

Learning Outcomes-based Curriculum Framework (LOCF)

for

B.Sc. (Printing & Packaging Technology)

A Three Year Bachelor Degree Programme

under

**Choice Based Credit System (CBCS)/Learning Outcomes-based Curriculum
Framework(LOCF)**

w.e.f. Academic Session 2020-21.

Eligibility: 10+2 in any discipline



**Institute of Mass Communication & Media Technology
Kurukshetra University, Kurukshetra**

Proposed scheme for Choice Based Credit System in B.Sc. (Printing & Packaging Technology) Programme

Semester	CORE COURSE (CC) @ 6 Credits	Ability Enhancement Compulsory Course (AECC) @ 2 Credits	Skill Enhancement Course (SEC) @ 2 Credits	Discipline Specific Elective DSE @ 6 Credits
I	CC- 1 CC- 2 CC- 3 CC- 4	(English/MIL Communication)/Environmental Studies		
II	CC- 5 CC- 6 CC- 7 CC- 8	(English/MIL Communication) / Environmental Studies, Hindi		
III	CC- 9 CC- 10 CC- 11 CC- 12		SEC-1	
IV	CC- 13 CC- 14 CC- 15 CC- 16		SEC -2	
V			SEC -3/MOOC*	DSE-1 (Elective Subject)
				DSE-2 (Elective Subject)
				DSE-3 (Elective Subject)
	Internship/Industry Training **			
VI			SEC-4	DSE-4 (Elective Subject)
				DSE-5 (Elective Subject)
				DSE-6 (Elective Subject)

AECC will be offered according to the time table adjustments in the Institute/Department.

*MOOC Course from Swayam Portal.

** SEC can be offered in 3rd/4th/5th semester according to the time table adjustments in the institute.

****Internship/Industry Training** A candidate must complete industry training of 4 to 6 weeks after completion of theory examination of 4th semester. The internship report will be submitted in 5th semester.

General instructions:

- One credit equivalent to 1 hour of teaching/2 hours of Practical work
- Teaching workload will be calculated on the basis of teaching contact hours of the course
- One credit (theory /Practical) equivalent to 25 marks

Total No. of Courses, Credit and Marks

Course	No. of Courses	Credits Teaching/Week	Credits Practical/Week	Credits Tutorials/Week	Total Credits	Marks
Core Courses	16	$16 \times 4 = 64$	$16 \times 2 = 32$	--	$64 + 32 = 96$	$16 \times 150 = 2400$
AECC	3	$3 \times 2 = 6$	--	--	6	$3 \times 50 = 150$
SEC	4	$4 \times 2 = 8$	--	--	8	$4 \times 50 = 200$
DSE	6	$6 \times 4 = 24$	$6 \times 2 = 12$	--	$24 + 12 = 36$	$6 \times 150 = 900$
Industrial Training	--	--	--	--	2	$1 \times 50 = 50$
Total	29	102	44	-	148	3700

Scheme of Examination of B.Sc.(Printing & Packaging Technology) for 5th & 6th Semester under CBCS/LOCF for Institute of Mass Communication & Media Technology (IMC&MT, KUK) in phased manner w.e.f. Academic Session2020-21

Semester-V

Course Code	Course Title	Course Type	Contact Hours per Week				Credits	Total Credits	Marks				Duration of Exam
			L	T	P	Total			T	P	IA	Total	
B-PPT-501 (a)	Binding and Finishing Technology(Theory)	DSE-1	4	-	-	4	4	6	80	-	20	100	3 Hours
B-PPT-502 (a)	Binding and Finishing Technology(Practical)		-	-	2	4	2		-	40	10	50	3 Hours
B-PPT-501(b)	OR Plastics in Packaging (Theory)		4	-	-	4	4		80	-	20	100	3 Hours
B-PPT-502 (b)	Plastics in Packaging (Practical)		-	-	2	4	2		-	40	10	50	3 Hours
B-PPT-503(a)	Book and Newspaper Publishing(Theory)	DSE-2	4	-	-	4	4	6	80	-	20	100	3 Hours
B-PPT-504(a)	Book and Newspaper Publishing(Practical)		-	-	2	4	2		-	40	10	50	3 Hours
B-PPT-503 (b)	OR Package Design and Development (Theory)		4	-	-	4	4		80	-	20	100	3 Hours
B-PPT-504 (b)	Package Design and Development (Practical)		-	-	2	4	2		-	40	10	50	3 Hours
B-PPT-505(a)	Quality control in Printing and Packaging(Theory)	DSE-3	4	-	-	4	4	6	80	-	20	100	3 Hours
B-PPT-506(a)	Quality control in Printing and Packaging(Practical)		-	-	2	4	2		-	40	10	50	3 Hours
B-PPT-505(b)	OR Advanced Packaging Technology(Theory)		4	-	-	4	4		80	-	20	100	3 Hours
B-PPT-506(b)	Advanced Packaging Technology(Practical)		-	-	2	4	2		-	40	10	50	3 Hours
B-PPT-507	Costing and Estimating(Theory)	SEC-3	2	-	-	2	2	2	40	-	10	50	2 Hours
B-PPT-508	Internship Report*							2				50	
Total Credits								22	Total Marks			550	

