

**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**

## LOCF/CBCS/B.Sc. (Printing & Packaging Technology)/KUK

### 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)
<b>Internship/Industry Training **</b>				
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**

<b>Course</b>	<b>No. of Courses</b>	<b>Credits Teaching/Week</b>	<b>Credits Practical/Week</b>	<b>Credits Tutorials/Week</b>	<b>Total Credits</b>	<b>Marks</b>
Core Courses	16	16x4=64	16x2=32	--	64+32=96	16x150 =2400
AECC	3	3x2=6	--	--	6	3x50=150
SEC	4	4x2=8	--	--	8	4x50 =200
DSE	6	6x4=24	6x2=12	--	24+12=36	6x150 =900
Industrial Training	--	--	--	--	2	1x50 =50
<b>Total</b>	<b>29</b>	<b>102</b>	<b>44</b>	<b>-</b>	<b>148</b>	<b>3700</b>

## LOCF/CBCS/B.Sc. (Printing & Packaging Technology)/KUK

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

### Semester-I

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	
AECC-100	Communicative English	AECC-1	2	-	-	2	2	2	40	-	10	50	2 Hours
BPPT 101	Printing Process (Theory)	CC-1	4	-	-	4	4	6	80	-	20	100	3 Hours
BPPT 102	Printing Process (Practical)		-	-	2	4	2		-	40	10	50	3 Hours
BPPT 103	Typography (Theory)	CC-2	4	-	-	4	4	6	80	-	20	100	3 Hours
BPPT 104	Typography (Practical)		-	-	2	4	2		-	40	10	50	3 Hours
BPPT 105	Fundamentals of Packaging (Theory)	CC-3	4	-	-	4	4	6	80	-	20	100	3 Hours
BPPT 106	Fundamentals of Packaging (Practical)		-	-	2	4	2		-	40	10	50	3 Hours
BPPT 107	Fundamentals of Computer (Theory)	CC-4	4	-	-	4	4	6	80	-	20	100	3 Hours
BPPT 108	Fundamentals of Computer (Practical)		-	-	2	4	2		-	40	10	50	3 Hours
<b>Total Credits</b>							<b>26</b>	<b>Total Marks</b>				<b>650</b>	

### Semester-II

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-EVS 100	Environmental Studies	AECC-2	2	-	-	2	2	2	40	-	10	50	3 Hours
B-HIN 100	Communicative Hindi	AECC-3	2	-	-	2	2	2	40	-	10	50	2 Hours
BPPT 201	Food Packaging (Theory)	CC-5	4	-	-	4	4	6	80	-	20	100	3 Hours
BPPT 202	Food Packaging (Practical)		-	-	2	4	2		-	40	10	50	3 Hours
BPPT 203	Printing and Packaging Materials (Theory)	CC-6	4	-	-	4	4	6	80	-	20	100	3 Hours
BPPT 204	Printing and Packaging Materials (Practical)		-	-	2	4	2		-	40	10	50	3 Hours
BPPT 205	Graphic Design (Theory)	CC-7	4	-	-	4	4	6	80	-	20	100	3 Hours
BPPT 206	Graphic Design (Practical)		-	-	2	4	2		-	40	10	50	3 Hours
BPPT 207	Sheet fed Offset Technology (Theory)	CC-8	4	-	-	4	4	6	80	-	20	100	3 Hours
BPPT 208	Sheet fed Offset Technology (Practical)		-	-	2	4	2		-	40	10	50	3 Hours
<b>Total Credits</b>							<b>28</b>	<b>Total Marks</b>				<b>700</b>	

## LOCF/CBCS/B.Sc. (Printing & Packaging Technology)/KUK

### List of Total Subjects in B.Sc. (Printing & Packaging Technology):

Sr. No.	Course Type	Number of Subjects
1	CC	16
2	AECC	03
3	SEC	04
4	DSE	06
	<b>Total</b>	<b>29</b>

Semester	Course Type	Number of Subjects
Semester I	CC	4
	AECC	1
Semester II	CC	4
	AECC	2
Semester III	CC	4
	SEC	1
Semester IV	CC	4
	SEC	1
Semester V	SEC	1
	DSE	3
Semester VI	SEC	1
	DSE	3
<b>Total</b>		<b>29</b>

### List of Abbreviations

**L** -Lecture

**T**- Tutorial

**P**- Practical

**IA** – Internal Assessment

**CC**- Core Course

**AECC**- Ability Enhancement Compulsory Course

**SEC**- Skill Enhancement Course

**DSE**- Discipline Specific Elective

**PROGRAMME OUTCOMES**

On successful completion of the programme, the student will be able to:-

- PO1** Acquire knowledge related to the discipline under study.
- PO2** Communicate and reflect effectively and efficiently on the issues related to the discipline.
- PO3** Exhibit the professional skills and competencies acquired during the Programme of study.
- PO4** Apply the knowledge and skills acquired in planning, organizing, evaluation and decision making.
- PO5** Explore, analyze and provide solutions to the problems related to the discipline and life.
- PO6** Develop exposure to actual working environment leading to employability and entrepreneurship.
- PO7** Exhibit scientific & research capabilities in academic, professional and general life pursuits.
- PO8** Recognize, appreciate and follow ethical issues relating to the discipline and society.

**Programme Specific Outcomes:**

After completion of under graduate programme in Printing & Packaging Technology, the learner will be able to :

- PSO1** Acquire fundamental knowledge of Printing and packaging Technology as an academic discipline.
- PSO 2** Display the knowledge of appropriate theory, practices and tools for the specification, design and implementation
- PSO3** Develop competency for employability and Entrepreneurship by practicing techniques and tools for innovative Printing & Packaging applications.
- PSO 4** Demonstrate Printing & Packaging skills by undertaking projects.
- PSO 5** Link knowledge of Printing and packaging with other chosen auxiliary disciplines of study.

## AECC-100: Communicative English

**Time: 2 Hrs.**  
**Total Credit-02**

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

**Course objectives:** The paper is designed to enhance proficiency in English Language. It seeks to develop the basics of English Language through different modules. Each unit will enable and capacitate the learner to have communication competence which is required in the present-day world. The basic knowledge of communication will enable the learners to share and enliven ideas, experience and know-how ubiquitous in the world.

<b>Course Learning Outcomes:</b>
After completing the Course, the student will be able to:
<b>AECC 100.1:</b> Learn the rhetorics of presentation
<b>AECC 100.2:</b> Learn, comment and respond to correspondence .
<b>AECC 100.3:</b> Learn the basics of grammar and composition.
<b>AECC 100.4:</b> Acquaint with verbal and non-verbal communication.

**Note :** All questions are compulsory.

**Q.1. The paper setter will set two question from unit-II. The student shall attempt one out of the given two.**

**(10)**

**Q.2. This question shall be based on unit-III. The student shall attempt one out of the given two.**

**(10)**

**Q.3. There will be 25 grammatical items based on unit-IV. The student shall attempt any 20 items.**

**(10)**

**Internal Assessment: The students shall be required to make presentation /PPT based on unit-I.**

### Unit-I

#### Listening and Speaking skills

Listening skills (Active-passive, Accent)

Speaking Skills (Accent, Stress ,Intonation, Assertion, Rhetorical questions, Pause, Pitch)

Oral presentation, Debates, Elocution and Extempore

### Unit-II

#### Writing skills

Report writing

Paragraph writing

Letter writing

### Unit-III

**Technical and Modern communication**

Resume writing

E-mail

Blogs and comments on social media

**Unit-IV**

**Grammar**

Noun, Pronoun, Verb, Adverb, Adjective, Preposition, Conjunction and their uses

Common errors in the use of English (Noun, Pronoun, Adjective, Adverb, Conjunctions)

Correct use of verbs and Articles

Vocabulary: Homonyms, Homophones, Pair of words

**References:**

- Communicative English, Dr. Jimmy Sharma, Arihant Parkashan Pvt. Ltd.
- Strengthen Your English, Bhaskaran and Horsburgh, Oxford University Press
- Basic Communication Skills for Technology, and area J Rutherford, Pearson Education Asia.
- Murphy's English Grammar with CD, Murphy, Cambridge University Press
- English Skills for Technical Students by Orient Longman
- Everyday Dialogues in English by Robert J. Dixon, Prentice-Hall of India Ltd., 2006.



