

**SCHEME OF EXAMINATION
&
SYLLABUS
of
UG Programme (Interdisciplinary)
B.Sc. (Printing & Packaging Technology)
Scheme: D**

As per National Education Policy 2020

(Multiple Entry-Exit, Internships and Choice Based Credit System)

w.e.f. Academic Session: 2024-2025



**INSTITUTE OF MASS COMMUNICATION &
MEDIA TECHNOLOGY**

Kurukshetra University, Kurukshetra

(A++ Grade NAAC Accredited)

under

**Faculty of Commerce and Management,
Kurukshetra University, Kurukshetra**

Session: 2024-25			
Part A - Introduction			
Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	5th		
Name of the Course	Binding and Finishing Technology		
Course Code	B23-PPT-501		
Course Type	CC-A5		
Level of the course	300-399		
Pre-requisite for the course (if any)			
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	CLO1: Enhance knowledge about binding and finishing operations in post press section. CLO2: Learn about the machine used in binding. CLO3: Knowledge increase about the decoration techniques of binding. CLO4: Know about the different types of binding tools and equipments. CLO5: Demonstrate different binding techniques.		
Credits	Theory	Practical	Total
	3	1	4
Teaching Hours per week	3	2	5
Internal Assessment Marks	20	10	30
End Term Exam Marks	50	20	70
Max. Marks	70	30	100
Examination Time	3 hours	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 the terms 'Binding ' and 'Finishing'. List of major operations performed in binding and finishing Pre-forwarding, Forwarding, Finishing. Tools and equipment's used for binding, binder's aids and or marks. Material used in Binding and Finishing .Paper, Study of different types applications of board used in binding and finishing work. Securing materials. Covering materials- Study of properties and applications of different types of adhesives.		11
II	Structure Of A Book: Physical Parts Of a Hard Bound Book. Operations Of Ideal full Cloth Binding Production-Pre- Forwarding Operations, Forwarding Operations, Finishing Operations. Advantages & Limitations Of Hand Folding. Machine Folding - Knife Principles, Buckle Principle, Combination Of Knife & Buckle. Folding & Machine Direction. Gathering - Single Sheet Gathering, Collating - Collating Marks.		11

	Insetting , Inserting.	
III	Securing Methods: Wire Stitching - Saddle Stitching, Side Stitching, Stabbing. Thread Sewing - Letterpress Binding, & Stationery Binding. Saddle Sewing,. Adhesive Binding/Perfect Binding. Mechanical Binding. End Papers: Purposes, Kinds of end Papers, Quality of Paper Required for Pasting End Papers. Pressing, Gluing The Spine, Smashing the Spine, trimming the Book Edges, Rounding- Rounding M/C. Backing - Backing M/C. Lining - Method Of Attaching Head & Tail Bands. Covering - Covering Styles. Pasting Down, Pressing, Inspection.	11
IV	Cover Decoration & Other Processes. Print Finishing Operations - Embossing & Debossing, Blind Embossing, Gold Blocking /Foil Stamping. Die Printing. Thermography, Velvet Printing, Marbling, Varnishing, Graining, Laminating, Gumming, Gluing, Punching, Perforating, Drilling. Label Punching, Appliqué. Edge Decoration - Requirement, Colouring. The Edges, Marbling Edges, Edge Guilding. Round Corner Cutting. Laminating, Blocking, Numbering, Perforation, Creasing, Die cutting, Edge decoration, Index cutting, Foil stamping, graining, varnishing. Binding & Finishing Machines.	12
V	Practicals ○ Preparation of Quarter, Half and Full bound books using, French sewing method / Tape sewing method / Cord sewing method / Saddle sewing method / Side sewing meth ○ Preparation of following type of Mechanical binding - Spiral wire binding, Wire 'O' binding, Ring binding. ○ Preparation of these types of End papers - Single End paper, Double or Inserted End paper, Made end paper, Cloth joint end paper, Zig Zag end paper, Cloth joint Zig Zag end paper. ○ Preparation of telephone directory with Indexes and Tabs. ○ Study of various controls, operations and mechanisms of the following machines: Folding machine, Guillotine machine, Cutter and Creaser, Varnishing machine, Laminating machine, Sewing & Stitching machine, miscellaneous machine. ○ Print finishing operation to be conducted - Gold blocking, Embossing, Edge decoration, ○ Thermography, Marbling, Velvet printing, Rubber printing, Die printing, Pouch lamination.	30
Total Contact Hours		75
Suggested Evaluation Methods		
Internal Assessment: 30		End Term Examination: 70
➤ Theory	20	➤ Theory: 50
• Class Participation:	5	Written Examination
• Seminar/presentation/assignment/quiz/class test etc.:	5	
• Mid-Term Exam:	10	
➤ Practicum	10	➤ Practicum 20