Semester-VI

Course Code	Course Title	Course Type	Contact Hours per Week				Credits	Total Credits	Marks				Duration of Exam	
			L	T	P	Total			T	P	IA	Total		
B-PPT-601(a)	Digital Printing(Theory)	DSE-4	4	-	-	4	4	6	80	-	20	100	3 Hours	
B-PPT-602(a)	Digital Printing(Practical) OR		-	-	2	4	2		-	40	10	50	3 Hours	
B-PPT-601(b)	Security Printing(Theory)		4	-	-	4	4		80	-	20	100	3 Hours	
B-PPT-602(b)	Security Printing(Practical)		-	-	2	4	2		-	40	10	50	3 Hours	
B-PPT-603	Print Management(Theory) OR	DSE-5	5	1	-	6	6	6	120	-	30	150	3 Hours	
B-PPT-604	Entrepreneurship (Theory)		5	1	-	6	6		120	-	30	150	3 Hours	
B-PPT-605 (Optional)	Project	DSE-6**	5	1	-	6	6	6	-	120	30	150	3 Hours	
B-PPT-605(i)	Pre Press Technology													
B-PPT-605(ii)	Press Production													
B-PPT-605(iii)	Post Press Operation													
B-PPT-605(iv)	Package Development													
B-PPT-605(v)	Eco Friendly Printing and Packaging													
B-PPT-606	Computer Graphics (Theory)	SEC-4	1	-	-	1	1	2	20	-	5	25	2 Hours	
B-PPT-607	Computer Graphics (Practical)		-	-	1	2	1		-	20	5	25	2hours	
Total Credits							20	Total Marks			500			

* Students have to complete the internship of four to six weeks after the examination of 4th semester and submit the report of internship in the commencement of 5th semester. The report submitted by the students will be evaluated by the teacher appointed by the Director and a viva-voce will be conducted during practical examination.

**Viva -Voce of DSE-6 (Major Project) is to be evaluated by a panel of three examiners to be appointed by the Director of the institute and it is to be submitted to the institute by the student 20 days prior to the theory examination of the semester in which the Report is supposed to be submitted.

B-PPT 501(a) : BINDING AND FINISHING TECHNOLOGY (THEORY)

Time: 3 Hrs.
Total Credit-04

Total Marks: 100
Theory Marks: 80
Internal Assessment: 20

Course Objectives: This course is designed for theoretical understanding of principles, applications and material used in binding and finishing technology. It provides the technical ability to understand various production operations used in binding and finishing technology.

Course Learning Outcomes: The students learned about the binding and finishing technique and the student will be able to:
B-PPT501 (a).1: Enhance knowledge about binding and finishing operations in post press section.
B-PPT501 (a).2: Learn about the machine used in binding
B-PPT501 (a).3: Knowledge increase about the decoration techniques of binding
B-PPT501 (a).4: Know about the different types of binding tools and equipments.

Note:- The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit from I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing short notes covering the entire syllabus. All questions carry equal marks.

UNIT-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

UNIT-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. Insetting , Inserting.

UNIT-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.

UNIT-IV

Finishing Operations:

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 Puching, 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:

Study of Various Modern Machines. Modern Guillotines – Single Knife Guillotines. Three Knife Trimmers. Knife Grinding M/C. Gold Blocking/Foil Stamping M/C. Wire Stitching M/C. Straw Board Cutter. Laminating M/C – Small Laminating M/C. Pouch Laminating M/C. Tunnel Laminating M/C. Tipping M/C. Smashing M/C. Back Gluing M/C. Roller Gliding M/C. Inline Rounding M/C. Lining M/C. Modern Lining M/C. Cloth Cutting M/C. Foil Blocking M/C. Rotary Blocking M/ C. Casing In M/C. Case Making M/C. Box Waste Disposal Process. Adhesive binding machine.

Recommended Books :-

Binding And Finishing - Ralph Lyman Binding And Finishing Part-1 - B.D.Mendiratta

Binding Finishing Mailing - T.J.Tedesco Introduction to Printing & Finishing - Hugh Speirs

Finishing Process in Printing - A.G.Martin.

B-PPT 502 (a): BINDING AND FINISHING TECHNOLOGY (PRACTICAL)

Time: 3 Hrs.
Total Credit-02

Total Marks: 50
Practical Marks: 40
Internal Assessment: 10

Course Objectives: This course is designed for practical understanding of tools and equipments used in binding and finishing technology.

Course Learning Outcomes: The students learned about the binding tools and techniques also the student will be able to:
B-PPT502(a).1: Enhance knowledge about binding and finishing operations in post press section.
B-PPT502 (a).2: Learn about the machine used in binding.
B-PPT502 (a).3: Knowledge increase about the decoration techniques of binding.
B-PPT502 (a).4: Know about the different types of binding tools and equipments.

Note:-The students will do practical assignments assigned by the concerned teacher throughout the whole semester and will submit them in the form of hardcopy/softcopy to the teacher. External Examiner will evaluate the work done by the student, will conduct the practical and viva voce.

LIST OF PRACTICALS

1. Preparation of Quarter, Half and Full bound books using, French sewing method / Tape sewing method / Cord sewing method / Saddle sewing method / Side sewing meth
2. Preparation of following type of Mechanical binding - Spiral wire binding, Wire 'O' binding, Ring binding.
3. 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.
4. Preparation of telephone directory with Indexes and Tabs.
5. 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.
6. Print finishing operation to be conducted - Gold blocking, Embossing, Edge decoration, Thermography, Marbling, Velvet printing, Rubber printing, Die printing, Pouch lamination.