**AECC-100: COMMUNICATIVE ENGLISH**

**CO-PO Mapping Matrix**

<b>CO</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>
<b>AECC 100.1</b>	2	2	2	2	2	2	2	2
<b>AECC 100.2</b>	2	2	2	2	2	2	2	2
<b>AECC 100.3</b>	2	2	2	2	2	2	2	2
<b>AECC 100.4</b>	2	2	2	2	2	2	2	2
<b>Average</b>	2	2	2	2	2	2	2	2

**CO-PSO Mapping Matrix**

<b>CO</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>	<b>PSO5</b>
<b>AECC 100.1</b>	2	2	2	2	2
<b>AECC 100.2</b>	2	2	2	2	2
<b>AECC 100.3</b>	2	2	2	2	2
<b>AECC 100.4</b>	2	2	2	2	2
<b>Average</b>	2	2	2	2	2

**CO-PO-PSO Mapping Matrix**

<b>CO</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PSO 1</b>	<b>PSO 2</b>	<b>PSO 3</b>	<b>PSO 4</b>	<b>PSO 5</b>
<b>AECC 100.1</b>	2	2	2	2	2	2	2	2	2	2	2	2	2
<b>AECC 100.2</b>	2	2	2	2	2	2	2	2	2	2	2	2	2
<b>AECC 100.3</b>	2	2	2	2	2	2	2	2	2	2	2	2	2
<b>AECC 100.4</b>	2	2	2	2	2	2	2	2	2	2	2	2	2
<b>Average</b>	2	2	2	2	2	2	2	2	2	2	2	2	2

**B-PPT 101: PRINTING PROCESS (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 Printing process, its history and development from ancient to the modern world. It also provides the technical ability to understand pre-press, press, and post press operations in printing press.

<b>Course Learning Outcomes:</b>
The students learned about the Printing process and the student will be able to:
<b>B-PPT101.1:</b> Acquire knowledge about development in Indian Printing Industry
<b>B-PPT101.2:</b> Know about historical development of printing
<b>B-PPT101.3:</b> Develop the knowledge about the different printing processes
<b>B-PPT101.4:</b> Know the basic operations in printing – Pre-press, Press & Post 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 six short notes covering the entire syllabus and students are required to attempt any four. All questions will carry equal marks.

**UNIT –I**

**History of printing:** History of Printing, Scope of Indian Printing Industry, Brief Introduction of scope of Printing Industry, Applications of printing Industry, Indian printing Industry- An emerging market, size of the industry, total contribution to the economy, employment opportunity, Recent trends in Printing, .

**UNIT –II**

**Printing Processes:** Introduction to conventional printing processes- Relief, Planography, Intaglio, Screen. On Demand printing, Electrostatic, Digital and Mini Offset. Specialized printing -Thermography, Die Stamping, Hot foil stamping, Hologram printing. Suitability & limitations and applications of various printing Processes

## UNIT –III

**Basic operations in printing-** Pre -Press, Press and Post –press section,,: Basic concepts, Typesetting of text matter, formatting the text pagination and arranging the pictures and graphics, Film outputting of text and visual elements particularly color separation, assembly of film and plate making. press: Pre make ready, make-ready operations , Finishing operations

## UNIT –IV

**Letterpress and Screen printing machines** - Classification of letterpress printing machines, types of platen, cylinder and rotary machines with their mechanical and operational features. Screen Printing Machines: Manual, semiautomatic and fully automatic screen printing machines. Rotary screen printing Machines .

**Running Defects of different printing process:** Common printing defects comes in various printing processes, causes and their remedies.

## **References :**

1. Letter Press Printing Part 1, 2, By C.S. Misra
2. Printing Technology By Adams, Faux, Rieber
3. Screen Printing Review By Babett Magee
4. Screen Printing By John Stephens
5. Art and Print Production By N.N. Sarkar

**B-PPT 101: PRINTING PROCESS (THEORY)**

**CO-PO Mapping Matrix**

<b>CO</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>
<b>B-PPT 101.1</b>	3	3	3	3	3	3	3	3
<b>B-PPT 101.2</b>	3	3	3	3	3	3	3	3
<b>B-PPT 101.3</b>	3	3	3	3	3	3	3	3
<b>B-PPT 101.4</b>	3	3	3	3	3	3	3	3
<b>Average</b>	3	3	3	3	3	3	3	3

**CO-PSO Mapping Matrix**

<b>CO</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>	<b>PSO5</b>
<b>B-PPT 101.1</b>	3	3	3	3	3
<b>B-PPT 101.2</b>	3	3	3	3	3
<b>B-PPT 101.3</b>	3	3	3	3	3
<b>B-PPT 101.4</b>	3	3	3	3	3
<b>Average</b>	3	3	3	3	3

**CO-PO-PSO Mapping Matrix**

<b>CO</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PSO 1</b>	<b>PSO 2</b>	<b>PSO 3</b>	<b>PSO 4</b>	<b>PSO 5</b>
<b>B-PPT 101.1</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>B-PPT 101.2</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>B-PPT 101.3</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>B-PPT 101.4</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>Average</b>	3	3	3	3	3	3	3	3	3	3	3	3	3

**B-PPT 102: PRINTING PROCESS (PRACTICAL)**

Time: 3 Hrs.  
Credits :2

Total Marks: 50  
Practical: 40  
Internal Assessment : 10

**Course Objectives:** This course is designed for practical understanding of basic Printing process, It also provides the technical ability to understand pre-press, press, and post press operations in printing press.

<b>Course Learning Outcomes:</b>
The students learned about the Printing process and the student will be able to:
<b>B-PPT102.1:</b> Enhance practical knowledge about printing processes.
<b>B-PPT102.2:</b> Know about the tools and equipment used for printing.
<b>B-PPT102.3:</b> Get technical knowledge about operations of letterpress printing machine.
<b>B-PPT102.4:</b> Know about operations in printing – Pre-press, Press & Post Press

**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 different tools &equipment used in letterpress.
2. Schematic diagram of different Printing Processes.
3. Printing of line & half tone block in single & multi color.
4. Operational and mechanical features of different letter press Printing Machines.
5. Study of Running & printing faults on letter press machine.
6. Identification of different printing processes

**B-PPT 102: PRINTING PROCESS (PRACTICAL)**

**CO-PO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
<b>B-PPT 102.1</b>	3	3	3	3	3	3	3	3
<b>B-PPT 102.2</b>	3	3	3	3	3	3	3	3
<b>B-PPT 102.3</b>	3	3	3	3	3	3	3	3
<b>B-PPT 102.4</b>	3	3	3	3	3	3	3	3
<b>Average</b>	3	3	3	3	3	3	3	3

**CO-PSO Mapping Matrix**

CO	PSO1	PSO2	PSO3	PSO4	PSO5
<b>B-PPT 102.1</b>	3	3	3	3	3
<b>B-PPT 102.2</b>	3	3	3	3	3
<b>B-PPT 102.3</b>	3	3	3	3	3
<b>B-PPT 102.4</b>	3	3	3	3	3
<b>Average</b>	3	3	3	3	3

**CO-PO-PSO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
<b>B-PPT 102.1</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>B-PPT 102.2</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>B-PPT 102.3</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>B-PPT 102.4</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>Average</b>	3	3	3	3	3	3	3	3	3	3	3	3	3

**B-PPT 103: TYPOGRAPHY (THEORY)**

Time: 3 Hrs.  
Credits :4

Total Marks: 100  
Theory: 80  
Internal Assessment : 20

**Course Objectives:** The students will learn about the Typographical Process and will be able to enhance knowledge about Type, Letters ,Characters, Symbols ,Classification of Printing Type and develop the knowledge about the Typesetting department, Tools and Material used in Typesetting department.

<b>Course Learning Outcomes:</b> Upon successful completion of this course, the student will be able to:
<b>B-PPT103.1:</b> Demonstrate the proper use of type as a design tool.
<b>B-PPT103.2:</b> Create letterforms as part of a consistent alphabet.
<b>B-PPT103.3:</b> Understand typographic rules and measurements to composition.
<b>B-PPT103.4:</b> Recognize different type styles and categories.

**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 six short notes covering the entire syllabus and students are required to attempt any four. All questions will carry equal marks.

**Unit - I**

**Introduction to Typography** - definition, concept and scope, Printing type - Two Dimensional and Three-Dimensional structure their characteristics, Printers Measurement and Systems: Point System, other units of measurements and application. Design features and principles of printing types, fundamental and finishing strokes of types.

**Unit – II**

**Classification of printing types** based on serifs, point sizes, cases, faces, series, families etc. type font and sorts, principles of size and design identification, Suitability of different types for different processes and publications, typesetting Calculations relating to type sizes and dimensions of printing pages.

