

**SCHEME OF EXAMINATION
&
SYLLABUS
of
UG Programme (Interdisciplinary)**

**B.Sc. Printing & Packaging Technology (Honours)
&
(Honours with Research)
Scheme: D**

As per National Education Policy 2020

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

w.e.f. Academic Session: 2025-2026(in phased manner)



**INSTITUTE OF MASS COMMUNICATION & MEDIA TECHNOLOGY
Kurukshetra University, Kurukshetra
(A+ Grade NAAC Accredited)
under
Faculty of Commerce and Management,
Kurukshetra University, Kurukshetra**

Scheme of Examination of UG Programme (Interdisciplinary) B.Sc. Printing & Packaging Technology (Honours) FOURTH YEAR Scheme:D in accordance with NEP 2020 (Multiple Entry-Exit, Internships and Choice Based Credit System) w.e.f. Academic Session 2025-26 (in phased manner)

Semester-VII

Course Code	Course Title	Course Type	Contact Hours per Week				Credits				Marks				Duration of Exam	
			L	T	P	Total	L	T	P	Total	T	IA (T)	P	IA (P)		Total
B23-PPT-701	Development in Printing Technology	CC-H1	3	1	-	4	3	1	-	4	70	30	-	-	100	3 Hours
B23-PPT-702	Packaging Law and Regulations	CC-H2	3	1	-	4	3	1	-	4	70	30	-	-	100	3 Hours
B23-PPT-703	Printing and Packaging Waste Management	CC-H3	3	1	-	4	3	1	-	4	70	30	-	-	100	3 Hours
B23-PPT-704 or B23-PPT-705	Computer Graphics or Computer Networking	DSE-H1	3	-	2	5	3	-	1	4	50	20	20	10	100	3 Hours
B23-PPT-706	Printing Machine Maintenance Lab	PC-H1	-	-	8	8	-	-	4	4	-	-	70	30	100	3 Hours
B23-PPT-707	Creativity and innovations in Printing & Packaging	CC-HM1	3	1	-	4	3	1	-	4	70	30	-	-	100	3 Hours
Total Credits :24											Total Marks			600		

Semester-VIII

Course Code	Course Title	Course Type	Contact Hours per Week				Credits				Marks				Duration of Exam	
			L	T	P	Total	L	T	P	Total	T	IA (T)	P	IA (P)		Total
B23-PPT-801	Advancement in Packaging Technology	CC-H4	3	1	-	4	3	1	-	4	70	30	-	-	100	3 Hours
B23-PPT-802	Research Methodology	CC-H5	3	1	-	4	3	1	-	4	70	30	-	-	100	3 Hours
B23-PPT-803	Print Color Technology	CC-H6	3	1	-	4	3	1	-	4	70	30	-	-	100	3 Hours
B23-PPT-804 or B23-PPT-805	Entrepreneurship or Print Management	DSE-H2	3	1	-	4	3	1	-	4	70	30	-	-	100	3 Hours
B23-PPT-806	Image Carrier Preparation Lab	PC-H2	-	-	8	8	-	-	4	4	-	-	70	30	100	3 Hours
B23-PPT-807	Plant Layout	CC-HM2	3	1	-	4	3	1	-	4	70	30	-	-	100	3 Hours
Total Credits :24											Total Marks			600		

Scheme of Examination of UG Programme (Interdisciplinary) B.Sc. Printing & Packaging Technology (Honours with Research) FOURTH YEAR Scheme:D in accordance with NEP 2020 (Multiple Entry-Exit, Internships and Choice Based Credit System) w.e.f. Academic Session 2025-26 (in phased manner)

Semester-VII

Course Code	Course Title	Course Type	Contact Hours per Week				Credits				Marks				Duration of Exam	
			L	T	P	Total	L	T	P	Total	T	IA (T)	P	IA (P)		Total
B23-PPT-701	Development in Printing Technology	CC-H1	3	1	-	4	3	1	-	4	70	30	-	-	100	3 Hours
B23-PPT-702	Packaging Law and Regulations	CC-H2	3	1	-	4	3	1	-	4	70	30	-	-	100	3 Hours
B23-PPT-703	Printing and Packaging Waste Management	CC-H3	3	1	-	4	3	1	-	4	70	30	-	-	100	3 Hours
B23-PPT-704 or B23-PPT-705	Computer Graphics or Computer Networking	DSE-H1	3	-	2	5	3	-	1	4	50	20	20	10	100	3 Hours
B23-PPT-706	Printing Machine Maintenance Lab	PC-H1	-	-	8	8	-	-	4	4	-	-	70	30	100	3 Hours
B23-PPT-707	Creativity and innovations in Printing & Packaging	CC-HM1	3	1	-	4	3	1	-	4	70	30	-	-	100	3 Hours
Total Credits :24											Total Marks			600		

Semester-VIII

Course Code	Course Title	Course Type	Contact Hours per Week				Credits				Marks				Duration of Exam	
			L	T	P	Total	L	T	P	Total	T	IA (T)	P	IA (P)		Total
B23-PPT-801	Advancement in Packaging Technology	CC-H4	3	1	-	4	3	1	-	4	70	30	-	-	100	3 Hours
B23-PPT-802	Research Methodology	CC-H5	3	1	-	4	3	1	-	4	70	30	-	-	100	3 Hours
B23-PPT-807	Plant Layout	CC-HM2	3	1	-	4	3	1	-	4	70	30	-	-	100	3 Hours
B23-PPT-808	Project / Dissertation	Evaluation Report=8 Credits Viva-Voce Examination=4 Credits									Evaluation Report= 200 Marks Viva-Voce Examination=100 Marks				300	
Total Credits :24											Total Marks			600		

Session: 2025-26			
Part A - Introduction			
Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	7th		
Name of the Course	Development in Printing Technology		
Course Code	B23-PPT-701		
Course Type	CC-H1		
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: Enhance knowledge about production operations in press section.</p> <p>CLO2: Learn about the machine used for preparation of image carrier.</p> <p>CLO3: Knowledge increase about the advance techniques in production.</p> <p>CLO4: Know about the various new procurements techniques used in press section.</p>		
	Theory	Tutorial	Total
Credits	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 Printing, Recent Trends in Printing industries, Scenarios for the Future of printing industries, scope of printing technology, Impact of Globalization on printing Industry, Environmental considerations in the printing industry, Organizational structure in a printing press.		15
II	Pre-Press Techniques- Image setter Technology-Type, Working, Principal, Advantages, Limitation & applications, CTP Machines Type, Working, Principal, Advantages, Limitation & applications. Scanner Types, Techniques, Advantages, Limitation & applications.		15

III	Production room requirements - production planning, Trouble shooting in printing presses, printing defects associated with paper and paperboard, printing defects associated with ink, , Press environment logistics- Handling systems, waste disposal, cleaning systems.	15
IV	Production operations and procurements , Computer aided printing presses, understanding press functions and how they are controlled, Driography printing process and Hybrid printing systems, Ware house, and types of ware house, Store-keeping, stock room conditions. Operational care and maintenance, Proofing Techniques and devices.	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:		
<ul style="list-style-type: none"> ○ Adams, Faux, Rieber, Printing Technology, Delmar Publications, 5th edition, 2002 ○ Anjan Kumar Baral, Sheet-fed Offset Technology, Arihant Publication, January 1, 2010 ○ C.S. Misra, Letter Press Printing, Allahabad Anupam, 1st Edition, 1992 ○ Raymond N. Blair, Lithographers Manual, Printing Industries Pr; 9th edition (1 January 1994) ○ C. S. Mishra, Sheet-fed Offset, Anupam prakashan, 1992 		

