PERIYAR UNIVERSITY

PERIYAR PALKALAI NAGAR

SALEM – 636011

DEGREE OF BACHELOR OF SCIENCE

CHOICE BASED CREDIT SYSTEM

Syllabus for

B.SC. DIGITAL PRINT MEDIA

(SEMESTER PATTERN)

(For Candidates admitted in the Colleges affiliated to

Periyar University from 2017 - 2018 onwards)

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REGULATIONS

1. **ELIGIBILITY**

   Refer this office circular No: PU/R/AD-1/UG/PG/Programmes Eligibility/2019 Dated: 16-04-2019.

2. **DURATION OF THE COURSE**

   The course shall extend over a period of three years comprising of six semesters with two semesters in one academic year. There shall not be less than 90 working days for each semester. Examination shall be conducted at the end of every semester for the respective subjects.

3. **COURSE OF STUDY**

   The course of study shall comprise instruction in the following subjects according to the syllabus and books prescribed from time to time. The syllabus for various subjects shall be clearly demarcated into five viable units in each paper/subject. Part -I, Part-II, Part – III and Part – IV subjects are as prescribed in the scheme of examination.

4. **EXAMINATIONS**

   The theory examination shall be of three hours duration to each paper at the end of each semester. The candidate failing in any subject(s) will be permitted to appear for each failed subject(s) in the subsequent examination. The practical examinations for UG course should be conducted at the end of the even semester.

4. **(a) Submission of record note books for practical examinations**

   Candidates appearing for practical examinations should submit bonafide Record Note Books prescribed for practical examinations, otherwise the candidates will not be permitted to appear for the practical examinations. However, in genuine cases where the students, who could not submit the record note books, they may be permitted to appear for the practical examinations, provided Head of the department concerned from the institution of the candidate certified that the candidate has performed the experiments prescribed for the course. For such candidates who do not submit Record Books, zero (0) marks will be awarded for record note books.

5. **Revision of Regulations and Curriculum**

   The University may revise /amend/ change the Regulations and Scheme of Examinations, if found necessary.

6. **(a) Passing Minimum – Theory**

The candidate shall be declared to have passed the examination if the candidate secures not less than 40 marks out of 100 (**CIA – 10 marks out of 25 and EA – 30 marks out of 75**) in the University examination in each theory paper.

6. **(b) Passing Minimum – Practical**

The candidate shall be declared to have passed the examination if the candidate secures not less than 40 marks put together out of 100 **(CIA – 16 marks out of 40 and EA – 24 marks out of 60)** in the University examination in each practical paper.

7. **Question Paper Pattern for B.Sc. DPM Course**

7.1 *(a)* *THEORY - Question Paper Pattern [EA] (Total Marks: 75)*

> **PART – A (10 x 2 = 20 Marks)**
> (Answer ALL questions), (Two questions from each unit)
>
> **PART – B (5 x 5 = 25 Marks)**
> (Answer ALL questions) & (One question from each unit with Internal Choice)
>
> **PART – C (3 x 10 = 30 Marks)**
> (Answer ANY THREE questions) & (Open Choice – 3 out of 5 questions)

7.1 *(b)* *THEORY - Internal Marks Distribution[CIA] (Total Marks: 25)*
- Attendance:5 Marks
- Assignment:5 Marks
- Internal Examinations:15 Marks

7.2 *(a)* **PRACTICAL –** *Marks Distribution & Question paper Pattern* (**Max. Marks: 100)** **[External [EA]: 60 Marks & Internal [CIA]: 40 Marks]**

PRACTICAL - External Marks Distribution (Total Marks: 60) For

each practical question the marks should be awarded as follows

(External):
i)   Algorithm / Flowchart- 20%
ii) Writing the program in the main answer book- 30%
iii) Test and debug the program- 30%
iv) Printing the correct output- 20%
     (Marks may be proportionately reduced for the errors committed in each of the
     above) for each practical question the marks should be awarded as follows :

(External):
i)   Writing Procedure – 40%
ii) Practical Work – 60%

PRACTICAL - Internal Marks Distribution (Total Marks: 40)

- Record : 15 Marks
- Internal Practical examinations: 25 Marks

PRACTICAL Question Paper Pattern

1. **Practical – I**
   One question from MS-Office (either or type)
   and
   One question from Web Designing (either or type)

2. **Practical – II**
   3 out of 6 questions from Adobe Photoshop

3. **Practical – III**
   3 out of 6 questions from Indesign & Illustrator

4. **Practical – IV**
   3 out of 6 questions from Corel Draw

5. **Practical – V**
   2 out of 4 questions from Film Assembly & Plate Making

6. **Practical – VI**
   2 out of 4 questions from Offset Printing

7. **Practical – VII**
   2 out of 4 questions from Binding & Finishing Techniques

8. **Practical – VIII**
   Internship – Viva-Voce

9. **Practical – IX**
   2 out of 4 questions from Packaging Techniques

10. **Practical – X**
    Project Report – Viva-Voce

    Project report should be attached with this Annexure I - III

ANNEXURE – I

PERIYAR UNIVERSITY

College Name   :

Course   :

Student Name   :

Register Number   :

Title of the Project   :

Address of Organization / Institution   :

External Signature   **Internal Signature**

ANNEXURE – II

COLLEGE BONAFIDE CERTIFICATE

ANNEXURE III

Format of the title page

TITLE OF THE DISSERTATION

A Dissertation submitted in partial fulfillment of the requirements for the degree of

BACHELOR OF DIGITAL PRINT MEDIA

TO

THE PERIYAR UNIVERSITY,

SALEM-11

STUDENT NAME

REG.NO.

COLLEGE EMBLEM

COLLEGE NAME

(AFFLIATED TO PERIYAR UNIVERSITY)

PLACE WITH PIN CODE

MONTH-YEAR

PROJECT WORK

TITLE OF THE DISSERTATION

BONAFIDE WORK DONE BY

STUDENT NAME

REG.NO.

8.   Commencement of this Regulation

These regulations shall take effect from the academic year 2017-18, i.e, for students who are to be admitted to the first year of the course during the academic year 2017-2018 and thereafter.

COURSE OF STUDY AND SCHEME OF EXAMINATION

SEM	PART	SUB CODE	SUBJECT	Hrs.		CRE DIT	MARKS		
				Lect.	Lab		CIA	EA	TOTAL
SEMESTER – I									
I	I	Language	Tamil - I	6	-	3	25	75	100
	II	Language	English - I	6	-	3	25	75	100
	III	Core I	Computer Fundamentals and MS-Office	6	-	4	25	75	100
		Core Practical I	MS-Office & Web Design	-	4	-	-	-	-
		Allied I	Business Communication	6	-	4	25	75	100
	IV	Value Education	Yoga	2	-	2	25	75	100
			Total	**26**	**4**	**16**	**125**	**375**	**500**
SEMESTER – II									
II	I	Language	Tamil - II	6	-	3	25	75	100
	II	Language	English - II	6	-	3	25	75	100
	III	Core II	Introduction to Internet	6	-	4	25	75	100
		Core Practical I	MS-Office & Web Design	-	3	4	40	60	100
		Allied II	Marketing	6	-	4	25	75	100
	IV	EVS	Environmental Studies	1	-	2	25	75	100
		SBEC - I	Multimedia Packages	1	1	2	25	75	100
			Total	**26**	**4**	**22**	**190**	**510**	**700**
SEMESTER – III									
III	II	Language	Communicative English	5	-	3	25	75	100
	III	Core III	E-Publishing	4	-	4	25	75	100
		Core IV	Printing Process and Materials	5	-	4	25	75	100
		Core Practical II	Adobe Photoshop	-	4	3	40	60	100
		Core Practical III	Indesign and Illustrator	-	4	3	40	60	100
		Allied III	Entreprenenship Development	6	-	4	25	75	100
	IV	NMEC - I	Tamil/ Advanced Tamil (or) Non - Major Elective Course - I	2	-	2	25	75	100
			Total	**22**	**8**	**23**	**205**	**495**	**700**