**Unit – III**

**Typesetting Department:**-Work and role of the type-setting, department with in a printing press, Photo Type -setting., Proofing and Proofing Reader's marks; word breaks; proofing stages. Composing Tools and Equipment, Basic composing tools for hand composition, spacing material; locking- up devices; proofing presses, kinds of rules.

**Unit –IV**

**Composition** Imposition, Sheet work, Half-sheet work, Work and tumble & Work and twist. The regular schemes up to 32 pages (upright and landscape), Planning of composition department, Floor plan and arrangement of equipment, Paper and its calculation.

**References:**

- 1 Theory & practice of composition - By A.C. Goel
- 2 Composing & Typography Today - By B.D. Mehandirutta.
3. Letter Press Printing Part I, II - By C.S. Mishra
4. Printing Technology By Adams,Faux,Riber
5. Art & Production By N.N. Sarkar



**B-PPT 103: TYPOGRAPHY (THEORY)**

**CO-PO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
B-PPT 103.1	3	3	3	3	3	3	3	3
B-PPT 103.2	3	3	3	3	3	3	3	3
B-PPT 103.3	3	3	3	3	3	3	3	3
B-PPT 103.4	3	3	3	3	3	3	3	3
Average	3	3	3	3	3	3	3	3

**CO-PSO Mapping Matrix**

CO	PSO1	PSO2	PSO3	PSO4	PSO5
B-PPT 103.1	3	3	3	3	3
B-PPT 103.2	3	3	3	3	3
B-PPT 103.3	3	3	3	3	3
B-PPT 103.4	3	3	3	3	3
Average	3	3	3	3	3

**CO-PO-PSO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
B-PPT 103.1	3	3	3	3	3	3	3	3	3	3	3	3	3
B-PPT 103.2	3	3	3	3	3	3	3	3	3	3	3	3	3
B-PPT 103.3	3	3	3	3	3	3	3	3	3	3	3	3	3
B-PPT 103.4	3	3	3	3	3	3	3	3	3	3	3	3	3
Average	3	3	3	3	3	3	3	3	3	3	3	3	3

**B-PPT 104: TYPOGRAPHY (PRACTICAL)**

Time: 3 Hrs.  
Credits : 2

Total Marks: 50  
Practical: 40  
Internal Assessment : 10

**Course Objectives:** This course is designed for practical understanding of Mechanical Type. It provides the technical ability to understand fundamental and finishing strokes of the types.

<b>Course Learning Outcomes:</b>
The students learned about the Printing process and the student will be able to:
<b>B-PPT 104.1:</b> Use of Block Letters & Numbering
<b>B-PPT 104.2:</b> Demnostrate the physical structure of mechanical type and its composition
<b>B-PPT 104.3:</b> Use of Various types of fonts
<b>B-PPT 104.4:</b> Use of Fundamental and finishing strokes.

**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. Block Lettering & Numbering (Normal Types)..
2. Four-line Principle (Drawing).
3. Physical (Features) parts of the type (Structural Diagram).
4. Fundamental strokes.
5. Finishing strokes & their identification.
6. Introduction to various fonts & their drawing characteristics.

**B-PPT 104: TYPOGRAPHY (PRACTICAL)**

**CO-PO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
B-PPT 104.1	3	3	3	3	3	3	3	3
B-PPT 104.2	3	3	3	3	3	3	3	3
B-PPT 104.3	3	3	3	3	3	3	3	3
B-PPT 104.4	3	3	3	3	3	3	3	3
Average	3	3	3	3	3	3	3	3

**CO-PSO Mapping Matrix**

CO	PSO1	PSO2	PSO3	PSO4	PSO5
B-PPT 104.1	3	3	3	3	3
B-PPT 104.2	3	3	3	3	3
B-PPT 104.3	3	3	3	3	3
B-PPT 104.4	3	3	3	3	3
Average	3	3	3	3	3

**CO-PO-PSO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
B-PPT 104.1	3	3	3	3	3	3	3	3	3	3	3	3	3
B-PPT 104.2	3	3	3	3	3	3	3	3	3	3	3	3	3
B-PPT 104.3	3	3	3	3	3	3	3	3	3	3	3	3	3
B-PPT 104.4	3	3	3	3	3	3	3	3	3	3	3	3	3
Average	3	3	3	3	3	3	3	3	3	3	3	3	3

**B-PPT 105: FUNDAMENTALS OF PACKAGING (THEORY)**

Time: 3 Hrs.  
Credits :4

Total Marks: 100  
Theory: 80  
Internal Assessment : 20

**Course Objectives:** This course is designed for theoretical understanding of Packaging Technology, various packaging application, design of package and for creating sense of understanding the various types of packaging.

<b>Course Learning Outcomes:</b> Upon successful completion of this course, the students learned about the Packaging Technology and the student will be able to:
<b>B-PPT105.1:</b> Develop the knowledge of Packaging Technology to understand the Packaging Industry.
<b>B-PPT105.2:</b> Know about the various applications and classifications of packaging.
<b>B-PPT105.3:</b> Understand the function of package, types of package and elements of package design.
<b>B-PPT105.4:</b> Develop the knowledge of folding Carton production process and finishing operations.

**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 six short notes covering the entire syllabus and students are required to attempt any four. All questions will carry equal marks.

**Unit - I**

**Basics of Packaging:**

**Packaging** Introduction, Classifications of Packaging - Flexible packaging and rigid packaging, Function of a package, Types of package, Factors influencing design of a package, Elements of Package Design, Hazard on the package - mechanical, climatic, biological and other hazards. Test on package-mechanical test and climate test.

**Unit – II**

**Folding Carton Production & Innovative Packaging Techniques**

Folding cartons production process, types of folding carton, Manufacture process of paperboard, components in a corrugated board, Vacuum packaging, shrink packaging, stretch wrapping, blister packaging, Aerosol packaging, Blow Molding - Extrusion blow Molding, Injection blow molding.

**Unit – III**

## **Packaging Distribution & logistics**

Introduction to logistics, element of logistics, distribution of channels, Packaging Cycle, Product life curve, classification of pallets, material handling techniques-warehousing & storage, Markings on Package - Handling marks, routing marks, information marks, shelf life,

## **Unit -I V**

## **Future Trends and Finishing operations**

Futuristic trends in packaging, adhesive tapes - fabric tapes, paper tapes, film tapes, foil tapes, foam tapes, two faced tapes. Labels- designing, manufacturing and applications, Packaging finishing operations – coating, lamination, hot & cold foil stamping, die-cutting, embossing & de-embossing, liner and folding & gluing.

## **References :**

Packaging design and performance - **Frank Paine**

Advances in plastic packaging technology - **John Briston**.

Packaging design an introduction - **Laszlo Roth**.

Packaging Technology - Volume I, II, III - IIP

**B-PPT 105: FUNDAMENTALS OF PACKAGING (THEORY)**

**CO-PO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
B-PPT 105.1	3	3	3	3	3	3	3	3
B-PPT 105.2	3	3	3	3	3	3	3	3
B-PPT 105.3	3	3	3	3	3	3	3	3
B-PPT 105.4	3	3	3	3	3	3	3	3
Average	3	3	3	3	3	3	3	3

**CO-PSO Mapping Matrix**

CO	PSO1	PSO2	PSO3	PSO4	PSO5
B-PPT 105.1	3	3	3	3	3
B-PPT 105.2	3	3	3	3	3
B-PPT 105.3	3	3	3	3	3
B-PPT 105.4	3	3	3	3	3
Average	3	3	3	3	3

**CO-PO-PSO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
B-PPT 105.1	3	3	3	3	3	3	3	3	3	3	3	3	3
B-PPT 105.2	3	3	3	3	3	3	3	3	3	3	3	3	3
B-PPT 105.3	3	3	3	3	3	3	3	3	3	3	3	3	3
B-PPT 105.4	3	3	3	3	3	3	3	3	3	3	3	3	3
Average	3	3	3	3	3	3	3	3	3	3	3	3	3

**B-PPT 106: FUNDAMENTALS OF PACKAGING (PRATICAL)**

Time: 3 Hrs.  
Credits :2

Total Marks: 50  
Practical : 40  
Internal Assessment : 10

**Course Objectives** : This course is designed for practical understanding of Packaging Technology classification, packaging machines, materials used in packaging, design of package and its application

<b>Course Learning Outcomes:</b>
The students learned about the Packaging Technology and the student will be able to:
<b>B-PPT 106.1:</b> Design flexible packages
<b>B-PPT 106.2:</b> Design rigid packaging
<b>B-PPT 106.3:</b> Test raw different types material
<b>B-PPT 106.4:</b> Prepare various of package design

**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. Designing & preparation of various designs of paper bags.
5. Testing of raw materials like- paper, paperboard, plastic and ink.
6. Drop test, Vibration test, inclined impact test, Compression test.