Session: 2025-26**Part A - Introduction**

Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	7 th		
Name of the Course	Packaging Law and Regulations		
Course Code	B23-PPT-702		
Course Type	CC-H2		
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: Enhance knowledge about Indian packaging laws and regulations.</p> <p>CLO2: Learn about declaration on packaged commodities</p> <p>CLO3: Knowledge increase about International Law and violation of Law.</p> <p>CLO4: Know about the various packaging storage requirements under law.</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

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	Indian Regulatory System Introduction. The Standard of weights and Measures Act(SWMA),Standard Units Laws ,Regulations and Ministry involved, Essential Commodities Act, Agriculture Produce(Grading and Marketing)Act, Prevention of Food Adulteration act, Export(Quality Control and Inspection)Act, Bureau of Indian Standards.	15
II	DECLARATIONS ON PACKAGED COMMODITIES Declarations for Interstate Trade and Commerce, Standard Packages ,Maximum Permissible Error, Label Declarations, Standard Quality specifications for various products, Symbol and Unit used	15
III	International Law and Violation of Law-	15

	Uniform weight and Measure Law, Uniform Packaging and Labelling Regulation(UPLR),Uniform Unit Pricing regulation(UPR),Details of violations, offences, Penalties under various sections, EU-REACH regulations in Packaging.	
IV	PACKAGING STORAGE REQUIREMENTS Various storage requirement of product ,Specification of raw material, Specification with respect to packaging and packaging material, Packaging Requirement and PFA, Declaration and labelling, Fruit product order(FPO),Meat food product order(MFPO),Agriculture Grading and Marking Rules(AGMARK),Edible of Packaging(Regulatory)order	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:		
<ul style="list-style-type: none"> ○ The Prevention of Food Adulteration Act, 1954 and the Prevention of Food Adulteration Rules, 1955 ○ The Prevention of Food Adulteration Act: A Review by Akhileshwar Pathak, Associate Professor,Indian Institute of Management, Ahmedabad ○ Food Quality by Akhileshwar Pathak, Associate Professor, Indian Institute of Management, Ahmedabad ○ Modern Food Packaging, IIP Publication, Packaging Laws & Regulations by G. C. P. Range Rao,CFTRI, Mysore ○ Packaging India, Jun-Jul 2000, Laws and Regulations for Consumer Products Marketing – ○ Labelling, Coding, Marketing by K. C. Gupta, Standards Executive, Parle Products Ltd. 		

Session: 2025-26

Part A - Introduction

Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	7 th		
Name of the Course	Printing and Packaging Waste Management		
Course Code	B23-PPT-703		
Course Type	CC-H3		
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: The students learned about waste management in Printing and Packaging industries.</p> <p>CLO2: Know about the types of wastages</p> <p>CLO3: Know about the environmental impacts of printing and packaging operations.</p> <p>CLO4: Know about the waste management plans.</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

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: Environment, ecology, biotic and abiotic components and sustainable development concept, operations used in printing and packaging industry, environmental impacts of printing and packaging operations. Classification of Waste.	15
II	Printing/Packaging waste: types of waste in printing: paper and substrate waste, ink waste, solvent waste, hazardous waste, E-waste, VOC emissions; packaging waste: plastic, paper and cardboard, glass, metal, wood, foam etc. effluent treatment and waste minimization. 5R concepts related with printing and packaging, managing waste of various categories as per government rules/regulations.	15

III	Eco- friendly/Recycling aspects: in pre-press, press and post press, carbon footprints, study degradable and non-degradable printing and packaging materials, Recycling waste, Recycling techniques/methods- paper/paperboard, plastics, metals, glass. Environmental Policies of India, Packaging code of practice.	15
IV	Waste Management: ISO14000 series, Deming Cycle , Waste management plan, Waste audit, Health and safety, Energy conservation mechanism with printing and packaging, case studies of various printing organization for waste management exclusively for printing, Sustainable development policies. Concern about Hazardous Waste Management, Characteristics of Hazardous Waste, E- waste management.	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:		
<ul style="list-style-type: none"> ○ Waste management practices by John Pichtel ○ Plastic free by Beth Terry 		

Session: 2025-26			
Part A - Introduction			
Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	7th		
Name of the Course	Computer Graphics		
Course Code	B23-PPT-704		
Course Type	DSE-H1		
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:	CLO1: To understand the concept of Computer Graphics CLO2: To impart knowledge about Display devices CLO3: Know about the Digital Image Processing CLO4: To understand the concept of user interface. CLO5: To impart knowledge about Graphic Software.		
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		
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	UNIT-1 Basic Concept: Introduction, The origin of computer graphics, Working of interactive - graphics display, New display devices, General purpose graphics software, The user-interface, Display of solid objects, Line drawing displays - Display devices and controllers, Display devices.		11
II	The CRT- Electron guns, Deflection system, Phosphors, Beam penetration CRT, Shadow mask CRT. Inherent-memory, devices - Direct view storage tube, Plasma panel, Laser-scan display, The storage-tube display, The refresh line - drawing display. Two dimensional transformations, Transformation principles, CAD, Animation, Simulation. Techniques for achieving realism.		11
III	Basics of Digital image processing: Introduction, objectives, Digital image representation, basic steps of image processing, elements of image		11

	processing system - image acquisition, storage, processing, communication, display. Visual perception - structure of human eye, image formation in the eye, brightness adaptation and discrimination.	
IV	Introduction to computer graphics Software: CorelDraw, different features and tools. Introduction to illustrator, Photoshop In Design, PageMaker, features and tools. Formatting and editing in the software.	12
V	Practicals: 1. Introduction to computer graphics, scope and limitations. 2. CorelDraw, different facilities available, working in CorelDraw environment. 3. Introduction to illustrator-simple lines, stylish lines, drawing and filling of images, gradation tools, blenders pattern with a difference, filling rectangular and non-rectangular shapes of pallets and colour, system matrices, justifying text and application of path finder's. 4. Introduction to Photoshop-how you can differentiate it from illustrator, different types of the formats, their compatibility to different software, introduction of tool box, uses of different filters, masking and working on images, creating a presentation using software. 5. PageMaker up, formatting and editing in the software.	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:		
<ul style="list-style-type: none"> ○ Computer graphics principles & practice 2nd edition - Van Dam, Foley, Fiener Hughes. ○ Principle of Interactive Computer Graphics 2nd edition - William N. Newman, Robert S.Sproull. ○ Computer graphics - Hearn & Backer. ○ Procedural elements for computer graphics - David F. Rogers.Digital imaging techniques (Block I) ○ Digital Imaging techniques (Block II) ○ Digital image processing and computing- Schalkoff ○ 		

Session: 2025-26			
Part A - Introduction			
Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	7th		
Name of the Course	Computer Networking		
Course Code	B23-PPT-705		
Course Type	DSE-H1		
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:	CLO1: To understand the concept of Computer network CLO2: To impart knowledge about networking and inter networking devices CLO3: Know about the network transmission devices. CLO4: Analyze different network models CLO5: To impart knowledge about Data Communication and Switching 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			
<p>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.</p>			
Unit	Topics		Contact Hours
I	Introduction to data communications and networking , use of Computer Networks, classification of networks, Network Hardware - Software - Networks: Internet, ATM, Ethernet and Wireless LANs - Physical Layer - Theoretical Basis for Data Communication - Structure, Local Loop, Multiplexing and Switching. OSI model, function of the layers, TCP/IP Protocol suite.		11
II	Network Topologies: Bus, star, ring, mesh, and tree, hybrid topologies with their features, advantages and disadvantages of each type. Transmission Modes: simplex, half duplex and full duplex. Transmission Media: Guided Media (Wired) (Twisted pair, Coaxial Cable, Fiber		11

