

॥ सा विद्या या विमुक्तये ॥



स्वामी रामानंद तीर्थ मराठवाडा विद्यापीठ, नांदेड

“ज्ञानतीर्थ” परिसर, विष्णुपुरी, नांदेड - ४३१६०६ (महाराष्ट्र)

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY NANDED

“Dnyanteerth”, Vishnupuri, Nanded - 431606 Maharashtra State (INDIA)

Established on 17th September 1994 – Recognized by the UGC U/s 2(f) and 12(B), NAAC Re-accredited with 'A' Grade



ACADEMIC (1-BOARD OF STUDIES) SECTION

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संलग्नित महाविद्यालयांतील विज्ञान व तंत्रज्ञान विद्याशाखेतील पदवी स्तरावरील प्रथम वर्षाचे CBCS Pattern नुसारचे अभ्यासक्रम शैक्षणिक वर्ष २०१९-२० पासून लागू करण्याबाबत.

प रि प त्र क

या परिपत्रकान्वये सर्व संबंधितांना कळविण्यात येते की, दिनांक ०८ जून २०१९ रोजी संपन्न झालेल्या ४४व्या मा. विद्या परिषद बैठकीतील ऐनवेळचा विषय क्र.११/४४-२०१९ च्या ठरावानुसार प्रस्तुत विद्यापीठाच्या संलग्नित महाविद्यालयांतील विज्ञान व तंत्रज्ञान विद्याशाखेतील पदवी स्तरावरील प्रथम वर्षाचे खालील विषयांचे C.B.C.S. (Choice Based Credit System) Pattern नुसारचे अभ्यासक्रम शैक्षणिक वर्ष २०१९-२० पासून लागू करण्यात येत आहेत.

- | | |
|---|---------------------------------------|
| 1. Agricultural Microbiology | 18. Dyes and Drugs |
| 2. Agrochemicals & Fertilizers | 19. Electronics |
| 3. Analytical Chemistry | 20. Environmental Science |
| 4. B.C.A. | 21. Fishery Science |
| 5. B.Voc. (Food Processing, Preservation and Storage) | 22. Food Science |
| 6. B.Voc. (Web Printing Technology) | 23. Geology |
| 7. Biochemistry | 24. Horticulture |
| 8. Bioinformatics | 25. Industrial Chemistry |
| 9. Biophysics | 26. Information Technology (Optional) |
| 10. Biotechnology (Vocational) | 27. Mathematics |
| 11. Biotechnonology | 28. Microbiology |
| 12. Botany | 29. Network Technology |
| 13. Chemistry | 30. Physics |
| 14. Computer Application (Optional) | 31. Software Engineering |
| 15. Computer Science (Optional) | 32. Statistics |
| 16. Computer Science | 33. Zoology |
| 17. Dairy Science | |

सदरील परिपत्रक व अभ्यासक्रम प्रस्तुत विद्यापीठाच्या www.srtmun.ac.in या संकेतस्थळावर उपलब्ध आहेत. तरी सदरील बाब ही सर्व संबंधितांच्या निदर्शनास आणून द्यावी.

‘ज्ञानतीर्थ’ परिसर,
विष्णुपुरी, नांदेड - ४३१ ६०६.
जा.क्र.: शैक्षणिक-०१/परिपत्रक/पदवी-सीबीसीएस अभ्यासक्रम/
२०१९-२०/२९२

दिनांक : ०३.०७.२०१९.

प्रत माहिती व पुढील कार्यवाहीस्तव :

- १) मा. कुलसचिव यांचे कार्यालय, प्रस्तुत विद्यापीठ.
- २) मा. संचालक, परीक्षा व मूल्यमापन मंडळ यांचे कार्यालय, प्रस्तुत विद्यापीठ.
- ३) प्राचार्य, सर्व संबंधित संलग्नित महाविद्यालये, प्रस्तुत विद्यापीठ.
- ४) साहाय्यक कुलसचिव, पदव्युत्तर विभाग, प्रस्तुत विद्यापीठ.
- ५) उपकुलसचिव, पात्रता विभाग, प्रस्तुत विद्यापीठ.
- ६) सिस्टम एक्सपर्ट, शैक्षणिक विभाग, प्रस्तुत विद्यापीठ.

स्वाक्षरित / -

उपकुलसचिव

शैक्षणिक (१-अभ्यासमंडळ) विभाग

Maharashtra Mahavidyalaya Nilanga, Latur.

B.Vocational (Web Printing Technology)



- F.Y. (Revised)
- S.Y (New)

Effective from the academic year june 2019

TITLE OF THE PROGRAMME
BACHELOR OF VOCATION IN WEB PRINTING TECHNOLOGY

Introduction:

Printing Technology has wide application in Print Media and communication, publications, security printing, printing for packaging etc. Digital printing is also emerging technology in the current field of printing technology. It involves knowledge and several technical skills of various printing process, material science, graphic design and editing, printing machineries, print finishing etc.