B-PPT 501 (b) : PLASTIC IN PACKAGING (THEORY)

Time: 3 Hrs.
Total Credit-04

Total Marks: 100
Theory Marks: 80
Internal Assessment: 20

Course Objectives: This course is designed for theoretical understanding of basic about plastics and its classifications and recycling of packaging.. It also provides the technical ability to understand various classification of plastics comes in various Printing and Packaging industries.

Course Learning Outcomes: The students learned about the plastics used in Printing and Packaging Industries. The student will be able to:
B-PPT501 (b).1: Enhance knowledge about development in plastics in printing and packaging industry..
B-PPT501 (b).2: Know about classification of plastics in printing and packaging .
B-PPT501 (b).3: Develop the knowledge about the different plastics and polymers used in various printing processes.
B-PPT501 (b).4: Know about the basic knowledge of various testing and recycling of plastics.

Note: - The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit from I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing short notes covering the entire syllabus. All questions carry equal marks.

Unit I

Plastic Introduction

Packaging, Types of packaging, Purposes of packaging. Plastic-introduction, Classification of synthetic polymer. Techniques of polymerization, Distinction between Plastic, Fibres and Elastomers. Application of plastic in packaging

Unit II

Classification of Plastic

Miscellaneous plastics - polycarbonate, nylon , Low-Density Polyethylene (LDPE), Linear low-density polyethylene (LLDPE) High-Density Polyethylene (HDPE) High molecular high density Polyethylene(HM HDPE) Polyethylene Terephthalate (PETE or PET), Polyvinyl Chloride (PVC) - Introduction, properties and applications.

Unit III

Environment and pollution in plastic industry

Plastic Industry effects on environment and its components; water, soil, air and living things, Storage and handling of plastics, Pollution and Hazards related to Plastics, Plastic Waste

Management- Public awareness regarding hazards caused by indiscriminate use of plastics, proper disposal of plastics. Alternate Packaging material.

Unit IV

Testing and Recycling of plastic

Introduction, Process, Solubility test, Lenition test, Dry distillation test, Chemical color identification test, Pyrolysis test, Refractive index. Recycling of plastic-Processes–Thermal depolymerization, distributed recycling, plastic identification code

RECOMMENDED BOOKS

1. Handbook of Plastics, Elastomers and Composites by Charles A. Harper; Published by McGraw Hill Company, New Delhi
2. Plastic Waste Management by Nabil Mustufa; Marcel Dekker
3. Introduction to Environmental Engineering and Science by Gilbert M Masters; Prentice Hall of India, New Delhi
4. Recycling and Recovering of Plastics by Brandrup (Hanser Publications)

B-PPT 502 (b) : PLASTIC IN PACKAGING (PRACTICAL)

Time: 3 Hrs.
Total Credit-02

Total Marks: 50
Practical Marks: 40
Internal Assessment: 10

Course Objectives: This course is designed for practical understanding of plastics in printing and packaging industry.. It also provides the technical ability to understand various plastics in printing and packaging industry com

Course Learning Outcomes: The students learned about the plastics in printing and packaging and the student will be able to:
B-PPT502 (b).1: Enhance knowledge about various plastics in printing and packaging industry.
B-PPT502 (b).2: Knowledge about the tools and equipment used for plastics .
B-PPT502 (b).3: Technical knowledge about different types of plastics testing in printing and packaging industry.
B-PPT502 (b).4: Know about the basic knowledge of various plastics samples .

Note:- The students will do practical assignments assigned by the concerned teacher throughout the whole semester and will submit them in the form of hardcopy/softcopy to the teacher. External Examiner will evaluate the work done by the student, will conduct the practical and viva voce.

LIST OF PRACTICALS:

1. Identification of plastics.
2. Solubilty Test.
3. Ignition Test.
4. Dry Distillation Test
5. Chemical colour identification test.
6. Test for Individual Plastics-acrylic plastics ,butyl rubber, neoprene ,nylon,polyethylene.

B-PPT 503 (a) : BOOK AND NEWSPAPER PUBLISHING (THEORY)

Time:3 Hrs.
Credits: 4

Total Marks: 100
Theory:80
Internal Assessment:20

Course Objectives: This course is designed for theoretical understanding of basic Book Publishing and Newspaper Publishing. It provides the technical ability to understand various production operations used in books and newspaper publishing. It develops the basic knowledge of editorial department in book and newspaper publishing.

Course Learning Outcomes: The students learned about the Book and Newspaper Publishing and the student will be able to:
B-PPT503 (a).1: Enhance knowledge about the process of book publishing and newspaper publishing
B-PPT503 (a).2: Technical aspects of production from receipt of manuscript to completion of book.
B-PPT503 (a).3: Develop and exhibit the skills of editorial department in newspaper publishing.
B-PPT503 (a).4: Learned about work flow and organizational structure in a newspaper printing press.

Note:- The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit from I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing short notes covering the entire syllabus. All questions carry equal marks.

UNIT-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.

UNIT-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.

UNIT-III

Introduction to Newspaper organization - Sources of news, printing of 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.

UNIT-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.

Recommended Books : 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, Taking Risks - Klement/Mataline Journalism in India - R. Parthasarathy Headlines and Deadlines - Baskette, Floyd

B-PPT 504 (a) : BOOK AND NEWSPAPER PUBLISHING (PRACTICAL)

Time: 3 Hrs.
Credits:2

Total Marks: 50
Practical :40
Internal Assessment:10

Course Objectives: This course is designed for the students to enhance their skills in Book Publishing and Newspaper Publishing. It updated the students as per the industry requirements and also provides the technical ability to understand the process of Book Publishing and Newspaper Publishing.