SEM	PART	SUB CODE	SUBJECT	Hrs.		CREDIT	MARKS		
				Lect.	Lab		CIA	EA	TOTAL
SEMESTER – IV									
IV	II	Language	Communicative English	4	-	3	25	75	100
	III	Core V	Total Quality Management	4	-	4	25	75	100
		Core VI	Designing & Planning for Print Production	4	-	4	25	75	100
		Core VII	Film Assembly and Plate Making	4	-	4	25	75	100
		Core Practical IV	Corel Draw	-	3	3	40	60	100
		Core Practical V	Film Assembly and Plate Making	-	3	3	40	60	100
		Allied IV	Advertising	6	-	4	25	75	100
	IV	NMEC-II	Tamil/ Advanced Tamil(or) Non -Major Elective Course - II	2	-	2	25	75	100
			Total	**24**	**6**	**27**	**230**	**570**	**800**
SEMESTER – V									
V	III	Core VIII	Color Separation	5	-	4	25	75	100
		Core IX	Offset Printing Technology	5	-	4	25	75	100
		Core X	Binding and Finishing Techniques	5	-	4	25	75	100
		Elective I	Printing Press Management	5	-	4	25	75	100
		Core Practical VI	Offset Printing Technology	-	3	3	40	60	100
		Core Practical VII	Binding and Finishing techniques	-	3	3	40	60	100
		Core Practical VIII	Internship	2	2	6	40	60	100
			Total	**22**	**8**	**28**	**220**	**480**	**700**
SEMESTER – VI									
VI	III	Core XI	Digital Prepress	6	-	4	25	75	100
		Core XII	Packaging Techniques	6	-	4	25	75	100
		Core XIII	Flexo, Gravure and Screen Printing	6	-	4	25	75	100
		Elective II	Printing Machinery Maintenance	6	-	4	25	75	100
		Core Practical IX	Packaging Techniques	-	3	3	40	60	100
		Core Practical X	Project Report		3	6	40	60	100
			Extension Activity						
			Total	**24**	**6**	**25**	**180**	**420**	**600**

Practical Examination should be conducted in the same semester

SBEC – Skill Based Elective Courses*

SEM	PART	SUB CODE	SUBJECT	Hrs.		CRE DIT	MARKS		
				Lect.	Lab		CIA	EA	TOTAL
			SEMESTER – IV						
IV	II		SBEC - 1 : Multimedia Packages	1	1	2	25	75	100

* Only theory examinations

NMEC – Non-Major Elective Course

As per University norms the NMEC is selected from the list given by University for the students admitted during 2017 – 2018 and thereafter.

ALLIED PAPERS

SEM	PART	SUB CODE	SUBJECT	Hrs.		CRE DIT	MARKS		
				Lect.	Lab		CIA	EA	TOTAL
			SEMESTER – IV						
III	I		Allied I : Business Communication	6	-	4	25	75	100
	II		Allied II : Marketing	6	-	4	25	75	100
	III		Allied III : Entreprenenship Development	6	-	4	25	75	100
	IV		Allied IV : Advertising	6	-	4	25	75	100

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SEMESTER I

CORE I - COMPUTER FUNDAMENTALS AND MS-OFFICE

Unit-I

Introduction to computers: types of computerss-characteristics of computers-five generations of modern computers. Classifications of digital computers-micro computers-personal computers-workstations-portable computers-mini computers -mainframes-super computers - network computers.number systems : decimal number system-binary number system- octal number system-hexadecimal number system- complements of numbers-signed and unsigned number reprasentation - binary coded decimal-floating point reprasentation of numbers.

Unit-II

Anatomy of a digital computer : functions and components of computer-cpu-control unit-alu-registers-addresses.memory units : types of memory-input devices-output devices-auxiliary storage devices.

Unit-III

Introduction to Microsoft Office- MS Word-creating and editing documents-menus,commands,toolbars and icons-formatting documents-creating tables-mail merge.

Unit-IV

MS-Excel:Spread sheet overview-Menus,toolbars and icons-creating worksheets-editing and formatting-excel formulas and functions-creating a chart-data forms, sort and filter.

Unit-V

MS-powerpoint:Introduction-menus,toolbars-text and formats-animation,art and sound-making the presentation templates.

Text Books:

1. "Fundamentals of Computer Science and Communication Engineering", Alexis Leon, Mathew's Leon, Vikas Publishing House, New Delhi, 1998. (Unit I & II)

2. MS-Office Sanjay Saxena.

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SEMESTER II

CORE II - INTRODUCTION TO INTERNET

UNIT – I

Internet: Introduction – overview of Internet – Internet connection concept – Internet protocols – Internet addressing. WWW: Introduction – Overview - Web pages – Web browser – Web browsing – searching the web- web Index-search engine-Meta search Engine – Internet chat – Internet Relay chat- chatting on web.

UNIT – II

E-mail: Introduction e-mail concepts- e-mail security – How do you get your e-mail- creating e-mail ID – e-mail Addressing – Downloading e-mail – formatted e-mail attaching file to message – Mailing basics: Address book – signature – File attachment – setting priority – reply & format e-mail message – E-mail ethics – spamming – E-mail advantages and disadvantages – e-mail tips for effective e-mail usage – smileys- Newsgroups and Newsgroups classification.

UNIT – III

HTML: Introduction – structure of HTML, Tags: Basic tags – formatted tags – paragraph tags – Heading tags. Creating page Template: Understanding table bascis – table pointer – examples of table creations

UNIT – IV

Graphics and colors – File format Basic – Computer color basic – graphic tool – using the <IMG> element – working with Hexadecimal color.

UNIT – V

HTML Frames – Understanding Frames – Frames system – Targeting in frame sets 9 Planning Frame content – Publishing and maintaining Website.

TEXT BOOKS

1. "Principles of Web Design" by Joel Sklar

2. "Information Technology" by Alexis Leon and Mathews Leon, Vikas Publishing House Pvt. Ltd., New Delhi.

REFERENCE BOOKS :

"Internet Complete Reference" by Margaret Levine Young, Millennium edition, Tata McGrawhill.

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SEMESTER I & II

CORE PRACTICAL I - MS – OFFICE & WEB DESIGN

MS – WORD

1.   a.Starting MS- WORD, Creating, Saving, Printing (with options), Closing and Exiting

   b.   Study a word – Menu/toolbars

2.   a.Create a document, save it and edit the document as follows :
   - Find and Replace options
   - Cut, Copy, Paste options
   - Undo and Redo options

   c.   Format the document
   - Using Bold, Underline and Italic
   - Change character size using the font dialog box
   - Formatting paragraph: Centre, Left aligns & Right aligns
   - Changing paragraph and line spacing, Using Bullets and Numbering in paragraphs

3.   Using tab settings enhancing the documents (Header, Footer, Page set up, Border, Opening & Closing Toolbars, Print Preview).

Mail Merge MS – EXCEL

1.   a.Create a Worksheet, moving/copying/inserting/deleting rows and columns (Usage of cut, paste, copying a single cell, copying a range of data, filling up a cell. Undo command, inserting a row, column, deleting rows and columns)

   b.   Formatting work sheets:
   - Bold & Italic styles
   - Font size changing
   - Formatting numbers (Auto fill, selection command, currency format, currency symbols)
   - Specifying percentage (%) Scientific notations
   - Drawing Border around cells

2.   a.Database concepts: Database, record field and field name-creating and sorting a data base and maintaining a database (data form)

   b.   Using Auto filter, advanced filter

   c.   Creating Subtotals and grant totals-using database functions

3.	Creating charts :
- Using Chart Wizard (five steps)
- Changing the chart type (Pie, Bar, Line)
- Inserting titles for the axes X, Y.
- Changing colours
- Printing charts.