**B-PPT 106: FUNDAMENTALS OF PACKAGING (PRATICAL)**

**CO-PO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
<b>B-PPT 106.1</b>	3	3	3	3	3	3	3	3
<b>B-PPT 106.2</b>	3	3	3	3	3	3	3	3
<b>B-PPT 106.3</b>	3	3	3	3	3	3	3	3
<b>B-PPT 106.4</b>	3	3	3	3	3	3	3	3
<b>Average</b>	3	3	3	3	3	3	3	3

**CO-PSO Mapping Matrix**

CO	PSO1	PSO2	PSO3	PSO4	PSO5
<b>B-PPT 106.1</b>	3	3	3	3	3
<b>B-PPT 106.2</b>	3	3	3	3	3
<b>B-PPT 106.3</b>	3	3	3	3	3
<b>B-PPT 106.4</b>	3	3	3	3	3
<b>Average</b>	3	3	3	3	3

**CO-PO-PSO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
<b>B-PPT 106.1</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>B-PPT 106.2</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>B-PPT 106.3</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>B-PPT 106.4</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>Average</b>	3	3	3	3	3	3	3	3	3	3	3	3	3



**B-PPT 107: FUNDAMENTALS OF COMPUTER (THEORY)**

Time: 3 Hrs.

Credits: 4

Total Marks: 100

Theory: 80

Internal Assessment: 20

**Course Objectives:** This course is designed for theoretical understanding of computer system and its components, functioning and its application software exposure.

<b>Course Learning Outcomes:</b>
After completing the Course, the student will be able to:
<b>B-PPT 107.1:</b> Understand the basic knowledge of computer system.
<b>B-PPT 107.2:</b> Know about the functioning of different parts of computer.
<b>B-PPT 107.3</b> Understand the basic concept of Internet and computer networks .
<b>B-PPT 107.4:</b> Understand the basics of Application Software.

**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 six short notes covering the entire syllabus and students are required to attempt any four. All questions will carry equal marks.**

**Unit - I**

Computer- Origin, Evolution and Generation of Computer

Types of Computer

Basic Components of a Computer- Input Devices, Output Devices, Storage Devices

Introduction to Software

Types of Software - System software, Application software

Introduction of Windows and its various versions

**Unit- II**

Introduction to Internet and Its applications

Browser, Search Engine, FTP, URL

Email and Blog

Introduction to Network- LAN, WAN, MAN,

Network Topologies - Ring, Bus, Star, Mesh and Tree topologies

Hardware requirements for Network

**Unit - III**

Introduction to MS Word and its uses

Various Menus, Toolbars & Buttons

Paragraph and Page Formatting

Creation & Working with Tables, Mail Merge

**Unit - IV**

Introduction to MS Excel and its uses  
Creating Spreadsheet  
Creating Tables and Charts  
Use of basic arithmetic formulas  
Introduction to MS PowerPoint and its uses  
Creating a New Presentation  
Slide transition and Custom Animation

**References:**

- Ram, B. 4th ed New Age; *Computer Fundamentals: Architecture & Organization*
- Sinha, P. K. BPB; *Computer Fundamentals: Concepts, Systems & Applications*
- Sinha, P. K/ Sinha, P. 3rd ed BPB; *Computer Fundamentals: Concepts, Systems & Applications*  
*Data Communications and Networking* by Behrouz A. Forouzan, Sophia Chung Fegan; Published by Huga Media.2011
- **Goel, Anita Pearson;** *Computer Fundamentals*

**B-PPT 107: FUNDAMENTALS OF COMPUTER (THEORY)**

**CO-PO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
B-PPT 107.1	3	3	3	3	3	3	3	3
B-PPT 107.2	3	3	3	3	3	3	3	3
B-PPT 107.3	3	3	3	3	3	3	3	3
B-PPT 107.4	3	3	3	3	3	3	3	3
Average	3	3	3	3	3	3	3	3

**CO-PSO Mapping Matrix**

CO	PSO1	PSO2	PSO3	PSO4	PSO5
B-PPT 107.1	3	3	3	3	3
B-PPT 107.2	3	3	3	3	3
B-PPT 107.3	3	3	3	3	3
B-PPT 107.4	3	3	3	3	3
Average	3	3	3	3	3

**CO-PO-PSO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
B-PPT 107.1	3	3	3	3	3	3	3	3	3	3	3	3	3
B-PPT 107.2	3	3	3	3	3	3	3	3	3	3	3	3	3
B-PPT 107.3	3	3	3	3	3	3	3	3	3	3	3	3	3
B-PPT 107.4	3	3	3	3	3	3	3	3	3	3	3	3	3
Average	3	3	3	3	3	3	3	3	3	3	3	3	3

**B-PPT 108: FUNDAMENTALS OF COMPUTER (PRACTICAL)**

Time: 3 Hrs.  
Credits: 2

Total Marks: 50  
Practical: 40  
Internal Assessment: 10

**Course Objectives:** This course is designed for practical understanding of commonly used application software and its functioning to the students.

<b>Course Learning Outcomes:</b>
After completing the Course, the student will be able to:
<b>B-PPT 108.1:</b> Use MS-Word
<b>B-PPT 108.2:</b> Use MS-Excel
<b>B-PPT 108.3:</b> Use Power point
<b>B-PPT 108.4:</b> Create Email account, compose & send emails for personal and professional communication.

**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.

<b>List of Practical Exercises:</b>
To create a new document, save, open an existing document
Typing and editing texts in a document (*.doc) file.
Apply formats on Texts like Bold, Italics, Underline, font type, colour and size etc.
Apply features like bullet, numbering, breaks, hyphenation
Indentation, leading and kerning using space bar and TAB
Insert images, symbols and mathematical equations
Create and manipulate tables.
Page layout, Page Setup, Paragraph setting
Page Break, Page Numbering, Find & Replace Text, Header & Footer
Designing Resume, timetable of a class, mail merge
Print a document
Create a Spread Sheet, Cell formatting, Basic arithmetic formulas, Freeze Pane and Sort & Filter, Inserting the chart
Basic operations of Power point, Create PPT and inset and delete slides.
Use of Mater Slide in Presentation.

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Apply basic formatting features in presentation like font, font size, font colour, text fill, spacing and line spacing Formatting text boxes, word arts, styles bullet and numbering.
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Working with drawing tools, Applying shape or picture styles, Applying object borders, object fill, object effects
--

Adding slide transition, animation effect, adding custom animation
--

Working with video, Link to video and sound files.
--

Creating Email- composing and sending a mail, attachment a file, forwarding the email, changing and setting the password
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**B-PPT 108: FUNDAMENTALS OF COMPUTER (PRACTICAL)**

**CO-PO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
B-PPT 108.1	3	3	3	3	3	3	3	3
B-PPT 108.2	3	3	3	3	3	3	3	3
B-PPT 108.3	3	3	3	3	3	3	3	3
B-PPT 108.4	3	3	3	3	3	3	3	3
Average	3	3	3	3	3	3	3	3

**CO-PSO Mapping Matrix**

CO	PSO1	PSO2	PSO3	PSO4	PSO5
B-PPT 108.1	3	3	3	3	3
B-PPT 108.2	3	3	3	3	3
B-PPT 108.3	3	3	3	3	3
B-PPT 108.4	3	3	3	3	3
Average	3	3	3	3	3

**CO-PO-PSO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
B-PPT 108.1	3	3	3	3	3	3	3	3	3	3	3	3	3
B-PPT 108.2	3	3	3	3	3	3	3	3	3	3	3	3	3
B-PPT 108.3	3	3	3	3	3	3	3	3	3	3	3	3	3
B-PPT 108.4	3	3	3	3	3	3	3	3	3	3	3	3	3
Average	3	3	3	3	3	3	3	3	3	3	3	3	3

**B-EVS 100 : Environment Studies**

Time: 3 Hrs.  
Credits: 2

Total Marks: 50  
Theory: 40  
Internal Assessment: 10

**Scheme of paper:** Total number of questions will be nine. Students have to attempt five questions in all. Questions no. 1 is compulsory. All questions carry equal marks. Each question is of 8 marks.

**Course objectives:** The aim of this course is to aware the students about the environmental problems and current global issues related to environment. It provides knowledge about the topics like ecosystem and biodiversity and develops interest in the students about their role in conservation of environment and reducing pollution and waste generation in their surroundings. By understanding the environmental problems, their causes and solutions, the students can apply it to their daily lives also.

