

# **Kurukshetra University, Kurukshetra**

(Established by the State Legislature Act-XII of 1956)

("A<sup>++</sup>" Grade, NAAC Accredited)



## **Scheme of Examination for Post Graduate Programme M.Sc. Biochemistry**

as per NEP 2020

**Curriculum and Credit Framework for Postgraduate Programme**

**With Multiple Entry-Exit, Internship and CBCS-LOCF**

**With effect from the session 2024-25 (in phased manner)**

**DEPARTMENT OF BIOCHEMISTRY  
FACULTY OF LIFE SCIENCES**

**KURUKSHETRA UNIVERSITY, KURUKSHETRA -136119**

**HARYANA, INDIA**

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CHAIRMAN  
Department of Biochemistry  
Kurukshetra University  
KURUKSHETRA-136119

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## PROGRAM LEARNING OUTCOMES (PLOs)

PLOs	Master Degree in Biochemistry
	<b>After the completion of Master degree in Biochemistry the student will be able to:</b>
PLO-1: Knowledge and Understanding	Demonstrate the fundamental and advanced knowledge of the subject and understanding of recent developments and issues, including methods and techniques, related to the Biochemistry.
PLO-2: General Skills	Acquire the general skills required for performing and accomplishing the tasks as expected to be done by a skilled professional in the fields of Biochemistry.
PLO-3: Technical/ Professional Skills	Demonstrate the learning of advanced cognitive technical/professional skills required for completing the specialized tasks related to the profession and for conducting and analyzing the relevant research tasks indifferent domains of the Biochemistry.
PLO-4: Communication Skills	Effectively communicate the attained skills of the Biochemistry in well-structured and productive manner to the society at large.
PLO-5: Application of Knowledge and Skills	Apply the acquired knowledge and skills to the problems in the subject area, and to identify and analyze the issues where the attained knowledge and skills can be applied by carrying out research investigations to formulate evidence-based solutions to complex and unpredictable problems associated with the field of Biochemistry or otherwise.
PLO-6: Critical thinking and Research Aptitude	Attain the capability of critical thinking in intra/inter-disciplinary areas of the Biochemistry enabling to formulate, synthesize, and articulate issues for designing of research proposals, testing hypotheses, and drawing inferences based on the analysis.
PLO-7: Constitutional, Humanistic, Moral Values and Ethics	Know constitutional, humanistic, moral and ethical values, and intellectual property rights to become a scholar/professional with ingrained values in expanding knowledge for the society, and to avoid unethical practices such as fabrication, falsification or misrepresentation of data or committing plagiarism.
PLO-8: Capabilities/qualities and mindset	To exercise personal responsibility for the outputs of own work as well as of group/team and for managing complex and challenging work(s) that requires new/strategic approaches.
PLO-9: Employability and job-ready skills	Attain the knowledge and skills required for increasing employment potential, adapting to the future work and responding to the rapidly changing demands of the employers/industry/society with time.

  
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Scheme of Examination for Postgraduate Programme M.Sc. Biochemistry  
as per NEP 2020 Curriculum and Credit Framework for Postgraduate Programmes  
(CBCS LOCF) with effect from the session 2024-25 (in phased manner)

Framework-2

Scheme-P

Semester	Course Type	Course Code	Nomenclature of course	Theory(T)/ Practical (P)	Credits		Contact hours per week L: Lecture P: Practical T: Tutorial				Internal Assessment Marks	End Term Examination Marks	Total Marks	Examina tion hours
						Total	L	T	P	Total				
1	CC-1	M24-BCH-101	Structure and Function of Biomolecules	T	4	26	4	0	0	4	30	70	100	3
	CC-2	M24-BCH-102	Cell Biochemistry and Cell Signaling	T	4		4	0	0	4	30	70	100	3
	CC-3	M24-BCH-103	Bioenergetics and Metabolism -I	T	4		4	0	0	4	30	70	100	3
	CC-4	M24-BCH-104	Plant Biochemistry	T	4		4	0	0	4	30	70	100	3
	PC-1	M24-BCH-105	Practical-1 (Qualitative and quantitative analysis of Biomolecules)	P	4		0	0	8	8	30	70	100	4
	PC-2	M24-BCH-106	Practical-2 (Practicals of Basic Biochemistry and Plant Biochemistry)	P	4		0	0	8	8	30	70	100	4
	SEMINAR	M24-BCH-107	Seminar	S	2		0	0	0	2	0	50	50	1

655

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2	CC-5	M24-BCH-201	Metabolism -II	T	4	26	4	0	0	4	30	70	100	3
	CC-6	M24-BCH-202	Biochemical and biophysical techniques	T	4		4	0	0	4	30	70	100	3
	CC-7	M24-BCH-203	Enzymology	T	4		4	0	0	4	30	70	100	3
	CC-8	M24-BCH-204	Molecular Biology	T	4		4	0	0	4	30	70	100	3
	PC-3	M24-BCH-205	Practical-3 (Practical skills in Biotechniques)	P	4		0	0	8	8	30	70	100	4
	PC-4	M24-BCH-206	Practical-4 (Practicals based on Enzymology and Molecular Biology)	P	4		0	0	8	8	30	70	100	4
	CHM	M24-CHM-201	Constitutional, Human and Moral values, and IPR	T	2		2	0	0	2	15	35	50	3
	INTERNSHIP	M24-INT-200	AN INTERNSHIP COURSE OF 4 CREDITS OF 4-6 WEEKS DURATION DURING SUMMER VACATION AFTER IIND SEMESTER IS TO BE COMPLETED BY EVERY STUDENT. INTERNSHIP CAN BE EITHER FOR ENHANCING THE EMPLOYABILITY OR FOR DEVELOPING THE RESEARCH APTITUDE.									50	50	100
3	CC-9	M24-BCH-301	Immunology	T	4	26	4	0	0	4	30	70	100	3
	CC-10	M24-BCH-302	Genetic and Protein Engineering	T	4		4	0	0	4	30	70	100	3
	DEC-1 (either of two)	M24-BCH-303	Human Physiology	T	4		4	0	0	4	30	70	100	3
		M24-BCH-304	Molecular Genetics	T	4		4	0	0	4	30	70	100	3

	DEC-2 (either of two)	M24-BCH-305	Nutritional Biochemistry	T	4	26	4	0	0	4	30	70	100	3
		M24-BCH-306	Developmental and Cancer Biology	T	4		4	0	0	4	30	70	100	3
PC-5	M24-BCH-307	Practical-5	P	4	0		0	8	8	30	70	100	4	
PC-6	M24-BCH-308	Practical-6	P	4	0		0	8	8	30	70	100	4	
OEC	FOR BIOCHEMISTRY STUDENTS						Courses to opted from the pool of OEC course other than the ones offered by Department of Biochemistry							
OEC: To be offered to the students of other departments	M24-OEC-302	Food Biochemistry	Open Elective	2	2		0	0	2	15	35	50	3	
4	CC-11	M24-BCH-401	Omics in Biology	T	4		4	0	0	4	30	70	100	3
	CC-12	M24-BCH-402	Biotechniques and Bioinformatics	T	4		4	0	0	4	30	70	100	3
	DEC-3 (either of two)	M24-BCH-403	Industrial Biochemistry	T	4		4	0	0	4	30	70	100	3
		M24-BCH-404	Clinical Biochemistry	T	4		4	0	0	4	30	70	100	3
	DEC-4 (either of two)	M24-BCH-405	Microbial Biochemistry	T	4		4	0	0	4	30	70	100	3

657

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		M24-BCH-406	Pharmacovigilance	T	4		4	0	0	4	30	70	100	3
PC-7		M24-BCH-407	Practical-7	P	4		0	0	8	8	30	70	100	4
PC-8		M24-BCH-408	Practical-8	P	4		0	0	8	8	30	70	100	4
EEC		M24-EEC-409	Entrepreneurship skills in Biochemistry	T	2		2	0	0	2	15	35	50	3
<b>OR DISSERTATION</b> <b>(NOTE: IF A CANDIDATE IS OFFERED DISSERTATION COURSE, THEN HE/SHE WILL ALSO STUDY CC-11, DEC-3, DEC-4 &amp; EEC FROM ABOVE COURSES OF SEMESTER-4)</b>														
Dissertation/ Project work		M24-BCH-410	Dissertation/ Project work	D	12	26	0	0	0	-	0	300	300	-
<b>TOTAL CREDITS</b>						<b>104</b>	<b>TOTAL MARKS</b>							<b>2700</b>

  
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## Syllabus for Post Graduate Programme M.Sc. Biochemistry

as per NEP 2020

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With effect from the session 2024-25 (in phased manner)

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Session: 2024-25			
Part A – Introduction			
Name of Programme	M. Sc. Biochemistry		
Semester	Semester- I		
Name of the Course	Structure and Function of Biomolecules		
Course Code	M24-BCH-101		
Course Type	CC-1		
Level of the course	400-499		
Pre-requisite for the course (if any)			
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	<p>CLO1: have an overview of importance of biomolecules starting from the simplest molecule, water and structure and functions of carbohydrates</p> <p>CLO 2: understand the structure, properties and functions of lipids and amino acids</p> <p>CLO 3: understand the structure and conformation of proteins</p> <p>CLO 4: understand the structure and functions of nucleic acids and porphyrins</p>		
Credits	Theory	Practical	Total
	4	0	4
Teaching Hours per week	4	0	4
Internal Assessment Marks	30	0	30
End Term Exam Marks	70	0	70
Max. Marks	100	0	100
Examination Time	3 hours		
Part B- Contents of the Course			
<b>Instructions for Paper- Setter:</b> The examiner will set 9 questions asking two questions from each unit and one compulsory question by taking course learning outcomes (CLOs) into consideration. The compulsory question (Question No. 1) will consist at least 4 parts covering entire syllabus. The examinee will be required to attempt 5 questions, selecting one question from each unit and the compulsory question. All questions will carry equal marks.			
Unit	Topics		Contact Hours
I	<b>Water and Buffers:</b> Structure and physicochemical properties of water, ionization of water, weak acids and bases, pH, pka, Henderson – Hasselbalch equation and its significance. <b>Carbohydrates:</b> Occurrence, characteristics, and classification of carbohydrates, structure and functions of monosaccharides, disaccharides, and polysaccharides; Different conformation of sugar, stereoisomerism, optical isomerism, mutarotation, sugar derivatives, structural polysaccharides, storage polysaccharides and blood group polysaccharides		15
II	<b>Fats and Lipids:</b> Structure and properties of fatty acids, Nomenclature, Classification and functions of lipids, plasmalogens, phospholipids, sphingolipids, glycolipids, steroids, prostaglandins and eicosanoids, and		15

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	thromboxanes, bile acids, characterization of lipids (saponification value, iodine number, acid value, Reichart-Meissl number) <b>Amino acids:</b> Nomenclature, classification, and structure of standard amino acids, physico- chemical properties of amino acids, stereoisomerism and optical properties of amino acids; non-natural amino acids; Titration curve of amino acids and isoelectric point, amino acid as zwitter ion	
III	<b>Proteins: Primary structure of proteins</b> , nature of peptide bond, Ramachandran plot, hierarchy of protein structure; <b>Secondary and tertiary structure of proteins:</b> $\alpha$ -helix, $\beta$ -structure; collagen helix, super secondary structures, domains, <b>Quaternary structure of proteins</b> with example of haemoglobin, Forces stabilizing the different level of protein structure, denaturation and renaturation of proteins Determination of primary structure of proteins, determination of amino acid composition, N- terminal and C-terminal residues and disulfide bonds	15
IV	<b>Nucleotides and Nucleic acids:</b> Structure of purines and pyrimidines, nucleosides and nucleotides, Structure and functions of DNA and RNA, Forces stabilizing DNA structure, structural polymorphism of DNA (A, B and Z-DNA), Structure of different types of RNA, C-value paradox, denaturation and renaturation of DNA Porphyrins: Basic structure of porphyrins, Classification of porphyrins, Naturally occurring porphyrins, Some important metallo-porphyrins	15
<b>Total Contact Hours</b>		60
<b>Suggested Evaluation Methods</b>		
<b>Internal Assessment: 30</b>		<b>End Term Examination: 70</b>
➤ <b>Theory</b>	<b>30</b>	➤ <b>Theory:</b> <b>70</b>
• Class Participation:	5	Written Examination
• Seminar/presentation/assignment/quiz/class test etc.:	10	
• Mid-Term Exam:	15	
<b>Part C-Learning Resources</b>		
<b>Recommended Books/e-resources/LMS:</b>		
1. Lehninger: Principles of Biochemistry, 7 <sup>th</sup> edition, by David L. Nelson and M M Cox (2017), Macmillan / Worth publishers/ W H Freeman and Company.		
2. Biochemistry (2004) by J David Rawn, Panima Publishing Corporation, New Delhi.		
3. Biochemistry, 6 <sup>th</sup> edition, by R H Garrett and C M Grisham (2017), Saunders College Publishing, New York.		
4. Biochemistry, 7th edition, by Jeremy M. Berg (2015), W H Freeman and Co., New York.		
5. Fundamentals of Biochemistry, 2 <sup>nd</sup> ed., by Donald Voet, Judith G. Voet and Charlotte W Pratt (2006), John Wiley and Sons, INC.		
6. Textbook of Medical Physiology, 13 <sup>th</sup> ed., A C Guyton and J E Hall (2015) Elsevier.		
7. Biochemistry, 4 <sup>th</sup> ed. Zubay, G., (2009). Wm.C Brown Publishers, Saunders and Company, Philadelphia.		


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Session: 2024-25			
Part A – Introduction			
Name of Programme	M. Sc. Biochemistry		
Semester	Semester- I		
Name of the Course	Cell Biochemistry and Cell Signaling		
Course Code	M24-BCH-102		
Course Type	CC-2		
Level of the course	400-499		
Pre-requisite for the course (if any)			
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	CLO 1: acquire detailed information regarding bio-membranes and membrane transport CLO 2: get an insight into the structure and functions of various cellular organelles and a detailed account of the cytoskeleton CLO 3: explain the communications of cells with other cells and to the environment CLO 4: have a conceptual understanding of the molecular basis of cell signaling		
Credits	Theory	Practical	Total
	4	0	4
Teaching Hours per week	4	0	4
Internal Assessment Marks	30	0	30
End Term Exam Marks	70	0	70
Max. Marks	100	0	100
Examination Time	3 hours		
Part B- Contents of the Course			
<b>Instructions for Paper- Setter:</b> The examiner will set 9 questions asking two questions from each unit and one compulsory question by taking course learning outcomes (CLOs) into consideration. The compulsory question (Question No. 1) will consist at least 4 parts covering entire syllabus. The examinee will be required to attempt 5 questions, selecting one question from each unit and the compulsory question. All questions will carry equal marks.			
Unit	Topics		Contact Hours
I	<b>Plasma membrane:</b> An overview of membrane functions; Chemical composition of membranes: membrane lipids: phospholipids, sphingolipids, cholesterol, liposomes, lipid rafts, lipid droplets, membrane carbohydrates: Blood group antigens, Glycocalyx, membrane proteins: integral proteins, peripheral proteins, lipid anchored proteins, mobility of membrane proteins: Cell fusion experiment and FRAP <b>Membrane transport of small molecules:</b> Basic mechanisms of movement of substances across cell membranes, Passive diffusion, Facilitated diffusion and carrier proteins, ion channels; patch clamp technique; ion selectivity of Na <sup>+</sup> and K <sup>+</sup> channels; gated channels, Active transport driven by ATP hydrolysis: Na <sup>+</sup> -K <sup>+</sup> pump, ABC		15

  
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	transporters, Active transport driven by ion gradients, methods of introducing a membrane-impermeant substance into a cell	
II	<p><b>Endoplasmic reticulum:</b> Structurally and functionally diverse ER, microsomes, Isolation of purified rough and smooth microsomes from ER, RER and protein secretion, SER and lipid synthesis.</p> <p><b>Golgi apparatus:</b> Organization of the Golgi complex, protein glycosylation within the Golgi complex, purpose of glycosylation, lipid and polysaccharide metabolism in the Golgi</p> <p><b>Lysosomes:</b> Lysosomal acid hydrolases, role of lysosomes in phagocytosis and autophagy</p> <p><b>The Cytoskeleton:</b> Microfilaments: assembly and disassembly of actin filaments; actin binding proteins; organization of actin filaments, Muscle contraction; Sarcomere, structure of myosin; role of <math>Ca^{2+}</math> in muscle contraction, Intermediate filaments- Intermediate filament proteins; assembly of intermediate filaments; functions of keratins and neurofilaments, Microtubules: structure and dynamic organization of microtubules, Microtubule organizing centers: centrosomes and basal bodies; Microtubule motor proteins: Dynein and kinesin, Cilia and flagella: structure and functions</p>	15
III	<p><b>Extracellular matrix and Cell-matrix interactions:</b> Matrix structural proteins, matrix polysaccharides, matrix adhesion proteins, Interactions of cells with extracellular matrix: integrins, focal adhesions and hemidesmosomes; Interactions of cells with other cells: Adhesion junctions, Tight junctions, Gap junctions and Plasmodesmata.</p> <p><b>Mitochondria:</b> Organization and function of mitochondria, critical roles of mitochondria in cell metabolism besides ATP production.</p> <p><b>Chloroplast and other plastids:</b> structure and functions of chloroplast, molecular organization of thylakoids, different types of plastids</p> <p><b>Peroxisomes:</b> structure of peroxisomes and their involvement in photorespiration.</p>	15
IV	<p><b>Cell signaling:</b> General principles of cell communication, modes of cell-cell signaling, Steroid hormones and the nuclear receptor superfamily, nitric oxide and carbon monoxide, neurotransmitters, peptide hormones and growth factors, eicosanoids, plant hormones</p> <p>Functions of cell surface receptors: G-protein coupled receptors, regulation of G-proteins, Receptor protein-tyrosine kinases, Cytokine receptors and nonreceptor protein-tyrosine kinases, receptors linked to other enzymatic activities</p> <p><b>Pathways of intracellular signal transduction:</b> The cAMP pathway, cyclic GMP, phospholipids and <math>Ca^{2+}</math> ions, function of calmodulin, The PI3-kinase/Akt and mTOR pathways, regulation of FOXO, MAP kinase pathways: activation of ERK MAP kinases, regulation of Ras proteins, Ras activation, induction of immediate early genes by ERK, The JAK/STAT and TGF-<math>\beta</math>/Smad pathways, NF-<math>\kappa</math>B signaling</p>	15
Total Contact Hours		60
Suggested Evaluation Methods		

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Internal Assessment: 30		End Term Examination: 70	
➤ Theory	30	➤ Theory:	70
• Class Participation:	5	Written Examination	
• Seminar/presentation/assignment/quiz/class test etc.:	10		
• Mid-Term Exam:	15		
Part C-Learning Resources			
Recommended Books/e-resources/LMS:			
1. Cell and Molecular Biology- Concepts and experiments, 5th ed. (2008) Gerald Carp- Wiley & Sons.			
2. The Cell: A Molecular Approach, G.M. Cooper & R.E. Hausman (2007), 4 <sup>th</sup> ed. ASM Press.			
3. Molecular Biology of the Cell (2008) 5 <sup>TH</sup> ed. Alberts <i>et al.</i> Garland Science, Taylor and Francis Group.			
4. Molecular Cell Biology (2008) 6 <sup>th</sup> ed. Lodish <i>et al.</i> , W.H. Freeman & Company.			
5. Cell and Molecular Biology, 8th ed. E.D.P. De Robertis & E.M.F. De Robertis (2001), Lippincott, Williams and Wilkins.			

  
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Session: 2024-25			
Part A – Introduction			
Name of Programme	M.Sc. Biochemistry		
Semester	Semester- I		
Name of the Course	Bioenergetics and Metabolism-I		
Course Code	M24-BCH-103		
Course Type	CC-3		
Level of the course	400-499		
Pre-requisite for the course (if any)			
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	<p>CLO 1: understand the concept of free energy change, coupled reactions, high energy compounds and redox reactions and its application to the study of metabolism.</p> <p>CLO 2: describe various anabolic and catabolic pathways like glycolysis, Kreb's cycle, HMP shunt, glycogen metabolism etc. and their regulation for better understanding of physiology and therapeutic applications.</p> <p>CLO 3: comprehend reactions and regulation of pathways involved in the metabolism of lipids and correlate with the metabolic disorders at molecular level.</p> <p>CLO 4: have an insight of electron transport chain and mechanism of ATP synthesis during catabolism of molecules.</p>		
Credits	Theory	Practical	Total
	4	0	4
Teaching Hours per week	4	0	4
Internal Assessment Marks	30	0	30
End Term Exam Marks	70	0	70
Max. Marks	100	0	100
Examination Time	3 hours		
Part B- Contents of the Course			
<b>Instructions for Paper- Setter:</b> The examiner will set 9 questions asking two questions from each unit and one compulsory question by taking course learning outcomes (CLOs) into consideration. The compulsory question (Question No. 1) will consist at least 4 parts covering entire syllabus. The examinee will be required to attempt 5 questions, selecting one question from each unit and the compulsory question. All questions will carry equal marks.			
Unit	Topics		Contact Hours
I	<b>Bioenergetics:</b> Concept of Free energy; standard Free energy; Relationship between standard free-energy change and equilibrium constant; Coupled reactions; High-energy compounds. Biological oxidation: Oxidation & reduction; Oxidation-reduction half reactions; Nernst equation, measurement of standard reduction		15

	potentials; Calculation of $\Delta G$ from standard reduction potentials; Enzymes involved in oxidation and reduction (oxidases, dehydrogenases, hydroperoxidases and oxygenases). Introduction to Metabolism and Experimental approaches for studying metabolism.	
II	<b>Carbohydrate Metabolism:</b> Reactions, energetics and regulation of glycolysis; Feeder pathways for glycolysis; Fate of pyruvate under aerobic and anaerobic conditions; Pasteur effect; Pyruvate dehydrogenase complex and its regulation; Reactions, regulation and amphibolic nature of TCA Cycle; Anaplerotic reactions; Glyoxalate cycle; Pentose Phosphate Pathway; Gluconeogenesis; Cori cycle; Biosynthesis of lactose and sucrose; Glycogenesis and Glycogenolysis; Control of glycogen metabolism; Maintenance of blood glucose levels.	15
III	<b>Lipid Metabolism:</b> Mobilization and hydrolysis of triacylglycerols; Fatty acid oxidation: Franz Knoop's experiment; $\beta$ -oxidation of saturated, unsaturated and odd-chain fatty acids; Peroxisomal $\beta$ -oxidation; Minor pathways of fatty acid oxidation ( $\alpha$ - and $\omega$ -oxidations); Formation and utilization of Ketone bodies; Biosynthesis of saturated fatty acids; Elongation and desaturation of fatty acids; Biosynthesis of triacylglycerols; Regulation of fatty acid metabolism; Cholesterol biosynthesis and its regulation; Biosynthesis of glycerophospholipids and sphingolipids; Breakdown of sphingolipids by lysosomal enzymes; Formation of prostaglandins, prostacyclins, thromboxanes and leukotrienes from arachidonic acid.	15
IV	<b>Mitochondrial Electron Transport Chain and Oxidative Phosphorylation:</b> Mitochondrial Transport Systems; Nature, order and organization of the components of electron transport chain; electron flow from NADH and $FADH_2$ to $O_2$ ; sites of ATP production; inhibitors of electron transport chain; Coupling between oxidation and phosphorylation; Chemiosmotic hypothesis of oxidative phosphorylation; Mechanism of ATP synthesis: Structure of proton-translocating ATP synthase; Binding Change Mechanism for proton-driven ATP synthesis; Uncoupling of oxidative phosphorylation; Control of oxidative phosphorylation.	15
<b>Total Contact Hours</b>		60
<b>Suggested Evaluation Methods</b>		
<b>Internal Assessment: 30</b>		<b>End Term Examination: 70</b>
➤ <b>Theory</b>	<b>30</b>	➤ <b>Theory: 70</b>
• Class Participation:	5	Written Examination
• Seminar/presentation/assignment/quiz/class test etc.:	10	
• Mid-Term Exam:	15	
<b>Part C-Learning Resources</b>		
<b>Recommended Books/e-resources/LMS:</b>		
1. Lehninger: Principles of Biochemistry, 4 <sup>th</sup> edition, by David L. Nelson and M.M. Cox (2005) Maxmillan/ Worth publishers/ W. H. Freeman & Company.		