Course Learning Outcomes:
B-PPT 504 (a).1: Develop the practical knowledge of web presses used in book publishing and newspaper publishing.
B-PPT 504 (a).2: Enhance knowledge about the various pre-make ready and make-ready operations of book publishing and Newspaper Publishing.
B-PPT 504 (a).3 Develop the knowledge about the layout and design of newspaper.
B-PPT 504 (a).4: Know about the basic knowledge of Book and Newspaper production operations.

Note:- The students will do practical assignments assigned by the concerned teacher throughout the whole semester and will submit them in the form of hardcopy/softcopy to the teacher. External Examiner will evaluate the work done by the student, will conduct the practical and viva voce.

LIST OF EXPERIMENTS

1. Study of various parts of a book.
2. Introduction to type of Web Presses as per the configuration & end products.
3. Study of various Book printing machines, units & their setting.
4. Study of various pre-make ready operations.
5. Preparation of a multi-colour book cover page
6. Study of various make-ready operations for Newspaper printing press.
7. Printing single & multicolour jobs in Newspaper organization.

B-PPT 503 (b) : PACKAGE DESIGN AND DEVELOPMENT (THEORY)

Time: 3 Hrs.
Total Credit-04

Total Marks: 100
Theory Marks: 80
Internal Assessment: 20

Course Objectives: This course is designed for theoretical understanding of Packaging and it's designing in the today's world. It also provides the technical ability to understand various software used in its manufacturing.

Course Learning Outcomes: The students learned about Packaging designing and the student will be able to:
B-PPT503 (b).1: Enhance knowledge about package design and its development.
B-PPT503 (b).2: Know about Layout techniques.
B-PPT503 (b).3: Develop the knowledge about techniques and tools used in software designing.
B-PPT503 (b).4: Know about the knowledge of new trends in Packaging.

Note:- The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit from I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing short notes covering the entire syllabus. All questions carry equal marks.

UNIT-I

INTRODUCTION TO PACKAGE DESIGN: Introduction to Computer based Design Patterns, Requirement for Design of Package Designing Tools, Visualizing, Multi-dimensional Packaging, Design Basics, Types of design. Dummy preparation.

UNIT-II

DESIGN FOR PACKAGING: Introduction to Design for Packaging,. Elements for Packages, Die lines and its placements through computer design. Introduction to various types of Packages and their Die lines concepts (cutting and creasing) - for Food Packaging, FMCG Packaging, Medicine packaging, Cosmetics Packaging, Innovative Packaging.

VARIABLE DATA IN PACKAGING DESIGN: Barcodes – 2D, 3D Barcodes, QR Codes, Data Metric, Personalized QR Code etc. customization and personalization in Packaging. 3-D modeling in Packaging design

UNIT-III

SOFTWARE FOR GRAPHIC DESIGN: Introduction and Understanding of various Graphic Designing software for Package, and their Uses, Application, specialty, Advantages and Limitations.

SOFTWARE FOR PACKAGE DESIGN: Introduction and Understanding of various Package Designing software for Packaging, and their Uses, Application, specialty, Advantages and Limitations. Introduction and Understanding of various software for Step and Repeat Pattern used for Designing, Cutting, Creasing, Finishing and Value Addition, and their Uses, Application, specialty, Advantages and Limitations. Introduction and Understanding of various Die-cutting/Die-making software's for Packaging, and their Uses, Application, specialty, Advantages and Limitations. **UNDERSTANDING ELECTRONIC COLOURS:** Color models, Color gamut, Halftone, duotone and tritons.

UNIT-IV

NEW TRENDS IN PACKAGE DESIGN: Design for Organic Electronic Printing in Packaging applications, New Packaging Design Trends and their features, Value Addition application in Packaging through designing for augmented reality in Packaging. Recent developments in package designing.

Recommended Books :

Printing Technology – Adams, Faux, Rieber.

B-PPT 504 (b): PACKAGE DESIGN AND DEVELOPMENT (PRACTICAL)

Time: 3 Hrs.
Total Credit-02

Total Marks: 50
Practical Marks: 40
Internal Assessment: 10

Course Objectives: This course is designed for theoretical understanding of Packaging and it's designing in the today's world. It also provides the technical ability to understand various software used in Package Designing.

Course Learning Outcomes: The students learned about Packaging designing and the student will be able to:
B-PPT504 (b).1: Enhance knowledge about package design and its development .
B-PPT504 (b).2: Know about Layout techniques.
B-PPT504 (b).3: Develop the knowledge about techniques tools used in software designing.
B-PPT504 (b).4: Know about the knowledge of new trends in Packaging.

Note:- The students will do practical assignments assigned by the concerned teacher throughout the whole semester and will submit them in the form of hardcopy/softcopy to the teacher. External Examiner will evaluate the work done by the student, will conduct the practical and viva voce.

List of Experiments -

1. Study of Various Package designs for cartons, Corrugations, cosmetics, Pharmaceuticals & flexible food items.
2. Study & collection of Innovative package designs.
3. Study of Software of Package Designs, Die-cutting/ Die-making software.
4. Study & Sampling Value editions of Package Designing.
5. Study of Designing with colours.

