-206)

Maximum Marks -100
Practical Exam. Marks - 80
Sessional Marks - 20
Duration of Practical. Exam. - 3 hrs

Instruction to the examiner:
The examiner will set two options to make a model of required accuracy and finish.
Instruction to the Candidate:
The candidate will have to attempt one question in all.
Internal viva-voce to be conducted.

Course Objective:
The objective of the course is to introduce the tools and techniques used for making models out of paper, boards, thermo coal, fabrics, clothes, clay etc. This course enables students for the construction of 3-Dimentional models with different materials.

Course Contents:
Knowledge Material & tools and exercise for making models on scale.
Sequence of operation: base layout, cutting, joining, fixing and finishing of various components.
Presentation of models on scale, degree of accuracy and refinement.
Type of Models (Blocks/Details/Const & Interior models with texture, colour, finishing, Landscape and human figure etc.)

NOTE : Four to five exercises should be done with paper, cardboard etc.

References:
House Book (The Complete Guide of Home Design),Terence Conran
Elements of Architecture, Meiss Pieree Von
Architecture: Form, Space, and order, Francis D.K.Ching

K.U.K. Bachelor of Science (Interior Design) – 2nd SEM
History of Interior Design-II (BID-207)

Maximum Marks -100
Uni. Exam. Marks - 80
Sessional Marks - 20
Duration of Exam. - 3 hrs

Instruction to the examiner:
The examiner will set six questions in all, selecting three questions from each unit.
Instruction to the Candidate:
The candidate will have to attempt four questions in all, selecting atleast two questions from each unit.

Course Objective:

The objective of the course is to introduce the students with the changes occurred in the past with the time. Familiarize with the different culture, society and their style of living, which effects the internal part of their buildings over different periods.

Course Contents:

UNIT-I

- Interior design elements & principles used during the Greek and Roman.
- Interior design elements & principles used during the Medieval Period (Gothic)
- Interior design elements & principles used during Renaissance: Early renaissance, High renaissance, Baroque and Neo Classical.
- Renaissance Art: Resurgence of Art from 15th to 16th Century in Europe, Abstract art and its Language.

UNIT-2

- Cave Paintings - Frescos & Murals (Ajanta , Ellora techniques)
- Miniature Paintings in Indian history (Mughal, Rajput, Pahari, Deccan)
- Romanticism, Impressionism, Expressionism, Surrealism, cubism & Futurism, Abstract Art.
- Famous works of Contemporary artists, sculptors in abroad.

References:

- A History Of Fine Arts in India & the West,Edith Tomory
- Interior Design & space Planning, DechiriaPabero Zelnik
- Interior Design Illustrate,Francis D.K. Ching
- Islamic Architecture in Interior, Satish Grover
- History of art by janson H.W., published by Newyork, 1978.
- A history of fine arts in India and the west orient by Tomory Edith, Published by Longman, 1995
- The Best Interior India,Anuradha Mahindra
- Indian Interior AngelikaTaschen
- Sir Fletcher B. A history of Architecture

K.U.K. Bachelor of Science (Interior Design) – 2nd SEM
Communication Skills -II (BID-208)

Maximum Marks	**-100**
Uni. Exam. Marks	**- 50**
Practical Exam. Marks	**-30**
Sessional Marks	**-20**
Duration of theory Exam	**- 2 hrs**
Duration of Pract. Exam.	**- 1 hrs**

Instruction to the examiner:
The examiner will set six questions in all, selecting two questions from each unit.
Instruction to the Candidate:
The candidate will have to attempt three questions in all, selecting atleast one question from each unit.

