



B.Tech (Printing, Graphics & Packaging)

Syllabus

Duration: Four year

Eligibility: 10+2 with non-medical or medical stream

w.e.f. Academic Session: 2014-2015

Institute of Mass Communication and Media Technology

Kurukshetra University

SCHEME OF STUDIES & EXAMINATIONS

**B. Tech. (Printing, Graphic & Packaging)
VIIIth Semester**

Course No.	Course Title	Internal Assessment	Exam. Schedule		Total Marks	Time
			Theory	Practical		
801	PRINTING MACHINERY MAINTENANCE	25	75		100	3 Hrs.
802	DIGITAL PRINTING	25	75		100	3 Hrs.
803	ENTREPRENEURS HIP PROCESS	25	75		100	3 Hrs.
804	BOOK PUBLISHING	25	75		100	3 Hrs.
805	NEWSPAPER PUBLISHING					3 Hrs.
806	A) ADVANCE PRINTING TECHNOLOGY B) ADVANCE GRAPHIC TECHNOLOGY C) ADVANCE PACKAGING TECHNOLOGY	25	75		100	3 Hrs.
	LAB					
811	PRINTING MACHINERY MAINTENANCE-LAB	25		50	75	3 Hrs.
812	DIGITAL PRINTING-LAB	25		50	75	3 Hrs.
813	BOOK PUBLISHING-LAB	25		50	75	3 Hrs.
814	NEWSPAPER PUBLISHING-LAB	25		50	75	3 Hrs.
880	MAJOR-PROJECT				50	
	TOTAL				950	

801
PRINTING MACHINERY MAINTENANCE

Time: 3 hours

Max. Marks: 100
(25+75)

Note: The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

UNIT-I

Drive and Control Systems

Introduction of Mechanical Actuators, Gear drive, Belt drive, Chain drive, Electrical Actuators- switching devices (Solenoids, Relays, Diodes, Thyristors, Transistors), Drive systems- working principles of Three phase AC induction motor, DC motor, Servo motors (AC and DC) and stepper motor, Control Systems- Hydraulic control systems, Hydraulic control valves, Pneumatic control systems, Pneumatic valves, Introduction to Microcontroller.

UNIT-II

Erecting and Testing

Equipment needed for erection - selection of location and environmental conditions - erection procedure for various prepress printing and finishing equipments and machinery -loading and transport of raw materials and printed product with respect to layout design commissioning.

UNIT-III

Repairs and Reconditioning

Principles of reconditioning -repair methods for various parts - Roller copperising and rerubberising - ebonite covering damping and inking systems - paper transport systems and feeder head.

Cylinders, Bushes and Bearings

Cylinder construction - testing run out and taper - cylinder bearing supports – eccentric bushes - removal and fixing of bushes - changing of oil seals maintenance of bushes and bearings.

UNIT-IV

Maintenance procedures

Need and importance of maintenance - Definition, types of maintenance, Maintenance policies -Maintenance organization, Modern trends- Application of computers in maintenance. Identification & rectification of common faults in a printing machine

Lubricants, their types and Characteristics, types of lubricating systems - Mist, Wet sump and dry sump systems, Greases, oils, Greases oils grades.

Recommended Books :-

1. Electrical Engg. By B.L. Thareja Part I & II
2. A text book of Mechatronics by R K Rajput, S.Chand Publisher New Delhi
3. A course in workshop technology" Vol-II by B.S. Raghuvanshi, Dhanpat Rai & Co
4. Internal Combustion Engines by V. Ganesan, Mcgraw- Hill Education

802
DIGITAL PRINTING

Time: 3 hours

Max. Marks: 100
(25+75)

Note: The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

UNIT-I

Digital Documents

Introduction to Digital Printing fundamentals, Pixel image, Digital image, Digitization, Half toning colour reproduction, resolution and its qualities. Scanning of different original, Transfer of Digital Photographs. Documentation Image file formats TIFF, EPS JPEG files text files and post description languages.

UNIT-II

Digital Printing Processes

Laser, Inkjet, electrostatic processes . Rendering Type line Art and images. Color management, Introduction and future, Characterizing input and output device use of **CIELAB**. Introduction, on demand printing, variable data printing. Short run process color printing. On demand printing & Publishing concepts. Future of on-demand printing. Market research Number of originals and run length. New technologies shift existing methods. Economics of on demand printing - Economics of long run. Advantage for the buyer. Efficiencies of Digital on demand work flow. Short run pricing paradox.

UNIT-III

Database Marketing's Role:

Customizing traditional print. Customized on-demand print. The future. Other forces of change –Interactivity advantage. Online interactivity advantage. Interactive TV. Demographics. Manufacturing costs-Paper mailing. Alternative media-online. Commercial online services. Just in time. Appropriate applications for on demand & DP. Advertising. Author reprints. On demand products. In-appropriate applications. Marketing and Selling On-Demand Services - TV programming and ATM cards. Value added. Advantages of on demand. Selling factors.