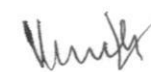
666

  
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2. Fundamentals of Biochemistry, 3<sup>rd</sup> edition, by Donald Voet and Judith G Voet (2004), John Wiley & Sons, NY
3. Biochemistry, 2<sup>nd</sup> edition, by R .H. Garrett and C. M. Grisham (1999). Saunders College Publishing, NY.
4. Biochemistry, 6<sup>th</sup> edition, by Jeremy M. Berg (2007). W.H. Freeman & Co., NY.
5. Harper's Biochemistry, 26<sup>th</sup> edition, by R.K. Murray, P.A.Hayes, D.K.Granner, P.A. Mayes and V. W. Rodwell (2003). Prentice Hall International.
6. Biochemistry, 3<sup>rd</sup> edition, by C.K. Mathews, K.E. vans Holde and K.G. Ahern (2000). Addison-Wesley Publishing Company.
7. Biochemistry (2004) by J. David Rawn, Panima Publishing Corporation, New Delhi.

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Session: 2024-25			
Part A – Introduction			
Name of Programme	M.Sc. Biochemistry		
Semester	Semester – I		
Name of the Course	Plant Biochemistry		
Course Code	M24-BCH-104		
Course Type	CC-4		
Level of the course	400-499		
Pre-requisite for the course (if any)			
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	<p>CLO 1: understand the light phase of photosynthesis and pathways of CO<sub>2</sub> assimilation in C<sub>3</sub>, C<sub>4</sub> and CAM plants.</p> <p>CLO 2: get an insight about the Sucrose and starch metabolism in plants and Electron transport chain in plant mitochondria.</p> <p>CLO 3: explain the various plant processes viz. nitrate assimilation, biological nitrogen fixation and sulphate assimilation in plants.</p> <p>CLO 4: understand biochemical defense mechanisms against pathogens and molecular mechanism of action of different plant hormones that can facilitate their research abilities in the field of plant sciences.</p>		
Credits	Theory	Practical	Total
	4	0	4
Teaching Hours per week	4	0	4
Internal Assessment Marks	30	0	30
End Term Exam Marks	70	0	70
Max. Marks	100	0	100
Examination Time	3 hours		
Part B- Contents of the Course			
<b>Instructions for Paper- Setter:</b> The examiner will set 9 questions asking two questions from each unit and one compulsory question by taking course learning outcomes (CLOs) into consideration. The compulsory question (Question No. 1) will consist at least 4 parts covering entire syllabus. The examinee will be required to attempt 5 questions, selecting one question from each unit and the compulsory question. All questions will carry equal marks.			
Unit	Topics		Contact Hours
I	Chemical and physical composition of higher plant cell wall. <b>Light reactions of Photosynthesis:</b> Photosynthetic pigments, chlorophyll excitation by absorption of light energy and its return to the ground state, Requirement of an antenna to capture light, van Niel equation, Hill equation, Cyclic electron transport in purple photosynthetic bacterium, Red drop and Emerson enhancement effect, Photosystem I & II, Non-cyclic, cyclic and pseudocyclic photosynthetic electron transport,		15

  
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	Inhibitors of non-cyclic electron transport, Regulation of energy distribution between PS I and PS II, Photophosphorylation: coupling between electron transport and phosphorylation, chemiosmotic hypothesis, chloroplast ATP synthase, binding change mechanism of ATP synthesis and uncouplers of photophosphorylation.	
II	Pathway and regulation of CO <sub>2</sub> assimilation in C <sub>3</sub> , C <sub>4</sub> & CAM plants. Photorespiration: pathway and significance. Metabolism of Sucrose and Starch: Biosynthesis and degradation of starch and sucrose; role of fructose 2, 6- biphosphate in carbon partitioning between sucrose and starch. <b>Electron transport in plant mitochondria:</b> Electron transport complexes and pathway of electron flow in plant mitochondria; cyanide - resistant respiratory pathway.	15
III	<b>Nitrogen Metabolism:</b> Nitrogen Cycle; Nitrate Assimilation: nitrate uptake, nitrate & nitrite reduction and regulation of nitrate assimilation. <b>Biological nitrogen fixation:</b> Nitrogen fixing organisms, structure and mechanism of action of nitrogenase, Legume- Rhizobium symbiosis (A brief account), Leghaemoglobin, Strategies for protection of nitrogenase against the inhibitory effect of oxygen, Uptake hydrogenase, Ammonia assimilation, <i>nif</i> genes of <i>Klebsiella pneumoniae</i> and their regulation, and synthesis of amides and ureides. <b>Sulphate assimilation:</b> sulphate uptake and its assimilation into cysteine.	15
IV	Biochemical defense mechanisms in plants against pathogens; <b>Plant hormones:</b> Physiological effects and molecular mechanism of action of auxins, gibberellins, cytokinins, ABA and ethylene. Phytochromes as light sensors.	15
Total Contact Hours		60
Suggested Evaluation Methods		
Internal Assessment: 30		End Term Examination: 70
➤ Theory	30	➤ Theory: 70
• Class Participation:	5	Written Examination
• Seminar/presentation/assignment/quiz/class test etc.:	10	
• Mid-Term Exam:	15	
Part C-Learning Resources		
Recommended Books/e-resources/LMS:		
1. Biochemistry and Molecular Biology of Plants by Bob, B. Buchanan, W. Gruissen and R. L. Jones (2000). Published by American Society of Plant Physiologists and distributed by Panima Educational Book Agency, New Delhi.		
2. Plant Biochemistry & Molecular Biology, 3 <sup>rd</sup> ed., by Hans-Walter Heldt (2005), Academic Press		
3. Introduction to Plant Biochemistry, T. W. Goodwin and E. I. Mercer (1983). Pergamon Press, Oxford		
4. Plant Physiology, 2 <sup>nd</sup> edition, by L. Taiz and E Zeiger (1998), Sinauer Associates, Inc., Publishers		


  
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Session: 2024-25			
Part A – Introduction			
Name of the Programme	M.Sc. Biochemistry		
Semester	Semester – I		
Name of the Course	PC-1 (Qualitative and quantitative analysis of Biomolecules)		
Course Code	M24-BCH-105		
Course Type	PC-1		
Level of the course	400-499		
Pre-requisite for the course (if any)			
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	CLO 1: get an insight/awareness about the safe laboratory practices. CLO 2: get more acquainted with the basic practical techniques related to various biomolecules. CLO 3: standardize and qualitatively & quantitatively estimate various biomolecules including carbohydrates, lipids and proteins in the biological samples.		
Credits	Theory	Practical	Total
	0	4	4
Teaching Hours per week	0	8	8
Internal Assessment Marks	0	30	30
End Term Exam Marks	0	70	70
Max. Marks	0	100	100
Examination Time	0	4 hours	
Part B- Contents of the Course			
Practicals			Contact Hours
1.To study biochemistry laboratory safety rules and guidelines 2. Determination/calculation of normality and molarity of solutions 3. Standardization of pH meter and preparation of buffers 4. Qualitative estimation of carbohydrates 5. Qualitative estimation of proteins/amino acids 6. Qualitative estimation of lipids 7. Quantitative estimation of proteins by Lowry's method 8. Quantitative estimation of proteins by Bradford method 9. Quantitative estimation of total sugars 10. Quantitative estimation of reducing sugars by Nelson-Somoygi's method 11. Solubility test for lipids 12. To detect the presence of glycerol in given sample by acrolein method 13. Characterization of lipids (Acid value, Saponification value and Iodine number) 14. Extraction of lipids from tissues using Soxhlet's apparatus 15. To determine pka of acetic acid/glycine 16. Cell counting by hemocytometer and identification of blood cell types			120
Suggested Evaluation Methods			
Internal Assessment: 30		End Term Examination: 70	
➤ Practicum	30	➤ Practicum	70
• Class Participation:	5	Lab record, Viva-Voce, write-up and execution of the practical	
• Seminar/Demonstration/Viva-voce/Lab records etc.:	10		
• Mid-Term Exam:	15		

670

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### Part C-Learning Resources

#### Recommended Books/e-resources/LMS:

1. Introductory Practical Biochemistry by Sawhney, S.K. and Singh, R. (2000), Narosa Publishing House, India
2. Principles and Techniques of Practical Biochemistry, 6<sup>th</sup> edition by Keith Wilson and John Walker (2000), Cambridge University Press.
3. Physical Biochemistry, 2nd edition, by D Friefelder (1983), W H Freeman and Co., USA.
4. Biophysical Chemistry: Principles and Techniques, 2<sup>nd</sup> edition by A Upadhyay, K Upadhyay and N Nath (1998), Himalaya Publishing House, Delhi.
5. Physical Biochemistry, 2nd edition, by K. E Van Holde (1985), Prentice Hall Inc, New Jersey.

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Session: 2024-25			
Part A – Introduction			
Name of the Programme	M.Sc. Biochemistry		
Semester	Semester – I		
Name of the Course	PC-2 (Practicals of Basic Biochemistry and Plant Biochemistry)		
Course Code	M24-BCH-106		
Course Type	PC-2		
Level of the course	400-499		
Pre-requisite for the course (if any)			
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	CLO 1: appreciate and illustrate the biochemistry of plant related processes and its relation to the stressed environment CLO 2: develop skills and knowledge to conduct basic research work in the field of Plant Biochemistry. CLO 3: correlate the applications of enzymes of plant origin ( $\beta$ -amylases) in various industrial processes such as food, fermentation, and pharmaceutical industries.		
Credits	Theory	Practical	Total
	0	4	4
Teaching Hours per week	0	8	8
Internal Assessment Marks	0	30	30
End Term Exam Marks	0	70	70
Max. Marks	0	100	100
Examination Time	0	4 hours	
Part B- Contents of the Course			
Practicals			Contact Hours
1. Estimation of phenols in plant tissues 2. Estimation of chlorophyll content in the leaves 3. Quantitative estimation of starch in the given plant tissue 4. Quantitative determination of free amino acid content in germinating moongbean seeds 5. Estimation of proline in stressed plant tissues 6. To determine the activity of malate dehydrogenase in the given plant tissue 7. Determination of $\beta$ -amylase activity in germinating barley seeds 8. Estimation of ascorbic acid in lemon juice 9. To determine the activity of polyphenol oxidases 10. To estimate titrable acidity in fruits 11. Estimation of nitrate reductase activity from plant tissue			120
Suggested Evaluation Methods			
Internal Assessment: 30		End Term Examination: 70	
➤ Practicum	30	➤ Practicum	70
• Class Participation:	5	Lab record, Viva-Voce, write-up and execution of the practical	
• Seminar/Demonstration/Viva-voce/Lab records etc.:	10		
• Mid-Term Exam:	15		
Part C-Learning Resources			
Recommended Books/e-resources/LMS:			
1. Introductory Practical Biochemistry by Sawhney, S.K. and Singh, R. (2000), Narosa			

672

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Publishing House, India


2. Principles and Techniques of Practical Biochemistry, 6<sup>th</sup> edition by Keith Wilson and John Walker (2000), Cambridge University Press.
3. Physical Biochemistry, 2nd edition, by D Friefelder (1983), W H Freeman and Co., USA.
4. Biophysical Chemistry: Principles and Techniques, 2<sup>nd</sup> edition by A Upadhyay, K Upadhyay and N Nath (1998), Himalaya Publishing House, Delhi.
5. Plant Biochemistry & Molecular Biology, 3<sup>rd</sup> ed., by Hans-Walter Heldt (2005), Academic Press

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Session: 2024-25	
Name of the Programme	M.Sc. Biochemistry
Semester	Semester – I
Name of the Course	Seminar
Course Code	M24-BCH-107
Course Type: (CC/DEC/PC/Seminar/CHM/OEC/EEC)	Seminar
Level of the course	400-499
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	CLO 1: work independently, critically analyze research literature and use different digital sources to explain the concepts of Biochemistry. CLO 2: demonstrate latest scientific developments from disciplinary perspective to its professional and everyday use.
Credits	Seminar 2
Teaching Hours per week	2
Max. Marks	50
Internal Assessment Marks	0
End Term Exam Marks	50
Examination Time	1 hour
<b>Instructions for Examiner:</b> Evaluation of the seminar will be done by the internal examiner(s) on the parameters as decided by staff council of the department. There will be no external examination/viva-voce examination.	

  
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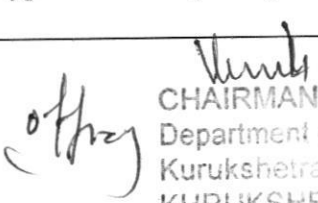
Session: 2024-25			
Part A – Introduction			
Name of Programme	M.Sc. Biochemistry		
Semester	Semester- II		
Name of the Course	Metabolism–II		
Course Code	M24-BCH-201		
Course Type	CC-5		
Level of the course	400-499		
Pre-requisite for the course (if any)			
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	<p>CLO 1: get an insight into the pathways involved in the catabolism and biosynthesis of amino acids, porphyrins and nucleotides.</p> <p>CLO 2: acquire knowledge about the chemical nature and metabolism of secondary metabolites produced by plants such as isoprenoids, phenylpropanoids, alkaloids etc.</p> <p>CLO 3: understand the integration of metabolism</p> <p>CLO 4: understand the organ specific metabolic profiles, metabolic changes during starvation and food intake, and ethanol metabolism in liver.</p>		
Credits	Theory	Practical	Total
	4	0	4
Teaching Hours per week	4	0	4
Internal Assessment Marks	30	0	30
End Term Exam Marks	70	0	70
Max. Marks	100	0	100
Examination Time	3 hours		
Part B- Contents of the Course			
<b>Instructions for Paper- Setter:</b> The examiner will set 9 questions asking two questions from each unit and one compulsory question by taking course learning outcomes (CLOs) into consideration. The compulsory question (Question No. 1) will consist at least 4 parts covering entire syllabus. The examinee will be required to attempt 5 questions, selecting one question from each unit and the compulsory question. All questions will carry equal marks.			
Unit	Topics	Contact Hours	
I	<b>Amino acid degradation:</b> General reactions of amino acid metabolism: Transamination; Oxidative, non-oxidative deamination and decarboxylation reactions; Role of glutamine in ammonia transport; Glucose-Alanine Cycle; Urea Cycle; Metabolic breakdown of individual amino acids (both essential and non-essential).	15	
II	<b>Amino acid biosynthesis:</b> Biosynthesis of non-essential and essential amino acids; Regulation of amino acid biosynthesis; Amino acids as biosynthetic precursors of phosphocreatine, glutathione, dopamine, non-epinephrin and epinephrin, GABA, histamine, serotonin, polyamines (spermine and spermidine), and indole-3-acetic acid. Porphyrins: Structure of porphyrins; Important porphyrins occurring in nature; Detection of porphyrins spectrophotometrically and by fluorescence; Biosynthesis of heme and its regulation; Degradation of heme; Regulation of heme biosynthesis; Chlorophyll biosynthesis.	15	

  
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III	<b>Nucleotide metabolism:</b> <i>De novo</i> biosynthesis and regulation of purine and pyrimidine nucleotides; Salvage pathways of purines and pyrimidines; Ribonucleotide reductase and formation of deoxyribonucleotides (dNTPs) from ribonucleotides (NTPs); Catabolism of purine and pyrimidine nucleotides; Chemotherapeutic agents as inhibitors of enzymes in nucleotide biosynthetic pathways; Biosynthesis of nicotinamide coenzymes, flavin coenzymes and coenzyme A. Integration of metabolism: basic strategy of catabolic metabolism; Recurring motifs in metabolic regulation; Major metabolic pathways and control sites; Key junctions in metabolism (glucose-6-phosphate, pyruvate and acetyl CoA); Organ specific metabolic profile; Metabolic changes induced by food intake and starvation; Ethanol metabolism in the liver.	15
IV	<b>Secondary plant metabolism:</b> Primary and secondary metabolites; Isoprenoids: introduction, different classes with examples; biosynthesis of carotenoids (Limonene, Lycopene and $\beta$ -Carotene); Alkaloids: definition, classification according to their heterocycles with examples; physiologically active alkaloids (used in medicine and plant chemical defense); Phenylpropanoids: Introduction; overview of products of the phenylpropanoid metabolism; Biosynthesis of lignin; Flavonoids: nature; classification of aglycons with examples; functions of flavonoids; Nature of Tannins, Cyanogenic glycosides and Glucosinolates.	15
Total Contact Hours		60
Suggested Evaluation Methods		
Internal Assessment: 30		End Term Examination: 70
➤ Theory	30	➤ Theory: 70
• Class Participation:	5	Written Examination
• Seminar/presentation/assignment/quiz/class test etc.:	10	
• Mid-Term Exam:	15	
Part C-Learning Resources		
Recommended Books/e-resources/LMS:		
1. Lehninger: Principles of Biochemistry, 4 <sup>th</sup> edition, by David L. Nelson and M.M. Cox (2005) Maxmillan/ Worth publishers/ W. H. Freeman & Company.		
2. Fundamentals of Biochemistry, 3 <sup>rd</sup> edition, by Donald Voet and Judith G Voet (2004), John Wiley & Sons, NY		
3. Biochemistry, 6 <sup>th</sup> edition, by Jeremy M. Berg (2007). W.H. Freeman & Co., NY.		
4. Harper's Biochemistry, 26 <sup>th</sup> edition, by R.K. Murray, P.A.Hayes, D.K.Granner, P.A. Mayes and V. W. Rodwell (2003). Prentice Hall International.		
5. Biochemistry (2004) by J. David Rawn, Panima Publishing Corporation, New Delhi		
6. Plant Biochemistry & Molecular Biology, 3rd ed., by Hans –Walter Heldt (2005), Academic Press		
7. Biochemistry and Molecular Biology of Plants by Bob, B. Buchanan, W. Gruissen and R.L.Jones (2000). Published by American Society of Plant Physiologists and distributed by Panima Educational Book Agency, New Delhi.		

  
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Session: 2024-25			
Part A – Introduction			
Name of Programme	M.Sc. Biochemistry		
Semester	Semester – II		
Name of the Course	Biochemical and Biophysical techniques		
Course Code	M24-BCH-202		
Course Type	CC-6		
Level of the course	400-499		
Pre-requisite for the course (if any)			
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	<p>CLO 1: know the radio-isotopic techniques and centrifugation and their applications in biological science research.</p> <p>CLO 2: understand the basic principles and techniques of chromatography and protein purification and their applications</p> <p>CLO 3: gain insight knowledge of the principle of electrophoresis and the various electrophoretic techniques for proteins and nucleic acids</p> <p>CLO 4: understand spectroscopy to elucidate the chemical structure of molecules and acquire knowledge of microscopy and its applications in various fields of research.</p>		
Credits	Theory	Practical	Total
	4	0	4
Teaching Hours per week	4	0	4
Internal Assessment Marks	30	0	30
End Term Exam Marks	70	0	70
Max. Marks	100	0	100
Examination Time	3 hours		
Part B- Contents of the Course			
<b>Instructions for Paper- Setter:</b> The examiner will set 9 questions asking two questions from each unit and one compulsory question by taking course learning outcomes (CLOs) into consideration. The compulsory question (Question No. 1) will consist at least 4 parts covering entire syllabus. The examinee will be required to attempt 5 questions, selecting one question from each unit and the compulsory question. All questions will carry equal marks.			
Unit	Topics		Contact Hours
I	<b>Radioisotope techniques:</b> Basic concepts (types of radioactive decay, rate of radioactive decay, radioactive isotopes and their half-lives and units of radioactivity); GM and scintillation counter; autoradiography; specific activity of a radioisotope; safety aspects; applications of radioisotopes in biological sciences. <b>Centrifugation:</b> Basic principle of sedimentation, factors affecting sedimentation; different types of centrifuges; types of rotors; analytical and preparative ultracentrifugation		15

  
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II	<b>Chromatography:</b> Principles and applications of paper, thin layer chromatography, ion-exchange chromatography, affinity chromatography, gel filtration chromatography, Determination of molecular weight using gel filtration chromatography, gas liquid chromatography and High-performance liquid chromatography <b>Protein purification techniques:</b> Selection of source, criteria of purity and monitoring protein purification, use of chromatography techniques for protein purification	15
III	<b>Electrophoretic techniques:</b> Isolation of DNA and RNA, purification and quantification of nucleic acids, Principle of electrophoretic separation, Native and SDS-PAGE, Determination of molecular weight and subunits using SDS-PAGE, Detection and quantification of proteins in gels; Recovery of proteins from gels. Iso-electric focusing (IEF), Western blotting Electrophoresis of nucleic acids: agarose gel electrophoresis, pulse field electrophoresis; capillary electrophoresis; microchip electrophoresis	15
IV	<b>Spectroscopy:</b> Nature of electromagnetic radiations; Principles and applications of UV, Visible, Infrared, Raman, Fluorescence and NMR spectroscopy; ORD and CD, Atomic absorption spectroscopy <b>Microscopy:</b> Resolving power and magnification power, principle and applications of Phase contrast, Fluorescence microscopy and Electron microscopy (Scanning electron microscopy and Transmission electron microscopy)	15
Total Contact Hours		60
Suggested Evaluation Methods		
Internal Assessment: 30		End Term Examination: 70
➤ Theory	30	➤ Theory: 70
• Class Participation:	5	Written Examination
• Seminar/presentation/assignment/quiz/class test etc.:	10	
• Mid-Term Exam:	15	
Part C-Learning Resources		
Recommended Books/e-resources/LMS:		
1. Principles and Techniques of Practical Biochemistry, 6 <sup>th</sup> edition by Keith Wilson and John Walker (2000), Cambridge University Press.		
2. Physical Biochemistry, 2nd edition, by D Friefelder (1983), W H Freeman and Co., USA.		
3. Biophysical Chemistry: Principles and Techniques, 2 <sup>nd</sup> edition by A Upadhyay, K Upadhyay and N Nath (1998), Himalaya Publishing House, Delhi.		
4. Physical Biochemistry, 2nd edition, by K. E Van Holde (1985), Prentice Hall Inc, New Jersey.		
5. Instrumental Methods of Analysis, 7th edition by H.H. Willard, L L Merritt Jr., J A Dean and F A Settle Jr. (1996), CBS Publishers and Distributors, New Delhi.		
6. Kuby Immunology, 4rd ed. by R A Goldsby et al, W H Freeman and Co.		