Course Objective:

To form written communication strategies necessary in the workplace

Course Contents:

Unit I: Introduction to Writing Skills
Effective Writing Skills
Avoiding Common Errors
Paragraph Writing
Note Taking
Writing Assignments

Unit II:
Letter Writing
Types
Formats
Memo
Agenda and Minutes
Notice and Circulars

Unit III: Report Writing
E-mail writing
Applications
Preparing Curriculum Vitae

Continued on Next page

PRACTICALS

Developing Listening and Speaking skill through Various activities such as :
Role play activities
Practicing short dialoges
Debates
Speeches
Listening to News Bulletins
Viewing and Reviewing TV Programmes
Mock Interview

References:

- Business Communication, Raman – Prakash, Oxford
- Creative English for Communication, Krishnaswamy N, Macmillan
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- Working in English, Jones, Cambridge
- A Writer's Workbook Fourth edition, Smoke, Cambridge
- Effective Writing, Withrow, Cambridge
- Writing Skills, Coe/Rycroft/Ernest, Cambridge
- Welcome!, Jones, Cambridge
- E.Suresh Kumar and P. Sreehari, "A Handbook for English Language Laboretories", Osmania University, Hyderabad,2011.
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M.Sc. (Mass Communication)
Scheme of Examination & Syllabus
w.e.f. academic session 2014-15

First Semester

Paper Code	Subject Name	T	P	I	Duration of Exam.
P-101	Science of Communication	80	-	20	3 Hours
P-102	Indian constitution, Media Law & Ethics	80	-	20	-do-
P-103	Communication Skills & Personality Development	50	30	20	-do-
P-104	Media Writing Skills	50	30	20	-do-
P-105	Growth & Development of Media	80	-	20	-do-

Second Semester

Paper Code	Subject Name	T	P	I	Duration of Exam.
P-201	Reporting and Editing	50	30	20	3 Hours
P-202	Communication Technology	50	30	20	-do-
P-203	Media Industry Management & Marketing	80	-	20	-do-
P-204	Advertising & Social Communication	50	30	20	-do-
P-205	Film and Entertainment Industry	50	30	20	-do-

Third Semester

Paper Code	Subject Name	T	P	I	Duration of Exam.
P-301	Communication Research	80	-	20	3 Hours
P-302	Online Journalism & Social Media	80	-	20	-do-
P-303	PR & Corporate Communications	50	30	20	-do-
P-304	Photography & Videography	50	30	20	-do-
P-305	Television & Radio Production	50	30	20	-do-

Fourth Semester

Paper Code	Subject Name	T	P	I	Duration of Exam.
P-401	Media Entrepreneurship	80	-	20	3 Hours
P-402	Event Management	50	30	20	-do-
P-403(i)	Media Production(Print)	50	30	20	-do-
P-403(ii)	Media Production (TV)	50	30	20	-do-
P-403(iii)	Media Production (Radio)	50	30	20	-do-
P-403(iv)	Advertising (Production)	50	30	20	-do-
P-403(v)	Public Relations (Production)	50	30	20	-do-
P-403(vi)	Media Research	50	30	20	-do-
P-404	Internship	Report=50 Viva-voce=50			
P-405	Dissertation/Project	Report=40 Viva-voce=40 Internal Assessment=20			

Communication Research
Paper-301

Time: 3 Hrs.
Total Marks=100
Theory Marks: 80
Internal Assessment=20

The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing short notes and covering the entire syllabus. All questions carry equal marks.

Unit-I

- Research: Concept, Definition, Nature and scope
- Type of Research and importance of research
- Elements of research
- Areas of media research
- Development and growth of communication research

Unit-II

- Research Designs: Experimental design and semi experimental design, exploratory, descriptive design
- Longitudinal research: Trend analysis, cohort analysis, panel studies
- Research Methods: Qualitative and quantitative
- Observation, case study, interview
- Content Analysis, Survey method

Unit-III

- Feed forward and feedback, NRS, TRP, opinion polls
- Sampling methods: probability and non-probability
- Hypotheses: Meaning, Characteristics
- Data Collection tools
- Sources of data: Data coding, tabulation

Unit-IV

- Introduction to Statistics
- Introduction to Statistical software
- Research report writing
- Research synopsis
- Research ethics

Online Journalism and Social Media
Paper- 302

Time: 3 Hrs.
Total Marks: 100
Theory: 80
Internal Assessment=20

The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing short notes and covering the entire syllabus. All questions carry equal marks.