	Optics. Unguided Media (Radio Waves, Infrared, Micro-wave, and Satellite).	
III	Data Communication and Switching Techniques: Framing, flow control, error control, Switching, message switching, packet switching, routing. Elementary Data Link Protocols - Sliding Window Protocols - Data Link Layer in the Internet – Medium Access Layer - Channel Allocation Problem - Multiple Access Protocols - Bluetooth.	11
IV	Switching Devices: Repeaters, hubs, switches, bridges, routers, gateways. - IP Protocol – IP Addresses - Internet Control Protocols. Internet: Internet Service Providers (ISP), internet addressing system: IP address classification and notation, application layer protocols: (DNS, URL, WWW, FTP, SMTP, HTTP, TELNET), web pages, introduction to HTML	12
V	<p style="text-align: center;">Practicals</p> <ul style="list-style-type: none"> ○ Study of different types of Network cable ○ Study of network devices in detail. ○ Study of Network IP ○ Connect the computers in Local Area Network. ○ Study of Basic Network Commands. ○ Configure a Network topology. 	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:		
<ul style="list-style-type: none"> ○ Stallings, “Data and Computer Communications”, Pearson Education 2012, ○ 2. B. A. Forouzan, “Data Communications and Networking”, Tata McGraw Hill 2007, 4th Edition. ○ 3. F. Halsall, “Data Communications, Computer Networks and Open Systems”, Pearson Education 2008. ○ 4. D. Bertsekas and R. Gallager, “Data Networks”, PHI 2008, 2nd Edition. 		

Session: 2025-26			
Part A - Introduction			
Name of the Programme	B.Sc. Printing & Packaging Technology		
Semester	7th		
Name of the Course	Printing Machine Maintenance Lab		
Course Code	B23-PPT-706		
Course Type	PC-H1		
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: To understand the concept of Maintenance in Printing Machines</p> <p>CLO2: To impart knowledge about working of motors used in printing machines</p> <p>CLO3: To Know about the Maintenance of bushes & bearing & changing.</p> <p>CLO4: To enhance the knowledge about Lubrication system</p> <p>CLO5: To impart knowledge Hydraulic and pneumatic control system</p>		
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	3 hours		
Part B-Contents of the Course			
Practical			Contact Hours
<p>LIST OF EXPERIMENTS</p> <ol style="list-style-type: none"> 1) Study of AC& DC motors. 2) Belt mounting on wheel of driving systems. 3) Chain mounting on spikes of driving systems. 4) Gripper setting . 5) Proper checking of various parts of machines. 6) Oil seals changing. 7) Maintenance of bushes & bearing & changing. 8) Working of pump & Compressor. 9) Study of lubrication flow. 10) Study of types of lubricating systems 			120

11) List of Equipment needed for erection 12) Lubrication Process to friction paper. 13) Study of Hydraulic Control System. 14) Study of Pneumatic control systems. 15) Application of computers in maintenance. 16) Wet sump and dry sump systems. 17) Removal and fixing of bushes and seals 18) Roller copperising and rerubberising. 19) Identification common faults in a printing machine. 20) Introduction to Microcontroller.		
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. Electrical Engg. By B.L. Thareja Part I & II 2. A text book of Mechatronics by R K Rajput, S.Chand Publisher New Delhi 3. A course in workshop technology" Vol-II by B.S. Raghuwanshi, DhanpatRai& Co 4. Internal Combustion Engines by V. Ganesan, Mcgraw- Hill Education		

Session: 2025-26**Part A - Introduction**

Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	7 th		
Name of the Course	Creativity and innovations in Printing and Packaging		
Course Code	B23-PPT-707		
Course Type	CC-HM1		
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: Understand the Importance of Creativity & Innovation.</p> <p>CLO2: To Know about the Role of thinking and visualization in printing and packaging</p> <p>CLO3: For applying creativity approach in problem solving</p> <p>CLO4: To Produce creative ideas using Brainstorming</p> <p>CLO5: To Explain the various methods of innovation in the Printing and packaging industry</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

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 Need for Creative and innovative thinking for quality, components of Creativity, Methodologies and approaches, individual and group creativity, organizational role in creativity, types of innovation, barriers to innovation, innovation process, establishing criterion for assessment of creativity & innovation.	15
II	THINKING AND VISUALIZATION Definitions and theory of functioning of mind heuristics and models: attitudes, Approaches and Actions that support creative thinking - Advanced study of visual elements and principles- line, plane, shape, form, pattern, texture gradation, colour	15

	psychology & symmetry. Techniques to enhance visualization – provocation, cross fertilize, mastermind, OPV, Brain gym.	
III	<p>CREATIVITY Methods and tools for Directed Creativity – Basic Principles – Tools that prepare the mind for creative thought – stimulation – creativity techniques in Package design– Inspiration, Clarification, Distillation, Perspiration, Evaluation and Incubation – Creativity and Motivation.</p> <p>CREATIVE PROBLEM SOLVING Generating and acquiring new ideas, product design, service design – case studies and hands- on exercises, stimulation tools and approaches, six thinking hats, lateral thinking – Individual activity, group activity, Brainstorming, Brain writing, Design thinking in Printing and Packaging</p>	15
IV	<p>INNOVATION Achieving Creativity – Introduction- the essential factors – Innovator’s solution – creating and sustaining successful growth – Disruptive Innovation models – Patents, IPR methods laws and regulations</p>	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		
<p>Recommended Books/e-resources/LMS:</p> <ul style="list-style-type: none"> ○ Think!: Before It's Too Late by Edward de Bono, Random House books, 2017 ○ Mastering the Dynamics of Innovation by James M. Utterback, Harvard Business School Paper back 2017 ○ The Creative Mind: Myths and Mechanisms by Margaret A. Boden, Routledge Publishers London, 2018 ○ Creative Cognition: Theory, Research, and Applications by Ronald A. Finke, Thomas B. Ward, and Steven M. Smith, MIT Press Paperback edition, 2018 ○ The Accidental Creative: How to Be Brilliant at a Moment's Notice By, Todd Henry, Penguin Publishers, 2017 		

Session: 2025-26			
Part A - Introduction			
Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	8th		
Name of the Course	Advancement in Packaging Technology		
Course Code	B23-PPT-801		
Course Type	CC-H4		
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:	CLO1: Enhance knowledge about Advancement in Packaging Technology. CLO2: Know about Various Packaging of Food Product.. CLO3: Develop the knowledge about Packaging of specific items.. CLO4: Know about role of packaging materials and storage requirement.		
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			
<p>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.</p>			
Unit	Topics		Contact Hours
I	Packaging Of Food Product a)Agriculture Products b)Processed and dehydrated food c)Milk and Milk Products D)Meat and Poultry products e)marine products f)Spices		15
II	Packaging of other specific items: A)Pharmaceuticals B)Tea C)Cosmetics'		15