B-PPT 505 (a) : QUALITY CONTROL IN PRINTING & PACKAGING (THEORY)

Time: 3 Hrs.
Total Credit-04

Total Marks: 100
Theory Marks: 80
Internal Assessment: 20

Course Objectives: This course is designed for understand the concept of Quality and its control in various sections of a printing and Packaging organization. The various quality control methods and testing instruments utilization helps in controlling the quality of materials and processes.

Course Learning Outcomes: The students learned about the Quality control and the student will be able to:
B-PPT505 (a).1: Enhance knowledge about Quality control procedures.
B-PPT505 (a).2: Know about Various instruments and equipments used to control the quality of production.
B-PPT505 (a).3: Develop the knowledge about the ISO certification.
B-PPT505 (a).4: Know about role of management in quality control.

Note:- The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit from I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing short notes covering the entire syllabus. All questions carry equal marks.

UNIT-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.

UNIT-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.

UNIT-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 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.

UNIT-IV

Quality Control Instrumentation: Paper and paper board testing instruments for testing printability, print quality and end-use requirements, Ink testing instruments for testing optical and working properties and end-use requirements Process control instruments, devices and aids used in the galley and dark-room, striping department, plateroom 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.

Recommended Books:

1. W.H. Banks, Inks, Plates and Print Quality, Pergamon Press
2. **Quality Control for quality printing, Graphic Arts, Technical Foundations.**

B-PPT 506 (a): QUALITY CONTROL IN PRINTING & PACKAGING (PRACTICAL)

Time: 3 Hrs.
Total Credit-02

Total Marks: 50
Practical Marks: 40
Internal Assessment: 10

Course Objectives: This course is designed for practical understanding of testing procedure of various material ,tools and equipments used for quality control . The students can understand the various characteristics of material and machine by using quality control instruments for controlling the process of production.

Course Learning Outcomes: The students learned about the quality control tools and equipments with their testing procedures.
B-PPT506 (a).1: understand about paper gsm,grain direction, bursting strength etc..
B-PPT506 (a).2: Knowledge about the cob test and tearing test of paper.
B-PPT506 (a).3: Technical knowledge about operations of various quality control instruments and procedures.
B-PPT506 (a).4: Understand about ink testing instruments like viscometer, tacometer etc..

Note:- The students will do practical assignments assigned by the concerned teacher throughout the whole semester and will submit them in the form of hardcopy/softcopy to the teacher. External Examiner will evaluate the work done by the student, will conduct the practical and viva voce.

LIST OF PRACTICALS

1. Paper testing checking grain direction.
2. Tensile strength of paper, burst strength of paper.
3. Substance, caliper, porosity test, cobb sizing value test.
4. Tearing testing of paper, brightness test of paper.
5. Operating test, gloss test, lighting color filter sensor.
6. G.S.M.testing, folding endurance.
7. Moisture contents test, ash contents test.
8. Pick strength, humidity control test, room temp testing.
9. Ink film thickness test.
10. Measurement of viscosity, tack measurement.
11. Measurement of ink film thickness

B-PPT 505 (b): ADVANCE PACKAGING TECHNOLOGY (THEORY)

Time: 3 Hrs.
Total Credit-04

Total Marks: 100
Theory Marks: 80
Internal Assessment: 20

Course Objectives: This course is designed for understand the concept of Advance Packaging in various sections of a printing and Packaging organization. The various products produce through Advance Packaging.and their process of packaging.

Course Learning Outcomes: The students learned about the advance packaging.
B-PPT505 (b).1: Enhance knowledge about advance packaging..
B-PPT505 (b).2: Know about various products produce through commercial packaging
B-PPT505 (b).3: Develop the knowledge about cold storage..
B-PPT505 (b).4: Know about role of packaging material. .

Note:- The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit from I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing short notes covering the entire syllabus. All questions carry equal marks.

Unit-I

Packaging of Food Products

- (a) Agriculture produce
- (b) Processed and dehydrated food
- (c) Milk and Milk Products
- (d) Meat and poultry products
- (e) Marine products-Shrimps
- (f) Spices
- (g)

Unit-II

Packaging of other specific items

- (a) Pharmaceuticals
- (b) Tea
- (c) Cosmetics and perfumery
- (d) Soaps, detergents and shampoos
- (e) Chemicals and fertilizers
- (f) Petroleum products
- (g) Pesticides

- (h) Light engineering goods and domestic appliances
- (i) Heavy machinery and equipments
- (j) Textiles and garments
- (k) handicrafts

Unit-III

Method of storage

- (a) Cold storage, and deep freezing method of storage, their design and usage
- (b) Irradiation, preservation of perishables and semi perishables

Unit-IV

(a) For packaging material- physical, physico-chemical properties, resistance to light, insect and mould

(b) For packaged goods- Unit package : compatibility studies, shelflife studies-with reference to flexible, rigid packs, different types of seals, closures etc. Bulk packages-Evaluation of transport worthiness of filled packages-physical and climatic hazards.

Recommended Books:

1. Packaging technology educational volume -1
2. . Packaging technology educational volume -2

B-PPT 506 (b) : ADVANCE PACKAGING TECHNOLOGY (PRACTICAL)

Time: 3 Hrs.
Total Credit-02

Total Marks: 50
Practical Marks: 40
Internal Assessment: 10

Course Objectives: This course is designed for practical understanding of basic principal of Advance Packaging.