**Course Outcomes:**

COs	On successful completion of the course, the students will be able to:
1	Understand the definition of environmental studies, its scope and importance in the conservation of environment.
2	Understand the concept of ecosystem and different types of natural and artificial ecosystems in the world, the biogeochemical cycling and energy flow in an ecosystem.
3	Describe the various renewable and non-renewable natural resources and their over-exploitation due to increasing demands of rising population.
4	Become aware about our biodiversity, its importance and the various threats that are a problem for the biodiversity. They will understand the endangered species and their conservation measures that are needed to be adopted at different levels.

5	Have understanding about the types of pollution and how to reduce those pollution levels in air, soil, water, land and from marine bodies as well. They will develop interest in reducing the solid waste generation as well as its management at household level.
6	Gain knowledge of various global environmental issues like climate change, global warming and ozone depletion and also about different environmental laws implemented to conserve the environment.
7	Explain the concept of population growth and drug abuse.

**Unit 1: Introduction to environmental studies**

Multidisciplinary nature of environmental studies;

Scope and importance; Concept of sustainability and sustainable development. (2 lectures)

**Unit 2: Ecosystems**

What is an ecosystem? Structure and function of ecosystem; Energy flow in an ecosystem: food chains, food webs and ecological succession.

Case studies of the following ecosystems :

- a) Forestecosystem
- b) Grasslandecosystem
- c) Desertecosystem
- d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries) (6 lectures)

**Unit 3: Natural Resources: Renewable and Non-renewable Resources**

Land resources and landuse change; Land degradation, soil erosion and desertification.

Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations.

Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state).

Energy resources: Renewable and non renewable energy sources, use of alternate energy sources, growing energy needs, case studies. (8 lectures)



**Unit 4: Biodiversity and Conservation**

Levels of biological diversity: genetic, species and ecosystem diversity; Biogeographic zones of India; Biodiversity patterns and global biodiversity hot spots

India as a mega-biodiversity nation; Endangered and endemic species of India

Threats to biodiversity : Habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation of biodiversity : In-situ and Ex-situ conservation of biodiversity.

Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value.

(8 lectures)

**Unit 5 : Environmental Pollution**

Environmental pollution: types, causes, effects and controls; Air, water, soil and noise pollution

Nuclear hazards and human health risks

Solid waste management: Control measures of urban and industrial waste.

Pollution case studies.

(8 lectures)

**Unit 6 : Environmental Policies & Practices**

Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture

Environment Laws: Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act. International agreements: Montreal and Kyoto protocols and Convention on Biological Diversity (CBD).

Nature reserves, tribal populations and rights, and human wildlife conflicts in Indian context.

(7 lectures)

**Unit 7: Human Communities and the Environment**

Human population growth: Impacts on environment, human health and welfare.

Resettlement and rehabilitation of project affected persons; case studies.

Disaster management: floods, earthquake, cyclones and landslides.

Environmental movements: Chipko, Silent valley, Bishnois of Rajasthan.

Environmental ethics: Role of Indian and other religions and cultures in environmental conservation.

Environmental communication and public awareness, case studies (e.g., CNG vehicles in Delhi)

Drugs and their effects; Useful and harmful drugs; Use and abuse of drugs; Stimulant and depressant drugs. Concept of drug de-addiction. Legal position on drugs and laws related to drugs.

(6 lectures)

### Unit 8: Field work

Visit to an area to document environmental assets: river/ forest/ flora/fauna, etc.

Visit to a local polluted site-Urban/Rural/Industrial/Agricultural.

Study of common plants, insects, birds and basic principles of identification.

Study of simple ecosystems-pond, river, Delhi Ridge, etc.

(Equal to 5 lectures)

### Suggested Readings:

- 1) Carson, R. 2002. Silent Spring. Houghton MifflinHarcourt.
- 2) Gadgil, M., & Guha, R. 1993. This Fissured Land: An Ecological History of India. Univ. of California Press.
- 3) Gleeson, B. and Low, N. (eds.) 1999. Global Ethics and Environment, London, Routledge.
- 4) Gleick, P.H. 1993. Water in Crisis. Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute, Oxford Univ. Press.
- 5) Groom, Martha J., Gary K. Meffe, and Carl Ronald Carroll. Principles of Conservation Biology. Sunderland: Sinauer Associates, 2006.
- 6) Grumbine, R. Edward, and Pandit, M.K. 2013. Threats from India's Himalayas. Science, 339:36-37.
- 7) McCully, P. 1996. Rivers no more: the environmental effects of dams (pp. 29-64). Zed Books.
- 8) McNeill, John R. 2000. Something New Under the Sun: An Environmental History of the Twentieth Century.
- 9) Odum, E.P., Odum, H.T. & Andrews, J. 1971. Fundamentals of Ecology. Philadelphia: Saunders.
- 10) Pepper, I.L., Gerba, C.P. & Brusseau, M.L. 2011. Environmental and Pollution Science. Academic Press.
- 11) Rao, M.N. & Datta, A.K. 1987. Waste Water Treatment. Oxford and IBH Publishing Co. Pvt. Ltd.

- 12) Raven, P.H., Hassenzuhl, D.M. & Berg, L.R. 2012. Environment. 8th edition. John Wiley & Sons.
- 13) Rosencranz, A., Divan, S., & Noble, M.L. 2001. Environmental law and policy in India. Tripathi 1992.
- 14) Sengupta, R. 2003. Ecology and economics: An approach to sustainable development. OUP.
- 15) Singh, J.S., Singh, S.P. and Gupta, S.R. 2014. Ecology, Environmental Science and Conservation. S. Chand Publishing, New Delhi.
- 16) Sodhi, N.S., Gibson, L. & Raven, P.H. (eds). 2013. Conservation Biology: Voices from the Tropics. John Wiley & Sons.
- 17) Thapar, V. 1998. Land of the Tiger: A Natural History of the Indian Subcontinent.
- 18) Warren, C. E. 1971. Biology and Water Pollution Control. WBSaunders.
- 19) Wilson, E. O. 2006. The Creation: An appeal to save life on earth. New York: Norton.
- 20) World Commission on Environment and Development. 1987. Our Common Future. Oxford University

**B-HIN 100 : Communicative Hindi**

Time: 2 Hrs.  
Credits: 2

Total Marks: 50  
Theory: 40  
Internal assessment: 10

**Course Objectives:** The Paper is designed to enhance proficiency in Hindi Language. It seeks to develop the basic of Hindi Language through different modules. Each unit will enable the learner to have the communication in Hindi and to share and express ideas and experiences.

<b>Course Learning Outcomes:</b>
After completing the Course, the student will be able to:
<b>B-HIN 100.1:</b> Develop the knowledge of basics of Hindi language.
<b>B-HIN 100.2:</b> Improve vocabulary in Hindi language.
<b>B-HIN 100.3:</b> : Inculcate the knowledge of grammar in Hindi language
<b>B-HIN 100.4:</b> Learn correct uses of Hindi language in media writing

**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 six short notes covering the entire syllabus and students are required to attempt any four. All questions will carry equal marks.

bZdkbZ ¼1½

Hkk"kk dh ifjHkk"kk] vo/kkj.kk ,oa egÿo  
Hkk"kkbZ Hksn&ekSf[kd ,oa fyf[kr A  
Hkk"kk dk ekudhdj.k&fLFkfr ,oa pqukSfr;kj  
Hkk"kk rFkk lekt dk ikjLifjd vUrj&lac/k  
fgUnh Hkk"kk dk bfrgkl ,oa vk/kqfud Áo`fr;kjA

bZdkbZ ¼2½

Á;kstu ewyd fgUnh % fo'ks"krk,a ,oa vko';drk  
fgUnh Hkk"kk dh Áeq[k cksyh ,oa egÿo  
tUklapkj ek;/e vkSj fgUnh Hkk"kk A  
fgUnh Hkk"kk ,oa {ks=h; ÁHkko  
fgUnh lkfgR; ys[ku ds Ádkj ,oa mi;ksfxrA

bZdkbZ ¼3½

fgUnh O;kdj.k % 'kCn ds :i] Hksn vkSj okD; jpuk  
Loj] O;atu vkSj v{kj dk vH;kl ,oa egYoA  
Hkk"kk mPpkj.k ,oa orZuh dk vH;kl  
i;kZ;okph] foykse] lekukFkhZ] vusdkFkhZ 'kCn  
fgUnh dh Á;ksxkred =qfV;ki

bZdkbZ ¼4½

eqfnzr ek;/e vkSj fgUnh Hkk"kk] lekpkj ys[ku  
jsfM;ks dh Hkk"kk ,oa ys[kuA  
Vsyhfotu dh Hkk"kk vkSj ys[ku  
foKkiu dh Hkk"kk vkSj ys[ku  
Lkks'ky ehfM;k dh Hkk"kk vkSj ys[kuA