	D)Soaps and detergent and shampoos E)Chemicals and Fertilisers F)Petroleum G)Pesticides H)Light Engineering Goods I)Heavy machinery and equipment J)Textiles and Garments	
III	Method of storage Cold Storage and deep freezing methods of storage their design and uses Irradiation preservation of perishable and semi perishable.	15
IV	For Packaging material Physical, physio chemical properties ,resistance to light, Insects and Moulds For Packaged Goods –Unit packaged –Compatibility Studies ,Shelf life studies with reference to flexible, rigid packages ,different types of seal closures etc ,bulk packages evaluation of transport ,worthiness of filled packages	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:		
<ul style="list-style-type: none"> ○ Packaging Technology Educational Vol1 IIP ○ Packaging Technology Educational Vol2 IIP 		

Session: 2025-26			
Part A - Introduction			
Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	8th		
Name of the Course	Research Methodology		
Course Code	B23-PPT-802		
Course Type	CC-H5		
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:	CLO1: To understand the term research with its type and application CLO2: To enhance the knowledge about methods of research CLO3: To know about the importance of data and its utilisation CLO4: To study about the procedure of making Research Report on a particular project topic.		
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			
<p>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.</p>			
Unit	Topics		Contact Hours
I	Basics of Research: Introduction of research, characteristics of good research, Application of Research, Meaning and sources of Research problem, Research process, outcomes, application of Research, Meaning and types of Research hypothesis, Importance of Review of Literature, Organizing the Review of Literature.		15
II	Types of Research: Types of research, basic, fundamental and applied research, qualitative and quantitative. Research Design: Meaning, need, types of research design – Exploratory, Descriptive, Casual research Design, Components of research design, and Features of good Research design.		15

	Experiments, surveys and case study Research design.	
III	<p>Data and its analysis :Types and sources of data – Primary and secondary, Methods of collecting data, Concept of sampling and sampling methods – sampling frame, sample, characteristics of good sample, simple random sampling, purposive sampling, convenience sampling, snowball sampling, classification and tabulation of data, graphical representation of data, graphs and charts – Histograms, frequency polygon and frequency curves, bell shaped curve and its properties.</p> <p>Statistical Methods for Data Analysis: Applications of Statistics in Research, measures of central Tendency and dispersion.</p>	15
IV	<p>Research Report: Research report and its structure, journal articles Components of journal article. Explanation of various components. Structure of an abstract and keywords. Thesis and dissertations .components of thesis and dissertations. Referencing styles and bibliography.</p> <p>Ethics in Research-Plagiarism- Definition, different forms, consequences, unintentional plagiarism, copyright infringement, collaborative work. Qualities of good Researcher.</p>	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:		
<ul style="list-style-type: none"> ○ Cooper, D.R., Schindler, P.S. and Sun, J., 2006. Business research methods (Vol. 9). New York: McGraw-Hill Irwin. ○ Creswell, J.W. and Creswell, J.D., 2017. Research design: Qualitative, quantitative, and mixed methods approaches. Sage publications. ○ Kothari, C.R., 2004. Research methodology: Methods and techniques. New Age International. ○ Krishnaswamy, K.N., 2006. Management Research Methodlogy: Integration of Principles, Medthods and Techniques. Pearson Education India. ○ Sekaran, U. and Bougie, R., 2016. Research methods for business: A skill building approach. John Wiley & Sons. 		

Session: 2025-26			
Part A - Introduction			
Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	8th		
Name of the Course	Print Color Technology		
Course Code	B23-PPT-803		
Course Type	CC-H6		
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:	CLO1: Enhance knowledge about basic color theory. CLO2: Learn about the color reproduction and color separation. CLO3: Knowledge increase about the color corection. CLO4: Know about the various new techniques used in press section		
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 unitand the compulsory question. All questions will carry equal marks.			
Unit	Topics		Contact Hours
I	Introduction to colour , Basic colour theory - additive and subtractive colours , process colours, application of the colour theory to colour reproduction, Color wheel, color schemes Exposure, colour balance, memory colours, contrast.		11
II	Colour Reproduction and color separation ,Colour Reproduction Process, Colour Separation process, Colour Separating methods Basic principles of colour separation, colour separation method, Electronic colour seperation and correction,Scanner, Types of scanner,		11
III	Colour correction , objectives of colour correction, Hand correction, Purposes and procedure followed, Dot etching, purposes and procedure, Masking and mask, Quality control ofprinting colors.		11
IV	Impact of environmental conditions on color , Impact of humidity, temperature, and other environmental factors on color printing, Colour controls, Colour proofing, Purpose of proofing, Photo mechanical proofing, Types of proof, Proofing presses, overview of colour reproduction from		12

	original to printing.	
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:		
<ul style="list-style-type: none"> ○ Dr. R.W.G. Hont :- The reproduction of colour. Fountain Press, 4th edition. ○ Miles Southworth& Donna Southworth :- Colour Reproduction. Graphic Arts Publishing, 3.1 edition. ○ Gary G. Field :- Tone & Colour correction (GATF). 		

Session: 2025-26

Part A - Introduction

Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	8th		
Name of the Course	Entrepreneurship		
Course Code	B23-PPT-804		
Course Type	DSE-H2		
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:	CLO1: Enhance knowledge about Print Entrepreneurship. CLO2: Know about various businesses Quick Start Method. CLO3: Develop the knowledge about Form of Ownership. CLO4: Know about government role and its support in Start-ups.		
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	Entrepreneurship: A perspective: Recognition of the need for entrepreneurship and self-employment development ,Entrepreneurship spirits, Significance of the entrepreneur in Economic Development ,Scope and trends of small business /enterprise the driving force for nation growth ,Types of small enterprise ,economic social and psychological need for entrepreneurship ,characterization ,qualities and pre -requisites of entrepreneur ,selection of potential entrepreneur, Identifying and Evaluating Business opportunities.	15
II	Quick start Method: Method and Procedure to start one's own business ,life cycle of new business ,franchises, creating your own franchise, multilevel marketing schemes, Buying an existing business .Business planning process :Why is a good business plan required?Business plan- the major benefit ,sub plan ,Business plan blue print to success and	15

	financing ,Small manufactures business plan, Preparation of Feasibility Reports,Project Business plan Preparation of Feasibility Reports ,Project Reports.	
III	Forms of Ownership: different forms of ownership-sole proprietorship, partnership, joint stock company, Selling ,selling your venture, Planning for succession ,Valuation of a business, Responsibility of a good employer, Risk management ,What risks does your business face?	15
IV	Instructional Models: Govt. support to new enterprise, Incentives, of our finance, Entrepreneurship Development Centre, role of Government development programmes, Role of various institutions in developing entrepreneurship in India	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:		
Entrepreneurship Development - Colombo Plan Staff College for Technician Education.		
Entrepreneurship Development & Management - Jose Paul, N. Ajith Kumar.		
Entrepreneurship Development Programmes & Practices - Jasmer Singh Saini.		