Unit-I

Spread of Internet:

- Internet
- Salient features and advantage over traditional media:
- History and penetration of internet in India,
- Reach and problem of access
- Internet and Knowledge Society
- Convergence and Multi Media: Print, radio, TV, internet and mobile
- IT law, Digital divide, Cyber space & virtual reality

Unit-II

Online Journalism

- Earlier websites of newspapers
- E-books and E-publishing, E-papers and E-magazines
- Basic Knowledge of HTML and use of a content management system
- Hyper-textuality
- Multi-mediality and interactivity and UGC-User Generated Content
- Use of various online tools to manage text, photos, maps, audio, video, etc.
- Status of online Journalism today

Unit-III

Digital storytelling

- Writing news story for websites: Teaser, headline, chunks, intro, fact box, data and graphs
- Live story writing, Feature Writing
- Trends & tracking
- Development and news update
- Podcast and webcast

Unit-IV

Citizen Journalism

- Responding to the audience
- Annotative reporting, Citizen Journalist
- Problem of verification, accuracy and fairness
- Use of blogs, tweets etc., for story generation and development
- Protecting Copyright, Gatekeeping
- Live blog, live chat and live update

Public Relations and Corporate Communication
Paper- 303

Time: 3 Hrs.
Total Marks: 100
Theory: 50
Practical:30
Internal Assessment=20

The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing short notes and covering the entire syllabus. All questions carry equal marks.

Unit-I

- Public Relations – concept and definition
- Evolution and growth of public relations
- Functions of public relations
- Principles of PR
- Functions and responsibilities of PRO
- PR Ethics

Unit-II

- PR in relation to marketing, advertising
- Publicity, public opinion, propaganda and rumors
- Reputation, perception, relationship management
- Lobbying
- PR tools & methods
- New media in PR
- Social medium-Twitter, Facebook, Photo sharing sites- Youtube, Flickers

Unit-III

- PR writing
- PR campaign design
- PR Agency
- PR Setup in Public sector, Private sector, Central and State Governments
- PR Bodies

Unit-IV

- Corporate communication- concept and scope
- Difference between corporate image and corporate identity
- CSR
- Media Management
- Crisis PR- Handling crisis, Preparing crisis plan, Dealing with the aftermath, Reputation, Crisis management team, Crisis planning, Handling bad publicity
- Case studies : corporate communication

Photography and Videography
Paper-304

Time: 3 Hrs.

Total Marks: 100
Theory: 50
Practical: 30
Internal Assessment=20

Internal Assessment: 20The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing short notes and covering the entire syllabus. All questions carry equal marks.

Unit-I

Photography

- Development of Photography in India
- Still Camera, parts, types, lenses
- Genres of Photography- Candid, Glamour, Wildlife, Sports and War
- Analogue and Digital
- Aesthetics of Photography- Composition, light, frame, color and monochrome effects
- Study of Photographers and their work – Cartier Bresson and Raghu Rai

Unit-II

Chemistry of photography

- Image formation, view finder cameras, twin lens cameras, single lens cameras
- Types of lenses
- Aperture, exposure time, film speed, exposure meters
- Image formation in available light, Lighting, Image formation in artificial light
- Editing of photographs in the form of cropping,compressing, retouching and enlargeming.

Unit-III

Photo journalism

- Concepts of Photojournalism,
- Power of visuals, attributes of a good photograph (Aesthetic and technical), photo size, resolution and correction:
- Photo as a News: Text vs. photo.
- Use of photos in a newspapers.
- selection and placement of photographs, cropping, use of cutouts, photo features
- Caption and outlines: writing about photo captions, selection and significance of cover page photograph in a mazagines.