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Session: 2024-25			
Part A – Introduction			
Name of Programme	M.Sc. Biochemistry		
Semester	Semester – II		
Name of the Course	M24-BCH-203		
Course Code	Enzymology		
Course Type	CC-7		
Level of the course	400-499		
Pre-requisite for the course (if any)			
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	<p>CLO 1: distinguish the fundamentals of enzyme properties, nomenclature, characteristics and mechanism.</p> <p>CLO 2: study of factors affecting enzymatic reactions, application of biochemical calculations for enzyme kinetics and plotting graphs based upon kinetic data</p> <p>CLO 3: describe the concept of enzyme inhibition. Students will know how to construct enzyme inhibitors.</p> <p>CLO 4: conceptualize the co-operative behavior of enzyme, allosteric enzyme and understanding of regulatory mechanism of enzyme action.</p>		
Credits	Theory	Practical	Total
	4	0	4
Teaching Hours per week	4	0	4
Internal Assessment Marks	30	0	30
End Term Exam Marks	70	0	70
Max. Marks	100	0	100
Examination Time	3 hours		
Part B- Contents of the Course			
<b>Instructions for Paper- Setter:</b> The examiner will set 9 questions asking two questions from each unit and one compulsory question by taking course learning outcomes (CLOs) into consideration. The compulsory question (Question No. 1) will consist at least 4 parts covering entire syllabus. The examinee will be required to attempt 5 questions, selecting one question from each unit and the compulsory question. All questions will carry equal marks.			
Unit	Topics		Contact Hours
I	<p><b>Introduction:</b> General characteristics of enzymes; Nomenclature and classification; Introduction to the following terms with examples – Holoenzyme, apoenzyme, cofactors, coenzymes, prosthetic groups, metalloenzymes, metal dependent enzymes, turnover number, enzyme activity units (I.U. and Katal), and specific activity.</p> <p><b>Enzyme specificity:</b> Types of enzyme specificity; three-point attachment theory, Lock-and-key hypothesis, Induced- fit theory, Strain and distortion theory, transition-state theory, Common features of active sites, reaction co-ordinate diagram, Multienzyme systems, multifunctional enzymes, Isoenzymes, Ribozymes, Pseudoenzymes, Synthetic artificial enzymes, Abzymes</p> <p><b>Enzyme Catalysis:</b> Proximity &amp; orientation, acid-base catalysis, covalent catalysis; Mechanism of action of chymotrypsin,</p>		15


	ribonuclease and lysozyme. Role of $\text{NAD}^+/\text{NADP}^+$ , FMN/FAD, coenzyme A, thiamine pyrophosphate, pyridoxal phosphate, lipoic acid, biotin, Vitamin B12 Coenzyme, and tetrahydrofolate in enzyme catalysis	
II	<b>Enzyme Kinetics:</b> Factors affecting enzyme activity; Arrhenius plot; kinetics of single-substrate reaction, rapid equilibrium and steady state approach, Derivation of Michaelis-Menten equation, kinetic parameters of enzymes ( $K_m$ , $V_{\max}$ , $K_{\text{cat}}$ , $K_{\text{cat}}/K_m$ ) and their significance, Linear transformations of MM equation to determine $K_m$ and $V_{\max}$ (Lineweaver-Burk plot, Eadie-Hofstee plot and Hanes plot) <b>Kinetics of Bi-substrate reactions:</b> Sequential and ping-pong mechanisms with examples and determination of $K_m$ for each substrate (derivation excluded); Use of initial velocity studies, product-inhibition studies and isotope exchange at equilibrium to determine kinetic mechanisms of bi-substrate reactions	15
III	<b>Enzyme inhibition:</b> Reversible enzyme inhibitors (determination of kinetic parameters in the presence of competitive, non- competitive, and uncompetitive inhibitors), Irreversible enzyme inhibitors (affinity labels and suicide inhibitors) <b>Investigation of active site of enzymes:</b> Methods for identification of binding and catalytic sites- Trapping the enzyme-substrate complex, use of substrate analogues, chemical modification of amino acid side chains in enzymes, Modification by proteases and effect of changing pH	15
IV	<b>Enzyme regulation:</b> Coarse and fine control of enzyme activity; Enzyme induction & Repression; Feedback regulation of enzyme activity; Reversible and irreversible covalent modification of enzymes <b>Allostery of enzyme action:</b> Sigmoidal kinetics, Allosteric enzymes, Allosteric regulation with aspartate transcarbamoylase as an example, Positive and Negative Cooperativity Concerted and sequential models for action of allosteric enzymes, Hill plot, Scatchard plot	15
Total Contact Hours		60
Suggested Evaluation Methods		
Internal Assessment: 30		End Term Examination: 70
➤ Theory	30	➤ Theory: 70
• Class Participation:	5	Written Examination
• Seminar/presentation/assignment/quiz/class test etc.:	10	
• Mid-Term Exam:	15	
Part C-Learning Resources		

  
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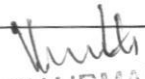
**Recommended Books/e-resources/LMS:**

1. Enzymes: Biochemistry, Biotechnology and Clinical Chemistry by Trevor Palmer (2007). Horwood Publishing.
2. Fundamentals of Enzymology, 3rd edition, by Nicholas C. Price and Lewis Stevens (1999) Oxford University Press.
3. Principles of Enzymology for Food Science by J.R. Whitaker (2018). Marcel Dekkar Publishers.
4. Structure and Mechanism in Protein Science, 2<sup>nd</sup> edition, by Alan Fersht (1999). W.H. Freeman and Co., NY.
5. Lehninger: Principles of Biochemistry, 7<sup>th</sup> edition, by David L. Nelson and M.M. Cox Maxmillan/ Worth publishers/ W.H. Freeman & Company.



  
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Session: 2024-25			
Part A – Introduction			
Name of Programme	M. Sc. Biochemistry		
Semester	Semester – II		
Name of the Course	Molecular Biology		
Course Code	M24-BCH-204		
Course Type	CC-8		
Level of the course	400-499		
Pre-requisite for the course (if any)			
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	CLO 1: acquire knowledge about central dogma of molecular biology. CLO 2: learn about DNA, RNA and protein synthesis. CLO 3: get an insight about DNA damages and various repair mechanism. CLO 4: understand molecular mechanisms behind protein targeting.		
Credits	Theory	Practical	Total
	4	0	4
Teaching Hours per week	4	0	4
Internal Assessment Marks	30	0	30
End Term Exam Marks	70	0	70
Max. Marks	100	0	100
Examination Time	3 hours		
Part B- Contents of the Course			
<b>Instructions for Paper- Setter:</b> The examiner will set 9 questions asking two questions from each unit and one compulsory question by taking course learning outcomes (CLOs) into consideration. The compulsory question (Question No. 1) will consist at least 4 parts covering entire syllabus. The examinee will be required to attempt 5 questions, selecting one question from each unit and the compulsory question. All questions will carry equal marks.			
Unit	Topics	Contact Hours	
I	<b>Basic Concepts of Genetic Information:</b> Nucleic acids as the genetic material - experimental evidences; Chargaff's rules, DNA topology, topological and geometric properties, DNA supercoiling, Topoisomerases in prokaryotes and eukaryotes, DNA organization in prokaryotes and eukaryotes, C-value paradox, various classes of DNA: highly repetitive, moderately repetitive and unique sequence	15	
II	<b>DNA replication:</b> Possible modes of DNA replication, Meselson-Stahl experiment, DNA polymerases and other enzymes involved in DNA replication, Okazaki fragments, Mechanism of replication in prokaryotes and eukaryotes, inhibitors of DNA replication	15	
III	<b>Transcription and post-transcriptional modifications:</b> RNA polymerase/s in prokaryotes and eukaryotes, DNA footprinting technique, initiation, elongation and termination of transcription in prokaryotes and eukaryotes, inhibitors of transcription, RNA replicase, reverse transcriptase, post-transcriptional modifications: different types of introns and their splicing mechanisms, processing of mRNA, rRNA and tRNA precursors, overlapping genes and split genes.	15	

  
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IV	<b>Protein synthesis, targeting and degradation:</b> Characteristics of the genetic code, biological significance of degeneracy, decoding the code, Wobble hypothesis, ribosomes structure and function in prokaryotes and eukaryotes, Aminoacyl tRNA-synthetases, various factors and steps involved in protein synthesis in prokaryotes and eukaryotes, polyribosomes, post-translational processing, signal hypothesis and protein targeting to lysosomes, Plasma membrane, extracellular matrix and different compartment of mitochondria and chloroplast, protein degradation.	15
Total Contact Hours		60
<b>Suggested Evaluation Methods</b>		
<b>Internal Assessment: 30</b>		<b>End Term Examination: 70</b>
➤ <b>Theory</b>	<b>30</b>	➤ <b>Theory:</b> <b>70</b>
• Class Participation:	5	Written Examination
• Seminar/presentation/assignment/quiz/class test etc.:	10	
• Mid-Term Exam:	15	
<b>Part C-Learning Resources</b>		
<b>Recommended Books/e-resources/LMS:</b>		
1. Molecular Cell Biology, Lodish et al, 7 <sup>th</sup> edition (2012), W H Freeman and Company.		
2. Lewin's Genes XI, Krebs et. al., 11 <sup>th</sup> edition (2012), Jones and Bartlett Publishers.		
3. Freifelder's Essentials of Molecular Biology, D Freifelder, 4 <sup>th</sup> edition, (2008), Narosa publishing house.		
4. Principle of Biochemistry, Moran et. al., 5 <sup>th</sup> edition (2013) Neil Patterson Publishing.		
5. Fundamentals of Biochemistry, Voet et. al, 4 <sup>th</sup> edition (2012), John-Wiley & sons.		
6. Biochemistry, Berg et al. 8 <sup>th</sup> edition, (2015), W H Freeman & Co. N York.		
7. Lehninger's Principles of Biochemistry, Nelson and Cox 6 <sup>th</sup> edition, (2013) W H Freeman & Co. N York.		
8. Molecular Biology of the Gene, Watson et al, 7 <sup>th</sup> Edition, (2013) Pearson Education International.		

  
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Session: 2024-25			
Part A – Introduction			
Name of the Programme	M.Sc. Biochemistry		
Semester	Semester – II		
Name of the Course	PC-3 (Practical skills in Biotechniques)		
Course Code	M24-BCH-205		
Course Type	PC-3		
Level of the course	400-499		
Pre-requisite for the course (if any)			
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	CLO 1: well acquainted with the titration and spectrophotometric estimation of biomolecules CLO 2: understand the different chromatographic techniques and their applications in purifications and separations of biomolecules CLO 3: develop skills of using various equipment involved in biomolecules purification and separation CLO 4: develop skills in carrying out research projects by employing basic biochemical techniques		
Credits	Theory	Practical	Total
	0	4	4
Teaching Hours per week	0	8	8
Internal Assessment Marks	0	30	30
End Term Exam Marks	0	70	70
Max. Marks	0	100	100
Examination Time	0	4 hours	
Part B- Contents of the Course			
Practicals			Contact Hours
1. Subcellular fractionation of organelles from animal/plant tissue 2. To demonstrate light microscopy 3. Verification of Beer-Lambert’s law and determination of absorption coefficients 4. Separation of amino acids of a mixture by Paper chromatography 5. Separation of amino acids of a mixture by thin layer chromatography 6. Separation of carbohydrates of a mixture by Paper chromatography 7. Separation of proteins using gel filtration chromatography 8. Separation of proteins using ion-exchange chromatography 9. Separation of proteins using Native PAGE 10. Separation of proteins using SDS PAGE 11. Determination of molecular weight using SDS-PAGE 12. Determination of molecular weight using gel filtration chromatography 13. Separation of DNA on agarose gel electrophoresis			120
Suggested Evaluation Methods			
Internal Assessment: 30		End Term Examination: 70	
➤ Practicum	30	➤ Practicum	70
• Class Participation:	5	Lab record, Viva-Voce, write-up and	
• Seminar/Demonstration/Viva-voce/Lab records etc.:	10		

684

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• Mid-Term Exam:

15


execution of the practical

**Part C-Learning Resources**

**Recommended Books/e-resources/LMS:**

1. Introductory Practical Biochemistry by Sawhney, S.K. and Singh, R. (2000), Narosa Publishing House, India
2. Principles and Techniques of Practical Biochemistry, 6<sup>th</sup> edition by Keith Wilson and John Walker (2000), Cambridge University Press.
3. Physical Biochemistry, 2nd edition, by D Friefelder (1983), W H Freeman and Co., USA.
4. Biophysical Chemistry: Principles and Techniques, 2<sup>nd</sup> edition by A Upadhyay, K Upadhyay and N Nath (1998), Himalaya Publishing House, Delhi.
5. Modern Experimental Biochemistry, 3<sup>rd</sup> edition by Boyer, R. (2002), Pearson India



  
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Session: 2024-25			
Part A – Introduction			
Name of the Programme	M.Sc. Biochemistry		
Semester	Semester – II		
Name of the Course	PC-4 (Practicals based on Enzymology and Molecular Biology)		
Course Code	M24-BCH-206		
Course Type	PC-4		
Level of the course	400-499		
Pre-requisite for the course (if any)			
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	CLO 1: learn about use of instrumentation in design, execution and critical interpretation of experiments CLO 2: learn appropriate concepts, quantitative analysis and laboratory techniques CLO 3: develop the skills of extraction, purification assay of enzymes from plant and animal tissue. CLO 4: demonstrate the proficiency in concepts, manipulations and biochemical calculations		
Credits	Theory	Practical	Total
	0	4	4
Teaching Hours per week	0	8	8
Internal Assessment Marks	0	30	30
End Term Exam Marks	0	70	70
Max. Marks	0	100	100
Examination Time	0	4 hours	
Part B- Contents of the Course			
Practicals			Contact Hours
1. Estimation of DNA by diphenylamine reaction 2. Estimation of RNA by orcinol reaction 3. Assay of acid phosphatase enzyme from plant/animal tissue and calculation of specific activity 4. Assay of alkaline phosphatase enzyme from plant/animal tissue and calculation of specific activity 5. Effect of substrate concentration on enzyme activity of acid/alkaline phosphatase 6. Effect of enzyme concentration on enzyme activity of acid/alkaline phosphatase 7. Effect of temperature on the activity of acid/alkaline phosphatase and calculation of Ea. 8. Effect of pH on the activity of acid/alkaline phosphatase 9. Determination of $K_m$ , and $V_{max}$ 10. Determination of pH optima of an enzyme 11. Separation of enzymes by acetone precipitation method 12. Time course of enzyme activity			120
Suggested Evaluation Methods			
Internal Assessment: 30		End Term Examination: 70	
➤ Practicum	30	➤ Practicum	70
• Class Participation:	5	Lab record, Viva-Voce, write-up and	

686

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• Seminar/Demonstration/Viva-voce/Lab records etc.:	10	execution of the practical
• Mid-Term Exam:	15	
<b>Part C-Learning Resources</b>		
<b>Recommended Books/e-resources/LMS:</b>		
<ol style="list-style-type: none"><li>1. Introductory Practical Biochemistry by Sawhney, S.K. and Singh, R. (2000), Narosa Publishing House, India</li><li>2. Principles and Techniques of Practical Biochemistry, 6<sup>th</sup> edition by Keith Wilson and John Walker (2000), Cambridge University Press.</li><li>3. Physical Biochemistry, 2nd edition, by D Friefelder (1983), W H Freeman and Co., USA.</li><li>4. Biophysical Chemistry: Principles and Techniques, 2<sup>nd</sup> edition by A Upadhyay, K Upadhyay and N Nath (1998), Himalaya Publishing House, Delhi.</li><li>5. Modern Experimental Biochemistry, 3<sup>rd</sup> edition by Boyer, R. (2002), Pearson India</li></ol>		

  
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# **Kurukshetra University, Kurukshetra**

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## **Scheme of Examination for Post Graduate Programme**

### **M.A Sanskrit**

as per NEP 2020  
Curriculum and Credit Framework for Postgraduate Programme

With Multiple Entry-Exit, Internship and CBCS-LOCF  
With effect from the session 2024-25 (in phased manner)

DEPARTMENT OF SANSKRIT, PALI & PRAKRIT  
FACULTY OF INDIC STUDIES

KURUKSHETRA UNIVERSITY, KURUKSHETRA -136119  
HARYANA, INDIA

K. P. Devi  
20/06/2024

Chairperson  
Dept. of Sanskrit, Pali & Prakrit  
Kurukshetra University,  
KURUKSHETRA-136119.

49(688)

## Programme Learning Outcomes(PLOs) for M.A Sanskrit as per NEP-2020

### PLOs for PG Programme Sanskrit

PLOs	M.A Sanskrit
	<b>After the completion of Master degree in M.A Sanskrit the student will be able to:</b>
PLO-1: Knowledge and Understanding	Demonstrate the fundamental and advanced knowledge of the subject and understanding of recent developments and issues, including methods and techniques, related to the Sanskrit
PLO-2: General Skills	Acquire the general skills required for performing and accomplishing the tasks as expected to be done by a skilled professional in the fields of <b>Sanskrit</b> .
PLO-3: Technical/ Professional Skills	Demonstrate the learning of advanced cognitive technical/professional skills required for completing the specialized tasks related to the profession and for conducting and analyzing the relevant research tasks in different domains of the <b>Sanskrit</b> .
PLO-4: Communication Skills	Effectively communicate the attained skills of the <b>Sanskrit</b> in well-structured and productive manner to the society at large.
PLO-5: Application of Knowledge and Skills	Apply the acquired knowledge and skills to the problems in the subject area, and to identify and analyze the issues where the attained knowledge and skills can be applied by carrying out research investigations to formulate evidence-based solutions to complex and unpredictable problems associated with the field of <b>Sanskrit</b> or otherwise.
PLO-6: Critical thinking and Research Aptitude	Attain the capability of critical thinking in intra/inter-disciplinary areas of the <b>Sanskrit</b> enabling to formulate, synthesize, and articulate issues for designing of research proposals, testing hypotheses, and drawing inferences based on the analysis.
PLO-7: Constitutional, Humanistic, Moral Values and Ethics	Know constitutional, humanistic, moral and ethical values, and intellectual property rights to become a scholar/professional with ingrained values in expanding knowledge for the society, and to avoid unethical practices such as fabrication, falsification or misrepresentation of data or committing plagiarism.
PLO-8: Capabilities/qualities and mindset	To exercise personal responsibility for the outputs of own work as well as of group/team and for managing complex and challenging work(s) that requires new/strategic approaches.
PLO-9: Employability and job-ready skills	Attain the knowledge and skills required for increasing employment potential, adapting to the future work and responding to the rapidly changing demands of the employers/industry/society with time.

K. Dev  
20/06/2024

# Kurukshetra University, Kurukshetra

Scheme of Examination for P.G. Programme M.A Sanskrit

As per NEP 2020 Curriculum and Credit Framework For Postgraduate Programme

Under Multiple Entry-Exit, Internship and CBCS-LOCF with effect from 2024-25 (In phased manner)

Framework-1  
Scheme-S

(First Year : Semester-1<sup>st</sup>)

Semester	Course Type	Course Code	Nomenclature of course	Theory (T)/ Practical (P)	Credits		Contact hours per week L: Lecture P: Practical T: Tutorial				Internal Assessment Marks	End Term Examination Marks	Total Marks	Examination hours
						Total	L	T	P	Total				
1	CC-1	M24-SKT-101	संहिता उपनिषत् च Samhita Upanisat Cha	Th	4	22	4	0	0	4	30	70	100	3
	CC-2	M24-SKT-102	व्याकरणम् भाषाविज्ञानम् च (1) Vyakaranam Bhasavijnanam Cha (1)	Th	4		4	0	0	4	30	70	100	3
	CC-3	M24-SKT-103	भारतीयदर्शनम् (1) Bharatiyadarshanam (1)	Th	4		4	0	0	4	30	70	100	3
	CC-4	M24-SKT-104	काव्यम् नाटकम् च Kavyam Natakam Cha	Th	4		4	0	0	4	30	70	100	3
	CC-5	M24-SKT-105	शोध-प्रविधि Research-Methodology	Th	4		4	0	0	4	30	70	100	3
	SEM	M24-SKT-106	Seminar		2		0	0	0	2	0	50	50	1

R. P. Singh  
20/06/2024



(First Year : Semester-2<sup>nd</sup>)

2	CC-6	M24-SKT-201	ब्राह्मणम् वेदाङ्गानि च Brahmanam Vedangani Cha	Th	4	22	4	0	0	4	30	70	100	3
	CC-7	M24-SKT-202	व्याकरणम् भाषाविज्ञानम् च (2) Vyakaranam Bhasavijnanam Cha (2)	Th	4		4	0	0	4	30	70	100	3
	CC-8	M24-SKT-203	भारतीयदर्शनम् (2) Bharatiyadarshanam (2)	Th	4		4	0	0	4	30	70	100	3
	CC-9	M24-SKT-204	काव्यम् काव्यशास्त्रम् च Kavyam Kavyashastram Cha	Th	4		4	0	0	4	30	70	100	3
	CC-10	M24-SKT-205	धर्मशास्त्रम् अभिलेखाश्च Dharamshastra Inscription	Th	4		4	0	0	4	30	70	100	3
	CHM	M24-CHM-201	Constitutional, Human and Moral Values and IPR	Th	2		2	0	0	2	15	35	50	3
	Internship	M24-INT-200	An internship course of 4 Credits of 4-6 weeks duration during summer vacation after IInd semester is to be completed by every student. Internship can be either for enhancing the employability or for developing the research aptitude.									50	50	100

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(Second Year: Semester-3 <sup>rd</sup> )														
3	CC-11	M24-SKT-301	पालिभाषा साहित्यं च Palibhasa Sahityam Cha	Th	4	22	4	0	0	4	30	70	100	3
	DEC-1	M24-SKT-302	ऋक्संहिता यजुस्संहिता च Riksamhita Yajussamhita Cha	Th	4		4	0	0	4	30	70	100	3
		M24-SKT-303	व्याकरणपरम्परा (1) Vyakaranaparampara (1)	Th	4		4	0	0	4	30	70	100	3
		M24-SKT-304	न्यायदर्शनम् Nyayadarshanam	Th	4		4	0	0	4	30	70	100	3
		M24-SKT-305	नाट्यसाहित्यम् Natyasahityam	Th	4		4	0	0	4	30	70	100	3
	DEC-2	M24-SKT-306	ब्राह्मणसाहित्यम् Brahmanasahityam	Th	4		4	0	0	4	30	70	100	3
		M24-SKT-307	व्याकरणदर्शनम् (1) Vyakaranadarshanam (1)	Th	4		4	0	0	4	30	70	100	3
		M24-SKT-308	पूर्वमीमांसादर्शनम् Purvamimamsadarshanam	Th	4		4	0	0	4	30	70	100	3
		M24-SKT-309	काव्यशास्त्रम् (1) Kavyashastram (1)	Th	4		4	0	0	4	30	70	100	3

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DEC-3  (A Student can opt one of Elective Courses)	M24-SKT-310	कल्पसाहित्यम् Kalpasahityam	Th	4
	M24-SKT-311	व्याकरणप्रक्रिया (1) Vyakaranaprakriya (1)	Th	4
	M24-SKT-312	चार्वाकदर्शनम् जैनदर्शनम् च Charvakadarshanam Jainadarshanam Cha	Th	4
	M24-SKT-313	काव्यं काव्यशास्त्रस्य च इतिहासः Kavyam Kavyashastrasya Cha Itihasah	Th	4
DEC-4  (A Student can opt one of Elective Courses)	M24-SKT-314	ऋक्प्रातिशाख्यं छन्दांसि च Rikpratishakhyam Chhandansi Cha	Th	4
	M24-SKT-315	व्याकरणप्रक्रिया (2) Vyakaranaprakriya (2)	Th	4
	M24-SKT-316	बौद्धदर्शनम् Bauddhadarshanam	Th	4
	M24-SKT-317	ऐतिहासिककाव्यं खण्डकाव्यं च Aitihasikakavyam Khandakavyam Cha	Th	4
OEC	M24-OEC-344	प्रयोगात्मक संस्कृत	Th	2

4	0	0	4	30	70	100	3
4	0	0	4	30	70	100	3
4	0	0	4	30	70	100	3
4	0	0	4	30	70	100	3
0	0	0	4	30	70	100	3
0	0	0	4	30	70	100	3
0	0	0	4	30	70	100	3
0	0	0	4	30	70	100	3
2	0	0	2	15	35	50	3

693

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(Second Year: Semester-4<sup>th</sup>)

4	CC-12	M24-SKT-401	प्राकृतभाषा साहित्यं च Prakritabhasa Sahityam Cha	Th	4
	DEC-5	M24-SKT-402	अथर्वसंहिता सामसंहिता च Atharvasamhita Samasamhita Cha	Th	4
	(A Student can opt one of Elective Courses)	M24-SKT-403	व्याकरणपरम्परा (2) Vyakaranaparampara (2)	Th	4
		M24-SKT-404	योगदर्शनम् Yogadarshanam	Th	4
		M24-SKT-405	नाट्यशास्त्रम् Natyashastram	Th	4
	DEC-6	M24-SKT-406	आरण्यकोपनिषत्साहित्यम् Aranyakopanisatsahityam	Th	4
	(A Student can opt one of Elective Courses)	M24-SKT-407	व्याकरणदर्शनम् (2) Vyakanadarshanam (2)	Th	4
		M24-SKT-408	अद्वैतवेदान्तदर्शनम् Advaitavedantadarshanam	Th	4
		M24-SKT-409	काव्यशास्त्रम् (2) Kavyashastram (2)	Th	4

22

4	0	0	4	30	70	100	3
4	0	0	4	30	70	100	3
4	0	0	4	30	70	100	3
4	0	0	4	30	70	100	3
4	0	0	4	30	70	100	3
4	0	0	4	30	70	100	3
4	0	0	4	30	70	100	3
4	0	0	4	30	70	100	3
4	0	0	4	30	70	100	3

694

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DEC-7	M24-SKT-410	वेदव्याख्यापद्धतयः वेदभाष्यकाराश्च Vedavyakhyapaddhatayah Vedabhasyakarashcha	Th	4
	M24-SKT-411	व्याकरणप्रक्रिया (3) Vyakaranaprakriya (3)	Th	4
	M24-SKT-412	अद्वैतशैवागमः काश्मीरशैवदर्शनम् Advaitashaivagamah Kashmirashaivadarshanam	Th	4
	M24-SKT-413	चम्पूकाव्यं काव्यादर्शश्च Champurakavyam Kavyadarshashcha	Th	4
DEC-8	M24-SKT-414	वैदिकव्याकरणम् Vaidikavyakaranam	Th	4
	M24-SKT-415	व्याकरणप्रक्रिया (4) Vyakaranaprakriya (4)	Th	4
	M24-SKT-416	दार्शनिकसिद्धान्ताः आधुनिकविज्ञानच Darshanikasiddhantah Adhunikavijnananacha	Th	4
	M24-SKT-417	आधुनिककाव्यं गीतिकाव्यं च Adhunikakavyam Gitikavyam Cha	Th	4
EEC	M24-SKT-418	यज्ञप्रक्रिया का वैज्ञानिक आधार एवं वर्णोच्चारण	Th	2

4	0	0	4	30	70	100	3
4	0	0	4	30	70	100	3
4	0	0	4	30	70	100	3
4	0	0	4	30	70	100	3
4	0	0	4	30	70	100	3
4	0	0	4	30	70	100	3
4	0	0	4	30	70	100	3
4	0	0	4	30	70	100	3
2	0	0	2	15	35	50	3

695

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Scheme of Semester IV when a student opts for Dissertation work or Project Work

CC-12	M24-SKT-401	प्राकृतभाषा साहित्यं च Prakritabhasa Sahityam Cha	Th	4	22	4	0	0	4	30	70	100	3
DEC-5	M24-SKT-402	अथर्वसंहिता सामसंहिता च Atharvasamhita Samasamhita Cha	Th	4		4	0	0	4	30	70	100	3
(A Student can opt one of Elective Courses)	M24-SKT-403	व्याकरणपरम्परा (2) Vyakaranaparampara (2)	Th	4		4	0	0	4	30	70	100	3
	M24-SKT-404	योगदर्शनम् Yogadarshanam	Th	4		4	0	0	4	30	70	100	3
	M24-SKT-405	नाट्यशास्त्रम् Natyashastram	Th	4		4	0	0	4	30	70	100	3
EEC	M24-SKT-418	यज्ञप्रक्रिया का वैज्ञानिक आधार एवं वर्णोच्चारण	Th	2		2	0	0	2	15	35	50	3
	M24-SKT-419	Dissertation Work Or Project Work	D	12		0	0	0	12	0	300	300	

696

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# **Kurukshetra University, Kurukshetra**

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## **Syllabus of the Programme for Post Graduate Programme M.A SANSKRIT**

as per NEP 2020  
Curriculum and Credit Framework for Postgraduate Programme

With Multiple Entry-Exit, Internship and CBCS-LOCF  
With effect from the session 2024-25 (in phased manner)

DEPARTMENT OF SANSKRIT, PALI & PRAKRIT  
FACULTY OF INDIC STUDIES

KURUKSHETRA UNIVERSITY, KURUKSHETRA -136119  
HARYANA, INDIA

697

Chairperson R. Devi  
20/06/2024  
Dept. of Sanskrit, Pali & Prakrit  
Kurukshetra University,  
KURUKSHETRA - 136119.