MS – POWER POINT :

1.	Creating a presentation using auto content wizard

2.	Different views in PowerPoint Presentation

3.	Setting animation effects / grouping / ungrouping / cropping power point objects

4.	Printing a presentation / Importing – Exporting files

5.	Creating an organization chart in power point.

HTML

1.	Create a Webpage using Basic HTML tags

2.	Create any one Application form using all Table basics

3.	Create a College prospectus using Images, Pictures and Text etc

4.	Create a Website for your College using Frames

5.	Create a Webpage for Birthday greeting using <IMG> element, colour basics.

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SEMESTER III

CORE III - E - PUBLISHING

Unit I: Electronic Publishing

Introduction to E-publishing, Advantages and disadvantages of E-Publishing. Basic principles of E-book, List of various manufactures of E-book and Application of E-book. Steps involved for creation of e-book – Editing - Types of E-book editing – HTML compiler, PDF compiler, other compiler, Cover page design, E-book design, ISBN registration - Barcode, Copyright certification and Marketing. Marketing strategies - Ezines, Joint ventures, Pay-per-click search engines, Search engines, Press releases and news.

Unit II: PDF Production, Copy Editing and Proof Reading

Introduction to PDF : Application of PDF, Adobe PDF for professional publishing, PDF production using Adobe Indesign, Export a document, PDF predefined presets and PDF versions. Steps involved in PDF production using Quark Xpress, Introduction to Adobe distiller and Steps involved PDF production using Adobe distiller. Copy editing using symbols and marks, Qualification and duties of copy editor. Proof reading – Proof reading symbols, Methods of Proof reading, Proof reading marks, Proof reading symbols and meaning.

Unit III : HTML

Introduction to HTML, Meaning for HTML, Definition of tag and syntax. Basic tags – HTML, Head, Title and Body, Attributes of HTML – Bold, Italic, Underline, Paragraph, Break, Horizontal line, font, emphasize, teletype font, preserve the line breaks and horizontal spacing and meta (define the information about the document). Image handling using HTML – Background image, Aligning image, Display an alternate text for an image, Make a hyperlink of an image, Create an image map, Turn an image into an image map, Background color and Text color. Introduction about Cascading method and syntax (CSS) – Inserting style sheet and types of style sheet – External, Internal, Inline and Multiple style sheets, CSS property – Background, Font border, Outline, margin, Padding, List and Table.

Unit IV : XML

Introduction to XML : Advantages of XML, XML data, Design of XML, Features of XML, Difference between XML and HTML. Basic XML tags and syntax, Examples of XML declaration method. Steps for creation of XML document, Rules and regulations of XML document. Advance XML Coding, C data, Encoding, Encoding errors, Name spaces, Declaring name space, solving the name conflict using a prefix, Default namespaces, Name space in real use and Save data.

Unit V : Web to Print

Introduction to Web to print : Commercial prepress process, digital content online and commercial print production, Merits and demerits of web to print. Network concepts and Interfaces - network protocols, TCP/IP (Transmission Control Protocol/Internet Protocol), Client/Server concept, and three typical forms of network connectivity – Stand alone networks, Internal networking and External networking. Digital Workflow for web to print -Advantages, Challenges, and Possibilities, Templates to control brand management and content, customization for branch offices, personalized billing integration and administrative costs. Production Management/Monitoring Systems - Purpose, Application, and Optimizing print production by automating manufacturing operation and Broad based or customized solution.

Text books:

"DHTML AND CSS FOR THE WORLD WIDE WEB" Book, by Jason Cranford Publisher, 2001 Peachpit Press

"HOW TO USE HTML & XHTML" by Gary Rebholz,, Published 2001

"XML FOR THE WORLD WIDE WEB" by Elizabeth Castro, Published 2001, Peachpit Press

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SEMESTER III

CORE IV - PRINTING PROCESS AND MATERIALS

UNIT – I

Origin & Historical Background of Printing process – Emergence of Relief, planography, Intaglio & Stencil.

UNIT – II

Principles of Printing Processes : Letterpress, Offset, Flexography, Gravure, and Screen Printing Processes. Composition : Manual, Mechanical, Electronic composing

UNIT – III

Paper: Raw materials used for Paper and Board Manufacturing – Paper Manufacturing Process – Pulping Process , Bleaching , Stock Preparation , Operations in Paper making Machines, Finishing Process. Qualities of paper for Printing Processes – Different Types of Paper and Board – Paper size – Conventional and ISO paper sizes – Paper and Board properties and Testing – Runnability properties and printability Properties.

UNIT – IV

Printing Inks : Raw materials used for Manufacturing of Printing Inks – Properties and Characteristics of Inks – Various Ink Drying Methods – Inks Types and Speciality Inks – Various Ink Problems and their Remedies.

UNIT – V

Basic principles of hybrid printing system, Flow chart of hybrid system, Hybrid printing system concepts of combining conventional printing technologies, combining with NIP technologies and combining with computer to press technologies and Application of Hybrid printing systems. Basic principles of holograms making process, Components of hologram making system - laser, lenses, beam splitter, mirrors, holographic film and Process steps of hologram making system. Basic principles of lenticular printing process, Principle of lenticular lens, lenticular Image and interlacing, Steps involved in lenticular printing process, Effects of lenticular print – flip, 3D, animation, zoom and morphing lenticular. Basic principles of waterless offset printing, Plate structure of waterless offset printing, Merits and Demerits of waterless offset printing.

REFERENCE BOOKS: -

What the printer should know paper – Lawrence A. Wilson – GATF Press

Flexography primer – J.Page Cronnch

Gravure Primer – Cheryk L Kasunich

Hand Book of Print Media – Helmut Kipphan

Printing in a digital world - David Bergsland.

Introduction to Printing and Finishing – Hugh M Speris

Screen Printing Primer – GATF press

Sheetfet Offset Press operating – Lioyd P Dejidas and Thomas M Destree

Web Offset Press operating – Danial G Printing Materials – Science and Technology – Thomas, Bob – PIRA Publication.

Printing Paper and Ink – Charles Finley.

The print Production Manual – J.Peacock,C.Berril and M.Barnard

The Printing Ink Manual – R.H.Leach and R.J. Pierce

What the Printer should know about Ink – Dr.Nelson Ra Eldred- GATF Press

Wilson andPIA/GATF

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SEMESTER III

CORE PRACTICAL II - ADOBE PHOTOSHOP

List:

1. Photoshop Toolbar.

2. Transforming Images (Image Size, Canvas Size, Resolution, Rotate, Scale, Skew, Distort, Perspective, Flip Horizontal, Flip Vertical)

3. Color Correction using Adjustment Layers.

4. Selecting images using Marquee tool, Magic wand tool, Lasso Tool.

5. Selecting images using Path.

6. Re-drawing Picture.

7. Creating Layer Mask, Vector Mask & Alpha Channel.

8. Retouching Images using Clone Stamp tool, Healing Brush tool & Patch tool.

9. Working with Layer Styles (Drop Shadow, Inner Shadow, Outer Glow, Inner Glow, Bevel & Emboss)

10. Working with Layer Styles (Satin, Color Overlay, Gradient Overlay, Pattern Overlay, Stroke)

11. Designing a Greeting Card in Photoshop

12. Designing a Note Book Cover Page

13. Designing a Invitation

14. Designing a Pamphlet

15. Creating a Simple Animation in Photoshop

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SEMESTER III

CORE PRACTICAL III - INDESIGN AND ILLUSTRATOR

List:

1. InDesign Toolbar

2. Working with text in InDesign

3. Text Wrap & Placing Images in InDesign

4. Working with Story Editor

5. Creating Master Pages

6. Creating an News Paper in InDesign

7. Designing an Bill Book

8. Illustrator Toolbar

9. Working with Clipping Mask & Compound Path in Illustrator.

10. Working with Symbols in Illustrator.

11. Pallets in Illustrator (Brushes, Graphic Styles, Swatches, Layers, Transform)

12. Pallets in Illustrator (Align, Transparency, Color, Gradient, Stroke, Pathfinder)

13. Monogram creation in Illustrator

14. Logo Creation in Illustrator

15. Working with Filters

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SEMESTER IV

CORE V - TOTAL QUALITY MANAGEMENT

Unit I: INTRODUCTION - Define: Quality, Quality assurance, Process Control, TPM, TQM and ISO. Quality control Process - elements of quality control process, key role of process management and steps for process management. Basic elements of Total Quality Management: Focus on customer, involvement of entire printing organization, team effort, empowerment of employees, mindset for process improvement, benchmark and coordinating with supplier and customer. Statistical Process Control Tools: Purpose of SPC, cause and effect diagram, check sheet, flow diagram, pareto analysis, histogram, run chart and control chart. Basic concepts and benefits of Kaizen, JIT, 5S, Six Sigma – TQM team roles and responsibilities of Top Management, Champion, Black Belt and Green Belt.