### vH;kl

lekpkj ys[ku] :id ys[ku] dSl'ku ys[ku  
ftaxy ys[ku] lekpkj okpu ,oa ,adfjax  
Lyksxu ys[ku] CykWx jkbfVax

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- HkkfV;k] M, dSyk'kpUn] vuqokndyk] fl)kar vkSj ç;ksx ] r{kf'kyk çdk'ku] ubZ fnYyh
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**B-HIN100 : Communicative Hindi**

**CO-PO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
<b>B-HIN100.1</b>	3	3	3	3	2	2	2	3
<b>B-HIN100.2</b>	3	3	3	3	2	2	2	3
<b>B-HIN100.3</b>	3	3	3	3	2	2	2	3
<b>B-HIN100.4</b>	3	3	3	3	2	2	2	3
<b>Average</b>	3	3	3	3	2	2	2	3

**CO-PSO Mapping Matrix**

CO	PSO1	PSO2	PSO3	PSO4	PSO5
<b>B-HIN100.1</b>	2	2	2	2	2
<b>B-HIN100.2</b>	2	2	2	2	2
<b>B-HIN100.3</b>	2	2	2	2	2
<b>B-HIN100.4</b>	2	2	2	2	2
<b>Average</b>	2	2	2	2	2

**CO-PO-PSO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
<b>B-HIN100.1</b>	3	3	3	3	2	2	2	3	2	2	2	2	2
<b>B-HIN100.2</b>	3	3	3	3	2	2	2	3	2	2	2	2	2
<b>B-HIN100.3</b>	3	3	3	3	2	2	2	3	2	2	2	2	2
<b>B-HIN100.4</b>	3	3	3	3	2	2	2	3	2	2	2	2	2
<b>Average</b>	3	3	3	3	2	2	2	3	2	2	2	2	2

**B-PPT 201– FOOD PACKAGING (THEORY)**

Time: 3 Hrs.  
Credits :4

Total Marks: 100  
Theory: 80  
Internal Assessment : 20

**Course objectives:** This course is designed for theoretical understanding of food packaging, its type, utilization and innovative technique used for development of food packaging.

<b>Course Learning Outcomes:</b> Upon successful completion of this course, the students learned about the Food Packaging Technology and the student will be able to:
<b>B-PPT201.1:</b> Develop the knowledge of Food Packaging
<b>B-PPT201.2:</b> Understand the function of food package, types of food packaging.
<b>B-PPT201.3:</b> Develop the knowledge of sterilization
<b>B-PPT201.4:</b> Recognize the Innovative Packaging Techniques.

**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 six short notes covering the entire syllabus and students are required to attempt any four. All questions will carry equal marks.

**UNIT-1**

**Introduction**

- Food packaging: Definition,
- Functions of food packaging,
- Need of food packaging
- Role of packaging in extending shelf life of foods
- Safety assessment of food packaging materials
- Different forms of packaging.
- Rigid, semi-rigid, flexible forms of packaging in food industries..
- Different packaging system for-Dehydrated foods, Frozen foods, Dairy products, Fresh fruits, Vegetables, Meat, Poultry, Sea foods.

**UNIT 2**

**Aseptic packaging of foods**

- Principles of sterilization,
- sterilization of packaging material,
- verification of sterilization processes,
- aseptic packaging systems: carton systems, can systems,

- bottle systems, sachet and pouch systems, cup systems □

### UNIT 3

#### Active and Smart packaging

- Definition
- Smart packaging systems
- intelligent packaging systems: Quality Indicators, Time-temperature indicators, gas concentration indicators, RFID;
- Safety and Regulatory issues

### UNIT 4

#### Properties & selection of packaging materials

- Tensile strength, bursting strength, tearing resistance, puncture resistance, impact strength, tear strength,
- Barrier properties of packaging materials,,
- prediction of shelf life of foods,

### **References :**

Gordon L. Robertson, Food Packaging: Principles and Practice, Third Edition,2013.

Gordon L. Robertson, Food Packaging and Shelf Life: A Practical Guide,2010.

Ruben Hernandez, Susan E. M Selke, John Culter, John D. Culter,

Plastics Packaging: Properties,Processing, Applications, and Regulations,2000.

Walter Soroka, Fundamentals of Packaging Technology-Fourth Edition,



**B-PPT 201: FOOD PACKAGING(THEORY)**

**CO-PO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
<b>B-PPT 201.1</b>	3	3	3	3	3	3	3	3
<b>B-PPT 201.2</b>	3	3	3	3	3	3	3	3
<b>B-PPT 201.3</b>	3	3	3	3	3	3	3	3
<b>B-PPT 201.4</b>	3	3	3	3	3	3	3	3
<b>Average</b>	3	3	3	3	3	3	3	3

**CO-PSO Mapping Matrix**

CO	PSO1	PSO2	PSO3	PSO4	PSO5
<b>B-PPT 201.1</b>	3	3	3	3	3
<b>B-PPT 201.2</b>	3	3	3	3	3
<b>B-PPT 201.3</b>	3	3	3	3	3
<b>B-PPT 201.4</b>	3	3	3	3	3
<b>Average</b>	3	3	3	3	3

**CO-PO-PSO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
<b>B-PPT 201.1</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>B-PPT 201.2</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>B-PPT 201.3</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>B-PPT 201.4</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>Average</b>	3	3	3	3	3	3	3	3	3	3	3	3	3

**B-PPT 202– FOOD PACKAGING (PRACTICAL)**

Time: 3 Hrs.

Credits :2

Total Marks: 100

Practical : 40

Internal Assessment : 10

**Course objectives:** This course is designed for Practical understanding of food packaging material, testing and development.

<b>Course Learning Outcomes:</b> After completing the Course, the student will be able to:
<b>B-PPT 202.1:</b> Identify various food packaging material.
<b>B-PPT 202.2:</b> Check the strength of packaging material with various testing instrument.
<b>B-PPT 202.3:</b> Enhance the practical knowledge about packaging industry.
<b>B-PPT 202.4:</b> Use innovative Packaging Techniques.

**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. Identification of different types of packaging and packaging materials
2. Determination of tensile strength of given material
3. Determination of tearing strength of paper
4. Determination of bursting strength of packaging material
6. Determination of drop test of food package
7. Visit to relevant industries
- 8 Introducing the students with the latest trends in packaging consulting the web sites and magazines

**B-PPT 202: FOOD PACKAGING(PRACTICAL)**

**CO-PO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
B-PPT 202.1	3	3	3	3	3	3	3	3
B-PPT 202.2	3	3	3	3	3	3	3	3
B-PPT 202.3	3	3	3	3	3	3	3	3
B-PPT 202.4	3	3	3	3	3	3	3	3
Average	3	3	3	3	3	3	3	3

**CO-PSO Mapping Matrix**

CO	PSO1	PSO2	PSO3	PSO4	PSO5
B-PPT 202.1	3	3	3	3	3
B-PPT 202.2	3	3	3	3	3
B-PPT 202.3	3	3	3	3	3
B-PPT 202.4	3	3	3	3	3
Average	3	3	3	3	3

**CO-PO-PSO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
B-PPT 202.1	3	3	3	3	3	3	3	3	3	3	3	3	3
B-PPT 202.2	3	3	3	3	3	3	3	3	3	3	3	3	3
B-PPT 202.3	3	3	3	3	3	3	3	3	3	3	3	3	3
B-PPT 202.4	3	3	3	3	3	3	3	3	3	3	3	3	3
Average	3	3	3	3	3	3	3	3	3	3	3	3	3

**B-PPT203: PRINTING & PACKAGING MATERIALS (THEORY)**

Time: 3 Hrs.  
Credits :4

Total Marks: 100  
Theory: 80  
Internal Assessment : 20

**Course objectives:** This course is designed for theoretical understanding of printing and packaging material with their properties, application and advantages and disadvantages.

<b>Course Learning Outcomes:</b> Upon successful completion of this course, the student will be able to:
<b>B-PPT203.1:</b> Recognize different types of papers and ink used in printing and packaging.
<b>B-PPT203.2:</b> Learn about various materials like films ,emulsions and developers etc used as photographic materials.
<b>B-PPT203.3:</b> Learn about the physical and chemical properties of various printing and packaging materials.
<b>B-PPT203.4:</b> Recognize different type metals used in packaging and categories and be able to apply them to the proper design situation.