## Syllabus of Post Graduate Course

Session: 2024-25			
Part A – Introduction			
Subject	Sanskrit		
Semester	I		
Name of the Course	M.A.		
Course Code	M24-SKT-101, संहिता उपनिषत् च		
Course Type: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/VA C)	CC-1		
Level of the course (As per Annexure-I)	400-499		
Pre-requisite for the course (if any)			
Course Learning Outcomes(CLO):	<p>CLO : 101.1 – अस्मिन् घटके छात्राः ऋग्वेदीयसूक्तेभ्यः अग्नि-सविता-विष्णु-इन्द्रादि-देवतानां स्वरूपं ज्ञास्यन्ति । तेन सहैव वैदिक धर्म समाजसंस्कृतेरपि बोधो भवति।</p> <p>CLO : 101.2 – एतस्मिन् घटके वर्णित-सूक्तानां माध्यमेन सृष्टिप्रक्रियायाः, संवादसूक्तानां रुचिकरपद्धत्या प्रकृतेर्गूढतत्त्वानां ज्ञानं भवति।</p> <p>CLO : 101.3 – यजुर्वेदीयप्रजापतिसूक्तस्य माध्यमेन छात्राः परमात्मनःस्वरूपमवगच्छन्ति, मातृभूमिसूक्तेन च स्वमातृभूमिं प्रति स्वकृतव्यमवबुध्यन्ते ।</p> <p>CLO : 101.4 – प्रश्नोपनिषदः ज्ञानेन छात्रेषु आत्मावबोधज्ञानं भवेत् इत्युद्देश्यम् अस्य घटकस्य ।</p>		
Credits – 4	Theory	Practical	Total
	4	--	4
Contact Hours	60	--	60

K. P. V.  
20/06/2024

Chairperson  
Dept. of Sanskrit, Pali & Prakrit  
Kurukshetra University,  
KURUKSHETRA-136119,

<b>Max. Marks: 100</b> <b>Internal Assessment Marks: 30</b> <b>End Term Exam Marks: 70</b>		<b>Time: 3 Hrs.</b>
<b>Part B- Contents of the Course</b>		
<b>Instructions for Paper-Setter</b> 1. प्रश्नपत्रे पञ्चप्रश्नाः भविष्यन्ति । प्रश्नपत्राय 70 अङ्काः निर्धारिताः सन्ति प्रत्येकं प्रश्नः चतुर्दशाङ्कानां भविष्यति । 2. प्रथमः प्रश्नः अनिवार्यः वर्तते । प्रश्नोऽयं पाठ्यक्रमस्य चतुर्घटकेषु आधारितः भविष्यति । अस्मिन् 4 प्रश्नाः विकल्परहिताः प्रदास्यन्ते । प्रत्येक प्रश्नः 3) अङ्कानां भविष्यति । 3. द्वितीयतृतीय चतुर्थप्रश्नम-प्रश्नानां निर्माणं यथाक्रमं चतुर्घटकेषु आधारितः भविष्यति। प्रत्येकस्मात् घटकात् द्वौ वैकल्पिकप्रश्नौ प्रदास्येते ।		
Unit	Topics	Contact Hours
I	ऋग्वेदः-अग्निः (1.1), सविता (1.35), विष्णुः (1.54), इन्द्रः (2.12), उषा (3.61) वरुणः (7-88) मन्त्रव्याख्या 2x7 = 14 अङ्काः	15
II	ऋग्वेदः-पुरुषः (10.90), नासदीयम् (10.129), वाक् (10.125), सरमा-पणि-संवादः, (10.108), पुरुरवा-उर्वशी (10.95), विश्वामित्र नदीसंवादः (3.33) (क) मन्त्रव्याख्या 2x4 =8 अङ्काः (ख) आलोचनात्मकः प्रश्नः 1x6 =6 अङ्काः	15
III	यजुर्वेदः - प्रजापतिसूक्तम् (23.1-8) अथर्ववेदः - भूमिसूक्तम् (12.1.31-63 मन्त्राः) (क) मन्त्रव्याख्या 2x4 =8 अङ्काः (ख) आलोचनात्मकः प्रश्नः 1x6 =6 अङ्काः	15
IV	प्रश्नोपनिषद् - प्रश्नः 1-2 14 अङ्काः (क) मन्त्रव्याख्या 2x4 =8 अङ्काः (ख) आलोचनात्मकः प्रश्नः 1x6 =6 अङ्काः	15

R. Devi  
 20/06/2024  
 Chairperson  
 Dept. of Sanskrit, Pali & Prakrit  
 Kurukshetra University,  
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Suggested Evaluation Methods	
<b>Internal Assessment: 30 Marks</b> <b>&gt; Theory</b> <ul style="list-style-type: none"> <li>Class Participation: 5 Marks</li> <li>Seminar/presentation/assignment/quiz/class test etc.: 5+5=10</li> <li>Mid-Term Exam: 15 Marks</li> </ul>	<b>End Term Examination: 70 Marks</b>
Part C-Learning Resources	
<b>Recommended Books/e-resources/LMS:</b> <ol style="list-style-type: none"> <li>1. ऋग्वेद, सायणभाष्य सहित</li> <li>2. ऋक्सूक्तमणिमाला, ब्रजबिहारी चैवे</li> <li>3. ऋक्सूक्तसंग्रह, कृष्णकुमार एवं हरिदत्तशास्त्री, साहित्य भण्डार मेरठ</li> <li>4. बृहद् ऋक्सूक्तसंग्रह, प्रो. देवेन्द्रनाथ पाण्डेय, श्री जगदीश संस्कृत पुस्तकालय, जयपुर</li> <li>5. उव्वटमहीधरकृत, शुक्ल यजुर्वेद भाष्य</li> <li>6. The New Vedic Selection, Part (1-2) , B.B. Chaubey, Bharatiya Vidya Prakashan, Delhi</li> <li>7. अथर्ववेदीयं भूमिसूक्तम्, ब्रजबिहारी चैवे, कात्यायन वैदिक साहित्य प्रकाशन, होशियारपुर</li> <li>8. ईशादि नौ उपनिषद्, गीताप्रेस, गोरखपुर</li> </ol>	

K. Devi  
20/06/2024

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KURUKSHETRA-136119.

## Syllabus of Post Graduate Course

Session: 2024-25			
Part A – Introduction			
Subject	Sanskrit		
Semester	I		
Name of the Course	M.A		
Course Code	M24-SKT-102, व्याकरणम् भाषाविज्ञानम् च (1)		
Course Type: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/VA C)	CC-2		
Level of the course (As per Annexure-I)	400-499		
Pre-requisite for the course (if any)			
Course Learning Outcomes(CLO):	<p>CLO : 102.1 – व्याकरणप्रक्रियायाः सुगमतायै व्याकरणगत- परिभाषणामवबोधः घटकेनानेन विधास्यते ।</p> <p>CLO : 102.2 – भाषायां नामपदानि मुख्यानि । अस्मिन् घटके सुबन्तप्रकरणेन प्रमुखनामशब्दानां निर्माणप्रक्रिया ज्ञानं कारयिष्यते।</p> <p>CLO : 102.3 – वाक्येषु तिङन्तपदानि अपरिहार्याणि। एतत्घटकेन तिङन्तपदानां सिद्धिप्रक्रियायाः बोधः भविष्यति।</p> <p>CLO : 102.4 – भाषाणाम् आलोचनात्मकज्ञानाय भाषाविज्ञानस्य प्रमुखबिन्दूनाम् अवबोधः निहितमस्मिन् ।</p>		
Credits – 4	Theory	Practical	Total
	4	--	4
Contact Hours	60	--	60
<b>Max. Marks:</b> <b>Internal Assessment Marks:</b> <b>End Term Exam Marks:</b>	<b>100</b> <b>30</b> <b>70</b>	<b>Time: 3 Hrs.</b>	

R. Rev./  
20/06/2024

Chairperson  
Dept. of Sanskrit, Pali & Prakrit  
Kurukshetra University,  
KURUKSHETRA-136119.

701

Part B- Contents of the Course		
Instructions for Paper-Setter		
1.	प्रश्नपत्रे पञ्चप्रश्नाः भविष्यन्ति । प्रश्नपत्राय 70 अङ्काः निर्धारिताः सन्ति प्रत्येकं प्रश्नः चतुर्दशाङ्कानां भविष्यति ।	
2.	प्रथमः प्रश्नः अनिवार्यः वर्तते । प्रश्नोऽयं पाठ्यक्रमस्य चतुर्घटकेषु आधारितः भविष्यति । अस्मिन् 4 प्रश्नाः विकल्परहिताः प्रदास्यन्ते । प्रत्येक प्रश्नः 3) अङ्कानां भविष्यति ।	
3.	द्वितीयतृतीय चतुर्थप्रश्नम-प्रश्नानां निर्माणं यथाक्रमं चतुर्घटकेषु आधारितः भविष्यति। प्रत्येकस्मात् घटकात् द्वौ वैकल्पिकप्रश्नौ प्रदास्येते ।	
Unit	Topics	Contact Hours
I	परिभाषा: (लघुसिद्धान्तकौमुदी) संस्कृतमाध्यमेन 14 अङ्काः संहिता, संयोग, गुण, वृद्धि, प्रातिपदिक, नदी, घि, उपधा, अपृक्त, गति, पद, विभाषा, सवर्ण, टि, प्रगृह्य, सर्वनामस्थान, भ, सर्वनाम, निष्ठा (क) संज्ञाद्वयस्य व्याख्या 2x4 =8 अङ्काः (ख) टिप्पणी 1x6 =6 अङ्काः	15
II	सुबन्तप्रकरणम् (लघुसिद्धान्तकौमुदी) 14 अङ्काः पुल्लिङ्ग- राम, सर्व, हरि, सखि, गो स्त्रीलिङ्ग - रमा, सर्वा, मति, स्त्री नपुंसकलिङ्ग - ज्ञान, वारि हलन्तपुल्लिङ्ग - इदम्, राजन् (क) सूत्रव्याख्या 2x3 = 6 अङ्काः (ख) रूपसिद्धिः 2x4 =8 अङ्काः	15
III	तिङन्तप्रकरणम् (लघुसिद्धान्तकौमुदी) भू एवं एध् कृत्यप्रकरणम् (लघुसिद्धान्तकौमुदी) 14 अङ्काः (क) सूत्रव्याख्या 2x3 = 6 अङ्काः (ख) रूपसिद्धिः 2x4 = 8 अङ्काः	15
IV	भाषाविज्ञानम् 14 अङ्काः भाषाविज्ञानस्य परिभाषा क्षेत्रं च, भाषायाः परिभाषाः वैशिष्ट्यं च, भाषापरिवर्तनं तद्भेदाश्च, भाषाणां वर्गीकरणम् (आकृतिमूलक एवं	15

Chairperson R. Devi  
20/06/2024  
Dept. of Sanskrit, Pali & Prakrit  
Kurukshetra University,  
KURUKSHETRA-136119.



<p>पारिवारिक) भारोपीयभाषापरिवार: तत्शाखा: वैशिष्ट्यं च । द्वौ निबन्धात्मकौ प्रश्नौ</p> <p style="text-align: right;">2x7 = 14 अङ्काः</p>	
<b>Suggested Evaluation Methods</b>	
<p><b>Internal Assessment: 30 Marks</b></p> <p>➤ <b>Theory</b></p> <ul style="list-style-type: none"><li>• Class Participation: 5 Marks</li><li>• Seminar/presentation/assignment/quiz/class test etc.: 5+5=10</li><li>• Mid-Term Exam: 15 Marks</li></ul>	<p><b>End Term Examination:</b> <b>70 Marks</b></p>
<b>Part C-Learning Resources</b>	
<p><b>Recommended Books/e-resources/LMS:</b></p> <ol style="list-style-type: none"><li>1. लघुसिद्धान्तकौमुदी, व्या. डॉ. सत्यपाल सिंह, परिमल पब्लिकेशन, दिल्ली</li><li>2. भाषाविज्ञान, डॉ. कपिल देव द्विवेदी, विश्वविद्यालय प्रकाशन, वाराणसी</li><li>3. सामान्यभाषाविज्ञान, बाबूराम सक्सेना, हिन्दी साहित्य सम्मेलन, प्रयाग</li></ol>	

K. Rev. /  
20/06/2024

Dept. of Sanskrit, Pali & Prakrit  
Kurukshetra University,  
KURUKSHETRA-136119.

## Syllabus of Post Graduate Course

Session: 2024-25			
Part A – Introduction			
Subject	Sanskrit		
Semester	I		
Name of the Course	M.A.		
Course Code	M24-SKT-103, भारतीयदर्शनम् I		
Course Type: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/VA C)	CC-3		
Level of the course (As per Annexure-I)	400-499		
Pre-requisite for the course (if any)			
Course Learning Outcomes(CLO):	<p>CLO : 103.1 – न्यायदर्शनस्य प्रकरणग्रंथः केशवमिश्रप्रणीता तर्कभाषा न्यायदर्शने प्रवेश प्राप्तुं विरचितः उत्कृष्टग्रन्थः अस्ति। अस्य प्रमाणभागे वर्णितानि प्रमाणानि अधिकृत्य निबन्धलेखनं छात्राणां विषयपारायणं प्रदर्शयति लेखनप्रतिभां च विवर्धयति।</p> <p>CLO : 103.2 – तर्कभाषायाः गद्यपंक्तीनां सप्रसंगव्याख्या विषयस्य सूक्ष्माध्ययनार्थं समाविष्ट ।</p> <p>CLO : 103.3 – ईश्वरकृष्णविरचितायां सांख्यकारिकायां सांख्यदर्शनस्य सर्वे सिद्धान्ताः निरूपिताः। तत्र छात्राणां लेखनप्रतिभायाः विकासार्थं निबन्धात्मकः प्रश्नः सम्मिलितः।</p> <p>CLO : 103.4 – प्रत्येकं कारिका सूक्ष्माध्ययनार्थं वस्तुनिष्ठतां प्रतिपादनार्थं च सप्रसंगकारिकाव्याख्या अपेक्षिता।</p>		
Credits – 4	Theory	Practical	Total
	4	--	4
Contact Hours	60	--	60

R. Devi/  
20/06/2024

Chairperson  
Dept. of Sanskrit, Pali & Prakrit  
Kurukshetra University,  
KURUKSHETRA-136119.

704

<b>Max. Marks:</b> 100 <b>Internal Assessment Marks:</b> 30 <b>End Term Exam Marks:</b> 70		<b>Time: 3 Hrs.</b>
<b>Part B- Contents of the Course</b>		
<b>Instructions for Paper-Setter</b> 1. प्रश्नपत्रे पञ्चप्रश्नाः भविष्यन्ति । प्रश्नपत्राय 70 अङ्काः निर्धारिताः सन्ति प्रत्येकं प्रश्नः चतुर्दशाङ्कानां भविष्यति । 2. प्रथमः प्रश्नः अनिवार्यः वर्तते । प्रश्नोऽयं पाठ्यक्रमस्य चतुर्घटकेषु आधारितः भविष्यति । अस्मिन् 4 प्रश्नाः विकल्परहिताः प्रदास्यन्ते । प्रत्येक प्रश्नः 3) अङ्कानां भविष्यति । 3. द्वितीयतृतीय चतुर्थप्रश्नचम-प्रश्नानां निर्माणं यथाक्रमं चतुर्घटकेषु आधारितः भविष्यति। प्रत्येकस्मात् घटकात् द्वौ वैकल्पिकप्रश्नौ प्रदास्येते ।		
Unit	Topics	Contact Hours
I	तर्कभाषाः आरम्भतः प्रामाण्यवादपर्यन्तम् (संस्कृतमाध्यमेन) 14 अङ्काः (क) निबन्धात्मकः प्रश्नः 10 अङ्काः (ख) लक्षणव्याख्या/टिप्पणी 4 अङ्काः	15
II	तर्कभाषाः आरम्भतः प्रामाण्यवादपर्यन्तम् 14 अङ्काः पंक्तिव्याख्या 2x7 = 14 अङ्काः	15
III	सांख्यकारिका तत्त्वकौमुद्यनुसारेण (1-45 कारिकापर्यन्तम्) 14 अङ्काः (क) निबन्धात्मकः प्रश्नः 10 अङ्काः (ख) टिप्पणी 4 अङ्काः	15
IV	सांख्यकारिकाः तत्त्वकौमुद्यनुसारेण (1-45 कारिकापर्यन्तम्) 14 अङ्काः कारिकाव्याख्या 2x7 = 14 अङ्काः	15
<b>Suggested Evaluation Methods</b>		
<b>Internal Assessment: 30 Marks</b> > <b>Theory</b> • Class Participation: 5 Marks • Seminar/presentation/assignment/quiz/class test etc.: 5+5=10 • Mid-Term Exam: 15 Marks		<b>End Term Examination: 70 Marks</b>

Chairperson  
 Dept. of Sanskrit, Pali & Prakrit  
 Kurukshetra University,  
 Kurukshetra-136119.

### Part C-Learning Resources

#### Recommended Books/e-resources/LMS:

1. तर्कभाषा, व्याख्या श्रीनिवासशास्त्री, साहित्य भण्डार, मेरठ ।
2. तर्कभाषा, व्याख्या, बदरीनाथ शुक्ल, मोतीलाल बनारसीदास, दिल्ली ।
3. तर्कभाषा, व्याख्या गजानन शास्त्री, मुसलगाँवकर, चैखम्बा, वाराणसी ।
4. Tarkbhasa Eng. Tr. Sr. Lyer Varanasi.
5. Tarkbhasa Eng. Tr. A.B. Gajendragadkar.
6. सांख्यकारिका, सम्पा. तथा व्याख्या गजाननशास्त्री मुसलगाँवकर, चैखम्बा, वाराणसी ।
7. सांख्यतत्त्वकौमुदीप्रभा सम्पा. तथा व्याख्या आद्याप्रसाद मिश्र, अक्षयवट प्रकाशन, इलाहाबाद ।
8. Samkhyakarika Eng. Tr. Wilson, Delhi.

Chairperson 12.8.21  
20/06/2024  
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## Syllabus of Post Graduate Course

Session: 2024-25			
Part A – Introduction			
Subject	Sanskrit		
Semester	I		
Name of the Course	M.A.		
Course Code	M24-SKT-104, काव्यम् नाटकम् च		
Course Type: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/VA C)	CC-4		
Level of the course (As per Annexure-I)	400-499		
Pre-requisite for the course (if any)			
Course Learning Outcomes(CLO):	<p>CLO : 104.1 – रामायणस्याकरग्रन्थत्वेन सार्धं नाटकस्योत्तरका- लीनमुदन्तं शिक्ष्यते । संवादवाक्येषु व्याख्यायाञ्च नैपुण्यमधिगच्छन्ति छात्राः ।</p> <p>CLO : 104.2 – भवभूतिना प्रयुक्तानां सन्ध्यङ्गादिनाट्यतत्त्वानां बोधः जायते। सूत्रावगमनञ्च भवति छात्रेषु ।</p> <p>CLO : 104.3 – कविसम्बद्धा अथ च ग्रन्थसम्बद्धा समालोचना घटकेऽस्मिन् विधीयते। आलोचनात्मकाः प्रश्नाः स्थानभाजः जायन्ते।</p> <p>CLO : 104.4 – घटकेऽस्मिन् "माघे सन्ति त्रयो गुणाः" इत्येतेन सह महाभारतस्य सन्दर्भेण शिशुपालवधस्य महाकाव्यत्वं परिचीयते। तदनन्तरं श्लोकव्याख्याऽभिधीयते ।</p>		
Credits – 4	Theory	Practical	Total
	4	--	4
Contact Hours	60	--	60

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<b>Max. Marks:</b> 100 <b>Internal Assessment Marks:</b> 30 <b>End Term Exam Marks:</b> 70		<b>Time: 3 Hrs.</b>
<b>Part B- Contents of the Course</b>		
<b>Instructions for Paper-Setter</b> 1. प्रश्नपत्रे पञ्चप्रश्नाः भविष्यन्ति । प्रश्नपत्राय 70 अङ्काः निर्धारिताः सन्ति प्रत्येकं प्रश्नः चतुर्दशाङ्कानां भविष्यति । 2. प्रथमः प्रश्नः अनिवार्यः वर्तते । प्रश्नोऽयं पाठ्यक्रमस्य चतुर्घटकेषु आधारितः भविष्यति । अस्मिन् 4 प्रश्नाः विकल्परहिताः प्रदास्यन्ते । प्रत्येक प्रश्नः 3) अङ्कानां भविष्यति । 3. द्वितीयतृतीय चतुर्थप्रश्नम-प्रश्नानां निर्माणं यथाक्रमं चतुर्घटकेषु आधारितः भविष्यति। प्रत्येकस्मात् घटकात् द्वौ वैकल्पिकप्रश्नौ प्रदास्येते ।		
Unit	Topics	Contact Hours
I	उत्तररामचरितम् (1-3 अङ्काः) संस्कृतमाध्यमेन 14 अङ्काः (क) सप्रसङ्गं छन्दोऽलंकारनिर्देशपूर्वकं श्लोकद्वयं संस्कृतेन व्याख्यातुं श्लोकत्रयं दास्यते । $2 \times 7 = 14$ अङ्काः	15
II	उत्तररामचरितम् (4-7 अङ्काः) 14 अङ्काः (क) सूक्तिद्वयस्य भावार्थं कर्तुं सूक्तित्रयं दास्यते। $2 \times 5 = 10$ अङ्काः (ख) सन्धि-अर्थोपक्षेपक-नाट्यतत्त्वसम्बन्धितं च प्रश्नमेकं समाधातुं प्रश्नद्वयं दास्यते । $1 \times 4 = 4$ अङ्काः	15
III	उत्तररामचरितम् 14 अङ्काः (क) समीक्षात्मकम्/आलोचनात्मकम्/विवेचनात्मकं वा प्रश्नमेकं समाधातुं प्रश्नद्वयं दास्यते। $1 \times 10 = 10$ (ख) एकस्मिन् विषये टिप्पणी कर्तुं विषयद्वयं दास्यते $1 \times 4 = 4$	15
IV	शिशुपालवधम् (प्रथमसर्गः) 14 अङ्काः (1-37 श्लोकाः) (क) सप्रसङ्गं छन्दोऽलंकारनिर्देशपूर्वकं श्लोकद्वयं व्याख्यातुं श्लोकत्रयं दास्यते $2 \times 7 = 14$ अङ्काः	15