• Class Participation:	5	Lab record, Viva-Voce, write-up and execution of the practical
• Seminar/Demonstration/Viva-voce/Lab records etc.:	5	
• Mid-Term Exam:	-	
Part C-Learning Resources		
Recommended Books/e-resources/LMS: ○ Binding And Finishing - Ralph Lyman Binding And Finishing Part-1 - B.D.Mendiratta ○ Introduction to Printing & Finishing - Hugh Speirs ○ Finishing Process in Printing - A.G.Martin		

Session: 2024-25			
Part A - Introduction			
Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	5th		
Name of the Course	Book and Newspaper Publishing		
Course Code	B23-PPT-502		
Course Type	CC-B5		
Level of the course	300-399		
Pre-requisite for the course (if any)			
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	CLO1: Enhance knowledge about the process of book publishing and newspaper publishing CLO2: Technical aspects of production from receipt of manuscript to completion of book. CLO3: Develop and exhibit the skills of editorial department in newspaper publishing. CLO4: Learned about work flow and organizational structure in a newspaper printing press. CLO5 : Learn about source of news and publishing of newspaper etc.		
Credits	Theory	Practical	Total
	3	1	4
Teaching Hours per week	3	2	5
Internal Assessment Marks	20	10	30
End Term Exam Marks	50	20	70
Max. Marks	70	30	100
Examination Time	3 hours	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	Book Publishing -Introduction, Parts of a book, Basic steps in book publishing, Areas of publishing - general publishing, educational publishing, professional publishing and reference publishing, Editorial organization, the role of commissioning editor, the desk editor, Relationship of the Editor with the manuscript, Types of agreement between author and the publishers.		11
II	Technical and Management concept-Technical aspects of production from receipt of manuscript to completion of book, Work flow and organizational structure in a commercial printing press., Management- The production manager, The marketing manager, Financial Manager, Advertisement departments, International book trade and barriers. Subsidy and its processes in book publishing.		11
III	Introduction to Newspaper organization - Sources of news, printing of		11

	newspaper, Editorial organization - the role of copy editors, city editors, news editors, editorial cartoonist, Sunday editors, sports editor, business editor, journalist & reporters, Information to a printer by editor.		
IV	Distribution and Design layout-Distribution channels, Types of distribution channels, Work flow and organizational structure in a newspaper printing press. The various type of layout, Functions of headlines, kickers, and blurbs, Graphics/diagrams and illustrations and their importance.	12	
V	Practicals ○ Study of various parts of a book. ○ Introduction to type of Web Presses as per the configuration & end products. ○ Study of various Book printing machines, units & their setting. ○ Study of various pre-make ready operations. ○ Preparation of a multi-colour book cover page ○ Study of various make-ready operations for Newspaper printing press. ○ Printing single & multicolour jobs in Newspaper organization	30	
Total Contact Hours		75	
Suggested Evaluation Methods			
Internal Assessment: 30		End Term Examination: 70	
➤ Theory	20	➤ Theory:	50
•Class Participation:	5	Written Examination	
•Seminar/presentation/assignment/quiz/class test etc.:	5		
•Mid-Term Exam:	10		
➤ Practicum	10	➤ Practicum	20
•Class Participation:	5	Lab record, Viva-Voce, write-up and execution of the practical	
•Seminar/Demonstration/Viva-voce/Lab records etc.:	5		
•Mid-Term Exam:	-		
Part C-Learning Resources			
○ Recommended Books/e-resources/LMS: ○ News Reporting and writing - Melvin Mecher ○ The Journalist; Handbook – M. V. Kamath Editing; ○ A Handbook for Journalists - TJS George Editing; ○ A Handbook for Journalists - TJS George, ○ Indian Institute of Mass communication, Delhi. Telling Stories			