Course Learning Outcomes: The students learned about the Packaging process and the student will be able to:
B-PPT506 (b).1: understand about flexible packages..
B-PPT506 (b).2: Knowledge about thestudy operations of various packaging machines.
B-PPT506 (b).3: Technical knowledge about operations of manufacturing carton and corrugated board.
B-PPT506 (b).4: Understand about designing of paper board.

Note:- The students will do practical assignments assigned by the concerned teacher throughout the whole semester and will submit them in the form of hardcopy/softcopy to the teacher. External Examiner will evaluate the work done by the student, will conduct the practical and viva voce.

LIST OF PRACTICALS

1. Designing and preparation of various flexible packages.
2. Designing and preparation of various rigid packages.
3. Study and operation of various packaging machines.
4. Manufacturing of various types of corrugated boards.
5. Designing & preparation of various designs of paper bags.
6. Testing of raw materials like wood, paper, plastic.
7. Drop test, Vibration test, Inclined impact test, Compression test.

B-PPT 507: COSTING AND ESTIMATING (THEORY)

Time: 2 Hrs.
Total Credit-02

Total Marks: 50
Theory Marks: 40
Internal Assessment: 10

Course Objectives: This course is designed for understanding of terms cost ,price and profit in context of various printing organizations. Elements of cost ,objectives and methods of costing understand by students.

Course Learning Outcomes: The students learned about costing and estimating with various techniques and procedures.
B-PPT507.1: Enhance knowledge about performas and specimens used in printing and packaging organizations.
B-PPT507.2: Know about role of management in costing and estimation.
B-PPT507.3: Develop the knowledge about techniques and tools used in estimating a job.
B-PPT507.4: Know about the knowledge of new trends in estimating.

Note:- The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit from I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing short notes covering the entire syllabus. All questions carry equal marks.

UNIT-I

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.

UNIT-II

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.

UNIT-III

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, estimator's 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.

UNIT-IV

Costing:

Job costing, its need and procedures. Elements of cost and their method of recovery. Cost sheet. Daily Docket. Work Instruction Ticket and their importance in costing.

Recommended Books :

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. Venkataraman.

B-PPT 508: Internship Report

Credits : 2

Total Marks : 50

* Students have to complete the internship of four to six weeks after the examination of 4th semester and submit the report of internship in the commencement of 5th semester. The report submitted by the students will be evaluated by the teacher appointed by the Director and a viva-voce will be conducted during practical examination.

B-PPT 601(a) : DIGITAL PRINTING (THEORY)

Time: 3 Hrs.
Total Credit-04

Total Marks: 100
Theory Marks: 80
Internal Assessment: 20

Course Objectives: This course is designed for theoretical understanding of principles, applications used in Digital Printing. It provides the technical ability to understand various production operations used in Digital Printing.

Course Learning Outcomes: The students learned about the digital printing and networking system used in digital printing the student will be able to:
B-PPT601(a).1: Enhance knowledge about various digital printing techniques.
B-PPT601(a).2: Know about electrophotography, ionography & magnetography process
B-PPT601(a).3: Develop the knowledge about networking and its uses in digital printing.
B-PPT601(a).4: Know about the basic knowledge of ink jet & nanographic printing.

Note:- The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit from I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing short notes covering the entire syllabus. All questions carry equal marks.

UNIT 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

UNIT II

ELECTROPHOTOGRAPHY, IONOGRAPHY & MAGNETOGRAPHY - Principle of Electrophotography, 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

UNIT 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, TonerJet Printing Technology, Elcography, Direct Imaging Printing Technology, Assessment of New Types of NIP Technologies.

UNIT V

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;

Recommended Books :

Digital Printing -

On Demand Printing - Howard M. Fenten, Frank J. Romano

TEXT BOOKS: 1. Harald Johnson, Mastering Digital Printing, Cengage Learning PTR; 2 edition, 2004 2. Mitchell Rosen, Noboru Ohta, Colour Desktop Printer Technology, CRC Press, 2006 REFERENCE: 1. Helmut Kipphan, Handbook of Print Media, Springer Verlag, 2001

B-PPT 602(a): DIGITAL PRINTING (PRACTICAL)

Time: 3 Hrs.
Total Credit-02

Total Marks: 50
Practical Marks: 40
Internal Assessment: 10

Course Objectives: This course is designed for theoretical understanding of principles, applications used in Digital Printing. It provides the technical ability to understand various production operations used in Digital Printing.

Course Learning Outcomes: The students learned about the Pre-press section of printing and packaging industry and the student will be able to:
B-PPT602(a).1: Enhance knowledge about various digital printing techniques.
B-PPT602(a).2: Know about electro photography, iono-graphy & magneto graphy process
B-PPT602(a).3: Develop the knowledge about networking and its uses in digital printing.
B-PPT602(a).4: Know about the basic knowledge of ink jet & nano graphic printing.

Note:- The students will do practical assignments assigned by the concerned teacher throughout the whole semester and will submit them in the form of hardcopy/softcopy to the teacher. External Examiner will evaluate the work done by the student, will conduct the practical and viva voce.

LIST OF EXPERIMENTS

- 1) Colour Reproduction
- 2) File format TIFF, EPS, JPEG converting
- 3) Study of various output printing equipments
- 4) Page layout
- 5) Page formation
- 6) Digital work flow
- 7) Work flow for on demand printing

B-PPT 601 (b): SECURITY PRINTING (THEORY)

Time: 3 Hrs.
Total Credit-04

Total Marks: 100
Theory Marks: 80
Internal Assessment: 20

Course Objectives: This course is designed for theoretical understanding of Security printing process. In this course student learn about the development of the Security Printing with different components and their working. Students technically understood about the security printing process and its working procedure.