Unit II: Material Inspection and Testing - Visual Inspection, Storage and Handling of Substrates and Chemicals. Maintenance of data sheets of materials (Specifications). Testing procedures for Paper and board – Grain Direction, GSM, stiffness, tensile strength, tearing resistance, folding endurance, RH, smoothness and moisture. Definition of pH – Testing of pH and conductivity of dampening solution. Working principle of Viscometer, Inkometer, Glossmeter and Opacimeter. Working principle of Moisture meter, Mullen Tester, Folding Endurance Tester and Weather-O-meter.

Unit III: Process Control - Quality control targets – registration mark, star target, Ink Coverage target and Line Resolution target. Control patches – Solid patches, Halftone, Slur/Doubling, Grey Balance, Solid overprint and Plate exposure control patches. Analysis of Print Attributes: Solid Ink Density (SID), Dot Gain, Print contrast, Ink Trapping and Maximum Ink Coverage. CIE Lab and color difference - Delta E. Wastage minimization: reduction of waste from overproduction, defects, waiting time and delay, accumulation of work in process and transport (logistic).

Unit IV: Calibration of Instruments and Profile - Densitometer - Basic components and its working principles. Spectrophotometer - basic components, light source, viewing geometry, optics and working Principles. Input device calibration and profile setting of Scanner and Digital Camera. Output device calibration and profile setting of monitor, proofer and Computer to Print (CtP).

Unit V: Implementation of ISO for Print Quality - Introduction to ISO 9001, ISO 9001 Series of standards and ISO standards for Printing industry (ISO 12647 series). Types of audit - first party, second party and third party audit. Purpose and benefits of audits. Cost of Implementation of ISO standards in printing organisation. Benefits of ISO implementation, Customer Satisfaction and Case Studies of ISO certified print industry.

Text book:

1. Total Quality Management, Dale H. Besterfield, Pearson Education, Delhi, 2002

2. Implementing Quality Management in the Graphic Arts, Herschel L and Michael J

3.   Apfelberg, GATF, Pittsburgh, 1999

4.   Digital 19 x 25 –in Test Form 4.1, User Guide, GATF, Pittsburgh, USA 1998

5.   Colour control in lithography, Kelvin Tritton, Pira International Surrey UK 1995

6.   Quality Control for Print Buyers, Phil Green, Blue Print, London, UK, 1992

7.   A Guide to Graphic Print Production, 2 ed., Kaj Johansson, Peter Lundberg and others,

8.   John Wiley & Sons, Inc, New Jersey

9.   What the Printer should know about Paper, 3rd ed., Lawrence A. Wilson, GATF Press,

10.   Pittsburgh, 1998

11.   What the Printer should know about Ink, Nelson R. Eldred and Terry Scarlett, GATF,

12.   Pennsylvania, USA 1990

13.   Total Quality Management, Ken Holmes, Pira International, Leatherland, 1992.

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SEMESTER IV

CORE VI - DESIGNING & PLANNING FOR PRINT PRODUCTION

Unit I - Design Elements

Fundamentals of design elements - Line, shape, texture, balance, and contrast.
Principles of symmetrical and asymmetrical arrangements.

Unit II – Color Elements

Colour elements – colour application, colour terms - warm colour, cool colours, colour wheel describing complementary, split, double split complementary.
Selection of colours for multi colour printing.

Unit III - Typographic fundamental

Main group of typeface design, characters, Type,font series and families.
Typographic specifications for different classes of work - Bookwork, Magazine work, Newspaper work and Direct mail literatures.
Choosing typefaces for different processes and different paper surfaces.
Application and importance of Legibility and Readability.
Layout preparation - stages, arrangement of integration of layout and text matter.
Introduction to Dummy preparation and its necessity.

Unit IV - Designing Printed Products

Book design - format, parts, page layout and jacket. Magazine design - format, Parts and Types and classification of Magazines.
Newspaper design - Newspaper parts, layout design principles, Design elements, Styles of Newspaper headlines.
Design aspects of other printed products - Leaflet, Pamphlet, Catalogue, Brochure, Booklets, Labels, Cartons, Typeface and colour selection.

Unit V - Typographic Measurements

Typefonts. Style of house – copy preparation and its advantages, rules of house style.
Proof stages for different kinds of jobs. Proof reading symbols, meanings and importance.
Casting off – procedures and advantages.

REFERENCE BOOKS: -

What the printer should know paper – Lawrence A. Wilson – GATF Press

Flexography primer – J.Page Cronnch

Gravure Primer – Cheryk L Kasunich

Hand Book of Print Media – Helmut Kipphan

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Sheetfet Offset Press operating – Lioyd P Dejidas and Thomas M Destree

Web Offset Press operating – Danial G Printing Materials – Science and Technology – Thomas, Bob – PIRA Publication.

Printing Paper and Ink – Charles Finley.

The print Production Manual – J.Peacock,C.Berril and M.Barnard

The Printing Ink Manual – R.H.Leach and R.J. Pierce

What the Printer shoul;d know about Ink – Dr.Nelson Ra Eldred- GATF Press

Wilson andPIA/GATF

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SEMESTER IV

CORE VII - FILM ASSEMBLY AND PLATE MAKING

Unit I - Film Assembly

Offset printing production workflow - Introduction to film image assembly - Planning layouts - Importance of planning -The layout and planning information - Preparation of production layout - Equipments and tools for layout department.

Unit II - Job Planning And Imposition Considerations

Job planning - Basic steps in planning a film image assembly Imposition consideration for sheet fed presses and web fed presses - Imposition terms and imposition rules - Planning imposition schemes for printing book work -Work-and-turn; work-and-tumble - Image registering system/devices - tab and button method and punched hole method.

Unit III - Film Assembly

Inspection and preparation of films before assembling - Negative assembly on peelable membrane substrates. Substrates for film assembly - Opaquing - Preparation of complementary flats - Butting images, surprints, reverse image - Colour film assembly using pin register system - Step and repeat systems – procedures of automatic machines.

Unit IV - Lithographic Plate Surface Chemistry

Main types of lithographic plates -Plate making equipments – whirler, pressure vacuum printing down frame, Plate making materials - Plate surface preparation - Coating materials - Comparison of positive and negative working plates - Processing chemicals. Chemistry of plate making - Control of the plate making variables - use of plate sensitivity - Control of tone values-use of GATF star target and other devices, continuous tone step wedge - Quality control devices used in plate making department.

Unit V - Offset Plate Making Processes

Wipe-on process using negative films - Pre sensitized plates using both negative and positive films - Trouble shooting in the wipe-on and presensitized plate making system - Care and storage of offset plates before and after printing.