Session: 2024-25			
Part A - Introduction			
Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	5th		
Name of the Course	Quality Control		
Course Code	B23-PPT-503		
Course Type	CC-C5		
Level of the course	300-399		
Pre-requisite for the course (if any)			
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	CLO1: Enhance knowledge about Quality control procedures. CLO2: Know about Various instruments and equipments used to control the quality of production. CLO3: Develop the knowledge about the ISO certification CLO4: Know about role of management in quality control. CLO5 : Perform different kinds of tests to check the quality of paper.		
Credits	Theory	Practical	Total
	3	1	4
Teaching Hours per week	3	2	5
Internal Assessment Marks	20	10	30
End Term Exam Marks	50	20	70
Max. Marks	70	30	100
Examination Time	3 hours	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: Definition of Quality, Quality control, its meaning and purpose setting up a Quality Control Programme, and establishing necessary System and procedures, economic consideration.		11
II	Management Consideration: Quality Control as an attitude and management tool, management's responsibility, organization and personnel functions, getting everybody involved. Total Quality Control. Quality Control procedures and methods. Different shapes of quality control.		11
III	Materials Control: Establishing clear specifications and standardization of materials to be purchased - particularly paper, ink, plates, blankets and rollers, Inspection and testing of incoming materials as part of quality		11

	control; importance of proper handling and maintaining records of performance of materials Sampling and sampling plans. Establishing Quality control programme in different departments of Printing organization.	
IV	Quality Control Instrumentation: Paper and paper board testing instruments for testing printability, print quality and end-user requirements, Ink testing instruments for testing optical and working properties and end-user requirements Process control instruments, devices and aids used in the galley and dark-room, striping department, plate room and press room for specific processes and for general purposes Press sheet control devices used for production of multicolour printing jobs Basic principles of these instruments and devices how they function and what they measure, minimum instrumentation necessary to produce a product consistent with the appropriate quality level. Introduction to ISO: 9000 and ISO: 14000 series.	12
V	Practicals ○ Paper testing checking grain direction. ○ Tensile strength of paper, burst strength of paper. ○ Substance, calliper, porosity test, cobb sizing value test. ○ Tearing testing of paper, brightness test of paper. ○ Operating test, gloss test, lighting color filter sensor. ○ G.S.M. testing, folding endurance. ○ Moisture contents test, ash contents test. ○ Pick strength, humidity control test, room temp testing. ○ Ink film thickness test. ○ Measurement of visocity, tack measurement. ○ Measurement of ink film thickness	30
Total Contact Hours		75
Suggested Evaluation Methods		
Internal Assessment: 30		End Term Examination: 70
➤ Theory	20	➤ Theory: 50
•Class Participation:	5	Written Examination
•Seminar/presentation/assignment/quiz/class test etc.:	5	
•Mid-Term Exam:	10	
➤ Practicum	10	➤ Practicum 20
•Class Participation:	5	Lab record, Viva-Voce, write-up and execution of the practical
•Seminar/Demonstration/Viva-voce/Lab records etc.:	5	
•Mid-Term Exam:	-	
Part C-Learning Resources		
○ Recommended Books/e-resources/LMS: ○ W.H. Banks, Inks, Plates and Print Quality, Pergamon Press ○ Quality Control for quality printing, Graphic Arts, Technical Foundations. ○ Science of Printing Technology. ○ Inspection of quality control by Sandeep Bajaj, Ishans Publication		