Course Learning Outcomes: The students learned about Security printing process and the student will be able to:
B-PPT601(b).1: Enhance knowledge about development of Security printing process from earlier time to modern world
B-PPT601(b).2: Technical understanding of different components of security printing.
B-PPT601(b).3: Understand about the role of security products produce through security printing.
B-PPT601(b).4: Know about the basic knowledge about the currency printing .

Note:- The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit from I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing short notes covering the entire syllabus. All questions carry equal marks.

Unit-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.

Unit-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 elements such as Holograms, optical variable graphics, diffraction structures, liquid crystal materials, optical security in laminates etc., invisible document security and Brand protection.

Unit-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.

Unit-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.

Recommended Books :

Forms for the 80's. How to design and produce them - Gar Raines.

TEXT BOOKS: 1. Richard D. Warner, Richard M. Adams, "Introduction to Security Printing", PIA/GATF Press, 2005 REFERENCES: 1. A.S. Bhaskar Raj, Barcode Technology and Implementation, McGraw Hill, 2007. 2. Developments in Security Labels and Tags, Rudie Lion, Pria International Ltd. 3. Martin Monestics, The Art of Paper Currency, Quarlet Books Ltd.,1983. Stochastic Screening - Kelvin Tritton.

B-PPT 602(b): SECURITY PRINTING (PRACTICAL)

Time: 3 Hrs.
Total Credit-02

Total Marks: 50
Practical Marks: 40
Internal Assessment: 10

Course Objectives: This course is designed for practical understanding Security Printing process, It also provides the technical ability to understand different components security printing with their specification and working.

Course Learning Outcomes: The students learned about security Printing press and the student will be able to:
B-PPT602(b).1: Enhance knowledge about Currency printing.
B-PPT602(b).2: Knowledge about the security products..
B-PPT602(b).3: Technical knowledge of colour sequence in security printing
B-PPT602(b).4: Know about the setting procedure of rollers and folder for Security printing.

Note:- The students will do practical assignments assigned by the concerned teacher throughout the whole semester and will submit them in the form of hardcopy/softcopy to the teacher. External Examiner will evaluate the work done by the student, will conduct the practical and viva voce.

LIST OF EXPERIMENTS

1. Design of fan fold forms computer letter & mailers
2. Design of computer envelops and snap-out-forms
3. Various types of web offset printing
4. Processes use for packaging and dispatch
5. Study of collators
6. Dot loss and dot gain in film imaging
7. Plate making
8. Colour sequence for security printing

B-PPT 603: PRINT MANAGEMENT (THEORY)

Time: 3 Hrs.
Total Credit-06

Total Marks: 150
Theory Marks: 120
Internal Assessment: 30

Course Objectives: This course aims to provide students a clear understanding about the basic concepts of management, basic accounting, planning in organization and technique involved in managing human resources.

Course Learning Outcomes: The students learned about the Print management process and the student will be able to:
B-PPT603.1: Enhance knowledge about management system in Printing Industry
B-PPT603.2: Know about basic concept of accounting
B-PPT603.3: Develop the knowledge about the human resource management in printing and packaging industry.
B-PPT603.4: Know about the basic planning knowledge in printing organization

Note:- The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit from I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing short notes covering the entire syllabus. All questions carry equal marks.

UNIT-I

Print Management Introduction – Printing Industry in India & Abroad, Impact of globalization on printing industry, Concept of Management, Management – Nature, scope and importance of Management, Functions of Management, Qualities and characteristics of managers, Social responsibility of managers.

UNIT-II

Print Organization and Layout- Production and operations Management – Locations and Layout of plant, Maintenance management, Total quality management (TQM), Marketing management – Marketing and its functions, distribution channels, types of distribution channels, salesmanship and advertising.

UNIT-III

Human resource management: Manpower planning – recruitment, selection, Training performance appraisal Wage and salary administration. Financial Management- Nature of Financial Management, Scope of Financial Management, objectives of Financial Management and functions of Financial Management.

UNIT-IV

Planning and Organizing - Concept of planning, Classification of planning: Strategic plan, Tactical plan and Operational plan, Organizing - Defining organizing, Process of organizing, Types of organizational structure, Work flow and organizational structure in a printing press.

Recommended Books :-

1. T.A. Saifuddin – Management aspects of printing industry by NirmalSadanadn Publishers, Mumbai, Ist edition.
2. G.G. Field- Printing Production Management by Graphic Arts Publishing, 1996.
3. Balaraman – PMCA by Ramaya Features & publications, 1987.
4. Mendiratta B.D. – Estimating & Costing by Print Trade Publications, 1999-2000.
5. Ruggles – Printing Estimating Principles and Practices by Delmer Publication 1985.
 - (a.) Maintenance Engineering Handbook
 - (b.) Lindley R. Higging, McGraw Hill International Edition.
 - (c.) Operator’s Manually by GATF.