Employment opportunities are available in the area of publishing houses under Central, State Govt. and in private sector. Printing presses under Central and State govt., commercial printing presses doing offset, flexography, gravure and screen printing, pre-press solution for printing industry, designing and digital printing, security printing presses under Govt. of India, software solution for printing industry, Color management solution, e-publishing, packaging and printing, consumable like ink, press consumables production organizations, print finishing and converting. There are lots of scopes in entrepreneurship in printing.

Aims & Objectives:

During their studies, students shall learn the detailed aspects of various printing processes like Offset printing, Gravure printing, flexography, letterpress and screen printing including the machineries being used. Also students shall get the subject knowledge of printing material, pre-press technologies, digital printing, security printing, print finishing techniques, project work, business management, entrepreneurship development, cost estimation etc. Subjects on packaging technology have been included in the curriculum to impart basic knowledge of packaging technology to enable the students to apply the same in his professional career.

It involves several technical skills which hold the prime importance. Each person engaged in performing pre-press work like typesetting, graphics designing and editing, making of image carrier, press work and printing, finishing have specific and specialized role to perform and contribute for the final output.

Categories of personnel with Diploma/Advance Diploma/ B Voc. Degree in Web Printing Technology shall have the potentiality to get employment in various positions like shop floor production personnel, supervisor, production manager, works manager, maintenance personnel, coordinator in publishing and advertising agencies, sales and marketing personnel etc. depending upon the level of qualification.

Program Structure:

The three year B.Voc.course (full time) has a specific feature of multi point entry and multi point exit provision. After completing one year of the course, if any student desire to leave he/she will be awarded Diploma, subject to the condition of earning the required credit points. Similarly after completing the second year he/she will be awarded Advance Diploma

and once the candidate completes the third year candidate will be awarded the degree of Bachelor in Vocational (Web Printing Technology). If any student desire to take admission to some other university, at any other stage i.e., on completing 1st year, he/she may take admission to 2nd year in same branch. Similarly, on completing the 2nd year, one can take admission to 3rd year.

Program Outcome:

On first year students shall have the knowledge of the subject on pre-press technology, offset printing process, printing material science, with the practical aspects involved with it. On completion the first year students shall have the skills of Offset printing process and they will reach the level of Diploma in Printing Technology.

On second year, students shall learn the subject on digital pre-press technology, gravure printing process, packaging technology and computer science applicable to printing with the practical aspects involved with it. On completion of the second year, they will have the skill of gravure printing process and will reach the level of Advance Diploma in Printing Technology.

On third year students shall learn the subject on print finishing technology, flexographic printing process, digital and security printing, mechanical maintenance, estimating and costing entrepreneurship with the practical aspects involved with it. Students shall get the industrial training and project work. On completion the third year they will have the skill of security printing, entrepreneurship development and candidate will be awarded Bachelor of Vocation Degree in Printing Technology.

STRUCTURE OF SYLLABUS

To be implemented from the academic year 2018-2019

Title of the course : BACHELOR OF VOCATION (WEB PRINTING TECHNOLOGY)

1. Skills to be acquired after completion of 1st Year :

After successful completion of the 1st year, the student shall be able to perform the following skills.

- 1) Prepare a layout of a job
- 2) Knowledge about software : MS Word, MS Excel, MS PowerPoint, PageMaker and Typing (English & Marathi)
- 3) Prepare screen for screen printing
- 4) Prepare pre-sensitized plates for offset lithography process
- 5) To print different Screen Printing Jobs
- 6) To print different offset printing jobs.

- **Self-Employment and Employment Opportunities:** On successful completion of the course the candidates can either get employed, or become a self-employed / Entrepreneur in any one of the following fields.

1. Designing
2. Screen Printing
3. Pre-Press
4. Offset platemaking
5. Offset printing

2. Skills to be acquired after completion of 2nd Year :

After successful completion of the 2nd year, the student shall be able to perform the following skills.

- 1) Prepare a design for a given job like Magazine, brochures, etc.
- 2) Prepare Design and Development of Pack for New Products
- 3) Knowledge about Newspaper Printing
- 4) To print different Digital Printing jobs.
- 5) Working with laser & Inkjet Printers.
- 6) Book Binding.

Self-Employment and Employment Opportunities: On successful completion of the course the candidates can either get employed, or become a self-employed / Entrepreneur in any one of the following fields.

1. Designing
2. Web Offset Printing (Newspaper)
3. Food & Pharmaceutical Packaging
4. Gravure Printing
5. Material Science
6. Paper and Ink Manufacturing

3. Skills to be acquired after completion of 3rd Year :

After successful completion of the 3rd year, the student shall be able to perform the following skills.