Semester-VI

Session: 2024-25			
Part A - Introduction			
Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	6th		
Name of the Course	Digital Printing		
Course Code	B23-PPT-601		
Course Type	CC-A6		
Level of the course	300-399		
Pre-requisite for the course (if any)			
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	CLO1: Enhance knowledge about various digital printing techniques. CLO2: Know about electro photography, ionography & magneto graphy process CLO3: Develop the knowledge about networking and its uses in digital printing. CLO4: Know about the basic knowledge of ink jet & nanographic printing. CLO5 : Use various digital printing techniques for page layout		
Credits	Theory	Practical	Total
	3	1	4
Teaching Hours per week	3	2	5
Internal Assessment Marks	20	10	30
End Term Exam Marks	50	20	70
Max. Marks	70	30	100
Examination Time	3 hours	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	Principles and Basic Components -Variable Data Printing; Print on Demand; Evolution – Computer to Press, Computer to Print;, Non-Impact Printing Technologies - Overview, Process characteristics, economics, job suitability; Computer to Print systems – Digital Front Engine, Components, Architecture, Inline Print Finishing; ISO Standards for Digital Printing .		11
II	Electrophotography, Ionography & Magnetography - Principle of Electro photography, Imaging Systems, Inking Unit (Developing Unit) and Toner Fixing and Cleaning, Conception of the Printing Unit, Ionography, Printing Unit, Imaging System and the Principle of Ionography, Printing Unit Concepts and Printing Systems based on Ionography; Principle of Magnetography, Imaging System for Magnetography, Examples of Applications/Printing Systems		11

III	Ink Jet & Nanographic Printing - Overview of Ink Jet Technologies and Processes, Continuous Ink Jet, Drop on Demand Ink Jet Technologies, Structure of Ink Jet Arrays, Printing Systems based on Ink Jet Technology for Multicolour Printing (Selection); Nanographic printing – Principle, Inks, Press configuration; Thermography and Electrography ,Overview of Thermography, Technologies, Thermal Transfer Printing Systems, Thermal Sublimation Printing Systems, Electrography, Photography, “X”-Graphy, Toner Jet Printing Technology, Elcography, Direct Imaging Printing Technology, Assessment of New Types of NIP Technologies.	11
IV	Networking: Networks for printing. Networks for publishing. Networks for Inhouse. WAN (Wide Area Net works). APPLICATIONS -Hybrid Printing Systems – Configuration, Integration, Applications; Printed Electronics, Photography, Coding, Display and Signages, Textiles, Security Printing – Inks, Substrates, Digital Press configurations, Major manufacturers;	12
V	Practicals ○ Colour Reproduction ○ File format TIFF,EPS,JPEG converting ○ Study of various output printing equipments ○ Page layout ○ Page formation ○ Digital work flow ○ Work flow for on demand printing	30
Total Contact Hours		75
Suggested Evaluation Methods		
Internal Assessment: 30		End Term Examination: 70
➤ Theory	20	➤ Theory: 50
•Class Participation:	5	Written Examination
•Seminar/presentation/assignment/quiz/class test etc.:	5	
•Mid-Term Exam:	10	
➤ Practicum	10	➤ Practicum 20
•Class Participation:	5	Lab record, Viva-Voce, write-up and execution of the practical
•Seminar/Demonstration/Viva-voce/Lab records etc.:	5	
•Mid-Term Exam:	-	
Part C-Learning Resources		
○ Recommended Books/e-resources/LMS: ○ On Demand Printing - Howard M. Fenten, Frank J. Romano ○ TEXT BOOKS: 1. Harald Johnson, Mastering Digital Printing, Cengage Learning PTR; 2 edition, 2004 Mitchell Rosen, Noboru Ohta, Colour Desktop Printer Technology, CRC Press, 2006 REFERENCE: 1. Helmut Kipphan, Handbook of Print Media, Springer Verlag, 2001		

Session: 2024-25			
Part A - Introduction			
Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	6th		
Name of the Course	Security Printing		
Course Code	B23-PPT-602		
Course Type	CC-B6		
Level of the course	300-399		
Pre-requisite for the course (if any)			
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	CLO1: Enhance knowledge about development of Security printing process from earlier time to modern world. CLO2: Technical understanding of different components of security printing. CLO3: Understand about the role of security products produce through security printing. CLO4: Know about the basic knowledge about the currency printing CLO5: Implement various security printing techniques on security products.		
Credits	Theory	Practical	Total
	3	1	4
Teaching Hours per week	3	2	5
Internal Assessment Marks	20	10	30
End Term Exam Marks	50	20	70
Max. Marks	70	30	100
Examination Time	3 hours	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: Security Printing its definition and requirement, currency printing, Introduction to Security Printing, Optical document security, importance of security printing of bank note papers and boards, passports and government documents., rainbow printing, numbering, , stamp embossing, hot-foil-embossing, embossing / punching, fibers, hologram, solvent colour, multi colour UV-fluorescence stitching thread, holographic foil or lamination of a page, Digital Watermark.		11
II	Inks and Brand Security Inks: Invisible inks, Specialist security printers inks; such as thermo chromic, UV fluorescing, water fugitive, solvent sensitive inks, combifuge, photo chromic, Fluorescent Inks, Watermarks, Testing, Deterrent measures Brand Security: First line inspection of documents using optical		11