Reference Books:

1. Modern film planning and plate making - AL Gate house and Kn Roper, SITA Limited England Stripping

2. The assembly of film images - GATF Offset lithographic plate making Robert F Reed, GATF the lithographers manual - 7th edition, GATF the lithographers manual - 9th edition

B.Sc. DIGITAL PRINT MEDIA

SEMESTER IV

CORE PRACTICAL V - FILM ASSEMBLY AND PLATE MAKING

Film Assembly

1. Layout preparation for film assembly using register marks, bleed marks, trim marks and folding marks.

2. Assembly of film negatives for sheet work and half sheet work up to 16 pages section of imposition schemes.

3. Assembly of film positives for sheet work and half sheet work up to 16 pages section of imposition schemes.

4. Multi colour film assembly using pin register systems.

5. Preparation of complementary flats using negative and positives for butting images and surprint.

Plate Making

1. Offset plate making for colour printing - wipe-on process and pre-sensitized plates using both negative and positive films.

2. Plate inspection an application of washout solution.

3. Study of various quality control aids in plate Making.

4. Plate treatments - care and storage.

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SEMESTER V

CORE VIII - COLOR SEPERATION

Unit I - Colour Measurement

Methods of colour measurement - Colour matching - Colour difference measurement - Instrumental measurement of colour.

Unit II - Colour Reproduction and Separation

Originals and Print viewing conditions - originals for colour reproduction - colour prints, contrast range, colour balance and surface reflection. - Wash drawings and pastel colour originals, Printed originals - Spectrophotometric curves for photographic materials - Basic Principles of colour separation - Direct and Indirect method - Colour Diagrams and their uses - The CIE chromaticity diagram, The Maxwell Additive Triangle, The GATF colour circle.

Unit III - Electronic Colour Scanner

Electronic colour scanner – principles, basic mechanics and functions, signal processing - Mechanical consideration of a scanner - Copy evaluation and scanning aids - Basic calibration - Input and output calibration - Colour cast Removal - Tonal changes - colour correction - Gray Balance setup procedure - Under colour addition, under colour removal - Gray component Replacement - Unsharp masking set up Procedure - Line mode in Scanners.

Unit IV - Developments in Electronic Scanning

Colour separation in flatbed scanners used in DeskTop Publishing - Use of punch Register systems for Perfect Registration - Lasers - Principles of operation, types, characteristics.

Unit V - Colour Proofing

Press and Pre-press proofing systems - Digital colour proofing - Uses and limitations of colour chart - M match print colour control element - FOGRA standards

Reference Books:

Graphic Reproduction Photography - J.W. Burden, Focal Press, London. Reproduction Photography for Lithography - GATF. Electronic colour separation - Dr.R.K.Molla, R.K.Printing and Publishing company, West Virgina, U.S.A. Standardized Lithographic colour printing - PIRA Guide. Colour Separation Techniques - Mills South Worth, Graphic Arts Publishing Co., New York. Reproduction of colour - R.W.G. Hunt, Fountain Press. Graphic Reproduction - Eagle head publishing Ltd., Surrey, U.K. Principles of colour reproduction applied to photomechanical reproduction, Colour photography and the ink, paper and other related industries - John Wiley & Sons, U.K. The Lithographers manual - 7th Edition - GATF. The Lithographers manual - 9th Edition - GATF.

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SEMESTER V

CORE IX - OFFSET PRINTING TECHNOLOGY

UNIT I - Introduction to Sheet fed Offset Presses

1.1   Principles to Lithography

1.2   Structure and type of presses – Inline Press, Stack Press, Blanket-to-Blanket Press, Common Impression Press

UNIT II - Printing Unit in Offset Press

2.1   Plate cylinder, Blanket cylinder, Impression cylinder, Transfer cylinder, Delivery cylinder

2.2   Inking System – Construction, Setting rollers- Form roller to Oscillator, Form Roller to Plate, Ductor Roller Setting Inking System Problems – Roller Streaks, Glazed Rollers, Fountain Blade Problems, Roller Problems.

2.3   Dampening System – Construction, Composition of Dampening Solution, Dampening Solution pH, Conductivity, Dampening system Roller setting

UNIT III - Sheet Control and Delivery in Offset Press

3.1   Types of Automatic Feeder – Single sheet feeder, Stream Feeder

3.2   Feeder Head Components – Air blast Nozzle, Rear Pickup Suckers, Forwarding Pickup Suckers, Sheet Steadiers, Separator Brushes and fingers

3.3   Sheet Registering Devices – Front lay and Side lay

3.4   Delivery Section – Jogging the delivery pile, Delivery Assist Devices – Suction Slow down Rollers, Blow downs, Wedges.

UNIT IV - Webfed Offset Press – Infeed the Web Guiding Devices

4.1   Roll Stands and Dancer Roll Principle – Types of Reel Stands

4.2   Automatic Splicers – Zero Speed Paster, Flying Paster

4.3   Web Control – Metering Roller, Box Tilt, Web break detectors, Bustle Wheel.

UNIT V - Webfed Offset Press – Delivery Unit

5.1   Types of Dryers and Chill Rollers

5.2   Mechanics of Folders – Former board Mechanics, Cut off Cylinder Mechanics, Jaw Folder Mechanics, Chopper Folder Mechanics

5.3   Types of Folders – Combination Folder, Ribbon Folder, Former Folder, Double Former Folders.

5.4   Auxiliary Equipments – Stackers, Bundlers, Sheeters, Perforators, Imprinters, Sidelay Sensors.

REFERENCE BOOKS:

1. A Manual for Lithographic Press Operations – A.S. Porter

2. Handbook of Print Media – Dr. Helmut Kipphan

3. Sheetfed Offset Press Operating – Lloyd P. Dejidas and Thomas M. Destree, GATF.

4. Offset Lithography – S. Jaganathan, K.T.Chary

5. Web Offset Press Operating – Daniel G. Wilson, GATF

6. Modern Lithography Printing – Ian Faux.

SEMESTER V

CORE PRACTICAL VI - OFFSET PRINTING TECHNOLOGY

1. Premake-ready operations of offset printing machines.

2. Adjustment of automatic feeders for single sheet feeding.

3. Preparation of offset plate for mounting on the cylinder.

4. Preparation and fitting of offset blanket.

5. Care and treatment of offset blanket in use.

6. Preparation of fountain solution and plate etches for use.

7. Preparation of dampening rollers.

8. Adjustment of inking rollers.

9. Adjustment of dampening rollers.

10. Ink fountain setting.

11. Make-ready and printing two-colour work of line and halftone.

12. Ink roller wash-up.

13. Damper cleaning.

14. Preparing the plate for storage.

15. Safety precautions while working on machines.

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SEMESTER V

CORE X - BINDING AND FINISHING TECHNIQUES

Unit I - Binding Operations

Receiving printed sheets, Checking, Cutting half sheet work.

Folding by hand - folding to paper and folding to print, regular and irregular and zigzag folding.

Gathering - signature, binder's mark, collating, attaching plates, charts and maps.

Securing operations - Thread stitching, wire stitching styles.

Different kinds of sewing - Library sewing, Sawn-in sewing, flexible sewing, two-on sewing, over-cast sewing, French sewing - their job suitabilities.

End papers - single, made-end paper, re-inforced, cloth joint, leather joint, zigzag end papers and their uses.

Unit II - Forwarding and Finishing Operations

Forwarding operations - in-board and out-board forwarding.

Gluing the back, rounding and backing objects.

Care and precautions reducing swelling in the back, head bands - hand made and machine made.

Lacing-in, back lining preparation.

Attaching boards and split-board work.

Covering and finishing - setting the groove or joint.

The head band – polishing.

Decorating the cover with different type of hand finishing tools.

Blind blocking, gold blocking.

Edge decorations - different types, their objects - tooling the edges.

Unit III - Miscellaneous Finishing Operations

Punching shapes and names.

Perforating styles, drilling and creasing.

Principles of creasing.

Numbering, Indexing - different types of indexing.

Unit IV - Machines in Binding

Guillotine machines-manual, semi automatic, automatic and programmed machines.

Trimmers - three side trimmers, difference between three side trimmer and guillotine, and continuous trimmer.

Folding machines - buckle-folding machine, knife folding machine, combination folding machine, their advantages and disadvantages.

Wire-stitching machine.

Thread stitching machine.

Sewing machines.