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Suggested Evaluation Methods	
<b>Internal Assessment: 30 Marks</b> <b>&gt; Theory</b> <ul style="list-style-type: none"> <li>Class Participation: 5 Marks</li> <li>Seminar/presentation/assignment/quiz/class test etc.: 5+5=10</li> <li>Mid-Term Exam: 15 Marks</li> </ul>	<b>End Term Examination: 70 Marks</b>
Part C-Learning Resources	
<b>Recommended Books/e-resources/LMS:</b> <ol style="list-style-type: none"> <li>1. शिशुपालवध, व्याख्या आचार्य शेषराज शर्मा, वाराणसी ।</li> <li>2. उत्तररामचरितम्, व्याख्या, वीरराघव, वाराणसी ।</li> <li>3. शिशुपालवध, प्रथम सर्ग, व्याख्या, डॉ. श्रीनिवासशास्त्री, साहित्य भण्डार, मेरठ ।</li> <li>4. उत्तररामचरितम्, सम्पा. तारिणीश झा ।</li> <li>5. Uttaramacaritia of Bhavabhuti, M.R. Kale</li> <li>6. संस्कृत साहित्य का इतिहास, ए.बी. कीथ, अनु. मंगलदेवशास्त्री, मोतीलाल बनारसीदास, दिल्ली, 1978</li> <li>7. संस्कृत साहित्य का इतिहास, बलदेव उपाध्याय, शारदा निकेतन, वाराणसी, 1978</li> </ol>	

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## Syllabus of Post Graduate Course

Session: 2024-25			
Part A – Introduction			
Subject	Sanskrit		
Semester	I		
Name of the Course	M.A.		
Course Code	M24-SKT-105, शोधप्रविधि:		
Course Type: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/VA C)	CC-5		
Level of the course (As per Annexure-I)	400-499		
Pre-requisite for the course (if any)			
Course Learning Outcomes(CLO):	<p>CLO : 105.1 – छात्रेषु शोधात्मदृष्टिविकासाय शोधस्वरूपावबोधः तथा च निर्देशकशोधार्थीनां अर्हताज्ञानं कारयिष्यते घटकेऽस्मिन्।</p> <p>CLO : 105.2 – शोधसर्वेक्षणस्य अवबोधनेन शोधस्य अनन्तसंभवनाज्ञानं भविष्यति ।</p> <p>CLO : 105.3 – शोधकार्यस्य रूपरेखानिर्माणज्ञानं घटकस्यास्य प्रयोजनम्।</p> <p>CLO : 105.4 – शोधकार्ये संगणकस्य प्रयोगः कथमुपकारकं इति शिक्षणम् अस्मिन् निहितम् ।</p>		
Credits – 4	Theory	Practical	Total
	4	--	4
Contact Hours	60	--	60
Max. Marks:	100	Time: 3 Hrs.	
Internal Assessment Marks:	30		
End Term Exam Marks:	70		

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Part B- Contents of the Course		
Instructions for Paper-Setter		
1.	प्रश्नपत्रे पञ्चप्रश्नाः भविष्यन्ति । प्रश्नपत्राय 70 अङ्काः निर्धारिताः सन्ति प्रत्येकं प्रश्नः चतुर्दशाङ्कानां भविष्यति ।	
2.	प्रथमः प्रश्नः अनिवार्यः वर्तते । प्रश्नोऽयं पाठ्यक्रमस्य चतुर्घटकेषु आधारितः भविष्यति । अस्मिन् 4 प्रश्नाः विकल्परहिताः प्रदास्यन्ते । प्रत्येक प्रश्नः 3½ अङ्कानां भविष्यति ।	
3.	द्वितीयतृतीय चतुर्थप्रश्नम-प्रश्नानां निर्माणं यथाक्रमं चतुर्घटकेषु आधारितः भविष्यति । प्रत्येकस्मात् घटकात् द्वौ वैकल्पिकप्रश्नौ प्रदास्येते ।	
Unit	Topics	Contact Hours
I	<p>शोधशब्दस्य अर्थः, अनुसन्धानस्य (शोधस्य) स्वरूपम्, परिचयः, शोधसमानार्थकाः शब्दाः, (अन्वेषणम्, गवेषणा, अनुशीलनम्, परिशीलनम्, समीक्षा, आलोचना, पर्यालाचेना) शोधस्य उद्देश्यानि महत्त्वं च, शोधार्थिनः शोधनिर्देशकस्य च मूलभूताः अर्हताः।</p> <p>(संस्कृतमाध्यमेन) 14 अङ्काः</p> <p>(क) निबन्धात्मकः प्रश्नः 1x8 =8 अङ्काः</p> <p>(ख) टिप्पणी 2x3 = 6 अङ्काः</p>	15
II	<p>शोधसर्वेक्षणस्य स्वरूपम्, उपयोगिता महत्त्वं च, संस्कृतानुसन्धानस्य उद्देश्यानि, क्षेत्रं च 14 अङ्काः</p> <p>(क) निबन्धात्मकौ प्रश्नौ 2x7= 14 अङ्काः</p>	15
III	<p>शोधस्य विविधप्रकाराः, शोधकार्यस्य रूपरेखा, पूर्वबन्धः (प्राक्कथनम्, सन्दर्भग्रन्थसूची-निर्माणम्, संकेताक्षरसूची, विषयानुक्रमणी) परिशिष्टः। 14 अङ्काः</p> <p>(क) एकः निबन्धात्मकः प्रश्नः 1x10 =10 अङ्काः</p> <p>(ख) टिप्पणी 1x4 =4 अङ्काः</p>	15
IV	<p>शोधकार्ये संगणकस्य (Computer) प्रयोगः कम्प्यूटरपरिचयः, Google, Email, MS Office, Power Point Presentation, E पत्रिकाः, Care List 14 अङ्काः</p> <p>(क) एकः निबन्धात्मकः प्रश्नः 1x6 =6 अङ्काः</p> <p>(ख) टिप्पणीद्वयम् 2x4 =8 अङ्काः</p>	15

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Suggested Evaluation Methods	
<b>Internal Assessment: 30 Marks</b> <b>&gt; Theory</b> <ul style="list-style-type: none"> <li>Class Participation: 5 Marks</li> <li>Seminar/presentation/assignment/quiz/class test etc.: 5+5=10</li> <li>Mid-Term Exam: 15 Marks</li> </ul>	<b>End Term Examination: 70 Marks</b>
Part C-Learning Resources	
<b>Recommended Books/e-resources/LMS:</b> <ol style="list-style-type: none"> <li>संस्कृतशोधप्रविधि, प्रभुनाथद्विवेदी, शारदा संस्कृत संस्थान, वाराणसी ।</li> <li>शोधप्रविधि, डॉ. विजय मोहन शर्मा, नेशनल पब्लिकेशन हाऊस, दिल्ली ।</li> <li>नवीन शोधविज्ञान, डॉ. तिलक सिंह</li> </ol>	

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## Syllabus of Post Graduate Course

Session:2024-25			
PartA–Introduction			
Subject	Sanskrit		
Semester	II		
NameoftheCourse	M.A.		
CourseCode	M24-SKT-201, ब्राह्मणम् वेदाङ्गानि च		
CourseType: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/VA C)	CC-6		
Levelofthecourse(AsperAnnexure- I)	400-499		
Pre-requisiteforthecourse(ifany)			
CourseLearningOutcomes(CLO):	<p>CLO:201.1– ऐतरेयब्राह्मणस्य शुनःशेषाख्यानेन पुत्रस्य महत्वं, सततप्रयत्नशीलता, राजसूययज्ञस्य विषयश्च जायते।</p> <p>CLO:201.2– निरुक्तशास्त्रस्य मुख्यप्रयोजनम्, शब्दानमर्थः, प्रकृतिप्रत्यययोः दृष्ट्यानिर्वचनम् एते विषयाः सन्ति। अस्मिन् घटके छात्राः मुख्यत्वेन निर्वचनसिद्धान्तान् ज्ञास्यन्ति।</p> <p>CLO:201.3– अस्मिन् घटके देवतायाः परिभाषा, ऋचां भेदाः, देवानामाकारः, प्रमुखछन्दसां ज्ञानं विधास्यते।</p> <p>CLO:201.4– वैदिकभाषायाः अवबोधार्थं वैदिकव्याकरणस्य आवश्यकता भवति। तस्यावबोधः निहितमस्मिन्।</p>		
Credits–4	Theory	Practical	Total
	4	--	4
ContactHours	60	--	60
Max.Marks:	100	Time:3Hrs.	
InternalAssessmentMarks:	30		
EndTermExamMarks:	70		

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PartB-ContentsoftheCourse		
InstructionsforPaper-Setter		
<p>1. प्रश्नपत्रे पञ्चप्रश्नाः भविष्यन्ति । प्रश्नपत्राय 70 अङ्काः निर्धारिताः सन्ति प्रत्येकं प्रश्नः चतुर्दशाङ्कानां भविष्यति ।</p> <p>2. प्रथमः प्रश्नः अनिवार्यः वर्तते । प्रश्नोऽयं पाठ्यक्रमस्य चतुर्घटकेषु आधारितः भविष्यति । अस्मिन् 4 प्रश्नाः विकल्परहिताः प्रदास्यन्ते । प्रत्येक प्रश्नः 3½ अङ्कानां भविष्यति ।</p> <p>3. द्वितीयतृतीय चतुर्थप्रश्नम-प्रश्नानां निर्माणं यथाक्रमं चतुर्घटकेषु आधारितः भविष्यति। प्रत्येकस्मात् घटकात् द्वौ वैकल्पिकप्रश्नौ प्रदास्येते ।</p>		
Unit	Topics	Contact Hours
I	ऐतरेय ब्राह्मणम्: अध्यायः 33 (शुनशेषाख्यानाम्) 14 अङ्काः संस्कृत माध्यमेन व्याख्या आलोचनात्मक प्रश्नः च (क) पाठांशद्वय-व्याख्या 2x4 =8 अङ्काः (ख) आलोचनात्मकः प्रश्नः 1x6 =6 अङ्काः	15
II	निरुक्तम्-प्रथमः अध्यायः -व्याख्या, आलोचनात्मकः प्रश्नः 14 अङ्काः (क) पाठांशद्वयस्य व्याख्या 2x4 = 8 अङ्काः (ख) आलोचनात्मकप्रश्नः 1x6 =6 अङ्काः	15
III	निरुक्तम् - द्वितीयः अध्यायः (1-5 पादाः), सप्तमः अध्यायः (1-7 पादाः)। व्याख्या, आलोचनात्मकः प्रश्नः निर्वचनानि च 14 अङ्काः (क) पाठांशद्वयस्य व्याख्या 2x4 =8 अङ्काः (ख) आलोचनात्मकः प्रश्नः/निर्वचनानि 1x6 =6 अङ्काः	15
IV	वैदिक व्याकरणम्- वैदिकभाषायाः स्वरूपम्, वैदिकलौकिकभाषयोः अन्तरम्, सन्धिः, वैदिकस्वरः, लुङ्लकारः, लेटलकारः प्रत्ययाः-शतृ, शानच्, क्वसु, कानच्, तुमर्थकाः।	15

R. K. V. 11  
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Suggested Evaluation Methods	
<b>Internal Assessment: 30 Marks</b> <b>&gt; Theory</b> <ul style="list-style-type: none"> <li>Class Participation: 5 Marks</li> <li>Seminar/presentation/assignment/quiz/class test etc.: 5+5=10</li> <li>Mid-Term Exam: 15 Marks</li> </ul>	<b>End Term Examination: 70 Marks</b>
Part C-Learning Resources	
<b>Recommended Books/e-resources/LMS:</b> <ol style="list-style-type: none"> <li>ऐतरेय ब्राह्मण (द्वितीय भाग), सायणभाष्यसहित, सम्पादक एवं अनुवादक डॉ. सुधाकर मालवीय, तारा प्रिंटिंग वर्क्स, वाराणसी</li> <li>निरुक्त, हिन्दी अनुवादक पं. शिवनारायण शास्त्री, इण्डोलोजिकल बुक हाऊस, दिल्ली</li> <li>निरुक्त (भाग 1-2), स्कन्द-महेश्वर-कृत निरुक्तभाष्यटीका सहित, लक्ष्मणस्वरूप, प्रका. पाणिनि, नई दिल्ली</li> <li>निरुक्त, दुर्गाचार्य-कृत-वृत्ति-सहित, आनन्दाश्रम, पूना</li> <li>निरुक्तसम्पर्शः, ब्रह्ममुनि परिव्राजक, वैदिक यन्त्रालय, अजमेर ।</li> <li>निरुक्त (अध्याय, 1, 2, 7), व्याख्या. कपिलदेव शास्त्री, साहित्य भण्डार, मेरठ</li> <li>वैदिक व्याकरण (भाग 1-2) रामगोपाल, नैशनल पब्लिशिंग हाऊस, दिल्ली।</li> <li>A Vedic Grammar of Students, A.A. Macdonell, Motilal Banarasadass, Delhi.</li> </ol>	

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## Syllabus of Post Graduate Course

Session:2024-25			
PartA- Introduction			
Subject	Sanskrit		
Semester	II		
NameoftheCourse	M.A		
CourseCode	M24-SKT-202, व्याकरणम् भाषाविज्ञानम् च (2)		
CourseType: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/VA C)	CC-7		
Levelofthecourse(AsperAnnexure- I	400-499		
Pre-requisiteforthecourse(ifany)			
CourseLearningOutcomes(CLO):	<p>CLO:202.1- लघुसिद्धान्तकौमुद्याः तिङन्तप्रकरणान्तर्गतानां अदादिधातुभ्यः निष्पन्नपदानां आत्मनेपदादिप्रक्रियाणां च अवबोधः घटकेऽस्मिन् विधास्यते ।</p> <p>CLO:202.2- समासः तद्धितप्रत्ययाश्च भाषासंक्षिप्तीकरणहेतवः। तेषां ज्ञानं घटकेऽस्मिन् निहितम्।</p> <p>CLO:202.3-कारकविभक्तीनां ज्ञानं भाषायै अनिवार्यम्। तज्ज्ञानं सिद्धान्तकौमुद्याः अनुसारं विधास्यते अनेन घटकेन।</p> <p>CLO:202.4- भाषायां ध्वन्यर्थयोः स्वरूपं परिवर्तनञ्च संस्कृतभाषासन्दर्भे अस्मिन् निहितम्।</p>		
Credits-4	Theory	Practical	Total
	4	--	4
ContactHours	60	--	60
Max.Marks:	100	Time:3Hrs.	
InternalAssessmentMarks:	30		
EndTermExamMarks:	70		

12.8.2024/20/06/2024

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PartB-ContentsoftheCourse		
InstructionsforPaper-Setter		
1.	प्रश्नपत्रे पञ्चप्रश्नाः भविष्यन्ति । प्रश्नपत्राय 70 अङ्काः निर्धारिताः सन्ति प्रत्येकं प्रश्नः चतुर्दशाङ्कानां भविष्यति ।	
2.	प्रथमः प्रश्नः अनिवार्यः वर्तते । प्रश्नोऽयं पाठ्यक्रमस्य चतुर्घटकेषु आधारितः भविष्यति । अस्मिन् 4 प्रश्नाः विकल्परहिताः प्रदास्यन्ते । प्रत्येक प्रश्नः 3½ अङ्कानां भविष्यति ।	
3.	द्वितीयतृतीय चतुर्थप्रश्नम-प्रश्नानां निर्माणं यथाक्रमं चतुर्घटकेषु आधारितः भविष्यति । प्रत्येकस्मात् घटकात् द्वौ वैकल्पिकप्रश्नौ प्रदास्येते ।	
Unit	Topics	Contact Hours
I	लघुसिद्धान्तकौमुदी, 14 अङ्काः तिङन्तप्रकरणम्, अदादिगणः, अद्, अस् नामधातुप्रकरणम्, आत्मनेपदम्, परस्मैपदम् (क) सूत्रव्याख्या 2x3 = 6 अङ्काः (ख) रूपसिद्धिः 2x4 = 8 अङ्काः	15
II	समासप्रकरणम् (लघुसिद्धांतकौमुदी) 14 अङ्काः (क) सूत्रव्याख्या 2x3 = 6 अङ्काः (ख) रूपसिद्धिः 2x4 = 8 अङ्काः	15
III	कारणप्रकरणम् (सिद्धान्तकौमुदी) संस्कृतमाध्यमेन 14 अङ्काः (क) सोदाहरणं सूत्रव्याख्या 2x3 = 6 अङ्काः (ख) कारकविभक्तिप्रतिपादनम् 2x4 = 8 अङ्काः	15
IV	भाषाविज्ञानम् 14 अङ्काः लौकिकं वैदिकं च संस्कृतम्, अर्थपरिवर्तनस्य कारणानि दिशश्च, ध्वनीनां वर्गीकरणम्-स्पर्श, संघर्षी, अर्धस्वर, स्वर (संस्कृत-ध्वनीनां सन्दर्भे) अर्थपरिवर्तनस्य कारणानि, ध्वनिनियमाः (ग्रिम, ग्रासमान, वर्नर) (क) निबन्धात्मकः प्रश्नः 1x6 = 6 अङ्काः (ख) टिप्पणीद्वयम् 2x4 = 8 अङ्काः	15

12/8/21  
20/06/2024  
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Suggested Evaluation Methods	
<b>Internal Assessment: 30 Marks</b> > Theory <ul style="list-style-type: none"> <li>• Class Participation: 5 Marks</li> <li>• Seminar/presentation/assignment/quiz/class test etc.: 5+5=10</li> <li>• Mid-Term Exam: 15 Marks</li> </ul>	<b>End Term Examination: 70 Marks</b>
Part C-Learning Resources	
<b>Recommended Books/e-resources/LMS:</b> <ol style="list-style-type: none"> <li>1. लघुसिद्धान्तकौमुदी, व्या. डॉ. सत्यपाल सिंह, परिमल पब्लिकेशन, दिल्ली</li> <li>2. भाषाविज्ञान, डॉ. कपिल देव द्विवेदी, विश्वविद्यालय प्रकाशन, वाराणसी</li> <li>3. सामान्यभाषाविज्ञान, बाबूराम सक्सेना, हिन्दी साहित्य सम्मेलन, प्रयाग</li> </ol>	

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## Syllabus of Post Graduate Course

Session:2024-25			
PartA-Introduction			
Subject	Sanskrit		
Semester	II		
NameoftheCourse	M.A.		
CourseCode	M24-SKT-203, भारतीयदर्शनम् II		
CourseType: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/VA C)	CC-8		
Levelofthecourse(AsperAnnexure- I)	400-499		
Pre-requisiteforthecourse(ifany)			
CourseLearningOutcomes(CLO):	<p>CLO:203.1-लौगाक्षिकभास्करप्रणीतः अर्थसंग्रहः पूर्वमीमांसादर्शने प्रवेशं कारयितुं विरचितः उत्कृष्टग्रन्थः अस्ति। अत्र वर्णितानां विधिः अधिकृत्य निबन्धलेखनं छात्राणां मीमांसादर्शने वेदवाक्यवाजनरूपविषयपरायणं प्रदर्शयति, लेखनप्रतिभां च विवर्धयति।</p> <p>CLO:203.2- अर्थसंग्रहस्य गद्यपंक्तिनां सप्रसंगव्याख्या विषयस्य सूक्ष्माध्ययनार्थं समाविष्टा।</p> <p>CLO:203.3-सदानन्दयोगीन्द्रविरचितः वेदान्तसारः वेदान्तदर्शनस्य एकः प्रसिद्धः प्रकरणग्रन्थः अस्ति। अस्मिन् शांकराद्वैतवेदान्तस्य प्रमुखसिद्धान्ताः अध्यारोपापवादन्यायेन निरूपिताः। छात्राणां लेखनप्रतिभायाः विकासार्थं निबन्धात्मकः प्रश्नः सम्मिलितः।</p> <p>CLO:203.4- वेदान्तसारः शांकराद्वैतवेदान्तस्य सूक्ष्माध्ययनार्थं वस्तुनिष्ठतां प्रतिपादनार्थं च सप्रसंगगद्यपंक्तिव्याख्या अपेक्षिता।</p>		
Credits-4	Theory	Practical	Total
	4	--	4
ContactHours	60	--	60

H. Devi  
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 KURUKSHETRA-136119.

<b>Max.Marks:</b> 100 <b>InternalAssessmentMarks:</b> 30 <b>EndTermExamMarks:</b> 70		<b>Time:3Hrs.</b>
<b>PartB-ContentsoftheCourse</b>		
<b>InstructionsforPaper-Setter</b> 1. प्रश्नपत्रे पञ्चप्रश्नाः भविष्यन्ति । प्रश्नपत्राय 70 अङ्काः निर्धारिताः सन्ति प्रत्येकं प्रश्नः चतुर्दशाङ्कानां भविष्यति । 2. प्रथमः प्रश्नः अनिवार्यः वर्तते । प्रश्नोऽयं पाठ्यक्रमस्य चतुर्घटकेषु आधारितः भविष्यति । अस्मिन् 4 प्रश्नाः विकल्परहिताः प्रदास्यन्ते । प्रत्येक प्रश्नः 3½ अङ्कानां भविष्यति । 3. द्वितीयतृतीय चतुर्थप्रश्नचम-प्रश्नानां निर्माणं यथाक्रमं चतुर्घटकेषु आधारितः भविष्यति। प्रत्येकस्मात् घटकात् द्वौ वैकल्पिकप्रश्नौ प्रदास्येते ।		
<b>Unit</b>	<b>Topics</b>	<b>Contact Hours</b>
I	अर्थसंग्रहः संस्कृतमाध्ययमेन (विनियोगविधिपर्यन्तम्) 14 अङ्काः (क) निबन्धात्मकः प्रश्नः 10 अङ्काः (ख) लक्षणव्याख्या/टिप्पणी 4 अङ्काः	15
II	अर्थसंग्रहः (विनियोगविधिपर्यन्तम्) 14 अङ्काः पंक्तिव्याख्या 2x7 = 14 अङ्काः	15
III	वेदान्तसारः 14 अङ्काः (क) निबन्धात्मकः प्रश्नः 10 अङ्काः (ख) टिप्पणी 4 अङ्काः	15
IV	वेदान्तसारः 14 अङ्काः पंक्तिव्याख्या 2x7 = 14 अङ्काः	15
<b>SuggestedEvaluationMethods</b>		
<b>InternalAssessment:30Marks</b> > Theory <ul style="list-style-type: none"> <li>ClassParticipation: 5Marks</li> <li>Seminar/presentation/assignment/quiz/class test etc.: 5+5=10</li> <li>Mid-Term Exam: 15 Marks</li> </ul>		<b>EndTerm Examination: 70Marks</b>

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### PartC-LearningResources

#### RecommendedBooks/e-resources/LMS:

1. अर्थसंग्रह, सम्पा. तथा व्याख्या वाचस्पति उपाध्याय, चैखम्बा ओरियण्टालिया ।
2. अर्थसंग्रह, व्याख्या दयाशङ्कर शास्त्री, कानपुर ।
3. अर्थसंग्रह, व्याख्या सत्यप्रकाश शर्मा, साहित्य भण्डार, मेरठ ।
4. Arthasangraha, Eng. Tr. A.B. Gajendragadharand R.D. Ranmakra Motilal Banarsidas, Delhi
5. Arthasangraha, Eng. Tr. G. Thibaut, Delhi
6. वेदान्तसार, व्याख्या बदरीनाथ शुक्ल, वाराणसी ।
7. वेदान्तसार, सम्पा. तथा व्याख्या राममूर्ति शर्मा, दिल्ली ।
8. वेदान्तसार, व्याख्या गजानन शास्त्री मुसलगाँवकर, वाराणसी ।

12. Rev.  
20/06/2024

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KURUKSHETRA-136119.