	elements such as Holograms, optical variable graphics, diffraction structures, liquid crystal materials, optical security in laminates etc., invisible document security and Brand protection.	
III	Security Products: Credit Cards, Smart cards, club cards, credit / debit cards, Plastic ID cards, Water mark cards, RFID technology, Bar codes, Printers used for bar codes, Cheques and their value documents, MICR/OCR/Cheque printing technology Counterfeit, fraud prevention, Cheque fraud prevention, method and arrangement for processing negotiable instruments.	11
IV	Applications: Security design and processes for various print products: Barcodes, Holograms, cheque printing- MICR cheques and Reserve Bank of India (RBI) specifications, finishing, paper specifications- Manufacturing process of – Bank Notes – Business forms – Certificates Passports – Packaging - Card printing. Different types of machines used for producing various security products. Recent trends and developments in security printing.	12
V	Practicals ○ Hologram Design and print ○ Plastic ID cards, ○ Water mark Technology ○ RFID technology. ○ Bar codes ○ MICR cheques printing ○ Sample of Security inks ○ Security Features of Currency Printing	30
Total Contact Hours		75
Suggested Evaluation Methods		
Internal Assessment: 30		End Term Examination: 70
➤ Theory	20	➤ Theory: 50
• Class Participation:	5	Written Examination
• Seminar/presentation/assignment/quiz/class test etc.:	5	
• Mid-Term Exam:	10	
➤ Practicum	10	➤ Practicum 20
• Class Participation:	5	Lab record, Viva-Voce, write-up and execution of the practical
• Seminar/Demonstration/Viva-voce/Lab records etc.:	5	
• Mid-Term Exam:	-	
Part C-Learning Resources		
○ Recommended Books/e-resources/LMS: ○ Richard D. Warner, Richard M. Adams, “Introduction to Security Printing”, PIA/GATF Press, 2005. ○ A.S. Bhaskar Raj, Barcode Technology and Implementation, McGraw Hill, 2007. ○ Developments in Security Labels and Tags, Rudie Lion, Pria International Ltd. ○ Martin Monestics, The Art of Paper Currency, Quarlet Books Ltd.,1983. ○ Stochastic Screening - Kelvin Tritton.		

Session: 2024-25			
Part A - Introduction			
Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	6 th		
Name of the Course	Costing and Estimating		
Course Code	B23-PPT-603		
Course Type	CC-C6		
Level of the course	300-399		
Pre-requisite for the course (if any)			
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	CLO1: The students learned about costing and estimating with various techniques and procedures. CLO2: Know about the role of management in costing and estimation. CLO3: Know about the management team responsibilities and management decisions. CLO4: Know about the HRM concepts and policy.		
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	Costing: Introduction to costing. Definition of cost price and profit. Job costing, its need and procedures. Elements of cost and their method of recovery. Federation costing system. Fix cost and variable cost. Forms and Performa- Cost sheet. Daily Docket. Progress slip, paper Issue daily return. Invoice Work Instruction Ticket and their importance in costing.		15
II	Estimating: Purpose and functions of estimating from printer point of view & customers point of view. Difference between costing & estimating. Qualifications of an estimator, working environment, estimators tools, estimating paper - selection of paper, allowance for waste, allowance for trimming, weight of loose sheets, weight of a reel of paper. Estimating Ink - Ink consumption formula, Ink allowance for spoilage. Estimating binding materials - Board requirement, estimating covering materials, estimating sewing thread, estimating stitching wire, estimating adhesives. Terms and conditions-approved by AIFMD. Estimate Form and Computer Aided Estimating.		15