Unit V - Automation in Binding

Gathering machines.

Book back gluing machine.

Rounding and backing machine.

Back lining machine.

Case making machine.

Back forming machine.

Pressing machine.

Perfect binding machine.

REFERENCE BOOKS: -

What the printer should know paper – Lawrence A. Wilson – GATF Press

Flexography primer – J.Page Cronnch

Gravure Primer – Cheryk L Kasunich

Hand Book of Print Media – Helmut Kipphan

introduction to Printing and Finishing – Hugh M Speris

Screen Printing Primer – GATF press

Sheetfet Offset Press operating – Lioyd P Dejidas and Thomas M Destree

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The Printing Ink Manual – R.H.Leach and R.J. Pierce

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Wilson andPIA/GATF

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SEMESTER V

CORE PRACTICAL VII - BINDING AND FINISHING TECHNIQUES

1. Study of equipments, tools and materials in binding department.

2. Different styles of Endpaper.

3. Styles of Sewing.

4. Styles of Binding.

    4.1. Quarter bound cut flush and turned in with squares.

    4.2. Half bound conventional and modern.

    4.3. Full bound.

    4.4. Case making.

    4.5. Account book binding.

5. Indexing.

    5.1. One letter index.

    5.2. Two letter index.

    5.3. Vowel index.

6. Edge decoration and marbling.

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SEMESTER V

ELECTIVE I - PRINTING PRESS MANAGEMENT

UNIT I – COSTING :

Meaning and objects of costing, advantages of costing.

Methods of costing, classifications of costing in printing industry.

Variable direct costs, fixed direct costs and fixed indirect costs.

Capital cost of machinery equipment, utilization of machineries.

Interest on the capital cost of the machines.

Depreciation insurance on machinery.

Wages of direct labour.

Direct materials costing.

Costing of machine operations.

Costing of manual operations.

UNIT II – ESTIMATING :

Meaning, differentiating costing and estimating.

Qualification of an estimator.

Responsibilities of an estimator.

Reasons for variation in estimating.

Forms used in estimating.

Factors to be considered while estimating.

Procedures for preparing estimates and submitting quotations.

The factors, which decide the final cost of printed products.

Use of Computers in estimating.

UNIT III – ACCOUNTING (THEORY ONLY) :

Object of book – keeping

Various systems of book – keeping

Difference between double entry and single entry book – keeping systems.

Avantages and disadvantages of double entry book keeping.

Meaning of important book – keeping terms.

Relationship between book – keeping and accounting

Source documents (supporting documents). Branches of accounting.

Classification of accounts – Journal, Ledger, Subsidiary book – Cash book and Petty cash book, trial balance.

UNIT IV – MARKET AND SALES :

Introduction to marketing and sales.

Marketing department organizational structure.

Duties and qualities of salesman.

Sales forcasting factors and their importance.

Advertising agencies and their roles.

Structure of advertising to manufacturers, customers and society.

Communication in management – definition/meaning, purpose.

General communication process, models of communication.

Communication skills – verbal and non-verbal.

Effective communication and its barriers.

Essentials of written communication.

4Cs of good communication.

Replies to enquiries, orders and complaints.

UNIT V – PRINCIPLES OF MANAGEMENT :

Printing press (organization) plant layout.

Principles of layout, plant location, building.

Ergonomics of management – lighting, glare/contrast, climate, safety and noise.

General plant safety procedures.

Safety in prepress departments.

Safety in presswork departments.

Safety in binding, finishing and converting departments.

Safety in materials handling.

REFERENCE BOOKS : -

What the printer should know paper – Lawrence A. Wilson – GATF

Press Flexography primer – J.Page Cronnch Gravure Primer – Cheryk

L Kasunich

Hand Book of Print Media – Helmut Kipphan

introduction to Printing and Finishing – Hugh M

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The Printing Ink Manual – R.H.Leach and R.J. Pierce

What the Printer shoul;d know about Ink – Dr.Nelson Ra Eldred- GATF

Press Wilson andPIA/GATF

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SEMESTER V

CORE PRACTICAL VIII - INTERNSHIP

Normally 45 to 60 days of Industrial exposure is recommended by the committee to the students to learn about the latest technology adopted in the printing and allied industries and also to learn the industrial working environments before entering the VI semester.(during November to December winter period)

Industrial exposure and specialization areas are:

* Pre-press Operation,

* Press work and

* Binding, finishing and packaging.

Industrial exposure report on the areas of specialization allotted and viva-voce (60 + 40) = 100 (max/Board Exam marks).

Every student is expected to maintain Industrial record book during the period of his/her exposure in the industry.

After completion of this period, every student should submit this report of the allotted area. The report should state how he/she has utilized the exposure period and his/her observations of the printing and allied industries. This should also cover the layout of various sections/departments of the press and allied industries, production techniques, problems of the industry with their solutions, sequence of operations followed for every type of job, technical specification of every job, details of every equipment and their maintenance procedures, raw materials selected for every type of work i.e. substrates, ink, film, chemicals, binding and finishing materials to minimize the cost of production and as well as maximize the quality of work and management techniques, labour relations, working environments and various factories act followed in the printing and allied industries.

This exposure report will be evaluated by the examiners from the leading printing presses during the practical examination conducted before the commencement of the VI semester or before proceeding to VI Semester.

B.Sc. DIGITAL PRINT MEDIA

SEMESTER VI

CORE XI - DIGITAL PREPRESS

Unit I - Art Work and Film Preparation

Role of computers in printing industry

Input devices – Structure of digital printed products.

Digital input of finished art – Quality requirements.

Digitizing originals - Scanning.

OCR, Photo CD.

Digital photography.

Assembly and Imposition.

Workflows.

Storage media and data format.

Unit II - Film Imagesetters

Introduction to imagesetter – Image recorder and RIP.

Types and their working principles.

Workflow.

Unit III - Computer to Plate Systems

The principles of different methods of direct plate exposure.

The Task of recorder.

Internal drum, external drum and flat-bed exposure methods.

Possibilities and limitations of the different methods of plate exposure.

The plates used in computer to plate systems.

The sensitivity bandwidth, and spectrum sensitivity bandwidth of different layers.

Unit IV - Digital Offset Printing and Proofing

Colour management.

The digital offset printing machines.

Digital colour presses - working principles.

Proofing and quality control.

The digital colour proofs.

Unit V - Digital Non-Impact Printing Processes

Introduction to Non-impact printing processes, prepress requirements.

Electrophotographic Process, Magnetographic and Ionographic printing.

Thermal printing and Dye Sublimation.

Inkjet printing – Types and principles of operation.

REFERENCE BOOKS:

Printing on a digital world - Darid Bergsland, Delmar Publish Inc., New York 1997. Gutenberg goes Digital - Michael Limburg, Blueprint publication, London. A hand book for Printing and Packaging Technology - Bishwanath Chakravarthy, Galgothia Publications, New Delhi. Output Hard copy devices - Robert c.Durbee (Ed,) Academic Press Inc. What the printer should know about paper - W.H.Bureau, GATF. The Printing Ink Manual - R.H. Lench and R.J.Pierce (Ed) 5th Ed., Blue print. Non Impact Printing - Gerhard A. Nothmanm, GATF. The Impact Printing for the commercial printer - techno Economic Forecast (1988 - 1993) - GATF.

B.Sc. DIGITAL PRINT MEDIA

SEMESTER VI

CORE XII - PACKAGING TECHNIQUES

Unit I - Basics of Packaging Process

Folding carton, common styles and their uses.

Principles of carton design.

Varieties of paper boards. Properties of boards used for carton.

Production stages of carton manufacture - surface printing, surface decoration and conversion. Tube and tray style cartons.

Tools and appliances of a cutting and creasing die-maker.

Study of different height of steel cutting and creasing rules and preparing a cutting and creasing rule die.

Cutting and creasing make-ready.

Carton Gluing machines - Working Principle of a carton gluing machines.