UNIT-IV

Networking:

Networks for printing. Networks for publishing. Networks for In-house. Ideal Network. WAN (Wide Area Net works). Flexibility. Changing Markets for Print. Market projections, Projection of changes in the no. of colors. Moving towards shorter runs.

Recommended Books :

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

803
ENTREPRENEURSHIP PROCESS

Time: 3 hours

Max. Marks: 100
(25+75)

Note: The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

UNIT-I

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 proprietyship, 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 :

Entrepreneurship Development - Colombo Plan Staff College for Technician Education.
Entrepreneurship Development & Management - Jose Paul, N. Ajith Kumar.
Entrepreneurship Development Programmes & Practices - Jasmer Singh Saini.

804
BOOK PUBLISHING

Time: 3 hours

Max. Marks: 100
(25+75)

Note: The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

UNIT-I

Book Publishing

Definition and concept, parts of a book, basic steps in book publishing, areas of publishing - general publishing, educational publishing, professional publishing and reference publishing house - the role of commissioning editor, the desk editor, the designer, the production manager, the sale/marketing manager, the publicity manager, the warehouse or distribution department, the accounts department, the management.

UNIT-II

Press Organization

Hierarchy - editorial organization, mechanical aspects of organization - composition, printing, basic operations business aspects of organization, flowcharts of staff in organization, Circulation and Advertisement departments, distribution channels.

Production & Estimating in Book Publishing

First copy cost, manufacturing cost, overheads, economic of publishing - net book, non-net book, variations in price of same size books, published price of book, Technical aspects of production from receipt of manuscript to completion of book, gestation period, calculating break-even point.

UNIT-III

Marketing and Distribution in Book Publishing

Home market, export market, closed market, advertising and publicity, types of distribution, conventional and modern channels of distribution. International book trade and barriers. Import and export of books. Relationship of the Editor with the manuscript. Evaluation procedures. External review and its associated problems.

Editorial Organization in Publishing

The editorial functions in newspapers, journals, magazines and books.

UNIT-IV

Legal Aspects in book Publishing

Copyright, types of agreement between author and publishers, the outright sale of the copyright, profit sharing agreement, the royalty system, commission agreements The press and the law-libel, defense against libel, mitigation & damages.

Introduction to Booking and Circulation methods used in publishing houses.

Subsidy in the Publication of Books

Importance and need of subsidy ADVANCE PRINTING in the publication of books. Salient features of the subsidy scheme. Procedure of getting subsidy.

NEWS PAPER PUBLISHING**Time: 3 hours****Max. Marks: 100
(25+75)**

Note: The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

UNIT-1**Introduction to Newspaper organization**

Newspaper Hierarchy - editorial organization, sources of news; mechanical aspects of newspaper organization-composition, printing the newspaper, basic operations, business aspects of newspaper organization, flowcharts of staff in newspaper organization, Circulation and Advertisement departments, distribution channels.

UNIT-II

Policy of a newspaper. Headlines. History and their significance. Functions of headlines, kickers, blurbs. The grammar of headlines. Unit count in headlines. Treating photographs; cropping. Captions for photographs. The aesthetics of design. Achieving symmetry/asymmetry, balance/off-balance, use of colour, placement of various elements in design. The written word and illustration. Principles of adapting content to form. Attracting attention.

UNIT-III**Newspaper layout & designing**

Difference between design and layout. The various kinds of layout. The importance of visual appeal in pagemaking. Playing up/down a story. Colour, boxing, verbal and non-verbal languages in design. Graphics/diagrams and illustrations and their importance. Flow of stories into a newspaper office, The various sources and copy for each page. Reporters, correspondents, agencies, syndicates, columnists, readers. Facsimiles copy & photographs.

UNIT-IV

Editorial content and news. The OP-ED page. The gate keeping function.

Editorial Organization Newspaper Publishing Sources of news wire services, syndicates The role of copy editors, city editors, news editors, editorial cartoonist, artists, Sunday editors, sports editor, business editor, journalist & reporters, Information to a printer by editor.

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

806 (A)

ADVANCE PRINTING TECHNOLOGY

Time: 3 hours

**Max. Marks: 100
(25+75)**

Note: The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

UNIT-I

Modern Trend in Printing

- 1) Digital offset Color Printing
- 2) Security Printing
- 3) Laser using in Pre-Press
- 4) Printing on un-even surfaces.
- 5) Bar-coding
- 6) Facsimile printing

UNIT-II

Pre-Press Techniques

- 1)Image setter Technology-Type, Working, Principal, Advantages, Limitation & applications
- 2) Scanner-Types, Techniques ,Advantages, Limitation & applications
- 3)CTP Machines- Type, Working, Principal, Advantages, Limitation & applications.
- 4)Proofing Techniques and devices

UNIT-III

Print job planning and Stock control

- 1)Study of job and its work flow.
- 2)Choosing stable technique/device and material.
- 3)Maximum utility of equipment and manpower by alternative scheme.
- 4)Procurement material for printing.
- 5)Store-keeping, Purchase, Size and variety of stock, stock room conditions
- 6)keeping record monitoring stock.