Unit-IV

Videography

- Camera basic concepts
- Lighting basic Concepts
- Sound basic Concepts
- Editing Basic Concepts
- Graphics Basic Concepts
- Key persons Technical Team, Production Team, Management Team
- Creative and Aesthetics approaches- conceptualization & visualization

Television & Radio Production

Paper-305

Time: 3 Hrs.
Total Marks: 100
Theory: 50
Practical:30
Internal Assessment=20

The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing short notes and covering the entire syllabus. All questions carry equal marks.

Unit-I

- First stage of TV programme production (pre-production)
- Second stage of TV programme production (production)
- Third stage TV programme production (post-production)
- Team members of TV programme production
- Distribution, marketing, publicity

Unit-II

- Working principle of a video camera
- Single and multi-camera shooting
- Basic shots and camera angles
- Lighting, equipment, lighting techniques
- Television Studio, editing equipment, script writing for different programmes

Unit-III

- First stage of Radio programme production (pre-production)
- Second stage of Radio programme production (production)
- Third stage Radio programme production (post-production)
- Team members of Radio programme production
- Distribution, marketing, publicity

Unit-IV

- Script writing for different radio programme
- Radio programme production equipment: Mike, Console, Recorder, Speakers
- Radio programme production equipment
- Distribution, marketing, publicity for radio programme

Paper-401

Media Entrepreneurship

Time: 3 Hrs.
Total Marks: 100
Theory: 80
Internal Assessment:20

The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing short notes and covering the entire syllabus. All questions carry equal marks.

Unit-I

- Meaning, definition and concept of Entrepreneurship
- Nature and scope of media entrepreneurship
- Duties and responsibilities of the entrepreneurs
- Challenges and risks in media Entrepreneurship

Unit-II

- Famous Media entrepreneur in World
- Famous Media entrepreneur in India
- Entrepreneurship in print media
- Entrepreneurship in Television and radio
- Entrepreneurship in new media
- Entrepreneurship in advertising and Public Relations-Press
- Entrepreneurship in entertainment Industry

Unit-III

- Grasp the basic principles of freelancing and self-employment
- Understand the professional, financial, legal and regulatory framework of self-employment.
- Develop and polish a freelance pitch.
- Strengthen your personal brand through social media and your online portfolio.
- Attitudes, behaviors, knowledge, and skills required for entrepreneurship

Unit-IV

- Modern management theory and practice for planning, organizing, leading, and deploying human capital to maximize organizational and personal success.
- Motivation, human capital planning, performance management, organizational culture, decision making and leadership of self and others.
- Technology behind multiple digital platforms.
- New innovation in their media-related company,
- How to manage communication technology.
- Managing budgets, vendors, workflow, hardware, software, and production.

Event Management

Paper-402

Time: 3 Hrs.
Total Marks=100
Theory Marks= 50
Practical=30
Internal Assessment=20

The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing short notes and covering the entire syllabus. All questions carry equal marks.

Unit-I

- Event management: Meaning & definition
- Principles of event management
- Elements of event management
- How to become event planers
- Role of event planner and Qualities of good event planner
- Event production and logistics
- Event Laws & Licenses

Unit-II

- Event planning, coordination, development and client security
- Resource management
- Venue Management
- Risk Management
- Basic event accountability
- Marketing management for events, Sponsorship
- Event Entrepreneurship Management

Unit-III

- Event: Concepts, Dressing, print material, staffing, refreshments-invitations
- Media interest-press office speeches
- Role of media in events
- Ad, PR, Sponsorship Management
- Theme, fabrication, light & sound
- Handling venders, catering services,

Unit-IV

- Types of Events: Conferences, Meetings, Launch Events
- Fashion Shows, Fundraisers,
- Weddings, Religious Events, Photocalls, Exhibitions,
- Sport Events, Concerts, Political Events, Anniverseries etc.
- Rallies, Sports events
- Expositions & trade events.