III	Printing Company Organization: Printing management, principles, functions, Organizational criteria, Skills requirements, Types of business, Printing company management structures, Management team responsibilities, Business plan, Management styles, Management decisions, Communications, Print marketing and sales - marketing, sales.	15
IV	Human Resource Management Concepts: HRM for printing, employment policy, evaluation of skills requirements for printing occupations, recruitment, job evaluation, staff appraisal, motivation training, human resources factors that limit productivity, staff flexibility. Manning and training requirements, States of industry, Analysis and development of human resources strategy. Management personal skills and development, job satisfaction through involvement.	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:		
○ Principles of Accounting - B. S. Raman ○ Fundamentals of Financial Management - Prasanna Chandra. ○ Cost Accounting - B. R. Bhar ○ Print Management - Derek Porter ○ Printer’s Costing & Estimating - B. D. Mendiratta ○ Management Aspect of Printing Industry - T. A. Saifuddin. ○ Estimating Methods and Cost Analysis for Printers - K. S. Venkataraman, K. S. Balaraman. ○ Printing Estimating Principle & Practice - Philip Kent Ruggles ○ Print Production Management - Gray G. Field ○ Principles of Applied Costing for Printing Industry - K. S. Venkatarama		

Session: 2024-25			
Part A - Introduction			
Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	6 th		
Name of the Course	Artificial Intelligence and Cyber Security		
Course Code	B23-PPT-604		
Course Type	CC-M6		
Level of the course	300-399		
Pre-requisite for the course (if any)			
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	CLO 1: To help learners to understand the world of AI and its applications CLO 2 :To understand the basics of intelligent agents and learning types CLO 3 : To under the concept of Information Security. CLO 4 : To about network security and various security techniques. CLO 5: To learn about various application of AI in Printing & Packaging Industry.		
Credits	Theory	Practical	Total
	3	1	4
Teaching Hours per week	3	2	5
Internal Assessment Marks	20	10	30
End Term Exam Marks	50	20	70
Max. Marks	70	30	100
Examination Time	3 hours	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 Artificial Intelligence Definition of Artificial Intelligence (AI) Brief history and evolution of AI Strong AI vs Weak AI Turing Test and Intelligence Agents . Components of AI Applications of AI in various fields.		11
II	Introduction to Machine learning Classification of Machine Learning Application of Machine Learning, Deep Learning Knowledge representation techniques Neural Networks: ANN,RNN and CNN		11
III	Introduction to NLP Text preprocessing techniques		11

	Introduction to expert system Introduction to Robotics: Applications of AI in robotics Types of Robots- Industrial robots, Autonomous vehicles, Drones etc.	
IV	AI applications in Printing & Packaging AI in design AI in Image Processing AI in Printing machines and Package Development AI in Quality Control Future of AI.	12
V	Practicals: ○ Generate Article on particular topic by using AI tool ○ Generate image via AI Prompt ○ Remove Background with Help of AI ○ Image Enhancement by using AI tools ○ Use AI to Prompt to Convert Image to Poster ○ AI in Printing machine controls ○ AI in Package designing	30
Total Contact Hours		75
Suggested Evaluation Methods		
Internal Assessment: 30		End Term Examination: 70
➤ Theory	20	➤ Theory: 50
• Class Participation:	5	Written Examination
• Seminar/presentation/assignment/quiz/class test etc.:	5	
• Mid-Term Exam:	10	
➤ Practicum	10	➤ Practicum 20
• Class Participation:	5	Lab record, Viva-Voce, write-up and execution of the practical
• Seminar/Demonstration/Viva-voce/Lab records etc.:	5	
• Mid-Term Exam:	-	
Part C-Learning Resources		
Recommended Books/e-resources/LMS: ○ “Artificial Intelligence: A Modern Approach” by Stuart Russell and Peter Norvig ○ “Deep Learning” by Ian Goodfellow, Yoshua Bengio, and Aaron Courville ○ “Natural Language Processing with Python” by Steven Bird, Ewan Klein, and Edward Loper ○ “AI Superpowers: China, Silicon Valley, and the New World Order” by Kai-Fu Lee ○ “Ethics of Artificial Intelligence and Robotics” edited by Vincent C. Müller and Nick Bostrom New Media : A critical Introduction, Martin Lister, Jon Dovey, Seth Giddings,Ian Grant, Kieran Kelly, Routledge, Tayolor & Francis Group, 2007 ○ Mapping New Media in India, Sunita Naryanan, Sage Publication, 2017		