**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 six short notes covering the entire syllabus and students are required to attempt any four. All questions will carry equal marks.**

**Unit – I**

**Metals**

Type of metals and characteristics of metals used for type alloys for foundry types, , Physical and chemical properties of aluminum, zinc, copper, nickel, chromium, magnesium in relation to printing applications.

**Photographic Materials**

Main kinds of films and photographic papers used in graphic origination Films positives, mainbase, stripping, thickness, right and wrong reading, negatives; paper positive materials. Developers, Reducers, Intensifiers.

## Unit - II

### Light Sensitive Materials

Various sensitized materials, used and relationship with processes Silver halide emulsions-classification according to speed, contrast and spectral sensitivity.

### Paper and Ink

Fibrous and Non-fibrous materials, Paper and paperboard types, Recycling paper, Properties of paper, General characteristics and requirements of printing inks formulations pigments, vehicles, and additives, Drying mechanism, ink properties.

## Unit - III

### Adhesives

Classes and characteristics of adhesives used in binding and warehouse work and their range of applications selection for specific purpose.

### Miscellaneous Materials

Cushioning Materials, Ancillary Materials, rexine, threads, tapes, stitching wire, metal foils and covering materials used for binding and print finishing.

## Unit – IV

### PACKAGING MATERIALS

**GLASS:** Manufacture, Properties, Applications and Testing

**PLASTICS:** Polymer Chemistry, Classification of Polymers, Properties, Processing of Plastics, Special Plastics used in packaging and Their applications.

**METAL CONTAINERS:** Tins, Cans, Formed Containers, Steel Drums, Cushioning Mechanism, Fragility Assessment, Cushion Design, Testing,

**Wooden Container:** Textile bags

### References:

- Advances in plastic packaging technology - **John Briston**.
- Packaging design an introduction - **Laszlo Roth**.
- Packaging Technology - Volume I, II, III - II

**B-PPT203: PRINTING & PACKAGING MATERIALS (THEORY)**

**CO-PO Mapping Matrix**

<b>CO</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>
<b>B-PPT 203.1</b>	3	3	3	3	3	3	3	3
<b>B-PPT 203.2</b>	3	3	3	3	3	3	3	3
<b>B-PPT 203.3</b>	3	3	3	3	3	3	3	3
<b>B-PPT 203.4</b>	3	3	3	3	3	3	3	3
<b>Average</b>	3	3	3	3	3	3	3	3

**CO-PSO Mapping Matrix**

<b>CO</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>	<b>PSO5</b>
<b>B-PPT 203.1</b>	3	3	3	3	3
<b>B-PPT 203.2</b>	3	3	3	3	3
<b>B-PPT 203.3</b>	3	3	3	3	3
<b>B-PPT 203.4</b>	3	3	3	3	3
<b>Average</b>	3	3	3	3	3

**CO-PO-PSO Mapping Matrix**

<b>CO</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PSO 1</b>	<b>PSO 2</b>	<b>PSO 3</b>	<b>PSO 4</b>	<b>PSO 5</b>
<b>B-PPT 203.1</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>B-PPT 203.2</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>B-PPT 203.3</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>B-PPT 203.4</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>Average</b>	3	3	3	3	3	3	3	3	3	3	3	3	3

**B-PPT204: PRINTING & PACKAGING MATERIALS (PRACTICAL)**

Time: 3 Hrs.  
Credits :2

Total Marks: 50  
Practical: 40  
Internal Assessment : 10

**Course objectives:** This course is designed for practical understanding of printing and packaging material paper, ink, adhesives and different types of plastic used for printing and packaging.

<b>Course Learning Outcomes:</b> Upon successful completion of this course, the student will be able to:
<b>B-PPT204.1:</b> Understand about types of papers
<b>B-PPT204.2:</b> Understand use of different types of ink.
<b>B-PPT204.3:</b> Learn about the physical and chemical properties of various printing and packaging materials.
<b>B-PPT204.4:</b> Get practical knowledge of the materials used in basic operations of Binding & finishing department,.

**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. Different samples of paper and their study.
2. Different samples of Ink and their study.
3. Study of various metals used in printing.
4. Study of different types of adhesive used in printing.
5. Study of various types of Plastic and metal containers used in packaging.

**B-PPT204: PRINTING & PACKAGING MATERIALS (PRACTICAL)**

**CO-PO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
<b>B-PPT 204.1</b>	3	3	3	3	3	3	3	3
<b>B-PPT 204.2</b>	3	3	3	3	3	3	3	3
<b>B-PPT 204.3</b>	3	3	3	3	3	3	3	3
<b>B-PPT 204.4</b>	3	3	3	3	3	3	3	3
<b>Average</b>	3	3	3	3	3	3	3	3

**CO-PSO Mapping Matrix**

CO	PSO1	PSO2	PSO3	PSO4	PSO5
<b>B-PPT 204.1</b>	3	3	3	3	3
<b>B-PPT 204.2</b>	3	3	3	3	3
<b>B-PPT 204.3</b>	3	3	3	3	3
<b>B-PPT 204.4</b>	3	3	3	3	3
<b>Average</b>	3	3	3	3	3

**CO-PO-PSO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
<b>B-PPT 204.1</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>B-PPT 204.2</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>B-PPT 204.3</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>B-PPT 204.4</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>Average</b>	3	3	3	3	3	3	3	3	3	3	3	3	3



**B-PPT205: GRAPHIC DESIGN (THEORY)**

Time: 3 Hrs.  
Credits :4

Total Marks: 100  
Theory: 80  
Internal Assessment : 20

**Course objectives:** This course is designed for thorough understanding of graphic designing concepts and their application in printing & packaging.

<b>Course Learning Outcomes:</b>
<b>Course outcomes:</b> After completing the Course, the student will be able to:
<b>B-PPT 205.1:</b> Understand about the basic concepts of graphic elements
<b>B-PPT 205.2:</b> Know the functioning of basic colour aesthetics
<b>B-PPT 205.3:</b> Develop the capacities to elaborate the process of graphic design
<b>B-PPT 205.4:</b> Design various real world graphic applications

**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 six short notes covering the entire syllabus and students are required to attempt any four. All questions will carry equal marks.

**UNIT –I**

**INTRODUCTION**

**Graphic Design**, Visual Art, Communication Art, Graphic Art, Components of Graphic Communication, Functions of Graphic Communication

**Elements of design:** point line, shape, size, tone, value, weight, texture space, etc. Principles of design- balances, proportion, rhythm, unity, contrast.

**UNIT –II**

**Types of Letterforms:** Typography- Structure Design and Function, Typefaces, Type families, Function of Type Composition.

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**Visual Images:** Functions, Categories of Visuals, Originals, Visuals on Printed page, Editing of Illustrations

**Layout Planning:** Thumbnail Sketches, Rough Layout, Comprehensive Layout

### UNIT –III

**Colour in Design:** Introduction, Functions of Colour, Colour Vision. Colour Combination, Colour Schemes, Colour Perspective, Reproduction of Colour: Fake colours, Spot Colours, Process Colours

**Copy for Printing:** Verbal Copy, Copy Marking, Copy Fitting, Typesetting Proofreading

**Visual Copy:** Cropping and Scaling, Sizing and Marking, Reproduction of Illustrations

### UNIT –IV

#### DESKTOP PUBLISHING

Capabilities, Users of Desktop Publishing System, Equipment Required for Desktop Publishing, Features of Some Specific Software Programmes: Corel Draw, Photoshop, PageMaker, QuarkXpress

Design management: Definitions in advertising art, modern art abstract art, applied art, advertising, publicity, public relations, sale promotion, sales manager

#### **References:**

1. The Designer's Handbook by Alistair Campbell
2. Design & Technology by Van No strand
3. Handbook of Advertising Art Production by schelmmmer.
4. Art & Production by Sarkar.
5. Advertising, Art & Production by J. Nath.