Unit II - Surface Coating

Varnishing - Fullsheet and Patch Varnishing.

Compatibility between the ink coating medium, and the paper or board.

Wax coating - Waxing and its properties. Uses of waxed cartons. Methods of wax applications.

Hot melt coating. Pre-treatment with prime-coating on foils, films, metal plates, glass etc.

Lamination – Different methods.

Unit III - Packaging Material for Various Purposes

Corrugated boxes or fibre-board container - different styles and purposes.

Use of corrugated and fibre-board cases.

Conversion of corrugated boards into boxes.

Equipments used for conversion.

Manufacture of corrugated and fibre-board cases.

Rigid boxes - Styles, classifications, and purposes of rigid boxes.

Equipments used.

Selection of materials including board, lining and covering papers and adhesives.

Study of various metal based packaging materials.

Properties of Glass and their uses.

Unit IV - Ancillary Materials

Adhesives - Factors affecting bond strength.

Factors to be considered in adhesive selection.

Cushioning materials - Function, factors considered for selection of materials, classification.

Paper, plastics, and fabric sealing tapes - Applications and uses, storage.

Strapping and stapling - purpose of strapping, strength, and elongation.

Advantages of stapling methods used in scaling corrugated board boxes, rigid boxes, etc.

Closures and dispensing devices: metal caps, plastic-molded caps, liners and materials used.

Unit V - Specialty Packages

Laminating machine.

Wrapping machine.

Thermo Forming machine, Shrink wrap, skin pack, Blister pack, etc.

Strip packaging, Shrink packaging, Blister Packaging, Skin packaging, and stretch wrapping.

Plastic corrugated boxes, lined cartons.

Barcode - types of Barcodes.

Metal converting machine.

Machines used in making caps and closures.

REFERENCE BOOKS:

uarding of folding box gluers - British Printing Industries federation. Guarding of cardboard box making machine - British Printing Industries federation. Guarding of sheet fed cutting and creasing machine - British Printing Industries federation. Handbook of package Engineering - Joseph E. Hanlon. A Handbook of food packaging - Frank A. Paine and Heather Y. Paine, Leonard Hill Publishers, Glasgow G 642 NZ. Packaging Encyclopedia – Cahners Publishing Company.

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SEMESTER V

CORE PRACTICAL IX - PACKAGING TECHNIQUES

List:

1. Learning paperboard based packaging.
2. Principle designs of cartons.
3. Glue and glue flap.
4. Reverse tuck-in carton.
5. Parallel tuck-in carton.
6. Lock bottom carton.
7. Auto lock bottom carton.
8. Shell and slide carton.
9. Gang carton.
10. Fibre-board container and rigid box.
11. Study about fibre-board material.
12. Corrugated box making.
13. Rigid box making.

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SEMESTER VI

CORE XIII - FLEXO, GRAVURE AND SCREEN PRINTING

Unit I - Flexographic Principles and Plate Surface Preparation

Principle of Flexographic Printing Process.

Surface preparation.

Techniques of making molded rubber plate and polymer plates.

Plate mounting methods, handling and storage of plates.

Unit II - Flexographic Press Work

Printing units of flexography process-Construction and description.

Flexographic printing machines: plate cylinder and impression cylinder.

Paper and ink qualities and controlling system

Inking system - fountain roller, Anilox roller, and types of inking system.

Press types - Stack, common impression and inline presses.

Ink and solvents used for Flexographic printing.

Unit III - Gravure Principles and Image Carrier Preparation

Principle of Gravure printing process.

Gravure cylinder preparation - Electro-Mechanical engraving, Electron beam engraving, laser beam and chemical etching.

Unit IV - Gravure Press Work

Rotogravure printing, Printing units, Impression system and doctor blade mechanism.

Paper and ink quality and their control.

Printing unit, Register control.

Drying system, solvent recovery and handling the printed web.

Sheet-fed presses and specialty printing.

Label and narrow web printing.

Environmental issues - Volatile solvent based inking system, aqueous-based solvent systems and noise at work.

Unit V - Screen Printing

The principles of screen printing,

Screen mesh - Silk, Synthetic mesh materials.

Mesh classification and mesh selection.

Screen frames and screen tensioning, wooden, Steel, Aluminum screen frames, self-tensioning frames. Screen pretreatment.

Squeegee classification and Squeegee selection.

Stencil making methods - Photo mechanical stencil making and direct photo stencil film.

Printing machinery - Hand-bench printing equipment, screen printing machines.

Inks and solvents used for screen printing process.

Screen printing applications.

REFERENCE BOOKS :

Flexographic principles and practice, Flexographic Technical Associations, Inc. New York, 1980. Rotogravure and Flexographic printing presses. By Herbert L. Weies, Converting Technology corporation, 4771, N. bartlett Drive, Milwaukee, WI, 53211, USA. Modern Gravure Technology, Harry B Smith, Pira International, U.K. Screen process printing, John Stephens, Blue Print, An Imprint of hapman & Hall, London. Flexography Primer GATF

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SEMESTER VI

ELECTIVE II - PRINTING MACHINERY

MAINTENANCE Unit I - Maintenance Management

Objectives of maintenance management

Maintenance functions

Types of maintenance activities.

Maintenance planning, scheduling and controlling.

Contract maintenance, preventive maintenance.

Problems, losses of poor maintenance.

Training of maintenance staff, human factors in maintenance.

Unit II - Machinery Erection & Testing

Loading and transport of machines.

Equipment needed for erection.

Selection of location - floor plan, floor preparation.

Erection - levelling the machine, assembling the various units, aligning the motors.

Making electrical connections to the machine.

Test run.

Unit III - Machine Reconditioning

Principles of reconditioning.

Repairing methods for various parts.

Reconditioning the old parts.

Replacing the worn out parts.

Setting the machine to the recommended specifications.

Unit IV - Lubrication and Lubricants

Purpose of lubrication.

Types of lubrication.

Lubricating instructions for machine operator.

Lubrication methods.

Lubrication chart.

Annual lubrication schedule.

Paint marks for lubricating points on the machines.

Unit V - Maintenance of Machine Elements and Electrical Controls

Machine Elements, Types and purpose of springs, bearing, gears, shafts, cams and cam followers.

V-belts, chains, and pneumatic controls.

Maintenance of these elements - Magnetic starters and contractors, limit switches, over load relay switches, electrical panel.

Reference Books:

H.P. Garg, Industrial maintenance, S. Chand & Company Ltd., Lewis and Tow, Readings in maintenance, Management Cohners Books. A.S.Porter, A manual for Lithographic press operation, Lithographic Training Services. Lithoprinting Ian Faux, Blueprint Publications. Lithographers Manual, Graphic Arts Technology Foundations, U.S.A. Faires, V.M. - Design of machine elements, The Macmillan Co., London. Shirley, Mechanical Engineering Design, McCrawhill. Dobrovalsky et.al., "Machine Elements". MIR Publications.

B.Sc. DIGITAL PRINT MEDIA

SEMESTER VI

PRACTICAL X - PROJECT REPORT

Project under :

1. Graphic Designing
2. Digital Prepress
3. Offset Printing Technology
4. Flexography Technology
5. Screen Printing Technology
6. Gravure Technology
7. Binding, Finishing & Packaging
8. Packaging Technology
9. Ink Less Printing Technology
10. Hologram & 3D Printing Technology

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SEMESTER I

ALLIED I - BUSINESS COMMUNICATION

UNIT – I

Communication – meaning – objectives – types – principles of communication – structure of business letters.

UNIT – II

Business enquires and replies – offer – quotations – orders – complaint and adjustments – collection letters – circular letters – status enquires.

UNIT – III

Bank correspondence – insurance correspondence – agency correspondence – letters to the editor – applications for appointment.

UNIT – IV

Company correspondence – secretary and his duties – correspondence with directors, shareholders, government departments and others.

UNIT – V

Report writing – meaning – importance – characteristic of good report – report by individuals – report by committees – precise writing passages relating to business and management.