## Syllabus of Post Graduate Course

Session:2024-25			
PartA–Introduction			
Subject	Sanskrit		
Semester	II		
NameoftheCourse	M.A.		
CourseCode	M24-SKT-204, काव्यम् काव्यशास्त्रम् च		
CourseType: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/VA C)	CC-9		
Levelofthecourse(AsperAnnexure-I)	400-499		
Pre-requisitethcourse(ifany)			
CourseLearningOutcomes(CLO):	<p>CLO:204.1– प्रसिद्धगद्यकारस्य बाणभट्टस्य परिचयेन सह गद्यकाव्यशैल्याः समासानाञ्च ज्ञानं भवति। छात्रेषु चिन्तनसामर्थ्यं च वर्धते ।</p> <p>CLO:204.2– माघस्य काव्यशैल्या सह नूतनशब्दानां बोधो भवति। श्लोकव्याख्या चाभिधीयते ।</p> <p>CLO:204.3– घटकेऽस्मिन् काव्यलक्षण-काव्यहेतु-काव्यप्रयोजन-काव्यभेदादयो विषयाः प्रतिपाद्यन्ते।</p> <p>CLO:204.4– अभिधालक्षणाव्यञ्जनानिरूपणं तत्सम्बद्धैश्च विवेचनात्मकैः प्रश्नैः विषयप्रतिपादनं विधीयते। एतेन विद्यार्थिभ्यः काव्यशास्त्रस्य ज्ञानं प्रदीयते ।</p>		
Credits–4	Theory	Practical	Total
	4	--	4
ContactHours	60	--	60

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<b>Max.Marks: 100</b> <b>InternalAssessmentMarks:30</b> <b>EndTermExamMarks: 70</b>		<b>Time:3Hrs.</b>
<b>PartB-ContentsoftheCourse</b>		
<b>InstructionsforPaper-Setter</b> 1. प्रश्नपत्रे पञ्चप्रश्नाः भविष्यन्ति । प्रश्नपत्राय 70 अङ्काः निर्धारिताः सन्ति प्रत्येकं प्रश्नः चतुर्दशाङ्कानां भविष्यति । 2. प्रथमः प्रश्नः अनिवार्यः वर्तते । प्रश्नोऽयं पाठ्यक्रमस्य चतुर्घटकेषु आधारितः भविष्यति । अस्मिन् 4 प्रश्नाः विकल्परहिताः प्रदास्यन्ते । प्रत्येक प्रश्नः 3½ अङ्कानां भविष्यति । 3. द्वितीयतृतीय चतुर्थप्रश्न-प्रश्नानां निर्माणं यथाक्रमं चतुर्घटकेषु आधारितः भविष्यति । प्रत्येकस्मात् घटकात् द्वौ वैकल्पिकप्रश्नौ प्रदास्येते ।		
Unit	Topics	Contact Hours
I	कादम्बरी (महाश्वेतावृत्तान्तः) 14 अङ्काः "तच्च पवनोद्धूतैः इत्यतः तमतिचिरं व्यलोकयम्" इति पर्यन्तम्। (क) गद्यांशद्वयं व्याख्यातुं, गद्यांशत्रयं दास्यते 2x7 = 14 अङ्काः	15
II	शिशुपालवधम् (प्रथम सर्गः) 14 अङ्काः (38-75 श्लोकपर्यन्तम्) सप्रसङ्गं छन्दोऽलंकारनिर्देशपूर्वकं श्लोकद्वयं व्याख्यातुं, श्लोकत्रयं दास्यते । 2x7 =14 अङ्काः	15
III	काव्यप्रकाशः (प्रथमोल्लासः) (संस्कृतमाध्यमेन) 14 अङ्काः (क) एकं विवेचनात्मकं प्रश्नं कर्तुं प्रश्नद्वयं दास्यते 1x10 = 10 (ख) एकं लघुविवेचनात्मकं प्रश्नं कर्तुं प्रश्नद्वयं/टिप्पणी द्वयं वा दास्यते 1x4 =4	15
IV	साहित्यदर्पणः (द्वितीयपरिच्छेदः) 14 अङ्काः (क) कारिकाद्वयं व्याख्यातुं कारिकात्रयं दास्यते। 2x7 = 14 (ख) एकं प्रश्नं समाधातुं प्रश्नद्वयं दास्यते 1x14 =14	15

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Suggested Evaluation Methods	
<b>Internal Assessment: 30 Marks</b> <b>&gt; Theory</b> <ul style="list-style-type: none"> <li>• Class Participation: 5 Marks</li> <li>• Seminar/presentation/assignment/quiz/class test etc.: 5+5=10</li> <li>• Mid-Term Exam: 15 Marks</li> </ul>	<b>End Term Examination: 70 Marks</b>
Part C-Learning Resources	
<b>Recommended Books/e-resources/LMS:</b> <ol style="list-style-type: none"> <li>1. कादम्बरी, महाश्वेतावृत्तान्तः, सम्पादकः रामनाथ शर्मा, राजेन्द्रकुमारः शास्त्री च, साहित्यभण्डारम्, मेरठनगरम् ।</li> <li>2. कादम्बरी, एक सांस्कृतिक अध्ययन, डॉ. वासुदेवशरण अग्रवाल ।</li> <li>3. साहित्यदर्पण, सम्पा., पी.वी. काणे, मोतीलाल बनारसीदास, दिल्ली ।</li> <li>4. साहित्यदर्पण, व्याख्या. कृष्णमोहन शास्त्री ।</li> <li>5. साहित्यदर्पण, सम्पा. शालीग्राम शास्त्री, मोतीलाल बनारसीदास, दिल्ली ।</li> </ol>	

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## Syllabus of Post Graduate Course

Session:2024-25			
PartA-Introduction			
Subject	Sanskrit		
Semester	II		
NameoftheCourse	M.A.		
CourseCode	M24-SKT-205, धर्मशास्त्रम् अभिलेखाश्च		
CourseType: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/VA C)	CC-10		
Levelofthecourse(AsperAnnexure- I	400-499		
Pre-requisiteforthecourse(ifany)			
CourseLearningOutcomes(CLO):	<p>CLO:205.1- धर्मशास्त्रीयग्रन्थेषु स्मृतीनां अर्थशास्त्रस्य महाभारतस्य च महत्त्वमतीव। एतत्घटकेन तेषां ग्रन्थानां वष्यविषयाणां ग्रन्थकाराणां च परिचयो भविष्यति।</p> <p>CLO:205.2- याज्ञवल्क्यस्मृतेः दायभागप्रकरणस्य वर्तमानहिन्दूविधि-अधिनियमसन्दर्भे अवबोधनं घटकस्यास्य प्रयोजनम्।</p> <p>CLO:205.3- प्राचीनलिपीनां ज्ञानाय बाह्मीलिपिज्ञानम् आवश्यकम्। एतत्घटकेन एतस्याः लिपेः एतस्यां च लिखितानाम् अभिलेखानां ज्ञानं कारयिष्यते ।</p> <p>CLO:205.4- मौर्योत्तरकालीनानां गुप्तकालीनानां गुप्तोत्तरकालीनानां च प्रमुखाणाम् अभिलेखानां ज्ञानं घटकेऽस्मिन् निहितम् ।</p>		
Credits-4	Theory	Practical	Total
	4	--	4
ContactHours	60	--	60

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<b>Max.Marks:</b> 100 <b>InternalAssessmentMarks:</b> 30 <b>EndTermExamMarks:</b> 70		<b>Time:3Hrs.</b>
<b>PartB-ContentsoftheCourse</b>		
<b>InstructionsforPaper-Setter</b> 1. प्रश्नपत्रे पञ्चप्रश्नाः भविष्यन्ति । प्रश्नपत्राय 70 अङ्काः निर्धारिताः सन्ति प्रत्येक प्रश्नः चतुर्दशाङ्कानां भविष्यति । 2. प्रथमः प्रश्नः अनिवार्यः वर्तते । प्रश्नोऽयं पाठ्यक्रमस्य चतुर्घटकेषु आधारितः भविष्यति । अस्मिन् 4 प्रश्नाः विकल्परहिताः प्रदास्यन्ते । प्रत्येक प्रश्नः 3½ अङ्कानां भविष्यति । 3. द्वितीयतृतीय चतुर्थप्रश्नम-प्रश्नानां निर्माणं यथाक्रमं चतुर्घटकेषु आधारितः भविष्यति । प्रत्येकस्मात् घटकात् द्वौ वैकल्पिकप्रश्नौ प्रदास्येते । अङ्कानां भविष्यति ।		
Unit	Topics	Contact Hours
I	धर्मशास्त्रम् अर्थः, परिभाषा उद्देश्यानि च, महाभारतम्, स्मृतयः- मनुस्मृतिः, याज्ञवल्क्यस्मृतिः नारदस्मृतिः, पाराशरस्मृतिः, अर्थशास्त्रम् 14 अङ्काः उपर्युक्तग्रन्थानां वर्ण्यविषयं ग्रन्थकारं चाधृत्य (क) एकः निबन्धात्मकः प्रश्नः 1x8 = 8 अङ्काः (ख) एका टिप्पणी 1x6 =6 अङ्काः	15
II	याज्ञवल्क्य स्मृति व्यवहार अध्याय 14 अङ्काः दायभागप्रकरणम् (114-149) साक्षीवरणम् 1-15 (क) श्लोकव्याख्या 2x4 = 8 अङ्काः (ख) आलोचनात्मकः प्रश्नः 1x6 = 6 अङ्काः	15
III	लिपिः अभिलेखाश्च 14 अङ्काः ब्राह्मीलिपेः इतिहासः उत्पत्तिसिद्धान्ताः, गुप्तकालीना अशोककालीना च ब्राह्मीलिपिः, अशोककालीनाः प्रमुखशिलालेखाः स्तम्भलेखाश्च द्वौ निबन्धात्मकौ प्रश्नौ 2x7 =14 अङ्काः	15
IV	अभिलेखाः 14 अङ्काः मौर्योत्तरकालीनाभिलेखाः - कनिष्क-सारनाथबौद्धप्रतिमालेखः रुद्रदमन-गिरिनारशिलालेखः, खारवेल-हाथीगुम्फाभिलेखः। गुप्तकालीनाः गुप्तोत्तरकालीनाः चाभिलेखाः- समुद्रगुप्त-इलाहाबादस्तम्भलेखः, यशोधर्मन-	15

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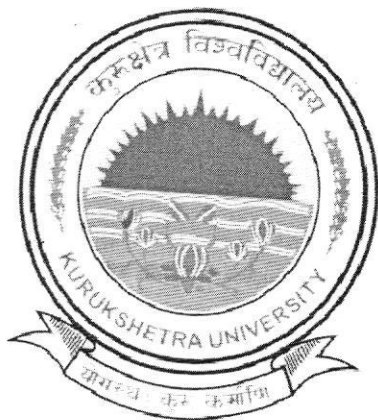
<p>मन्दसौर शिलालेख: हर्ष-बांसखेडाताम्रपत्राभिलेखः, पुलकेशिनद्वितीय- ऐहोलशिलालेखः द्वौ निबन्धात्मकौ प्रश्नौ</p>	<p>2x7 = 14 अङ्काः</p>
<b>Suggested Evaluation Methods</b>	
<p><b>Internal Assessment: 30 Marks</b>          &gt; <b>Theory</b>          • Class Participation: 5 Marks          • Seminar/presentation/assignment/quiz/class test etc.: 5+5=10          • Mid-Term Exam: 15 Marks</p>	<p><b>End Term Examination: 70 Marks</b></p>
<b>Part C-Learning Resources</b>	
<p><b>Recommended Books/e-resources/LMS:</b></p> <ol style="list-style-type: none"> <li>1. याज्ञवल्क्यस्मृति, व्या. नारायण राम आचार्य काव्यतीर्थ, नाग पब्लिशर्स, दिल्ली ।</li> <li>2. प्राचीन लिपिमाला, गौरीशंकर हरीशचन्द्र ओझा ।</li> <li>3. विश्व की मूल ब्राह्मीलिपि, डॉ. प्रेमसागर जैन, वीर निर्वाण ग्रन्थ प्रकाशन समीति, इन्दौर ।</li> <li>4. पाण्डुलिपि परिचय, दास अयोध्याचन्द्र, एस. चन्द एण्ड कम्पनी रामनगर, दिल्ली ।</li> <li>5. अशोक के अभिलेख, पाण्डेय राजबलि, मन्शीराम मनोहरलाल, दिल्ली ।</li> <li>6. गुप्त अभिलेख, उपाध्याय वासुदेव, बिहार हिन्दी ग्रन्थ अकादमी पटना ।</li> <li>7. भारतीय अभिलेख, राणा एस. एस., भारतीय विद्या प्रकाशन, वाराणसी ।</li> </ol>	

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**Kurukshetra University, Kurukshetra**  
(Established by the State Legislature Act-XII of 1956)  
("A++" Grade, NAAC Accredited)



**Scheme of Examination  
for  
Post Graduate Programme  
Master of Business Administration**

as per NEP 2020  
Curriculum and Credit Framework for Postgraduate Programme

With Internship and CBCS-LOCF  
With effect from the session 2024-25 (in phased manner)

UNIVERSITY SCHOOL OF MANAGEMENT  
FACULTY OF COMMERCE AND MANAGEMENT

KURUKSHETRA UNIVERSITY, KURUKSHETRA -136119  
HARYANA, INDIA

  
Chairperson  
University School of Management  
Kurukshetra University,  
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## Kurukshetra University, Kurukshetra

**Scheme of Examination for Postgraduate Programme <MBA (Under Budgeted Scheme and under SFS)>**  
as per NEP 2020 Curriculum and Credit Framework for Postgraduate Programme  
(CBCS LOCF) with effect from the session 2024-25 (in phased manner)

### Framework-2 Scheme-S

Semester	Course Type	Course Code	Nomenclature of course	Theory (T)/ Practical (P)	Credits		Contact hours per week L: Lecture P: Practical T: Tutorial				Internal Assessment Marks	End Term Examination Marks	Total Marks	Examination hours
						Total	L	T	P	Total				
1	CC-1	M24-MBA-101	Management Process and Organizational Behaviour	T	4	26	3	1	0	4	30	70	100	3
	CC-2	M24-MBA-102	Managerial Economics	T	4		3	1	0	4	30	70	100	3
	CC-3	M24-MBA-103	Statistics for Business Decisions	T	4		3	1	0	4	30	70	100	3
	CC-4	M24-MBA-104	Business Communication	T	4		3	1	0	4	30	70	100	3
	CC-5	M24-MBA-105	Business Eco-System and Environment	T	4		3	1	0	4	30	70	100	3


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	DEC-1	M24-MBA-106	Financial Statements and Analysis	T	4		3	1	0	4	30	70	100	3
	SEMINAR	M24-MBA-107	Seminar	S	2		0	0	0	2	0	50	50	1
2	CC-6	M24-MBA-201	Optimization Models for Business Decisions	T	4	26	3	1	0	4	30	70	100	3
	CC-7	M24-MBA-202	Business Research Methodology	T	4		3	1	0	4	30	70	100	3
	CC-8	M24-MBA-203	Marketing Management	T	4		3	1	0	4	30	70	100	3
	CC-9	M24-MBA-204	Corporate Finance	T	4		3	1	0	4	30	70	100	3
	CC-10	M24-MBA-205	Human Resource Management	T	4		3	1	0	4	30	70	100	3
	DEC-2	M24-MBA-206	Production and Operations Management	T	4		3	1	0	4	30	70	100	3
	CHM	M24-CHM-201	Constitutional, Human and Moral Values, and IPR	T	2		2	0	0	2	15	35	50	3

	Interns hip	M24- INT- 200	An internship course of 4 Credits of 4-6 weeks duration during summer vacation after IInd semester is to be completed by every student. Internship can be either for enhancing the employability or for developing the research aptitude.							50	50	100		
3	CC-11	M24- MBA- 301	Strategic Management	T	4	26	3	1	0	4	30	70	100	3
	CC-12	M24- MBA- 302	Business Laws and Governance	T	4		3	1	0	4	30	70	100	3
	Discipline Elective Course (DEC)-3			T	4		3	1	0	4	30	70	100	3
	Discipline Elective Course (DEC)-4			T	4		3	1	0	4	30	70	100	3
	Discipline Elective Course (DEC)-5			T	4		3	1	0	4	30	70	100	3
	Discipline Elective Course (DEC)-6			T	4		3	1	0	4	30	70	100	3
	OEC	M24- OEC- 350	Entrepreneurship and Start up Management	T	2		2	0	0	2	15	35	50	3
4	CC-13	M24- MBA- 401	Corporate Social Responsibility and Sustainability	T	4	26	3	1	0	4	30	70	100	3
	CC-14	M24- MBA- 402	AI Applications in Business	T	4		3	1	0	4	30	70	100	3

	Discipline Elective Course (DEC)-7		T	4		3	1	0	4	30	70	100	3
	Discipline Elective Course (DEC)-8		T	4		3	1	0	4	30	70	100	3
	Discipline Elective Course (DEC)-9		T	4		3	1	0	4	30	70	100	3
	Discipline Elective Course (DEC)-10		T	4		3	1	0	4	30	70	100	3
	EEC	M24-EEC-419	Entrepreneurship and Start up Management	T	2	2	0	0	2	15	35	50	3
4	The students who will opt Dissertation/Project Work in 4 <sup>th</sup> Semester will study the following subjects.												
	Discipline Elective Course (DEC)-7		T	4	26	3	1	0	4	30	70	100	3
	Discipline Elective Course (DEC)-8		T	4		3	1	0	4	30	70	100	3
	Discipline Elective Course (DEC)-9		T	4		3	1	0	4	30	70	100	3
	EEC	M24-EEC-419	Entrepreneurship and Start up Management	T	2	2	0	0	2	15	35	50	3
	Dissertation/Project work	M24-MBA-418	Dissertation/ Research Report/Project Report		12	0	0	0	12	0	300	300	

732 *ph*

*Sushil* 

**Specializations Offered:** The department would offer Six specializations viz. Marketing, Finance, Human Resource Management, Business Analytics, Entrepreneurship Development, and International Business in MBA from third semester onwards in the second year. A student can opt any **One** specialization out of six specializations. The student will opt elective courses of that specialization in 3<sup>rd</sup> and 4<sup>th</sup> Semester. The department reserves the right to offer specialization subject to the availability of resources as per university rules.

**Note:** Depending upon the requirement, the department will offer **Four** elective courses out of the following six elective courses. Thus top four (In terms of student's strength in each) would be offered for a particular batch.

### Semester -III

Discipline Elective Course (DEC)-3		
(Student will be offered one course out of the following according to the specialization)		
Specialization	Paper Code	Title of Course
Marketing	M24-MBA-313	Advertising Management
Finance	M24-MBA-323	Investment Management
Human Resource Management	M24-MBA-333	Industrial Relations and Employment Laws
Business Analytics	M24-MBA-343	Business Analysis using Excel
Entrepreneurship Development	M24-MBA-353	Fundamentals of Entrepreneurship
International Business	M24-MBA-363	International Marketing

*Sushil*

<b>Discipline Elective Course (DEC)-4</b>		
(Student will be offered one course out of the following according to the specialization)		
<b>Specialization</b>	<b>Paper Code</b>	<b>Title of Course</b>
Marketing	M24-MBA-314	Consumer Behaviour
Finance	M24-MBA-324	Banking and Financial Services
Human Resource Management	M24-MBA-334	Compensation and Reward Management
Business Analytics	M24-MBA-344	Social Media Analytics
Entrepreneurship Development	M24-MBA-354	Social Entrepreneurship
International Business	M24-MBA-364	India's Foreign Trade and Policy

<b>Discipline Elective Course (DEC)-5</b>		
(Student will be offered one course out of the following according to the specialization)		
<b>Specialization</b>	<b>Paper Code</b>	<b>Title of Course</b>
Marketing	M24-MBA-315	Digital and Social Media Marketing
Finance	M24-MBA-325	Risk Management and Insurance
Human Resource Management	M24-MBA-335	Talent Acquisition and Performance Management
Business Analytics	M24-MBA-345	Business Data Mining
Entrepreneurship Development	M24-MBA-355	Family Business Management
International Business	M24-MBA-365	Foreign Exchange Management

<b>Discipline Elective Course (DEC)-6</b>		
(Student will be offered one course out of the following according to the specialization)		
<b>Specialization</b>	<b>Paper Code</b>	<b>Title of Course</b>
Marketing	M24-MBA-316	Marketing Research and Analytics
Finance	M24-MBA-326	Project Planning and Management
Human Resource Management	M24-MBA-336	Human Resource Metrics and Analytics
Business Analytics	M24-MBA-346	Data Analytics using R
Entrepreneurship Development	M24-MBA-356	New Venture Creation and Management
International Business	M24-MBA-366	International Logistics

734

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734



## Semester -IV

<b>Discipline Elective Course (DEC)-7</b>		
(Student will be offered one course out of the following according to the specialization)		
<b>Specialization</b>	<b>Paper Code</b>	<b>Title of Course</b>
Marketing	M24-MBA-413	Service Marketing
Finance	M24-MBA-423	Foreign Exchange Management
Human Resource Management	M24-MBA-433	Change Management and Organizational Development
Business Analytics	M24-MBA-443	IOT and Big Data
Entrepreneurship Development	M24-MBA-453	Enterprise Appraisal and Financing
International Business	M24-MBA-463	Export-Import Procedures and Documentation


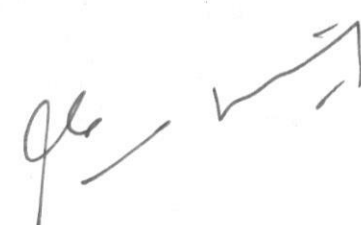
<b>Discipline Elective Course (DEC)-8</b>		
(Student will be offered one course out of the following according to the specialization)		
<b>Specialization</b>	<b>Paper Code</b>	<b>Title of Course</b>
Marketing	M24-MBA-414	International Marketing
Finance	M24-MBA-424	Financial Derivatives
Human Resource Management	M24-MBA-434	Group Dynamics and Leadership Excellence
Business Analytics	M24-MBA-444	Predictive Analytics for Business Decisions
Entrepreneurship Development	M24-MBA-454	MSME Policy Framework
International Business	M24-MBA-464	International Strategic Management

*Sushil* *16/11/21*

735


<b>Discipline Elective Course (DEC)-9</b>		
(Student will be offered one course out of the following according to the specialization)		
<b>Specialization</b>	<b>Paper Code</b>	<b>Title of Course</b>
Marketing	M24-MBA-415	Sales and Distribution Management
Finance	M24-MBA-425	Private Equity and Wealth Management
Human Resource Management	M24-MBA-435	Counselling, Mentoring and Negotiation Skills
Business Analytics	M24-MBA-445	Data Analysis using Python
Entrepreneurship Development	M24-MBA-455	Marketing Management of New Ventures
International Business	M24-MBA-465	International Financial Markets

<b>Discipline Elective Course (DEC)-10</b>		
(Student will be offered one course out of the following according to the specialization)		
<b>Specialization</b>	<b>Paper Code</b>	<b>Title of Course</b>
Marketing	M24-MBA-416	Supply Chain and Logistics Management
Finance	M24-MBA-426	Corporate Restructuring and Value Creation
Human Resource Management	M24-MBA-436	Training, Learning and Development
Business Analytics	M24-MBA-446	Financial Modeling
Entrepreneurship Development	M24-MBA-456	Financial Innovation and Entrepreneurship
International Business	M24-MBA-466	Regional Economic Blocks

**Programme Learning Outcomes(PLOs) for MBA(2-Year) Programme as per  
NEP-2020**

PLOs	Master Degree in Business Administration
	<b>After the completion of Master degree in Business Administration the student will be able to:</b>
PLO-1: Knowledge and Understanding	Demonstrate the fundamental and advanced knowledge of the subject and understanding of recent developments and issues, including methods and techniques, related to the Business Administration.
PLO-2: General Skills	Acquire the general skills required for performing and accomplishing the tasks as expected to be done by a skilled professional in the fields of Business Administration.
PLO-3: Technical/ Professional Skills	Demonstrate the learning of advanced cognitive technical/professional skills required for completing the specialized tasks related to the profession and for conducting and analyzing the relevant research tasks indifferent domains of the Business Administration.
PLO-4: Communication Skills	Effectively communicate the attained skills of the Business Administration in well-structured and productive manner to the society at large.
PLO-5: Application of Knowledge and Skills	Apply the acquired knowledge and skills to the problems in the subject area, and to identify and analyze the issues where the attained knowledge and skills can be applied by carrying out research investigations to formulate evidence-based solutions to complex and unpredictable problems associated with the field of Business Administration or otherwise.
PLO-6: Critical Thinking and Research Aptitude	Attain the capability of critical thinking in intra/inter-disciplinary areas of the Business Administration enabling to formulate, synthesize, and articulate issues for designing of research proposals, testing hypotheses, and drawing inferences based on the analysis.
PLO-7: Constitutional, Humanistic, Moral Values and Ethics	Know constitutional, humanistic, moral and ethical values, and intellectual property rights to become a scholar/professional with ingrained values in expanding knowledge for the society, and to avoid unethical practices such as fabrication, falsification or misrepresentation of data or committing plagiarism.
PLO-8: Capabilities/Qualities and Mindset	To exercise personal responsibility for the outputs of own work as well as of group/team and for managing complex and challenging work(s) that requires new/strategic approaches.
PLO-9: Employability and Job-Ready Skills	Attain the knowledge and skills required for increasing employment potential, adapting to the future work and responding to the rapidly changing demands of the employers/industry/society with time.