Session: 2025-26			
Part A - Introduction			
Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	8th		
Name of the Course	Print Management		
Course Code	B23-PPT-805		
Course Type	DSE-H2		
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:	CLO1: Enhance knowledge about Printing Organisational Management CLO2: To Know about management structure CLO3: To impart the knowledge about Type of companies and accounting CLO4: Enhance the knowledge about Human resource management.		
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			
<p>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.</p>			
Unit	Topics		Contact Hours
I	<p>Printing Organisation Management: Nature, scope and importance of Management, Functions of Management- Scientific management, Production and operations Management- locations and layout of plant, Maintenance management.</p> <p>Management Structure: Structure of organization, Formal and Informal organisation, sales promotion and purpose of business management. Work flow and organizational structure in a printing press for rigid, flexible and publication printing.</p>		15
II	<p>Type of companies and accounting - Private and Public limited,</p>		15

	Characteristics of Private and Public Limited Companies, Accounting principles, Classification or sub- fields of accounting- financial accounting, cost accounting, management accounting and tax accounting. Cost reduction and cost control, types of companies for printing and packaging industry. Quality Assurance, Total Quality Management (TQM), ISO.	
III	<p>Human Resource Management (HRM): Employee Recruitment, Training and Retention- Human Resource Management, Meaning of Recruitment, Objective of the Recruitment Process, Training and Development, Out sourcing, Employee Retention, Employee motivation and Welfare, Employee benefits, Work study and Method Study- Time Management and Productivity Tools.</p> <p>Marketing: Marketing and its functions, distribution channels, salesmanship and advertising with special reference to printing and packaging industry and for customized printing.</p>	15
IV	Business Environment: Work flow and organizational structure in a printing press/ packaging organization/print consumable buying. Printing Industry in India and Abroad, Impact of globalization and information technology (IT) in the field of graphic art industry.	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. T.A Saifuddin – Management aspects of printing industry by Nirmal sadanadn		

Session: 2025-26			
Part A - Introduction			
Name of the Programme	B.Sc. Printing & Packaging Technology		
Semester	8th		
Name of the Course	Image Carrier Preparation Lab		
Course Code	B23-PPT-806		
Course Type	PC-H2		
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:	CLO1 : Understand about various designing software in prepress sections. CLO2: Study about the various tools and elements of graphic designing. CLO3: Enhance knowledge about Various Publications CLO4: Know about the regulations for publishing. CLO5: Know about the image retouching.		
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	3 hours		
Part B-Contents of the Course			
Practicals			Contact Hours
LIST OF EXPERIMENTS <ol style="list-style-type: none"> 1. Comparative study of various materials and equipments used in Image Generation Department. 2. Preparation of wipe-on plates, 3. Preparation of Albumin plates. 4. Preparing deep-etch plates , 5. Preparation of pre-sensitized plate, 6. Preparation of letter set plates. 7. Study of gripper margin 8. registration processes, 9. Positioning of images for plate making, 10. Page makeup -folders, pamphlets, journals/magazines, newspaper, book work. 11. Layout preparation - Single page layout, 2 page layout, 4 page layout, 8 page layout, 12. Layout preparation -16 page layout, 32 page layout, 64 page 			120

	layout 13. work & turn, 14. work & tumble, 15. work & twist. 16. Electrostatic charged Drum 17. Gravure cylinder preparation 18. Flexography –Rubber plate Photo polymer plate 19. Thermal plates 20. Stencil Preparation	
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:		
Letter Press Printing Part 1, 2, By C.S. Misra		
2. Printing Technology By Adams, Faux, Rieber		
3. Screen Printing Review By Babett Magee		
4. Screen Printing By John Stephens		
5. Art and Print Production By N.N. Sarkar		
6. Handbook of print media(Heidelberg)		

Session: 2025-26

Part A - Introduction

Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	8th		
Name of the Course	Plant Layout		
Course Code	B23-PPT-807		
Course Type	CC-HM2		
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:	CLO1: To know about site location for effective plant layout CLO2: To learn about different types of layout CLO3: To optimise material handling & production flow in a plant layout by applying principles CLO4. To access the impact layout decision on various factors like cost and safety		
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	Site Selection: Strategic issues of location. The supply-distribution system, Dynamic nature of plant location, strategy factors influencing choice of location. State regulations on location. Backward areas and Industrial policy. Govt. Policies for decentralization, Industrial estates, comparison of locations-urban v/s rural areas advantages, sub-urban area. Economic survey of site selection. Analytical approach.	15
II	Plant Layout: Objectives of good plant layout, principles of plant layout, importance of plant layout, situations in which layout problem may arise, factors influencing plant layout, Methods of plant and factory layout-operation process chart, flow process chart, flow diagrams, string diagrams, machine data cards, templates three dimensional models, correlation	15

	chart, travel chart, load path matrix method. Types of plant layout – product layout or live layout – process layout or functional layout combination layout – static layout or fixed position layout. Symptoms of bad layout. flow pattern-line flow, L type flow, circular flow, U type flow, S or inverted S combination of U and line flow pattern. Characteristics and place of application	
III	Plant layout procedure: Accumulate basic data, Analysis and coordinate basic data, decide the equipment and machinery required, Select the material handling system, sketch plan of the plot for making factory building. Determine a general flow pattern, Design the individual workstation. Assemble the individual layout into the total layout calculate storage space required, Make flow diagrams In work stations and allocate them to areas on plot plan, Plan and locate service areas, make master layout. Check final layout, Get official approval of the final layout, install the approved layout.	15
IV	Factory Building (Press Building): Introduction, Advantages of a good factory building, Factors affecting the factory building – nature of manufacturing process, flexibility, expandability, service facilities, employee facilities, lighting, heating, ventilating, air conditioning, appearance durable construction-security measures-noise control. Types of factory building – single story building, high bay and monitor type buildings, multi storey buildings, building of special types. Comparison between single storey and multistory building. Types of construction of factory building Wood frame construction, Brick construction, Slow burning mill construction, Steel frame construction, Reinforced concrete construction, Precast concrete construction. Specific parts of factory building roof, walls, floor.	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:		
Facility layout and location-Richard L.Francis, John A. White. Computer Aided Production Management – Mahapatra		
Production and Operations Management – Mchelmann Oakland, Lockyer		
Practical Plant Layout – Herold B. Maynard		
Industrial Engineering Management System- Dr. S. Dalela, Dr. Mansoor Ali		
Industrial Engineering & Management – O. P. Khanna		
Industrial Engineering and Production Management-M. Mahajan.		
Materials handling for Printer – A. John Geis, Paul L. Addy. Terry		

Honours with Research

Session: 2025-26			
Part A - Introduction			
Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	7th		
Name of the Course	Development in Printing Technology		
Course Code	B23-PPT-701		
Course Type	CC-H1		
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: Enhance knowledge about production operations in press section.</p> <p>CLO2: Learn about the machine used for preparation of image carrier.</p> <p>CLO3: Knowledge increase about the advance techniques in production.</p> <p>CLO4: Know about the various new procurements techniques used in press section.</p>		
	Theory	Tutorial	Total
Credits	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 Printing, Recent Trends in Printing industries, Scenarios for the Future of printing industries, scope of printing technology, Impact of Globalization on printing Industry, Environmental considerations in the printing industry, Organizational structure in a printing press.		15
II	Pre-Press Techniques- Image setter Technology-Type, Working, Principal, Advantages, Limitation & applications, CTP Machines Type, Working, Principal, Advantages, Limitation & applications. Scanner Types, Techniques, Advantages, Limitation & applications.		15

III	Production room requirements - production planning, Trouble shooting in printing presses, printing defects associated with paper and paperboard, printing defects associated with ink, , Press environment logistics- Handling systems, waste disposal, cleaning systems.	15
IV	Production operations and procurements , Computer aided printing presses, understanding press functions and how they are controlled, Driography printing process and Hybrid printing systems, Ware house, and types of ware house, Store-keeping, stock room conditions. Operational care and maintenance, Proofing Techniques and devices.	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:		
<ul style="list-style-type: none"> ○ Adams, Faux, Rieber, Printing Technology, Delmar Publications, 5th edition, 2002 ○ Anjan Kumar Baral, Sheet-fed Offset Technology, Arihant Publication, January 1, 2010 ○ C.S. Misra, Letter Press Printing, Allahabad Anupam, 1st Edition, 1992 ○ Raymond N. Blair, Lithographers Manual, Printing Industries Pr; 9th edition (1 January 1994) ○ C. S. Mishra, Sheet-fed Offset, Anupam prakashan, 1992 		