Text Book

1. Rajendrapal & Koralahalli J.S, Essentials of business correspondence, Sultan Chand & Sons.

Reference Books

1. Ramesh M.S & Pattan Shetty, Effective Business English & correspondence, RC publications.
2. Balasubrahmaniyan, Business Communication, Vikas Publishing House Pvt. Ltd.
3. US Rai, SM Rai, Business Communication, HPH
4. Shirley Taylor, Communication for Business , LONGMAN.
5. RSN Pillai, Bagavathi, Commercial Correspondence & Office Management, S.Chand.
6. N.S.Rashunathan and B. Santhanan, Business Communication, Margham Publications
7. Chaturvedi, Business communication concepts, cases and applications, Pearson Education

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SEMESTER II

ALLIED II - MARKETING

UNIT – I

Marketing – Definition – Scope – Functions – Importance – Concept of Marketing – Marketing Environment.

Unit – II

Market Segmentation – Bases – Pre-requisites, Consumer Behavior – Factors – Stages in buying decision process.

Unit – III

Marketing Mix – Elements – Product Mix –Classification of Products – New Product Development – Product Life Cycle – Pricing Strategies – Method of Pricing .

Unit – IV

Channel of Distribution – Factors – Kinds of middle man – Types of Channel, Channels distribution – Factors – Kinds of middle men.

Unit – V

Promotion Mix – Sales Promotion – Publicity – Advertising – Advertising Effectiveness – Appropriation – Agency – Personal Selling – Selection and operation of Sales forces – Recent trend in Marketing – e-Business – Telemarketing – Relationship marketing – Virtual Advertising .

Text Book ;

Rajan Nair N, Marketing Management , Sultan Chand & Sons.

Reference Books ;

1. Philip Kotler , Marketing Management , Millennium Edition , PHI.
2. Ramasamy V. S and Namakumary S, Hand book of Marketing Management , Macmillan.
3. Rajagopal, Marketing Management, Vikas Publishing House Pvt., Ltd.,
4. S.Jayachandran, Marketing Management , Excel Books.
5. Rajan Saxcena , Marketing Management, TMH.
6. Sherlakar, S.A., Marketing Management, HPH.
7. R.S.N. Pillai, Marketing Management, S.Chand.

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SEMESTER III

ALLIED III - ENTREPRENENSHIP DEVELOPMENT

Unit – I

Entrepreneurship : Concepts, types and functions of entrepreneurs - Entrepreneurial development in India – Role of entrepreneurs in economic development - Entrepreneurial development programme – Phase of entrepreneurial development programme – Influence of environmental factors – Training and development of entrepreneurs .

Unit- II

Business Ideas : Project Identification and formulation – Classification of Project feasibility studies – Project appraisal methods – Project design, network analysis Financial Analysis .

Unit- III

Financial Entrepreneurs : Institutional Finance to Entrepreneurs – Role of IFC, IDBI, ICICI, IRCI, SIDBI, LIC, SFC, TIIC and Commercial banks in financing Entrepreneurs .

Unit – IV

Promoting Enterprises : SSI-MSME- Role and growth of SSI – Regulations governing SSI – Incentive and concessions for SSI Units – Sickness in SSI – Causes and Remedies .

Unit – V

Institutions and development of Entrepreneurs – Role of DIC, SISI, SIDCO, NSIC, MAYE, KVIC, TCO`s, ITCOT and Entrepreneurial guidance Bureau – Incentives and subsides to Entrepreneurs – Problem and prospects of Entrepreneurs – Developing Women and rural Entrepreneurs – Entrepreneurs motivation .

Text Book :

1.   Gupta,C.B. and Srinivasan N.P., Entrepreneurial Development

Reference Books :

1.Khanha, Entrepreneurial Development
2. Vasanth Desai, Organization and management of small Industries
3. Saravanavel,P., Entrepreneurial Development
4. Tandon,B.C., Environment and Entrepreneurship
5. Rao T.V., and Udaipareek, Developping Entrepreneurship

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SEMESTER III

ALLIED IV - ADVERTISING

Unit-I

Origin and Meaning of Advertising – Definition – Characteristic.

Unit-II

Recent trends in Advertising of a Product.

Unit-III

Advertising and Promotion Mix - Factors.

Unit-IV

Functions of Advertising – Commercial Functions – Social Functions.

Unit-V

Advantages of Advertising – Manufacturers – Whole Salers - Consumers

Text Book:

1.   Advertising and Salesmanship- P.Saravanavel, Margham Publications, Chennai.

Reference Books:

1.   Marketing – Rajan Nair, Sultan Chand & Sons, New Delhi

2.   Marketing Management- Sherlakhar, S.A.

3.   Marketing Management – V.S. Ramasamy and S.Namakumari Macmillan

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SEMESTER III

COMMUNICATIVE ENGLISH

UNIT I	Marks 25	1. Common Errors in English 2. Idioms 3. Phrases 4. One word substitute
UNIT II	Marks 25	1. Tenses 2. Active & Passive voice 3. Preposition 4. Conjunction
UNIT III	Marks 25	1. Punctuation 2. Usage & Abusage of Time & Words Expression 3. Misspelled Words 4. Prefix & Suffix

BOOKS PRESCRIBED:

Sl. No.	Book	Author	Page No.
1.	Progressive English Usage	P. Titus	
2.	Bookhive's Grammar for all	Dr. Khaleeq Ahmad	
3.	Bookhive's A Handbook of Idioms & Phrases	Dr. Khaleeq Ahmad	133 - 163

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SEMESTER IV

COMMUNICATIVE ENGLISH

UNIT I	Marks 25	1. Planning & Presenting a Letter 2. Letter to Promote the Company 3. Business Letter
UNIT II	Marks 25	1. Journalism & Mass Communication
UNIT III	Marks 25	1. Preparing Curriculum Vitae, 2. Group Discussion 3. Interview Technique

BOOKS PRESCRIBED:

Sl. No.	Book	Author
1.	Write Business Letters.	Ann Dobson
2.	Conquest of Communication Volume I	T.M. Farhathullah
3.	21st Century Journalism in India	Rajan, Nalini
4.	Introduction to Journalism and Mass Communication	Chaudhary, J.C.
5.	Mass Communication: Principles and Practices (1979)	Mary B. Cassata, Molefi K. Asante

B.Sc. DIGITAL PRINT MEDIA

SEMESTER III

SKILLED BASED ELECTIVE COURSE - I

MULTIMEDIA PACKAGES

Unit-I

Introducing Flash: How Flash works-Uses of flash-Obtaining Flash-Installing-The Flash Environment-Getting Started: The Timeline-The Stage-Tools and toolbars.

Unit-II

The menu bar-Properties Inspector-Panels-Viewing options-Quick start templates-Accessibility creating objects: Stages and overlay objects-Tools panel. Editing Objects: Grouping objects-Free Transform tool-Reshaping objects-Aligning objects.

Unit-III

Pixel snapping- Stacking order- Cut aways-Paste in place. Color and text: Standard Color palette-Adding solid colors-Adding gradients- Fill Transform tool-More color options-Selecting colors-Adding, Formatting and Manipulating text.

Unit-IV

Symbols and Instances: Definitions- The Library-Converting objects to symbols-Creating a new symbol-Symbol Editing Mode-Editing symbols-Editing Instances. Sound and video: Using sound-Importing sound-Editing sounds, Adding video-Manipulating video.

Unit-V

Frames and Layers: Working with Frames- Adding frames- Deleting and copying frames- Frames properties-working with layers-Inserting layers-Deleting and copying layers-Frames properties-Working with layers-Inserting layers-Deleting and copying layers-Animation: Elements of animation-Scenes-Frames animation-Motion tweening Motion guides- Shape tweening-Animation text- Distribute text to layers-Movie clips.

Text Book

1. "FLASH MX in easy steps" – NICK VANDOME, Dreamtech, New Delhi.