UNIT-IV

Print Industry in India and Abroad

- 1)Commercial Jobs in Printing:
Pamphlets, Folders, Dangling, Brochures, Business cards, Prospectus.
- 2)Use of Computer in Production Planning.

References Books:

- 1) Operator manual –GATF
- 2) Colour scanning and imaging systems-Gary field,GATF
- 3) Production Planning and inventory control-Seetharama L.Narasimhan,Dennis W.Mcleavey,Peter J.Villington
- 4) Production Planning ,Control and management-K.C.Jain, L.N. Aggarwal

806(B)

ADVANCE GRAPHICS TECHNOLOGY

Time: 3 hours

Max. Marks: 100
(25+75)

Note: The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

Unit-I

Overview of : Computer Graphics, Interactive graphics, passive graphics. Advantages of interactive graphics. **Display Devices :** Refresh CRT, Random-Scan and Raster-Scan Monitor, Color CRT Monitors, DVST, Plasma-Penel Displays, LED and LCD monitors. Hard copy devices.

Scan conversion : Scan Converting a point, line, circle, ellipse and arcs.

2-D graphics transformations (Rotations, Scaling, Translations, Reflecting, Shearing) Composition of 2-D transformation, 2-D viewing and clipping, Windowing concepts, clipping algorithms (Line, Area and Text-Sutherland-Cohen, Mid-point subdivision), Window-to-view port transformation, Primitive and attributes. Exterior and Interior clipping.

Unit-II

Document Processing Language

Programming for processing in Post Script Language Detail study about vector graphics and Bit Map images, life size and image compression. Linking objects to URL's for internet webpages. Portable document format, print document format, PDF workflow systems, print job ticket format (PJTF). Raster image processing, linking, electronic dot generator.

Unit-III

Graphic text formats: GIF – Graphic Image Format, TIFF – Tagged information file format, JPEG- Joint Photographer Experts Group, BMP – Bitmaps, EPS – Encapsulated Post-script Format, PICT – picture, RTF – Rich Text Format, DOC – Document format, WPG – Word Perfect Graphic, Txt – Text formats, MS Word. OPI servers, file server & networks, digital file export

Unit-IV

Font Management

Interactive graphics: Concept of Positioning and Pointing. Interactive Graphic Devices (Key Boards, Touch Panels, Light Pens, Graphic Tablets, Joysticks, Mouse-Voice System) Interactive Graphical Techniques: Basic Positioning Methods, Constraints, Gride, Gravity field, Rubber-Bank Methods, Sketching, Dragging, Inking and Painting.

Computer Graphic Software : Introduction, GKS (Primitive, attributes and Viewport, Display subroutines)

Introduction to 3-D Graphics

Publishing software: PageMaker, CorelDraw etc.

References:

1. Roy, A. Plastock, Gordon Kalley, "Computer Graphics" (Scham's Series) McGraw Hill.
2. Donald Hearn, M. Pauline Baker, "Computer Graphics", Prentice Hall of India.
3. Foley, VanDam, Fiener, Hughes, "Computer Graphics", Addison Wesley.
4. Harrington, Steven, "Computer Graphics A Programming Approach", McGraw Hill.
5. Dovid F. Rogers; "Procedural Elements for Computer Graphics", McGraw Hill.
6. Newman, W. Sproul, R.F., "Principles of Interactive Computer Graphics", McGraw Hill.
7. PDF : Printing & Workflow, Frank J. Romano, GATF Publication

806(C)
Advanced Packaging Technology

Time: 3 hours

Max. Marks: 100
(25+75)

Note: The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will 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

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.

811

PRINTING MACHINERY MAINTENANCE-LAB

Time: 3 Hours

Max. Marks: 75

(25+50)

LIST OF EXPERIMENTS

- 1) Study of AC& DC motors
- 2) Belt mounting on wheel of driving systems
- 3) chain mounting on spikes of driving systems
- 4) gripper setting
- 5) proper checking of various parts of machines
- 6) oil seals changing
- 7) maintenance of bushes & bearing & changing
- 8) Working of pump & Compressor
- 9) Study of lubrication flow
- 10) Lubrication Process to friction paper

812

DIGITAL PRINTING-LAB

Time: 3 Hours

Max. Marks: 75

(25+50)

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

813

BOOK PUBLISHING-LAB

Time: 3 Hours

Max. Marks: 75

(25+50)

LIST OF EXPERIMENTS

1. Introduction to type of Printing Presses for book publishing as per the configuration & end products.
2. Study of various units & their setting.
3. Study of pre-make ready & makeready operations.
4. Printing single & multicolour jobs.
5. Digital presses for Book Publishing

814

NEWS PAPER-LAB

Time: 3 Hours

Max. Marks: 75

(25+50)

LIST OF EXPERIMENTS

1. Introduction to type of Web Presses as per the configuration & end products.
2. Study of various units & their setting.
3. Study of pre-make ready & makeready operations.
4. Printing single & multicolour jobs.
5. Introduction to Digital Web presses & their working.

880

MAJOR-PROJECT

Max.Marks:50

Student has to submit a project report on a assigned work by his/her concerned teacher & the report will be evaluate by the examiner appointed by Director/Chairperson