Session: 2025-26**Part A - Introduction**

Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	7 th		
Name of the Course	Packaging Law and Regulations		
Course Code	B23-PPT-702		
Course Type	CC-H2		
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: Enhance knowledge about Indian packaging laws and regulations.</p> <p>CLO2: Learn about declaration on packaged commodities</p> <p>CLO3: Knowledge increase about International Law and violation of Law.</p> <p>CLO4: Know about the various packaging storage requirements under law.</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

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	Indian Regulatory System Introduction. The Standard of weights and Measures Act(SWMA),Standard Units Laws ,Regulations and Ministry involved, Essential Commodities Act, Agriculture Produce(Grading and Marketing)Act, Prevention of Food Adulteration act, Export(Quality Control and Inspection)Act, Bureau of Indian Standards.	15
II	DECLARATIONS ON PACKAGED COMMODITIES Declarations for Interstate Trade and Commerce, Standard Packages ,Maximum Permissible Error, Label Declarations, Standard Quality specifications for various products, Symbol and Unit used	15
III	International Law and Violation of Law-	15

	Uniform weight and Measure Law, Uniform Packaging and Labelling Regulation(UPLR),Uniform Unit Pricing regulation(UPR),Details of violations, offences, Penalties under various sections, EU-REACH regulations in Packaging.	
IV	PACKAGING STORAGE REQUIREMENTS Various storage requirement of product ,Specification of raw material, Specification with respect to packaging and packaging material, Packaging Requirement and PFA, Declaration and labelling, Fruit product order(FPO),Meat food product order(MFPO),Agriculture Grading and Marking Rules(AGMARK),Edible of Packaging(Regulatory)order	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:		
<ul style="list-style-type: none"> ○ The Prevention of Food Adulteration Act, 1954 and the Prevention of Food Adulteration Rules, 1955 ○ The Prevention of Food Adulteration Act: A Review by Akhileshwar Pathak, Associate Professor,Indian Institute of Management, Ahmedabad ○ Food Quality by Akhileshwar Pathak, Associate Professor, Indian Institute of Management, Ahmedabad ○ Modern Food Packaging, IIP Publication, Packaging Laws & Regulations by G. C. P. Range Rao,CFTRI, Mysore ○ Packaging India, Jun-Jul 2000, Laws and Regulations for Consumer Products Marketing – ○ Labelling, Coding, Marketing by K. C. Gupta, Standards Executive, Parle Products Ltd. 		

Session: 2025-26

Part A - Introduction

Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	7 th		
Name of the Course	Printing and Packaging Waste Management		
Course Code	B23-PPT-703		
Course Type	CC-H3		
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: The students learned about waste management in Printing and Packaging industries.</p> <p>CLO2: Know about the types of wastages</p> <p>CLO3: Know about the environmental impacts of printing and packaging operations.</p> <p>CLO4: Know about the waste management plans.</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

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: Environment, ecology, biotic and abiotic components and sustainable development concept, operations used in printing and packaging industry, environmental impacts of printing and packaging operations. Classification of Waste.	15
II	Printing/Packaging waste: types of waste in printing: paper and substrate waste, ink waste, solvent waste, hazardous waste, E-waste, VOC emissions; packaging waste: plastic, paper and cardboard, glass, metal, wood, foam etc. effluent treatment and waste minimization. 5R concepts related with printing and packaging, managing waste of various categories as per government rules/regulations.	15

III	Eco- friendly/Recycling aspects: in pre-press, press and post press, carbon footprints, study degradable and non-degradable printing and packaging materials, Recycling waste, Recycling techniques/methods- paper/paperboard, plastics, metals, glass. Environmental Policies of India, Packaging code of practice.	15
IV	Waste Management: ISO14000 series, Deming Cycle , Waste management plan, Waste audit, Health and safety, Energy conservation mechanism with printing and packaging, case studies of various printing organization for waste management exclusively for printing, Sustainable development policies. Concern about Hazardous Waste Management, Characteristics of Hazardous Waste, E- waste management.	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:		
<ul style="list-style-type: none"> ○ Waste management practices by John Pichtel ○ Plastic free by Beth Terry 		

Session: 2025-26			
Part A - Introduction			
Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	7th		
Name of the Course	Computer Graphics		
Course Code	B23-PPT-704		
Course Type	DSE-H1		
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:	CLO1: To understand the concept of Computer Graphics CLO2: To impart knowledge about Display devices CLO3: Know about the Digital Image Processing CLO4: To understand the concept of user interface. CLO5: To impart knowledge about Graphic Software.		
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		
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	UNIT-1 Basic Concept: Introduction, The origin of computer graphics, Working of interactive - graphics display, New display devices, General purpose graphics software, The user-interface, Display of solid objects, Line drawing displays - Display devices and controllers, Display devices.		11
II	The CRT- Electron guns, Deflection system, Phosphors, Beam penetration CRT, Shadow mask CRT. Inherent-memory, devices - Direct view storage tube, Plasma panel, Laser-scan display, The storage-tube display, The refresh line - drawing display. Two dimensional transformations, Transformation principles, CAD, Animation, Simulation. Techniques for achieving realism.		11
III	Basics of Digital image processing: Introduction, objectives, Digital image representation, basic steps of image processing, elements of image		11

	processing system - image acquisition, storage, processing, communication, display. Visual perception - structure of human eye, image formation in the eye, brightness adaptation and discrimination.	
IV	Introduction to computer graphics Software: CorelDraw, different features and tools. Introduction to illustrator, Photoshop In Design, PageMaker, features and tools. Formatting and editing in the software.	12
V	Practicals: 1. Introduction to computer graphics, scope and limitations. 2. CorelDraw, different facilities available, working in CorelDraw environment. 3. Introduction to illustrator-simple lines, stylish lines, drawing and filling of images, gradation tools, blenders pattern with a difference, filling rectangular and non-rectangular shapes of pallets and colour, system matrices, justifying text and application of path finder's. 4. Introduction to Photoshop-how you can differentiate it from illustrator, different types of the formats, their compatibility to different software, introduction of tool box, uses of different filters, masking and working on images, creating a presentation using software. 5. PageMaker up, formatting and editing in the software.	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:		
<ul style="list-style-type: none"> ○ Computer graphics principles & practice 2nd edition - Van Dam, Foley, Fiener Hughes. ○ Principle of Interactive Computer Graphics 2nd edition - William N. Newman, Robert S.Sproull. ○ Computer graphics - Hearn & Backer. ○ Procedural elements for computer graphics - David F. Rogers.Digital imaging techniques (Block I) ○ Digital Imaging techniques (Block II) ○ Digital image processing and computing- Schalkoff ○ 		

Session: 2025-26			
Part A - Introduction			
Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	7th		
Name of the Course	Computer Networking		
Course Code	B23-PPT-705		
Course Type	DSE-H1		
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:	CLO1: To understand the concept of Computer network CLO2: To impart knowledge about networking and inter networking devices CLO3: Know about the network transmission devices. CLO4: Analyze different network models CLO5: To impart knowledge about Data Communication and Switching 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			
<p>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.</p>			
Unit	Topics		Contact Hours
I	Introduction to data communications and networking , use of Computer Networks, classification of networks, Network Hardware - Software - Networks: Internet, ATM, Ethernet and Wireless LANs - Physical Layer - Theoretical Basis for Data Communication - Structure, Local Loop, Multiplexing and Switching. OSI model, function of the layers, TCP/IP Protocol suite.		11
II	Network Topologies: Bus, star, ring, mesh, and tree, hybrid topologies with their features, advantages and disadvantages of each type. Transmission Modes: simplex, half duplex and full duplex. Transmission Media: Guided Media (Wired) (Twisted pair, Coaxial Cable, Fiber		11