Media Production (Print)
Paper-403 (i)

Time: 3 Hrs.
Total Marks=100
Theory=50
Practical=30
Internal Assessment=20

The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing short notes and covering the entire syllabus. All questions carry equal marks.

Unit-I

- Identification and cultivation of sources of news
- News gathering process and maintaining source
- Identifying, introducing and correcting the following in news: Objectivity, truth, diversity, plurality, balance and bias

Unit-II

- Visit a village and prepare a development report
- Attend a public meeting and prepare a political report
- Attend a press conference and prepare a political report
- Attend any cultural event and write a feature
- Prepare an investigative report
- Writing feature, editorial, comment & article for newspaper

Unit-III

- Copy testing, sub-editing & rewriting of reporters copy
- Copy testing, sub-editing & rewriting of news agency copy
- Copy testing, sub- editing & rewriting of press release
- Writing headlines, sub-headings, boxes, windows
- Headline significance and functions
- Editing & cropping of picture, writing cut line, style book

Unit-IV

- Quark Express & In Design
- Principles of page-layout and designing: based on balance, symmetrical, asymmetrical and dissymmetrical layout, vertical, horizontal, diagonal and quadrant, frame, brace, circus, jazzy

- Newspaper production: principle of design, newspaper makeup, dummy, effect of television and new media of newspaper makeup, newspaper form, design elements, front page, editorial, color page, graphic & illustration production, special pullout and suplements
- Magazine production: layout and design
- E-newspaper, E-magazine, E-book publishing

Media Production (TV)
Paper- 403 (ii)

Time: 3 Hrs.
Total Marks: 100
Theory=50
Practical=30
Internal Assessment=20

The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing short notes and covering the entire syllabus. All questions carry equal marks.

Unit-I

Production skills

- TV reporting ,Reporting skills, Planning and scheduling of a story
- Presentation skills for television
- Interview Skills
- Writing skills

Unit-II

Working of a news room

- Various functionaries in a news room: reporters
- Copy editor, Input editor, Output editor News producers, Cameramen, Video editor: research team, Reference library or archives people, Graphic artists.
- Instructing cameraman
- Significance of sound -bytes

Unit-III

Writing and Editing TV news

- TV script writing style: word vs. visuals,
- Writing in 'aural' style
- Content and format of news
- Anchor script
- Voice over script
- writing headlines
- Drafting of news scrolls
- News presentation
- Skills required of a news anchor: screen presence, Presence of mind, Interview and discussion skills.

Unit-IV

TV news reporting

- latest trends in TV news bulletin production
- Non linear editing software final cut pro, adobe premier
- Editing of different bulletins
- Special Programme production for television
- Production: Documentary films, short films, Current Affairs, Discussion & other programe

Media Production (Radio)
Paper-403 (iii)

Time: 3 Hrs.
Total Marks=100
Theory Marks= 50
Practical=30
Internal Assessment=20

The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing short notes and covering the entire syllabus. All questions carry equal marks.

Unit-I

Radio news

- Skills of a radio news reporter
- Developing sources,
- Gathering news,
- Phonos
- Anchoring and news reading skills
- General awareness, presence of mind, clarity, diction and pronunciation

Unit-II

Radio new bulletin

- Types of bulletins: Local to international, news reel, news report
- Editing news for different bulletins,
- Using voice-dispatches and other elements in a bulletin,
- Radio interviews for news gathering, vox-pop, structured interview programmes, personality, informative, issue based.
- Skills for an interviewer, personality, language, knowledge, curiosity, communication skills, research for interview, from planning to production

Unit-III

FM: Radio

- FM Radio –Present & Future
- Economics – License fees, set up costs, operating cost
- Revenue Models,
- Present status of FM Radio Industry in India

Unit-IV

New developments in radio

- Community Radio: Concept and relevance
- Campus radio: Concept and relevance
- Digital Audio Broadcasting: Satellite Radio, HD Radio and Visual Radio
- Internet or Streaming Radio
- Podcasting

Advertising (Production)

Paper-403 (iv)

Time: 3 Hrs.
Total Marks=100
Theory Marks= 50
Practical=30
Internal Assessment=20

The question paper will be divided into five units. Students are required to attempt one question from unit I to IV. Unit V containing short notes is compulsory for all. There would be two questions in each unit. Unit V will cover the entire Paper. All questions carry equal marks.