**B-PPT205: GRAPHIC DESIGN (THEORY)**

**CO-PO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
B-PPT 205.1	3	3	3	3	3	3	3	3
B-PPT 205.2	3	3	3	3	3	3	3	3
B-PPT 205.3	3	3	3	3	3	3	3	3
B-PPT 205.4	3	3	3	3	3	3	3	3
Average	3	3	3	3	3	3	3	3

**CO-PSO Mapping Matrix**

CO	PSO1	PSO2	PSO3	PSO4	PSO5
B-PPT 205.1	3	3	3	3	3
B-PPT 205.2	3	3	3	3	3
B-PPT 205.3	3	3	3	3	3
B-PPT 205.4	3	3	3	3	3
Average	3	3	3	3	3

**CO-PO-PSO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
B-PPT 205.1	3	3	3	3	3	3	3	3	3	3	3	3	3
B-PPT 205.2	3	3	3	3	3	3	3	3	3	3	3	3	3
B-PPT 205.3	3	3	3	3	3	3	3	3	3	3	3	3	3
B-PPT 205.4	3	3	3	3	3	3	3	3	3	3	3	3	3
Average	3	3	3	3	3	3	3	3	3	3	3	3	3

**B-PPT206: GRAPHIC DESIGN (PRACTICAL)**

Time: 3 Hrs.

Credits :2

Total Marks: 50

Theory: 40

Internal Assessment : 10

**Course objectives :** This course is designed for practical understanding of graphic designing and menus, tools and its applications and production formats.

<b>Course Learning Outcomes:</b>
After completing the Course, the student will be able to:
<b>B-PPT 206.1:</b> Understand the use of graphic elements
<b>B-PPT 206.2:</b> Demonstrate the concept of image retouching, smoothing.
<b>B-PPT 206.3</b> Design ad banners for websites and digital campaigning banners.
<b>B-PPT 206.4:</b> Design different logos.

**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. Introduction to computers, various software used for designing purpose – Demonstration ( Manipulation of same design)
2. Logo designing
3. Color wheel
4. Designing of visiting card. Letterhead,
5. Envelop, Bill form, Receipt, Invitation card, Posters,
6. Title page of a Book, Magazine Cover page.

**B-PPT206: GRAPHIC DESIGN (PRACTICAL)**

**CO-PO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
<b>B-PPT 206.1</b>	3	3	3	3	3	3	3	3
<b>B-PPT 206.2</b>	3	3	3	3	3	3	3	3
<b>B-PPT 206.3</b>	3	3	3	3	3	3	3	3
<b>B-PPT 206.4</b>	3	3	3	3	3	3	3	3
<b>Average</b>	3	3	3	3	3	3	3	3

**CO-PSO Mapping Matrix**

CO	PSO1	PSO2	PSO3	PSO4	PSO5
<b>B-PPT 206.1</b>	3	3	3	3	3
<b>B-PPT 206.2</b>	3	3	3	3	3
<b>B-PPT 206.3</b>	3	3	3	3	3
<b>B-PPT 206.4</b>	3	3	3	3	3
<b>Average</b>	3	3	3	3	3

**CO-PO-PSO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
<b>B-PPT 206.1</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>B-PPT 206.2</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>B-PPT 206.3</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>B-PPT 206.4</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>Average</b>	3	3	3	3	3	3	3	3	3	3	3	3	3

**B-PPT 207: SHEET FED OFFSET TECHNOLOGY (THEORY)**

Time: 3 Hrs.

Credits :4

Total Marks: 100

Theory: 80

Internal Assessment : 20

**Course objectives** :This course is designed for theoretical understanding of Sheet fed offset machine with various components and controlling devices.

<b>Course Outcomes:</b> Upon successful completion of this course, the students learned about the sheet fed offset printing process and the student will be able to:
<b>B-PPT 207.1:</b> Know about the Sheet Fed Offset Printing Process in printing industry.
<b>B-PPT 207.2:</b> Develop the basic knowledge of Sheet fed Offset printing machine various mechanisms.
<b>B-PPT 207.3</b> Understand the Feeding units different parts -pile table, pile board, Sucker, separator and double sheet detector,
<b>B-PPT 207.4</b> Understand the Printing unit different parts- Plate cylinder, Blanket cylinder and Impression cylinder.

**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**

**Basic principles in planography printing:**

Lithography and Offset Printing Process, History, Principle, advantages, limitations, types and their uses. Press configurations. Various Required and auxiliary elements, Requirements and Needs of production room

**Unit - II**

**Infeed unit –**

Function of feeding unit, pile table, air blast nozzles, Sucker, separator brushes & fingers. Sheet control devices-conveyor assemblies, conveyor tape, hold down rods, Sheet feeding system, Sheet register- Front lay & Side lay, Sheet detectors

## Unit - III

### Printing unit

Plate Cylinder- parts of plate cylinder, plate punching & mounting Blanket cylinder- Types of blanket cylinder, Care of blanket, blanket cleaning device, Impression cylinder, inking system-Introduction, types of inking system, Dampening system, Types of dampening system, Ingredients of fountain solution, Ph& Conductivity of dampening system,.

## Unit - IV

### Delivery unit-

Gripper, Types of gripper, Sheet transfer, Delivery unit components, Anti set-off spray equipment. Extended pile delivery, Continuous pile delivery. Pre make ready, make ready, Sheet control devices.

### References:

Manual For Lithographic Press Operation - **A. S. Porter**

Modern Lithography Introduction to Printing Technology - **Hugh M Speirs.**

Sheetfed Press Operation-**GATF.**

Offset Technology – **C.S.Mishra.**

Lithographers Manual Lithographic Technology - **Erwin A Dennis, Olusegun Odesina.**

**B-PPT207: SHEET FED OFFSET TECHNOLOGY (THEORY)**

**CO-PO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
B-PPT 207.1	3	3	3	3	3	3	3	3
B-PPT 207.2	3	3	3	3	3	3	3	3
B-PPT 207.3	3	3	3	3	3	3	3	3
B-PPT 207.4	3	3	3	3	3	3	3	3
Average	3	3	3	3	3	3	3	3

**CO-PSO Mapping Matrix**

CO	PSO1	PSO2	PSO3	PSO4	PSO5
B-PPT 207.1	3	3	3	3	3
B-PPT 207.2	3	3	3	3	3
B-PPT 207.3	3	3	3	3	3
B-PPT 207.4	3	3	3	3	3
Average	3	3	3	3	3

**CO-PO-PSO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
B-PPT 207.1	3	3	3	3	3	3	3	3	3	3	3	3	3
B-PPT 207.2	3	3	3	3	3	3	3	3	3	3	3	3	3
B-PPT 207.3	3	3	3	3	3	3	3	3	3	3	3	3	3
B-PPT 207.4	3	3	3	3	3	3	3	3	3	3	3	3	3
Average	3	3	3	3	3	3	3	3	3	3	3	3	3



**B-PPT208: SHEET FED OFFSET TECHNOLOGY (PRACTICAL)**

Time: 3 Hrs.

Credits :2

Total Marks: 50

Practical : 40

Internal Assessment : 10

**Course Objectives :** This course is designed for practical demonstration of Sheet fed offset machine with various components and controlling devices.

<b>Course Learning Outcomes:</b> Upon successful completion of this course, the students learned about the sheet fed offset printing process and the student will be able to:
<b>B-PPT208.1:</b> Understand the Delivery units and different components of delivery unit.
<b>B-PPT208.2:</b> Develop the practical skill of Sheet fed Offset printing machine.
<b>B-PPT208.3:</b> Identify various printing defects
<b>B-PPT208.4:</b> Learn various components parts used in sheet-fed offset machine

**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. One colour printing.
2. Four colour printing.
3. Study of the various mechanisms.
4. Study of the fountain solution ingredients
5. Study of the lubrication system.
6. Setting the feeder, feed board, lays and delivery.
7. Identification of printing faults in the given samples-reasons and remedial actions.

**B-PPT208: SHEET FED OFFSET TECHNOLOGY (PRACTICAL)**

**CO-PO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
<b>B-PPT 208.1</b>	3	3	3	3	3	3	3	3
<b>B-PPT 208.2</b>	3	3	3	3	3	3	3	3
<b>B-PPT 208.3</b>	3	3	3	3	3	3	3	3
<b>B-PPT 208.4</b>	3	3	3	3	3	3	3	3
<b>Average</b>	3	3	3	3	3	3	3	3

**CO-PSO Mapping Matrix**

CO	PSO1	PSO2	PSO3	PSO4	PSO5
<b>B-PPT 208.1</b>	3	3	3	3	3
<b>B-PPT 208.2</b>	3	3	3	3	3
<b>B-PPT 208.3</b>	3	3	3	3	3
<b>B-PPT 208.4</b>	3	3	3	3	3
<b>Average</b>	3	3	3	3	3

**CO-PO-PSO Mapping Matrix**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
<b>B-PPT 208.1</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>B-PPT 208.2</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>B-PPT 208.3</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>B-PPT 208.4</b>	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>Average</b>	3	3	3	3	3	3	3	3	3	3	3	3	3