  
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# **Kurukshetra University, Kurukshetra**

(Established by the State Legislature Act-XII of 1956)

("A++" Grade, NAAC Accredited)



## **Syllabus of the Programme**

for

## **Post Graduate Programme**

## **Master of Business Administration**

as per NEP 2020

**Curriculum and Credit Framework for Postgraduate Programme**

**With Internship and CBCS-LOCF**

**With effect from the session 2024-25 (in phased manner)**

**UNIVERSITY SCHOOL OF MANAGEMENT**

**FACULTY OF COMMERCE AND MANAGEMENT**

**KURUKSHETRA UNIVERSITY, KURUKSHETRA -136119**

**HARYANA, INDIA**

  
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**Management Process & Organizational Behaviour (CC-1) with 4 Credits**  
**(3 Theory +1 Tutorial)**

**Session: 2024-25**

**Part A - Introduction**

Name of Programme	MBA (2 Years)		
Semester	First		
Name of the Course	Management Process and Organizational Behaviour		
Course Code	M24-MBA-101		
Course Type	CC-1		
Level of the course	400-499		
Pre-requisite for the course (if any)	None		
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	CLO 101.1: Understand evolution and basic concepts of management. CLO 101.2: Understand the behavioral dynamics in an organizational setting. CLO 101.3: Understand individual behaviour like personality, attitude, emotions, perception and learning and apply this knowledge in people management at workplace. CLO 101.4: Apply the understanding of group dynamics and its importance in organisational development.		
Credits	Theory	Tutorial	Total
	3	1	4
Teaching Hours per week	3	1	4
Internal Assessment Marks	30	0	30
End Term Exam Marks	70	0	70
Max. Marks	100	0	100
Examination Time	3 hours		

**Part B- Contents of the Course**

**Instructions for Paper- Setter:** The examiner will set 9 questions asking two questions from each unit and one compulsory question by taking course learning outcomes (CLOs) into consideration. The compulsory question (Question No. 1) will consist at least 4 parts covering entire syllabus. The examinee will be required to attempt 5 questions, selecting one question from each unit and the compulsory question. All questions will carry equal marks.

Unit	Topics	Contact Hours
I	Management: Meaning, Nature, Significance; Evolution of Management Thought; Managerial Processes, Principles, Functions, Roles of Manager; Contemporary Management Issues and Challenges. Guidelines for Managerial Excellence in Contemporary business environment.	15
II	Planning (Strategies, Decision Making and MBO), Organizing (Organizational Design and Structure), Staffing (HR Functions), Directing (Leadership, Motivation and Communication) and Controlling (Control Measures).	15
III	Organisational Behaviour: Concept, nature, conceptual foundations, History of Organisational Behaviour, disciplines that contribute to the	15

	field of OB, Contemporary challenges & opportunities for OB. Understanding and Managing Individual Behavior: Personality; Perception, Attitude, Emotions & Emotional Intelligence.	
IV	Understanding and Managing Group Processes- Interpersonal and Group Dynamics; Power & Politics at work, Organizational Culture; Learning Organizations and Organizational Learning. Organizational Change; Organizational Development.	15
Total Contact Hours		60
Suggested Evaluation Methods		
Internal Assessment: 30		End Term Examination: 70
➤ Theory	30	➤ Theory: 70
• Class Participation:	5	Written Examination
• Seminar/presentation/assignment/quiz/class test etc.:	10	
• Mid-Term Exam:	15	
Part C-Learning Resources		
Recommended Books/e-resources/LMS:		
1. Robbins, S.P., Coulter, M., Fernandez, A. (2019). <i>Management</i> . Pearson Education India, New Delhi.		
2. Weihrich, H., Cannice M.V., Koontz, H. (2019). <i>Management: A Global and Entrepreneurial Perspective</i> . McGraw Hill, New Delhi.		
3. Jones, G.R., & George J.M. (2021). <i>Contemporary Management</i> . McGraw Hill, New Delhi.		
4. Daft, R.L. (2016). <i>The New Era of Management</i> . Cengage India, Noida.		
5. Mullins, J.L. (2013). <i>Management and Organizational Behavior</i> . Pearson Education, New Delhi.		
6. Stoner, J.A.F., Freeman, R.E., & Gilbert, D.R. (2018). <i>Management</i> . Pearson Education, New Delhi.		
7. Koontz, H., & Weihrich, H. (2015). <i>Essentials of Management</i> . McGraw-Hill, New Delhi.		
8. Chandan, J.S. (1997). <i>Management Concepts and Strategies</i> . Vikas Publishing House, New Delhi.		



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**Managerial Economics (CC-2) with 4 Credits (3 Theory +1 Tutorial)**

Session: 2024-25			
Part A - Introduction			
Name of Programme	MBA (2 Years)		
Semester	First		
Name of the Course	Managerial Economics		
Course Code	M24-MBA-102		
Course Type	CC-2		
Level of the course	400-499		
Pre-requisite for the course (if any)	A business newspaper and case studies of the firms		
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	CLO 102.1: To make students understand the nature of managerial decision making, demand, types of demand and demand elasticity. CLO 102.2: To make students understand the concept of utility, consumer equilibrium and demand estimation and forecasting. CLO 102.3: To make them understand the production and Cost behavior of a firm. CLO 102.4: To help students analyze the firm's decision making in different situations arising from different market structures and competitive pressures, pricing decisions and assess the macro-economic variables impacting firm's decisions.		
Credits	Theory	Tutorial	Total
	3	1	4
Teaching Hours per week	3	1	4
Internal Assessment Marks	30	0	30
End Term Exam Marks	70	0	70
Max. Marks	100	0	100
Examination Time	3 hours		
Part B- Contents of the Course			
<b>Instructions for Paper- Setter:</b> The examiner will set 9 questions asking two questions from each unit and one compulsory question by taking course learning outcomes (CLOs) into consideration. The compulsory question (Question No. 1) will consist at least 4 parts covering entire syllabus. The examinee will be required to attempt 5 questions, selecting one question from each unit and the compulsory question. All questions will carry equal marks.			
Unit	Topics	Contact Hours	
I	Nature and Scope of Managerial Economics. Marginal and Incremental analysis. Understanding demand and demand function: Law of demand, Elasticity of demand and its significance in Managerial decision-making	15	
II	Consumer Equilibrium- Cardinal utility analysis; Law of diminishing marginal utility and equi-marginal utility. Indifference curve approach; Price, income and substitution effects; Essentials of demand estimation and forecasting.	15	
III	Theory of Production: Production function, Law of diminishing returns, increasing returns, variable proportions and their applicability.	15	

	Cost Analysis: Types of cost, short run and long run cost curves, economics and diseconomies of scale.	
IV	Market structures: Types of market structures and their features, Price and output determination under perfect competition, monopoly, monopolistic competition, and oligopoly. Pricing strategies and tactics. Inflation— types, measurement and control	15
<b>Total Contact Hours</b>		60
<b>Suggested Evaluation Methods</b>		
<b>Internal Assessment: 30</b>		<b>End Term Examination: 70</b>
➤ Theory	30	➤ Theory: 70
• Class Participation:	5	Written Examination
• Seminar/presentation/assignment/quiz/class test etc.:	10	
• Mid-Term Exam:	15	
<b>Part C-Learning Resources</b>		
<b>Recommended Books/e-resources/LMS:</b>		
1. Ahuja, H.L. (2011). <i>Managerial Economics</i> . S. Chand & Company Pvt. Ltd.		
2. Dwivedi, D.N. (2018). <i>Managerial Economics</i> . Vikas Publishing House, New Delhi.		
3. Mehta, P.L. (2016). <i>Managerial Economics</i> . Sultan Chand & Sons, New Delhi.		
4. Peterson, C.H., Lewis, W.C., & Jain, S.K. (2005). <i>Managerial Economics</i> . Pearson India, New Delhi.		
5. Salvatore, D. (2014). <i>Managerial Economics in Global Economy</i> . Oxford Higher Education, New Delhi.		

  
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**Statistics for Business Decisions (CC-3) with 4 Credits (3 Theory +1 Tutorial)**

Session: 2024-25			
Part A - Introduction			
Name of Programme	MBA (2 years)		
Semester	First		
Name of the Course	Statistics for Business Decisions		
Course Code	M24-MBA-103		
Course Type	CC-3		
Level of the course	400-499		
Pre-requisite for the course (if any)	None		
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	CLO 103.1: Understand the measures of central tendency and dispersion. CLO 103.2: Understand the significance of sampling in the statistical data collection and applications in business decision-making. CLO 103.3: Understand the application of correlation and regression analysis in business decision-making. CLO 103.4: Understand the application of statistical tests for decision-making.		
Credits	Theory	Tutorial	Total
	3	1	4
Teaching Hours per week	3	1	4
Internal Assessment Marks	30	0	30
End Term Exam Marks	70	0	70
Max. Marks	100	0	100
Examination Time	3 hours		
Part B- Contents of the Course			
<b>Instructions for Paper- Setter:</b> The examiner will set 9 questions asking two questions from each unit and one compulsory question by taking course learning outcomes (CLOs) into consideration. The compulsory question (Question No. 1) will consist at least 4 parts covering entire syllabus. The examinee will be required to attempt 5 questions, selecting one question from each unit and the compulsory question. All questions will carry equal marks.			
Unit	Topics	Contact Hours	
I	Statistics-Meaning, reasons for learning statistics, types of statistical methods; Sources of data - Primary data sources and secondary data sources; Classification, Tabulation and Presentation of Data. Measures of Central Tendency: Arithmetic Mean, Geometric Mean, Harmonic Mean, Median, Mode, Quartiles and Percentiles; Measures of Dispersion: Range, Mean Deviation, Standard Deviation and Variation.	15	
II	Fundamentals of Probability: Definition, concepts, rules, probability tree diagram and Bayes' Theorem. Sampling: Reasons of sample survey, population parameters and sample statistics and sampling methods.	15	
III	Correlation Analysis: Concepts, Scatter Diagram, Coefficient of Correlation -Karl Pearson's and Spearman's Rank Correlation; Regression Analysis - Assumptions for regression models, regression lines and regression coefficient; Business Forecasting: Methods of Forecasting, Time Series Analysis, and Components of Time Series.	15	

IV	Statistical Inference: Hypothesis testing using parametric and non-parametric tests, analysis of variance and chi-square test. Data analysis using the Microsoft Excel and the SPSS.	15
Total Contact Hours		60
Suggested Evaluation Methods		
Internal Assessment: 30		End Term Examination: 70
➤ Theory	30	➤ Theory: 70
•Class Participation:	5	Written Examination
•Seminar/presentation/assignment/quiz/class test etc.:	10	
•Mid-Term Exam:	15	
Part C-Learning Resources		
Recommended Books/e-resources/LMS:		
1. Elhance, D.N., Elhance, V., & Aggarwal, B.M. (2017). <i>Fundamentals of Statistics</i> . Kitab Mahal.		
2. Srivastava, T.N., & Rego, S. (2017). <i>Statistics for Management</i> . McGraw Hill.		
3. Gupta, S.C. (2018). <i>Fundamental of Statistics</i> . Himalaya Publishing House.		
4. Sharma, J. K. (2010). <i>Fundamentals Business Statistics</i> . Pearson Publication.		
5. Levine, R.I., Rubin, D.S., Siddiqui, M.S., & Rastogi, S. (2017). <i>Statistics for Management</i> . Pearson Publication.		
6. Gupta, S.P. (2021). <i>Statistical Methods</i> . Sultan Chand & Sons.		

  
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**Business Communication (CC-4) with 4 Credits (3 Theory +1 Tutorial)**

Session: 2024-25			
Part A – Introduction			
Name of Programme	MBA (2 Years)		
Semester	First		
Name of the Course	Business Communication		
Course Code	M24-MBA-104		
Course Type	CC-4		
Level of the course	400-499		
Pre-requisite for the course (if any)	None		
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	<p>CLO 104.1: Enhance their communication and presentation skills.</p> <p>CLO 104.2: Get insights into body language and mannerisms</p> <p>CLO 104.3: Improve their writing skills and Write effective professional documents</p> <p>CLO 104.4: Present and share your ideas with confidence in a professional setting.</p>		
Credits	Theory	Tutorial	Total
	3	1	4
Teaching Hours per week	3	1	4
Internal Assessment Marks	30	0	30
End Term Exam Marks	70	0	70
Max. Marks	100	0	100
Examination Time	3 hours		
Part B- Contents of the Course			
<b>Instructions for Paper-Setter:</b> The examiner will set 9 questions asking two questions from each unit and one compulsory question by considering course learning outcomes (CLOs). The compulsory question (Question No. 1) will have at least 4 parts covering the entire syllabus. The examinee will be required to attempt 5 questions, selecting one question from each unit and the compulsory question. All questions will carry equal marks.			
Unit	Topics	Contact Hours	
I	Business Communication: Understanding communication process, communication channels, communication barriers, The importance of effective communication at workplaces, and communication networks in organizations.	15	
II	Non-Verbal Communication - Personal Appearance; Gestures, Postures, Facial Expression Eye Contacts ,Tips for Improving Non-Verbal Communication	15	
III	Written Business Communication: Writing Reports, Proposals, Emails, press notes, Summaries, Presentation feedback, and Writing Resumes. Writing job application letters,	15	

  
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IV	Presentation skills, Difference between Group Discussion, Panel Discussion, and Debate, Group Discussion, Interview Skills,	15
Total Contact Hours		60
Suggested Evaluation Methods		
Internal Assessment: 30		End Term Examination: 70
➤ Theory	30	➤ Theory: 70
• Class Participation:	5	Written Examination
• Seminar/presentation/assignment/quiz/class test etc.:	10	
• Mid-Term Exam:	15	
Part C-Learning Resources		
Recommended Books/e-resources/LMS:		
1. G.S. Chauhan, & Sharma, S. (2015). <i>Soft Skills: An Integrated Approach to Maximize Personality</i> . Wiley India.		
2. Mitra, B.K. (2023). <i>Personality Development and Soft Skills</i> . Oxford Press.		
3. Kalia, S., & Agrawal, S. (2015). <i>Business Communication</i> . Wiley India.		
4. Rao, M.S. (2013). <i>Soft Skills- Enhancing Employability</i> . I. K. International.		
5. Sherfield, R.M., Montgomery, R.J., & Moody, P.G. (2008). <i>Cornerstone: Developing Soft Skills</i> . Pearson India.		

  
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**Business Eco-System and Environment (CC-5) with 4 Credits**  
**(3 Theory +1 Tutorial)**

Session: 2024-25			
Part A - Introduction			
Name of Programme	MBA (2 Years)		
Semester	First		
Name of the Course	Business Eco-System and Environment		
Course Code	M24-MBA-105		
Course Type	CC-5		
Level of the course	400-499		
Pre-requisite for the course (if any)	A Business Newspaper in Hand of All Tutees on Daily Basis		
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	CLO 105.1: To make students understand various environmental factors Influencing Business. CLO 105.2: To make students comprehend Business Ecosystem. CLO 105.3: To make Students understand current dynamics and future outlook of Indian business environment. CLO 105.4: To make students assess how domestic and global policies are shaping up environment for business.		
Credits	Theory	Tutorial	Total
	3	1	4
Teaching Hours per week	3	1	4
Internal Assessment Marks	30	0	30
End Term Exam Marks	70	0	70
Max. Marks	100	0	100
Examination Time	3 hours		
Part B- Contents of the Course			
<b>Instructions for Paper- Setter:</b> The examiner will set 9 questions asking two questions from each unit and one compulsory question by taking course learning outcomes (CLOs) into consideration. The compulsory question (Question No. 1) will consist at least 4 parts covering entire syllabus. The examinee will be required to attempt 5 questions; selecting one question from each unit and the compulsory question. All questions will carry equal marks.			
Unit	Topics	Contact Hours	
I	Business environment- Nature, Scope and Components. Global and Indian macro environmental forces influencing Indian business environment at this juncture. Entrepreneurship and start-up drive in India-Issues and challenges. Creation of Innovation culture for businesses in India. A brief overview of business regulations and facilitation in India	15	
II	Current business fundamentals in India- * Indian GDP- constituents and its growth rate at various.	15	

	stages with special emphasis on recent trends. * Indian trade-direction and balance of trade since independence with special emphasis on recent trends. * FDI inflows in India - prominent sectors and recent trends. * Inflation- trends and impact on Indian business in recent times. * Most dynamic Indian industries with a global showcasing.	
III	Indian policy framework and Indian businesses- * Industrialization phases since independence and a bird's eye-view of various industrial policies. Recent initiatives in industrialization like make in India and Atmanirbhar Bharat. * Policy framework for PSUs and small scale industries in India. Role of PSUs and small scale industries in India with recent policies towards them such as disinvestment. * Fiscal and monetary policies * Indian trade policy and institutional infrastructure for export promotion in India.	15
IV	Global scenario and Indian business- * Impact of recent global happenings such as wars, global economic scenario etc. on Indian business. * WTO provisions and their impact on Indian business. * Impact of other international organizations like IMF, IFC, Unido and world bank on Indian businesses. * Regional economic groupings like BRICS, SAARC, EU and their influence on Indian business.	15
<b>Total Contact Hours</b>		60


#### Suggested Evaluation Methods

Internal Assessment: 30		End Term Examination: 70	
➤ Theory	30	➤ Theory:	70
• Class Participation:	5	Written Examination	
• Seminar/presentation/assignment/quiz/class test etc.:	10		
• Mid-Term Exam:	15		

#### Part C-Learning Resources

##### Recommended Books/e-resources/LMS:

- \* Datt, G., & Nag, B. (2024). *Datt & Sundharam's Indian Economy*. S.Chand.
- \* Puri, V.K., Misra, S.K., & Garg, B. (2023). *Indian Economy*. Himalaya Publication.
- \* Economic Survey, The Government of India Publication.
- \* *The Indian Economic Journal*. Sage Publication.
- \* Economic Times, The Times Group.
- \* The Hindu Business Line, The Hindu Group.

  
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## Financial Statements and Analysis (DEC-1) with 4 Credits (3 Theory +1 Tutorial)

**Session: 2024-25**

### **Part A - Introduction**

Name of Programme	MBA (2 Years)		
Semester	First		
Name of the Course	Financial Statements and Analysis		
Course Code	M24-MBA-106		
Course Type	DEC-1		
Level of the course	400-499		
Pre-requisite for the course (if any)	None		
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	CLO 106.1: Develop an insight of postulates, principles and techniques of accounting. CLO 106.2: Understand the steps involved in preparation and analysis of financial statements. CLO 106.3: Understand the concept of Marginal costing and Responsibility Accounting. CLO 106.4: Know the preparation of Budgets and its applications.		
Credits	Theory	Tutorial	Total
	3	1	4
Teaching Hours per week	3	1	4
Internal Assessment Marks	30	0	30
End Term Exam Marks	70	0	70
Max. Marks	100	0	100
Examination Time	3 hours		

### **Part B- Contents of the Course**

**Instructions for Paper- Setter:** The examiner will set 9 questions asking two questions from each unit and one compulsory question by taking course learning outcomes (CLOs) into consideration. The compulsory question (Question No. 1) will consist at least 4 parts covering entire syllabus. The examinee will be required to attempt 5 questions, selecting one question from each unit and the compulsory question. All questions will carry equal marks.

Unit	Topics	Contact Hours
I	Accounting: meaning, branches, principles, concepts and conventions, accounting process; Accounting for Decision Making- A Managerial Perspective, Financial Accounting and Management Accounting, Accounting as an information system, Indian Accounting Standards	15
II	Financial statements: elements, preparation of financial statements; Financial Reporting: reporting practices, IFRS; Financial statement analysis: meaning, significance, and the analytical tools: Ratio analysis, Du Pont analysis, Cash flow analysis	15
III	Marginal costing: Cost Volume Profit and Break-even analysis, contribution margin, profit volume graph; Budgeting: conceptual framework, types of budget: Master budget, fixed and flexible budgets, Zero-base budgeting, and Performance budgeting	15

14

749

  
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IV	Responsibility accounting and segmental analysis; meaning, types; Transfer pricing: objectives, transfer pricing methods; Contemporary issues in accounting: HR accounting and the Life Cycle Costing	15
Total Contact Hours		60
Suggested Evaluation Methods		
Internal Assessment: 30		End Term Examination: 70
➤ Theory	30	➤ Theory: 70
• Class Participation:	5	Written Examination
• Seminar/presentation/assignment/quiz/class test etc.:	10	
• Mid-Term Exam:	15	
Part C-Learning Resources		
Recommended Books/e-resources/LMS:		
7. Anthony, R. N., Hawkins, D.F., & Merchant, K. A. (2006). <i>Accounting: Text and Cases</i> . McGraw Hill.		
8. Albrecht, W.S., Stice, J.D., Stice, E.K., & Swain, M.R. (2010). <i>Accounting: Concepts and applications</i> . Cengage Learning.		
9. Needles, B.E., & Powers, M. (2010). <i>Principles of Financial Accounting</i> . South Western Publication		
10. Garrison, R.H., & Noreen, E.W. (2007). <i>Managerial accounting</i> . McGraw Hill.		
11. Anthony, R.N., Hawkins, D.F., & Merchant, K.A. (2017). <i>Accounting: Text and Cases</i> . McGraw Hill.		
12. Khan, M.Y., & Jain, P.K. (2017). <i>Management Accounting: Text, Problems, and cases</i> . McGraw Hill.		



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**Template for Core Course (CC) with 4 Credits (3 Theory +1 Tutorial)**

<b>Session: 2024-25</b>	
<b>Part A - Introduction</b>	
Name of Programme	MBA (2 Years)
Semester	First
Name of the Course	Seminar
Course Code	M24-MBA-107
Course Type	Seminar
Level of the course	400-499
Pre-requisite for the course (if any)	None
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	<p>CLO 107.1: Understand the concepts, theories and issues of Business Management and develop the analytical skills to assess the environmental and industrial parameters.</p> <p>CLO 107.2: To enhance the communication and presentation skills of the students so that they can express their ideas confidently with others.</p>
Credits	<p align="center">Seminar</p> <p align="center">2</p>
Teaching Hours per week	2
Internal Assessment Marks	0
End Term Exam Marks	50
Max. Marks	50
Examination Time	1 hour
<b>Instructions for Examiner:</b> Evaluation of the Seminar will be done by the Internal Examiner (s) on the parameters as decided by Staff Council of the Department. There will be no external examination/viva-voce examination.	

  
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**Optimization Models for Business Decisions (CC-6) with 4 Credits (3 Theory +1 Tutorial)**

**Session: 2024-25**

**Part A - Introduction**

Name of Programme	MBA (2 Years)		
Semester	Second		
Name of the Course	Optimization Models for Business Decisions		
Course Code	M24-MBA-201		
Course Type	CC-6		
Level of the course	400-499		
Pre-requisite for the course (if any)	None		
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	CLO 201.1: Understand the formulation of industrial and business problem as linear programming problems and solutions. CLO 201.2: Understand the application of transportation, assignment and queuing models in business world. CLO 201.3: Understand the techniques of Project Management and Markov processes. CLO 201.4: Understand decision making under certainty, uncertainty and risk.		
Credits	Theory	Tutorial	Total
	3	1	4
Teaching Hours per week	3	1	4
Internal Assessment Marks	30	0	30
End Term Exam Marks	70	0	70
Max. Marks	100	0	100
Examination Time	3 hours		

**Part B- Contents of the Course**

**Instructions for Paper- Setter:** The examiner will set 9 questions asking two questions from each unit and one compulsory question by taking course learning outcomes (CLOs) into consideration. The compulsory question (Question No. 1) will consist at least 4 parts covering entire syllabus. The examinee will be required to attempt 5 questions, selecting one question from each unit and the compulsory question. All questions will carry equal marks.

Unit	Topics	Contact Hours
I	Operations Research: History, meaning, features, models, scope and applications in business organisations. Linear programming: Meaning, structure, scope and application areas. Linear programming: Formulation of industrial and business problem as linear programming problems and solution by graphical and simplex methods. Duality and sensitivity analysis in linear programming problems.	15
II	Transportation problem: Initial feasible solution by North-West Corner, Least Cost Method and Vogel's Approximation Method, and test for optimality by Modified-Distribution Method and Stepping-Stone Method. Solution of assignment problems by Hungarian method. Waiting line models: Introduction to theory of	15

752

	queues, standard terminologies, pure birth-and-death model, M/M/1 and M/M/c models.	
III	Project Management: Using a network to visually display a project, scheduling a project with PERT/CPM and considering time-cost trade-offs. Deterministic and probabilistic inventory control models. Markov processes: Introduction to stochastic process, terminologies, Markov process, transition probabilities, and simple business applications.	15
IV	Decision theory: Decision making under uncertainty and risk, posterior probabilities and Bayesian analysis, and decision trees. Theory of games: Games with pure strategies and mixed strategies. Rule of dominance and solution of games without saddle point. Simulation: Meaning, process, types, advantages, limitations and applications.	15
Total Contact Hours		60
Suggested Evaluation Methods		
Internal Assessment: 30		End Term Examination: 70
➤ Theory	30	➤ Theory: 70
• Class Participation:	5	Written Examination
• Seminar/presentation/assignment/quiz/class test etc.:	10	
• Mid-Term Exam:	15	
Part C-Learning Resources		
Recommended Books/e-resources/LMS:		
1. Anderson, D. R., Sweeney, D. J., Williams, T. A., Camm, J. D., & Martin, K. (2012). <i>An introduction to management science: Quantitative approaches to decision making</i> . Cengage Learning.		
2. Balakrishnan, N., Render, B., Stair, R. M., & Munson, C. (2017). <i>Managerial decision modeling: Business analytics with spreadsheets</i> . De Gruyter.		
3. Hillier, F. S., Lieberman, G. J., Nag, B., & Basu, P. (2017). <i>Introduction to operations research</i> . McGraw-Hill Education.		
4. Powell, S. G., & Baker, K. R. (2017). <i>Business analytics: The art of modeling with spreadsheets</i> . Wiley.		
5. Sharma, J. K. (2009). <i>Operations research: Theory and applications</i> . Macmillan Publishers India Ltd.		
6. Vohra, N. D. (2017). <i>Quantitative techniques in management</i> . Tata McGraw-Hill Education.		