B-PPT 604: ENTREPRENEURSHIP (THEORY)

Time: 3 Hrs.
Total Credit-06

Total Marks: 150
Theory Marks: 120
Internal Assessment: 30

Course Objectives: This course aims to provide students a clear understanding about the concepts, types, methods, and techniques involved, in **Entrepreneurship Process and Govt. support to new enterprise.**

Course Learning Outcomes: The students learned about the Entrepreneurship Process and the student will be able to:
B-PPT604.1: Enhance knowledge about Printing And Packaging Entrepreneurship.
B-PPT604.2: Knowledge about Methods and Procedures to start and expand one's own business
B-PPT604.3: Enhance knowledge about Different forms of ownership
B-PPT604.4: Know about the basic knowledge of Small business/enterprise.

Note:- The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit from I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing short notes covering the entire syllabus. All questions carry equal marks.

Entrepreneurship:

A Perspective: Recognition of the need for entrepreneurship and self-employment development, Entrepreneurship spirits, Significance of entrepreneur in Economic Development, Scope and trends of small enterprises, Small business/enterprise-the driving force for national growth, Types of small enterprises, Economic, social and psychological need for entrepreneurship, characterization, qualities and pre-requisites of entrepreneur, Selection of a potential entrepreneur, Identifying & Evaluating Business opportunities.

UNIT-II

Quick Start Method:

Methods and Procedures to start and expand 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 benefits, sub plan, Business plan-blue print to success and financing, Small manufactures business plan, Feasibility Study, Preparation of Feasibility Reports, Project Reports.

UNIT-III

Forms of Ownership:

Different forms of ownership-sole proprietysuip, 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?

UNIT-IV

Instructional Models:

Govt. support to new enterprise, incentives, sources of finance, Entrepreneurship Development Centre, Role of Govt. and promotional agencies in entrepreneurship development, Entrepreneurship development programmes, Role of various institutions in developing entrepreneurship in India

Recommended Books :- 1. T.A. Saifuddin – Management aspects of printing industry by NirmalSadanadn Publishers, Mumbai, Ist edition. 2. G.G. Field- Printing Production Management by Graphic Arts Publishing, 1996. 3. Balaraman – PMCA by Ramaya Features & publications, 1987.

B-PPT 605: PROJECT

Time: 3 Hrs.
Total Credit-04

Total Marks: 100
Theory Marks: 80
Internal Assessment: 20

Course Objectives: This course is designed for Practical various technical project of printing and packaging

Course Learning Outcomes: The students learned about the Packaging machines and the student will be able to:
B-PPT605.1: Enhance knowledge about uses of different types of packaging machines used in packaging Industry.
B-PPT605.2: Know about various plates and pre press procedures used in printing.
B-PPT605.3: Develop the knowledge about the binding and finishing operations.
B-PPT605.4: Know about the basic knowledge of eco friendly printing and packaging.

B-PPT-605(i) – Pre- Press Technology

B-PPT-605(ii) - Press Production

B-PPT-605(iii) - Post Press Operation

B-PPT-605(iv) - Package Development

B-PPT-605(v) - Eco Friendly Printing and Packaging

B-PPT 606: COMPUTER GRAPHICS (THEORY)

Time: 2 Hrs.
Total Credit-01

Total Marks: 25
Theory Marks: 20
Internal Assessment:5

Course Objectives: The objective of this course is to provide students with a fundamental understanding of computer graphics

Course Learning Outcomes: The students learned about the computer graphic and the student will be able to:
B-PPT606.1: understand about various computer display devices.
B-PPT606.2: To understand the concept of cathode ray tube
B-PPT606.3: To familiarize with the concept of digital image processing
B-PPT606.4: Enhance the knowledge of color model and its application.

Note:- The question paper will be divided into three units containing five questions. Students are required to attempt three questions in all. There will be two questions in unit I & II. The students are required to attempt one question each from unit I & II. Each question will carry 5 marks. Unit-III will have only one Compulsory question of 10 marks containing six short notes covering the entire syllabus and students are required to attempt any five.

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,

UNIT-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

UNIT-III

Fundamental concepts of digital image processing - introduction, objectives, visual perception - structure of human eye, image formation in the eye, brightness adaptation and discrimination. Digital image representation, basic steps of image processing, elements of image processing system - image acquisition, storage, processing, communication, display.

UNIT-IV

Color model and color applications – Properties of light, standard primaries and the chromaticity diagramme XYZ color model, CIE chromaticity diagram, RGB color model, CMY color model, color selection and application,

Illumination model and surface rendering method—Light sources, basic illumination models, ambient light, diffuse reflection, displaying continuous tone images, halftone pattern and dithering technique.

Recommended Books:

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 - **Gonzalez, Woods, Chanda,**

Digital image processing and analysis –**Majumdar**

Digital image processing and computing- **Schalkoff**

B-PPT 607- COMPUTER GRAPHICS (PRACTICAL)

Time:2 Hrs.
Credits:1

Total Marks: 25
Practical :20
Internal Assessment:5

Course Objectives: The objective of this practical course is to provide students with a fundamental understanding of computer graphic.

Course Learning Outcomes:
B-PPT 607.1: Students will be able to learn software used in graphics
B-PPT 607.2: Students will be able to implement the tools of graphic software in designing.
B-PPT 607.3: Students will be able to understand image editing.
B-PPT 607.4: Students will be able to understand the software used in newspaper,books production.

Note:- The students will do practical assignments assigned by the concerned teacher throughout the whole semester and will submit them in the form of hardcopy/softcopy to the teacher. External Examiner will evaluate the work done by the student, will conduct the practical and viva voce.

LIST OF EXPERIMENTS

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. Quark express: PageMaker up, formatting and editing in the software.