	Optics. Unguided Media (Radio Waves, Infrared, Micro-wave, and Satellite).	
III	Data Communication and Switching Techniques: Framing, flow control, error control, Switching, message switching, packet switching, routing. Elementary Data Link Protocols - Sliding Window Protocols - Data Link Layer in the Internet – Medium Access Layer - Channel Allocation Problem - Multiple Access Protocols - Bluetooth.	11
IV	Switching Devices: Repeaters, hubs, switches, bridges, routers, gateways. - IP Protocol – IP Addresses - Internet Control Protocols. Internet: Internet Service Providers (ISP), internet addressing system: IP address classification and notation, application layer protocols: (DNS, URL, WWW, FTP, SMTP, HTTP, TELNET), web pages, introduction to HTML	12
V	<p style="text-align: center;">Practicals</p> <ul style="list-style-type: none"> ○ Study of different types of Network cable ○ Study of network devices in detail. ○ Study of Network IP ○ Connect the computers in Local Area Network. ○ Study of Basic Network Commands. ○ Configure a Network topology. 	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:		
<ul style="list-style-type: none"> ○ Stallings, “Data and Computer Communications”, Pearson Education 2012, ○ 2. B. A. Forouzan, “Data Communications and Networking”, Tata McGraw Hill 2007, 4th Edition. ○ 3. F. Halsall, “Data Communications, Computer Networks and Open Systems”, Pearson Education 2008. ○ 4. D. Bertsekas and R. Gallager, “Data Networks”, PHI 2008, 2nd Edition. 		

Session: 2025-26			
Part A - Introduction			
Name of the Programme	B.Sc. Printing & Packaging Technology		
Semester	7th		
Name of the Course	Printing Machine Maintenance Lab		
Course Code	B23-PPT-706		
Course Type	PC-H1		
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: To understand the concept of Maintenance in Printing Machines</p> <p>CLO2: To impart knowledge about working of motors used in printing machines</p> <p>CLO3: To Know about the Maintenance of bushes & bearing & changing.</p> <p>CLO4: To enhance the knowledge about Lubrication system</p> <p>CLO5: To impart knowledge Hydraulic and pneumatic control system</p>		
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	3 hours		
Part B-Contents of the Course			
Practical			Contact Hours
<p>LIST OF EXPERIMENTS</p> <ol style="list-style-type: none"> 1. Study of AC& DC motors. 2. Belt mounting on wheel of driving systems. 3. Chain mounting on spikes of driving systems. 4. Gripper setting . 5. Proper checking of various parts of machines. 6. Oil seals changing. 7. Maintenance of bushes & bearing & changing. 8. Working of pump & Compressor. 9. Study of lubrication flow. 10. Study of types of lubricating systems 			120

	11. List of Equipment needed for erection 12. Lubrication Process to friction paper. 13. Study of Hydraulic Control System. 14. Study of Pneumatic control systems. 15. Application of computers in maintenance. 16. Wet sump and dry sump systems. 17. Removal and fixing of bushes and seals 18. Roller copperising and rerubberising. 19. Identification common faults in a printing machine. 20. 20) Introduction to Microcontroller.	
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. Electrical Engg. By B.L. Thareja Part I & II 2. A text book of Mechatronics by R K Rajput, S.Chand Publisher New Delhi 3. A course in workshop technology" Vol-II by B.S. Raghuwanshi, DhanpatRai& Co 4. Internal Combustion Engines by V. Ganesan, Mcgraw- Hill Education		

Session: 2025-26**Part A - Introduction**

Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	7 th		
Name of the Course	Creativity and innovations in Printing and Packaging		
Course Code	B23-PPT-707		
Course Type	CC-HM1		
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: Understand the Importance of Creativity & Innovation.</p> <p>CLO2: To Know about the Role of thinking and visualization in printing and packaging</p> <p>CLO3: For applying creativity approach in problem solving</p> <p>CLO4: To Produce creative ideas using Brainstorming</p> <p>CLO5: To Explain the various methods of innovation in the Printing and packaging industry</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

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 Need for Creative and innovative thinking for quality, components of Creativity, Methodologies and approaches, individual and group creativity, organizational role in creativity, types of innovation, barriers to innovation, innovation process, establishing criterion for assessment of creativity & innovation.	15
II	THINKING AND VISUALIZATION Definitions and theory of functioning of mind heuristics and models: attitudes, Approaches and Actions that support creative thinking - Advanced study of visual elements and principles- line, plane, shape, form, pattern, texture gradation, colour	15

	psychology & symmetry. Techniques to enhance visualization – provocation, cross fertilize, mastermind, OPV, Brain gym.	
III	<p>CREATIVITY Methods and tools for Directed Creativity – Basic Principles – Tools that prepare the mind for creative thought – stimulation – creativity techniques in Package design– Inspiration, Clarification, Distillation, Perspiration, Evaluation and Incubation – Creativity and Motivation.</p> <p>CREATIVE PROBLEM SOLVING Generating and acquiring new ideas, product design, service design – case studies and hands- on exercises, stimulation tools and approaches, six thinking hats, lateral thinking – Individual activity, group activity, Brainstorming, Brain writing, Design thinking in Printing and Packaging</p>	15
IV	<p>INNOVATION Achieving Creativity – Introduction- the essential factors – Innovator’s solution – creating and sustaining successful growth – Disruptive Innovation models – Patents, IPR methods laws and regulations</p>	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:		
<ul style="list-style-type: none"> ○ Think!: Before It's Too Late by Edward de Bono, Random House books, 2017 ○ Mastering the Dynamics of Innovation by James M. Utterback, Harvard Business School Paper back 2017 ○ The Creative Mind: Myths and Mechanisms by Margaret A. Boden, Routledge Publishers London, 2018 ○ Creative Cognition: Theory, Research, and Applications by Ronald A. Finke, Thomas B. Ward, and Steven M. Smith, MIT Press Paperback edition, 2018 ○ The Accidental Creative: How to Be Brilliant at a Moment's Notice By, Todd Henry, Penguin Publishers, 2017 		

Session: 2025-26			
Part A - Introduction			
Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	8th		
Name of the Course	Advancement in Packaging Technology		
Course Code	B23-PPT-801		
Course Type	CC-H4		
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:	CLO1: Enhance knowledge about Advancement in Packaging Technology. CLO2: Know about Various Packaging of Food Product.. CLO3: Develop the knowledge about Packaging of specific items.. CLO4: Know about role of packaging materials and storage requirement.		
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	Packaging Of Food Product a)Agriculture Products b)Processed and dehydrated food c)Milk and Milk Products D)Meat and Poultry products e)marine products f)Spices		15
II	Packaging of other specific items: A)Pharmaceuticals B)Tea C)Cosmetics'		15

	D)Soaps and detergent and shampoos E)Chemicals and Fertilisers F)Petroleum G)Pesticides H)Light Engineering Goods I)Heavy machinery and equipment J)Textiles and Garments	
III	Method of storage Cold Storage and deep freezing methods of storage their design and uses Irradiation preservation of perishable and semi perishable.	15
IV	For Packaging material Physical, physio chemical properties ,resistance to light, Insects and Moulds For Packaged Goods –Unit packaged –Compatibility Studies ,Shelf life studies with reference to flexible, rigid packages ,different types of seal closures etc ,bulk packages evaluation of transport ,worthiness of filled packages	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:		
<ul style="list-style-type: none"> ○ Packaging Technology Educational Vol1 IIP ○ Packaging Technology Educational Vol2 IIP 		