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**Business Research Methodology (CC-7) with 4 Credits (3 Theory +1 Tutorial)**

**Session: 2024-25**

**Part A - Introduction**

Name of Programme	MBA (2 Years)		
Semester	Second		
Name of the Course	Business Research Methodology		
Course Code	M24-MBA-202		
Course Type	CC-7		
Level of the course	400-499		
Pre-requisite for the course (if any)	SPSS Software		
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	CLO 202.1: Appreciate the value of research as an empowering tool for business decision-making CLO 202.2: Formulate research problem and develop an understanding of various major research designs. CLO 202.3: Determine various data sources and to design data collection tools. CLO 202.4: Enable familiarity with advanced analysis techniques with practical application in software like SPSS.		
Credits	Theory	Tutorial	Total
	3	1	4
Teaching Hours per week	3	1	4
Internal Assessment Marks	30	0	30
End Term Exam Marks	70	0	70
Max. Marks	100	0	100
Examination Time	3 hours		

**Part B- Contents of the Course**

**Instructions for Paper- Setter:** The examiner will set 9 questions asking two questions from each unit and one compulsory question by taking course learning outcomes (CLOs) into consideration. The compulsory question (Question No. 1) will consist at least 4 parts covering entire syllabus. The examinee will be required to attempt 5 questions, selecting one question from each unit and the compulsory question. All questions will carry equal marks.

Unit	Topics	Contact Hours
I	Introduction to Research Methodology: Research- Meaning, Nature, and Types of research: Research Process. Research Applications in Business Decision, Formulation of the Research Problem and Development of the Research Hypothesis, Hypothesis testing Procedure.	15
II	Research Design- Meaning and Process of formulating a Research Design. Types of Research Design- Exploratory, Descriptive, Experimental, Diagnostic and Correlational research. Applications of these Research Design in business. Specifying data and Acquisition Methods.  Data types and data sources- Primary and Secondary data and their types. Comparison between various data. Actualization	15

	Method.		
III	Measurement and Sealing Fundamentals and types. Commonly used scales in business research. Reliability and validity of scales. Questionnaire designing using scaling. Sampling Design- Sampling techniques, Sample Size determinations, Sampling Errors and Control.		15
IV	Data Editing, Coding and Tabulation, SPSS: Meaning, Frequency Distribution and Cross-Tabulation using SPSS, Advance Techniques of Data Analysis through SPSS: Factor analysis, Cluster Analysis, Conjoint Analysis, Report Writing and Presentation of Results.		15
Total Contact Hours			60
Suggested Evaluation Methods			
Internal Assessment: 30		End Term Examination: 70	
➤ Theory	30	➤ Theory:	70
• Class Participation:	5	Written Examination	
• Seminar/presentation/assignment/quiz/class test etc.:	10		
• Mid-Term Exam:	15		
Part C-Learning Resources			
Recommended Books/e-resources/LMS:			
1. Malhotra, N. K., & Dash, S. (2019). <i>Marketing research: An applied orientation</i> . Pearson.			
2. Chawla, D., & Sondhi, N. (2015). <i>Research methodology: Concepts and cases</i> . Vikas Publishing House.			
3. Cooper, D., & Schindler, P. (2010). <i>Business research methods</i> . McGraw Hill Education.			
4. Kothari, C. R. (2023). <i>Research methodology: Methods and techniques</i> . New Age International Publishers.			



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## Marketing Management (CC-8)- with 4 Credits (3 Theory +1 Tutorial)

Session: 2024-25			
Part A - Introduction			
Name of Programme	MBA (2Years)		
Semester	Second		
Name of the Course	Marketing Management		
Course Code	M24-MBA-203		
Course Type	CC-8		
Level of the course	400-499		
Pre-requisite for the course (if any)	Case Studies and articles in business newspaper on daily basis		
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	<p>CLO 203.1: To make students understand the dynamics of a prominent functional area of marketing management, developments and new philosophy of marketing.</p> <p>CLO 203.2: To understand the significance of market research, insight of consumer behavior and to comprehend the issues and challenges involved in framing marketing strategies.</p> <p>CLO 203.3: To help the students derive how the companies get an edge over their competitors through its marketing practices related to product, brand and pricing decisions.</p> <p>CLO 203.4: To get insights on promotion, distribution and the emerging trends in the field of marketing</p>		
Credits	Theory	Tutorial	Total
	3	1	4
Teaching Hours per week	3	1	4
Internal Assessment Marks	30	0	30
End Term Exam Marks	70	0	70
Max. Marks	100	0	100
Examination Time	3 hours		
Part B- Contents of the Course			
<b>Instructions for Paper- Setter:</b> The examiner will set 9 questions asking two questions from each unit and one compulsory question by taking course learning outcomes (CLOs) into consideration. The compulsory question (Question No. 1) will consist at least 4 parts covering entire syllabus. The examinee will be required to attempt 5 questions, selecting one question from each unit and the compulsory question. All questions will carry equal marks.			
Unit	Topics	Contact Hours	
I	Marketing: Evolution and Importance. Modern concept of marketing. Holistic Marketing, Ethics in marketing. Role of Information Technology in marketing, Marketing Environment	15	

II	Marketing Mix and STP (Segmentation, Targeting and Positioning), Marketing Research: meaning, scope and techniques.  Consumer Behaviour: meaning and importance, buying motives, buying process, factors influencing consumer behaviour.	15
III	Product and Brand decisions: concept, classification, product-line decisions, new product development process, product life cycle, brand names , packaging and labelling.  Pricing Concepts: objectives, policies and procedures, factors affecting pricing, pricing strategy and product life cycle, price changes and organizational strategies, product line pricing	15
IV	Integrated Marketing Communication: Promotion-Mix; Advertising, sales promotion, public relations, personal selling and direct marketing.  Channels of distributions: Concept, types and factors affecting channelselection. Recent developments in marketing.	15
Total Contact Hours		60
Suggested Evaluation Methods		
Internal Assessment: 30		End Term Examination: 70
➤ Theory	30	➤ Theory: 70
• Class Participation:	5	Written Examination
• Seminar/presentation/assignment/quiz/class test etc.:	10	
• Mid-Term Exam:	15	
Part C-Learning Resources		
Recommended Books/e-resources/LMS:		
1. Kotler, P., & Keller, K. L. (2016). <i>Marketing management</i> . Pearson Education.		
2. Ramaswamy, V. S., & Namakumari, S. (2018). <i>Marketing management</i> . Sage Publications.		
3. Walker, B. J., Etzel, M. J., & Stanton, W. J. (2004). <i>Marketing: Concepts and cases</i> , Tata McGraw-Hill Education.		
4. Saxena, R. (2019). <i>Marketing management</i> . McGraw Hill Education India.		

  
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# Corporate Finance (CC-9) with 4 Credits (3 Theory +1 Tutorial)

Session: 2024-25

## Part A - Introduction

Name of Programme	MBA (2 Years)		
Semester	Second		
Name of the Course	Corporate Finance		
Course Code	M24-MBA-204		
Course Type	CC-9		
Level of the course	400-499		
Pre-requisite for the course (if any)	None		
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	CLO 204.1: Familiarize with the principles and techniques of corporate finance. CLO 204.2: Develop and sharpen analytical abilities for financial decision making using cost of capital and capital structure concepts. CLO 204.3: Extrapolate how companies make financial decisions by applying financial modelling techniques. CLO 204.4: Understand management of working capital and estimate the same for an organization.		
Credits	Theory	Tutorial	Total
	3	1	4
Teaching Hours per week	3	1	4
Internal Assessment Marks	30	0	30
End Term Exam Marks	70	0	70
Max. Marks	100	0	100
Examination Time	3 hours		

## Part B- Contents of the Course

**Instructions for Paper- Setter:** The examiner will set 9 questions asking two questions from each unit and one compulsory question by taking course learning outcomes (CLOs) into consideration. The compulsory question (Question No. 1) will consist at least 4 parts covering entire syllabus. The examinee will be required to attempt 5 questions, selecting one question from each unit and the compulsory question. All questions will carry equal marks.

Unit	Topics	Contact Hours
I	Nature, Scope and objectives of Corporate Finance, Time value of money, Investment decisions: Importance, Difficulties in determining cash flows, Methods of capital budgeting and Risk analysis.	15
II	Cost of capital; Concept and importance, Computations of cost of various sources of finance; Weighted Average Cost of Capital. Capital Structure decisions; Theories of capital structure, Factors determining capital structure.	15
III	Internal Financing and Dividend Policy, Sources of Finance: Short term and Long term.	15

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	Financial Modelling: Essentials and financial modelling framework.	
IV	Management of working capital – Cash management, models of cash management, Receivables Management and Inventory Management. Financing of working capital.	15
<b>Total Contact Hours</b>		60
<b>Suggested Evaluation Methods</b>		
<b>Internal Assessment: 30</b>		<b>End Term Examination: 70</b>
➤ Theory	30	➤ Theory: 70
• Class Participation:	5	Written Examination
• Seminar/presentation/assignment/quiz/class test etc.:	10	
• Mid-Term Exam:	15	
<b>Part C-Learning Resources</b>		
<b>Recommended Books/e-resources/LMS:</b>		
1. Pandey, IM. : <i>Financial Management</i> , Vikas Publication House, 2000.		
2. Khan, M.Y. and Jam, P.K.: <i>Financial Management</i> , McGraw Hill, 2001.		
3. Chandra, <i>Financial Management</i> 9th edn. McGraw Hill Education.		
4. Hamton, John; <i>Financial Decision-Making</i> , Englewood Cliffs, New Jersey, Prentice Hall Inc., 1997.		
5. Winger, Bemard and Mohan, Nancy: <i>Principles of Financial Management</i> , New York, Macmillan Publishing Company, 1991.		

  
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## Human Resource Management (CC-10) with 4 Credits (3 Theory +1 Tutorial)

**Session: 2024-25**

### **Part A - Introduction**

Name of Programme	MBA (2 Years)		
Semester	Second		
Name of the Course	Human Resource Management		
Course Code	M24-MBA-205		
Course Type	CC-10		
Level of the course	400-499		
Pre-requisite for the course (if any)	None		
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	<p>CLO 205.1: Understand the evolution, fundamental concepts and functions of HRM in a dynamic business environment.</p> <p>CLO 205.2: Understand the interlinkages among the pivotal functions concerning procurement of human resources viz. human resource policy, human resource planning, recruitment, selection, induction and socialisation.</p> <p>CLO 205.3: Get the knowledge of different aspects concerning work motivation, training and development, performance management and compensation management in an organization.</p> <p>CLO 205.4: Gain knowledge of emerging HR issues concerning employee engagement, unions and their role in management of industrial relations and grievance management.</p>		
Credits	Theory	Tutorial	Total
	3	1	4
Teaching Hours per week	3	1	4
Internal Assessment Marks	30	0	30
End Term Exam Marks	70	0	70
Max. Marks	100	0	100
Examination Time	CLO3 hours		

### **Part B- Contents of the Course**

**Instructions for Paper- Setter:** The examiner will set 9 questions asking two questions from each unit and one compulsory question by taking course learning outcomes (CLOs) into consideration. The compulsory question (Question No. 1) will consist at least 4 parts covering entire syllabus. The examinee will be required to attempt 5 questions, selecting one question from each unit and the compulsory question. All questions will carry equal marks.

Unit	Topics	Contact Hours
I	Human Resource Management- Concept, Scope and Functions of HRM; Evolution of HRM: HR Philosophy, HR Models HR Policies; HR Challenges in a changing business environment. Human Resource Planning and Forecasting, HRIS	15

  
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760

II	Job Design & Job Analysis; Recruitment, Selection and Retention of human resources; Placement, Induction and Socialization; Learning, Training and Development.	15
III	Appraising and Managing Performance. Potential Appraisal; Career Planning and Development; Succession Planning; Job Evaluation; Compensation Management, Rewards and Recognition Programs; Employee Separations Practices.	15
IV	Industrial Relations and Trade Unions; Industrial Dispute & Its Settlement, Grievance Management; Occupational Safety and Health and HR Ethics. Recent Trends in HRM: Employee Engagement; Social Media & HR; HR Analytics; Talent Management; Digital Transformations in HR; Artificial Intelligence & Machine Learning in HR.	15
<b>Total Contact Hours</b>		60

#### Suggested Evaluation Methods

Internal Assessment: 30		End Term Examination: 70	
➤ Theory	30	➤ Theory:	70
• Class Participation:	5	Written Examination	
• Seminar/presentation/assignment/quiz/class test etc.:	10		
• Mid-Term Exam:	15		

#### Part C-Learning Resources

##### Recommended Books/e-resources/LMS:

- Dessler, G., & Varakkey, B. (2023). *Human Resource Management*. Pearson Education.
- Aswathapa, K., & Dash, S. (2023). *Human Resource Management: Text and Cases*. McGraw Hill.
- Sanghi, S. (2017). *Human Resource Management*. Vikas Publishing House.
- Armstrong, M., & Taylor, S. (2023). *Handbook of HRM Practice*. Kogan Page.
- Lepak, D., & Gowan, M. (2009). *Human Resource Management*. Pearson Education.
- Rao, V.S.P. (2019). *Human Resource Management*. Cengage Learning.
- Khanka, S.S. (2003). *Human Resource Management: Text and Cases*. S. Chand Publishing.
- Gowan, M., & Lepak, D. (2019). *Human Resource Management: Managing Employees for Competitive Advantage*. McGraw-Hill.
- Snell, S., & Morris, S. (2020). *Managing Human Resources*. Cengage Learning.
- Noe, R.A., Hollenbeck, J.R., Gerhart, B., & Wright, P.M. (2020). *Human Resource Management: Gaining a Competitive Advantage*. McGraw-Hill.

  
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# **Production and Operations Management (DEC-2) with 4 Credits (3 Theory +1 Tutorial)**

Session: 2024-25

## **Part A - Introduction**

Name of Programme	MBA (2 Years)		
Semester	Second		
Name of the Course	Production and Operations Management		
Course Code	M24-MBA-206		
Course Type	DEC-2		
Level of the course	400-499		
Pre-requisite for the course (if any)	None		
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	CLO 206.1: Understand the production systems, facility location and facility location. CLO 206.2: Understand capacity planning, product planning and process planning etc. CLO 206.3: Understand the maintenance management and work study. CLO 206.4: Understand the inventory control techniques.		
Credits	Theory	Tutorial	Total
	3	1	4
Teaching Hours per week	3	1	4
Internal Assessment Marks	30	0	30
End Term Exam Marks	70	0	70
Max. Marks	100	0	100
Examination Time	3 hours		

## **Part B- Contents of the Course**

**Instructions for Paper- Setter:** The examiner will set 9 questions asking two questions from each unit and one compulsory question by taking course learning outcomes (CLOs) into consideration. The compulsory question (Question No. 1) will consist at least 4 parts covering entire syllabus. The examinee will be required to attempt 5 questions, selecting one question from each unit and the compulsory question. All questions will carry equal marks.

Unit	Topics	Contact Hours
I	Nature and Scope of Production and Operations Management; Types of production systems: Product, Job, Batch & Mass production systems; Facility Location- Importance, Factors in Location Analysis, Location Analysis Techniques. Facility Layout - Objectives, Advantages, Basic Types of Layouts.	15
II	Material Handling: Principles and Equipments; Line Balancing; Production Planning & Control (PPC) - Concepts, Objectives, Functions; Capacity Planning. Product Planning and Selection; Process Planning; Aggregate Planning and Master Production Scheduling.	15
III	Maintenance Management; Work Study: Method Study and Work Measurement. Material Management: An Overview of Material Management.	15
IV	Inventory Management - objectives, factors, process and inventory control techniques. Just-in Time (JIT); Purchase Management; Stores Management; Quality Assurance: Acceptance Sampling, Statistical Quality Control, Total Quality Management; ISO-9000.	15
<b>Total Contact Hours</b>		<b>60</b>

Suggested Evaluation Methods			
Internal Assessment: 30		End Term Examination: 70	
➤ Theory	30	➤ Theory:	70
• Class Participation:	5	Written Examination	
• Seminar/presentation/assignment/quiz/class test etc.:	10		
• Mid-Term Exam:	15		
Part C-Learning Resources			
Recommended Books/e-resources/LMS:			
1. Chary, S.N: <i>Production and Operations Management</i> , New Delhi, Tata McGraw Hill, 2 <sup>nd</sup> Edition.			
2. Ashwathapa: <i>Production and Operations Management</i> , Himalaya Publishing House.			
3. R. Panneerselvam: <i>Production and Operations Management</i> , 3 <sup>rd</sup> Edition, PHI			
4. Chunawalla & Patel : <i>Production and Operations Management</i> , Himalaya Publishing			
5. Nair: <i>Production and Operations Management</i> , TMH			

  
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# CHM

Session: 2024-25			
PartA - Introduction			
Name of the Programme	Common to all PG Programmes		
Semester	2 <sup>nd</sup>		
Name of the Course	Constitutional, Human and Moral Values, and IPR		
Course Code	M24-CHM-201		
CourseType	CHM		
Level of the course	400-499		
Pre-requisite for the course (if any)	-		
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	<p>CLO-1: Learn the different Constitutional Values, Fundamental rights and duties enshrined in the India Constitution.</p> <p>CLO-2: Understand humanism, human virtues and values, and idea of International peace.</p> <p>CLO-3: Grasp the basic concepts of Moral Values and Professional Conduct which are required to become a part of the civil society and for developing professionalism.</p> <p>CLO-4: Understand concepts of Intellectual Property Rights, Copyright, Patent, Trademark etc., and about threats of Plagiarism.</p>		
Credits	Theory	Practical	Total
	2	0	2
Teaching Hours per week	2	0	2
Internal Assessment Marks	15	0	15
End Term Exam Marks	35	0	35
Max. Marks	50	0	50
Examination Time	3 hours		
Part B-Contents of the Course			
<b>Instructions for Paper- Setter:</b> The examiner will set 9 questions asking two questions from each unit and one compulsory question by taking course learning outcomes (CLOs) into consideration. The compulsory question (Question No. 1) will consist at least 4 parts covering entire syllabus. The examinee will be required to attempt 5 questions, selecting one question from each unit and the compulsory question. All questions will carry equal marks.			
Unit	Topics		Contact Hours
I	Constitutional Values:		8



	Historical Perspective of Indian Constitution; Basic Values enshrined in the Preamble of the Indian Constitution; Concept of Constitutional Morality; Patriotic Values and Ingredients Nation Building; Fundamental Rights and Duties ; Directive Principles of the State Policy.	
II	<b>Humanistic Values:</b> Humanism, Human Virtues and Civic Sense; Social Responsibilities of Human Beings; Ethical ways to deal with human aspirations; Harmony with society and nature; Idea of International Peace and Brotherhood (Vasudhaiv Kutumbkam).	7
III	<b>Moral Values and Professional Conduct</b> Understanding Morality and Moral Values; Moral Education and Character Building; Ethics of Relations: Personal, Social and Professional; Introduction to Gender Sensitization; Affirmative approach towards Weaker Sections (SCs, STs, OBCs, EWS& DAs); Ethical Conduct in Higher Education Institutions; Professional Ethics.	8
IV	<b>Intellectual Property Rights:</b> Meaning, Origins and Nature of Intellectual Property Rights (IPRs);Different Kinds of IPRs – Copyright, Patent, Trademark, Trade Secret/Dress, Design, Traditional Knowledge; Infringement and Offences of IPRs – Remedies and Penalties; Basics of Plagiarism policy of UGC.	7
<b>Note: Scope of the syllabus shall be restricted to generic and introductory level of mentioned topics.</b>		
<b>Total Contact Hours</b>		30
<b>Suggested Evaluation Methods</b>		
<b>Internal Assessment: 15</b>		<b>End Term Examination: 35</b>
➤ <b>Theory</b>	<b>15</b>	➤ <b>Theory</b> <b>35</b>
• Class Participation:	4	Written Examination
• Seminar/presentation/assignment/quiz/class test etc.:	4	
• Mid-Term Exam:	7	
<b>Part C-Learning Resources</b>		
<b>Recommended Books/e-resources/LMS:</b>		
Ahuja, V K. (2017). <i>Law relating to Intellectual Property Rights</i> , India, IN: Lexis Nexis.		
Bajpai, B. L., <i>Indian Ethos and Modern Management</i> , New Royal Book Co., Lucknow, 2004.		
Basu, D.D., <i>Introduction to the Constitution of India</i> (Students Edition) Prentice Hall of India Pvt. Ltd., New Delhi, 20th ed., 2008.		
Dhar, P.L. & R.R. Gaur, <i>Science and Humanism</i> , Commonwealth Publishers, New Delhi, 1990.		
George, Sussan, <i>How the Other Half Dies</i> , Penguin Press, 1976.		
Govindarajan, M., S. Natarajan, V.S. Sendilkumar (eds.), <i>Engineering Ethics (Including Human Values)</i> , Prentice Hall of India Private Ltd, New Delhi, 2004.		
Harries, Charles E., Michael S. Pritchard & Michael J. Robins, <i>Engineering Ethics</i> , Thompson Asia, New Delhi, 2003.		

- Illich, Ivan, *Energy & Equity*, Trinity Press, Worcester, 1974.
- Meadows, Donella H., Dennis L. Meadows, Jorgen Randers & William W. Behrens, *Limits to Growth: Club of Rome's Report*, Universe Books, 1972.
- Myneni, S.R, Law of Intellectual Property, Asian Law House.
- Narayanan, P, *IPRs*.
- Neeraj, P., & Khusdeep, D. (2014). *Intellectual Property Rights*, India, IN: PHI learning Private Limited.
- Nithyananda, K V. (2019). *Intellectual Property Rights: Protection and Management*. India, IN: Cengage Learning India Private Limited.
- Palekar, Subhas, *How to practice Natural Farming*, Pracheen (Vaidik) Krishi Tantra Shodh, Amravati, 2000.
- Phaneesh, K.R., *Constitution of India and Professional Ethics*, New Delhi.
- Pylee, M.V., *An Introduction to Constitution of India*, Vikas Publishing, New Delhi, 2002.
- Raman, B.S., *Constitution of India*, New Delhi, 2002.
- Reddy, B., *Intellectual Property Rights and the Law*, Gogia Law Agency.
- Reddy, N.H., Santosh Ajmera, *Ethics, Integrity and Aptitude*, McGraw Hill, New Delhi.
- Sharma, Brij Kishore, *Introduction to the Constitution of India*, New Delhi,
- Schumacher, E.F., *Small is Beautiful: A Study of Economics as if People Mattered*, Blond & Briggs, Britain, 1973.
- Singles, Shubham et. al., *Constitution of India and Professional Ethics*, Cengage Learning India Pvt. Ltd., Latest Edition, New Delhi, 2018.
- Tripathy, A.N., *Human Values*, New Age International Publishers, New Delhi, 2003.
- Wadehra, B.L., *Law relating to Intellectual Property*, Universal Law Publishing Co.
- Relevant Websites, Movies and Documentaries:**
- Value Education Websites, <http://uhv.ac.in>, <http://www.uptu.ac.in>.
- Story of Stuff, <http://www.storyofstuff.com>
- Cell for IPR Promotion and Management: <http://cipam.gov.in/>.
- World Intellectual Property Organization: <http://www.wipo.int/about-ip/en/>
- Office of the Controller General of Patents, Designs & Trademarks: <http://www.ipindia.nic.in/>
- Al Gore, *An Inconvenient Truth*, Paramount Classics, USA.
- Charlie Chaplin, *Modern Times*, United Artists, USA.
- Modern Technology – The Untold Story*, IIT, Delhi.
- A. Gandhi, *Right Here Right Now*, Cyclewala Productions.

  
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