Unit-one

Preparing communication strategy for

- Launch of a new organization in public sector
- Changing the image of an existing organization in public or private sector.
- Building the image of a person in public life.
- Managing a crisis situation
- Managing an event

Unit-two

Prepare the following: (one each for social issue, a product and service)

- 60 seconds ad for radio
- 30 seconds commercial for television
- 40 X 40 cm. print media ad

Unit-three

- Conceiving, planning and execution (dummy) of three ad campaigns.
- Scanning the media for various excellent good and bad advertisements.
- Research inputs for preparing communication strategies.

Unit-four

- Midterm evaluation feedback.
- Post execution research
- Role plays of account executive, creative director, visualiser, Copywriter
- Planning an ad agency
- Documentation for empanelment

Public Relations (Production)
Paper-403 (v)

Time: 3 Hrs.
Total Marks=100
Theory Marks= 50
Practical=30
Internal Assessment=20

The question paper will be divided into five units. Students are required to attempt one question from unit I to IV. Unit V containing short notes is compulsory for all. There would be two questions in each unit. Unit V will cover the entire Paper. All questions carry equal marks.

Unit-one

- Launch of a new organization in public sector.
- Changing the image of an existing organization in public or private sector.
- Building the image of a person in public life.
- Managing a crisis situation.
- Manage on event.

Unit-two

- Prepare press release on various event.
- Prepare audio release on various events.
- Prepare video release in various events.
- Prepare information release on various events for web

Unit-three

- Conceiving, planning and execution (dummy) of press conferences.
- Scanning the media with regard to an organization, issue, event and individual
- Research inputs for preparing communication strategies.
- Midterm evaluation of feedback
- Post execution research

Unit-four

- Client management by a PR personal
- Planning a PR Agency and In-house PR department
- Process of empanelment in PR agency
- Process of empanelment of service provider for a PR agency and department
- Planning and execution (dummy) for lobbying for a social, business and political cause

Media Research
Paper-403 (vi)

Time: 3 Hrs.
Total Marks=100
Theory Marks= 50
Practical=30
Internal Assessment=20

The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing short notes and covering the entire syllabus. All questions carry equal marks.

Unit-I

Formulation of research topic
Review of literature
Formulation of hypothesis and testing hypothesis
Research designs

Unit-II

Research methods
Data collection tools
Type of data: Para metric and non para metric
Measurement scales

Unit-III

Media research writing
Synopsis writing
Plagiarism
Different formats of writing: Table titles, footnotes, references and bibliography

Unit-IV

Statistical applications in media research
Use of SPSS
Data Analysis and tabulation
Use of tables, graphs, bar & pie diagram

Internship
Paper-404

Report=50
Viva-voce=50

The internship is compulsory for the students. Students have to go for internship for 30 days with an organization related to the field of specialization they opted. Marks awarded will be based on the report submitted by the student and assessment report given by the employer. The report will be evaluated by a panel of three examiners to be appointed by the Director of the Institute.

Dissertation/Project
Paper-405

Total Marks	:	100
Report Writing	:	40 Marks
Viva-Voce	:	40 Marks
Internal Assessment	:	20 Marks

Students should submit a dissertation report/project according to specialization opted/selected by him. This report/project should be submitted to the Institute at the end of semester-IV. The last date of submission of the dissertation will be 31 July of the academic session. Project/Report to be evaluated by a panel of three examiners to be appointed by the Director of the Institute.