Session: 2025-26			
Part A - Introduction			
Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	8th		
Name of the Course	Research Methodology		
Course Code	B23-PPT-802		
Course Type	CC-H5		
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:	CLO1: To understand the term research with its type and application CLO2: To enhance the knowledge about methods of research CLO3: To know about the importance of data and its utilisation CLO4: To study about the procedure of making Research Report on a particular project topic.		
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	Basics of Research: Introduction of research, characteristics of good research, Application of Research, Meaning and sources of Research problem, Research process, outcomes, application of Research, Meaning and types of Research hypothesis, Importance of Review of Literature, Organizing the Review of Literature.		15
II	Types of Research: Types of research, basic, fundamental and applied research, qualitative and quantitative. Research Design: Meaning, need, types of research design – Exploratory, Descriptive, Casual research Design, Components of research design, and Features of good Research design.		15

	Experiments, surveys and case study Research design.	
III	<p>Data and its analysis :Types and sources of data – Primary and secondary, Methods of collecting data, Concept of sampling and sampling methods – sampling frame, sample, characteristics of good sample, simple random sampling, purposive sampling, convenience sampling, snowball sampling, classification and tabulation of data, graphical representation of data, graphs and charts – Histograms, frequency polygon and frequency curves, bell shaped curve and its properties.</p> <p>Statistical Methods for Data Analysis: Applications of Statistics in Research, measures of central Tendency and dispersion.</p>	15
IV	<p>Research Report: Research report and its structure, journal articles Components of journal article. Explanation of various components. Structure of an abstract and keywords. Thesis and dissertations .components of thesis and dissertations. Referencing styles and bibliography.</p> <p>Ethics in Research-Plagiarism- Definition, different forms, consequences, unintentional plagiarism, copyright infringement, collaborative work. Qualities of good Researcher.</p>	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:		
<ul style="list-style-type: none"> ○ Cooper, D.R., Schindler, P.S. and Sun, J., 2006. Business research methods (Vol. 9). New York: McGraw-Hill Irwin. ○ Creswell, J.W. and Creswell, J.D., 2017. Research design: Qualitative, quantitative, and mixed methods approaches. Sage publications. ○ Kothari, C.R., 2004. Research methodology: Methods and techniques. New Age International. ○ Krishnaswamy, K.N., 2006. Management Research Methodlogy: Integration of Principles, Medthods and Techniques. Pearson Education India. ○ Sekaran, U. and Bougie, R., 2016. Research methods for business: A skill building approach. John Wiley & Sons. 		

Session: 2025-26

Part A - Introduction

Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	8th		
Name of the Course	Plant Layout		
Course Code	B23-PPT-807		
Course Type	CC-HM2		
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:	CLO1:To know about site location for effective plant layout CLO2:To learn about different types of layout CLO3:To optimise material handling & production flow in a plant layout by applying principles CLO4. To access the impact layout decision on various factors like cost and safety CLO5: Student can also analyze the safety consideration in layout.		
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	Site Selection: Strategic issues of location. The supply-distribution system, Dynamic nature of plant location, strategy factors influencing choice of location. State regulations on location. Backward areas and Industrial policy. Govt. Policies for decentralization, Industrial estates, comparison of locations-urban v/s rural areas advantages, sub-urban area. Economic survey of site selection. Analytical approach.	15
II	Plant Layout: Objectives of good plant layout, principles of plant layout, importance of plant layout, situations in which layout problem may arise, factors influencing plant layout, Methods of plant and factory layout-operation	15

	process chart, flow processchart, flow diagrams, string diagrams, machine data cards, templates three dimensional models, correlation chart, travel chart, load path matrix method. Types of plant layout – product layout or live layout – process layout or functional layoutcombination layout – static layout or fixed position layout. Symptoms of bad layout. flow pattern-line flow, L type flow, circular flow, U type flow, S or inverted S combination of U and line flow pattern. Characteristics and place of application	
III	Plant layout procedure: Accumulate basic data, Analysis and coordinate basic data, decide the equipment and machinery required, Select the material handling system, sketch plan of the plot for making factory building. Determine a general flow pattern, Design the individual workstation. Assemble the individual layout into the total layout calculate storage space required, Make flow diagrams In work stations and allocate them to areas on plot plan, Plan and locate service areas, make master layout. Check final layout, Get official approval of the final layout, install the approved layout.	15
IV	Factory Building (Press Building): Introduction, Advantages of a good factory building, Factors affecting the factory building – nature of manufacturing process, flexibility, expandability, service facilities, employee facilities, lighting, heating, ventilating, air conditioning, appearance durable construction-security measures-noise control. Types of factory building – single story building, high bay and monitor type buildings, multi storey buildings, building of special types. Comparison between single storey and multistory building. Types of construction of factory building Wood frame construction, Brick construction, Slow burning mill construction, Steel frame construction, Reinforced concrete construction, Precast concrete construction. Specific parts of factory building roof, walls, floor.	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:		
Facility layout and location-Richard L.Francis, John A. White. Computer Aided Production Management – Mahapatra		
Production and Operations Management – Mchelmann Oakland, Lockyer		
Practical Plant Layout – Herold B. Maynard		
Industrial Engineering Management System- Dr. S. Dalela, Dr. Mansoor Ali		
Industrial Engineering & Management – O. P. Khanna		
Industrial Engineering and Production Management-M. Mahajan.		
Materials handling for Printer – A. John Geis, Paul L. Addy. Terry		

Session: 2025-26			
Part A – Introduction			
Name of Programme	B.Sc. Printing & Packaging Technology		
Semester	8 th		
Name of the Course	Project/Dissertation		
Course Code	B23-PPT-808		
Course Type			
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:	<ul style="list-style-type: none"> • To understand the fundamental of media research • To understand the research methodology and research design • To understand data analysis and data coding • To understand the research thesis / report/ dissertation writing • To understand the use of computer software 		
Credits	Evaluation Report	Viva-Voce Examination	Total
	8	4	12
Teaching Hours per week	-	-	-
Report	0	200	200
Viva-Voce	0	100	100
Max. Marks		300	300
Part B- Contents of the Course			
Instructions for Practical: Each student will develop a portfolio compiling the below given exercises for End term exam, showcasing applications of computer in journalism.			
Practical Assignments			Contact Hours
<p>Research Project and Guidelines</p> <ul style="list-style-type: none"> • Identify Research Problem • Write a synopsis • Do review of Literature • Frame Research questions and Hypothesis • Frame objectives • Design Methodology • Prepare data collection tool • Collect Data • Draw conclusions • Write thesis / Dissertation • Every student has to publish and write a research paper alongwith dissertation. <p>Evaluation of the thesis will be on the basis of Quality of Above Research. Supervisor will be allotted to each student of research honors</p>			

Viva vice will be conducted in front of a three member committee constituted by the Institute.			
Submissions related to research			
Prepare a Questionnaire			
Prepare a code book			
Prepare Google form			
Prepare charts and tables			
Write review of literature			
Data coding with SPSS software			
Suggested Evaluation Methods			
Internal Assessment		End Term Examination : 300	
➤ ` Practicum	0	➤ Practicum	300
Report	0	200	200
Viva-Voce	0	100	100
Max. Marks	0	300	300