- 1) Prepare a layout of a Company
- 2) Prepare a design for a given job like Magazine, brochures, etc.
- 3) Prepare Design and Development of Pack for New Products
- 4) Prepare Flexo Plate for Flexography Printing
- 5) Management of the Press Department
- 6) To print different Digital Printing jobs.

Self-Employment and Employment Opportunities: On successful completion of the course the candidates can either get employed, or become a self-employed / Entrepreneur in any one of the following fields.

1. Designing
2. Flexography Printing
3. Digital and Security Printing
4. Packaging
5. Planning Department
6. Printing Machine Maintenance
7. Cost & Estimation

4. Duration:

The duration of the B.Voc. Course will be of **Three Years**.

- B.Voc. Part I - Diploma in Web Printing Technology**
- B.Voc. Part II - Advanced Diploma in Web Printing Technology**
- B.Voc. Part III - Bachelor of Vocation in Web Printing Technology**

The final B.Voc.degree will be awarded only after completion of three years course.
The suggested credits for each of the years are as follows:

Awards		Normal Calendar Duration	Skill Component Credits	General Education Credits
Year 1	Diploma in Web Printing Technology	Two Semester	36	24
Year 2	Advanced Diploma in Web Printing Technology	Four Semester	36	24
Year 3	B.Voc. in Printing Technology	Six Semester	36	24
		Total	108	72

General Education Component should not exceed 40% of the total curriculum.

Credits can be defined as the workload of a student in

1. Lectures
2. Practical's
3. Seminars
4. Private work in the Library/home / Industry.
5. Examination
6. Other assessment activities.

The following formula should be used for conversion of time into credit hours.

- One Credit would mean equivalent of 15 periods of 60 minutes each, for theory, workshops /labs and tutorials.

- For internship/field work, the credit weightage for equivalent hours shall be 50% of that for lectures/workshops.
- For self-learning, based on e-content or otherwise, the credit weightage for equivalent hours of study should be 50% or less of that for lectures/workshops.

5. Eligibility:

1. The eligibility condition for admission to B.Voc. Program shall be **10+2 or equivalent, in any stream from any recognized board or university.**
2. The candidate with 10+2 year or I.T.I. course in any branch is eligible for the course.
3. The merit list will be prepared by considering the marks of qualifying examination.

6. Pattern: Semester Pattern.

7. Examination:

Scheme of examination:

- The semester examination will be conducted at the end of each term (both theory and practical examination)
- There are in all 10 papers per semester. Two theory and two practical papers for general education and 3 theory and 3 practical papers for skill education. Each paper will be of 75 marks each. Hence total marks of each semester will be of 750 marks.
- Scheme of examination for a paper

Credits	Teaching Scheme	Examination Scheme			
		Theory /Practical Paper Hrs.	Average of Unit Test (2 Unit Test of 25 Marks Each)	End Semester Total Marks	Total Marks
03	04 Hrs. per week	2.50 / 3.00 Hrs.	25	50	75

Question Paper Pattern

Q.1	Multiple Choice Question	10 M
Q.2	Solve any Five (2 marks each)	10 M
Q.3	Solve (5 marks each)	10 M
	A	
	B	
		OR
	C	
	D	
Q.4	Solve (5 marks each)	10 M
	A	
	B	
		OR
	C	
	D	
Q.5	Write notes on any two.	10 M
	A	
	B	
	C	
	D	

Syllabus Structure of the B. Voc. degree course(WPT)							
Semester -I							
Paper Code	Name of the Subject	Credit	Hrs	Marks			Total Marks
				Internal evaluation	MCQ	Theory	
General Education							
BVGE-1	Introduction to Computer Hardware	3	45	25	10	40	75
BVGE-2	Introduction to Computer Application	3	45	25	10	40	75
BVGE-3	Practical Paper-1	3	45	25	10	40	75
BVGE-4	Practical Paper-2	3	45	25	10	40	75
Skill Education							
BVWPT-111	Introduction to Printing Technology	3	45	25	10	40	75
BVWPT-112	Introduction to Graphic Design	3	45	25	10	40	75
BVWPT-113	Basic science of Printing	3	45	25	10	40	75
BVWPT-114	Practical Paper-3	3	45	25	50		75
BVWPT-115	Practical Paper-4	3	45	25	50		75
BVWPT-116	Practical Paper-5	3	45	25	50		75
Total		30	450				750

Semester -II							
Paper Code	Name of the Subject	Credit	Hrs	Marks			Total Marks
				Internal evaluation	MCQ	Theory	
General Education							
BVGE-5	Computer Operating Skills	3	45	25	10	40	75
BVGE-6	Communication & documentation skills	3	45	25	10	40	75
BVGE-7	Practical Paper-6	3	45	25	10	40	75
BVGE-8	Practical Paper-7	3	45	25	10	40	75
Skill Education							
BVWPT-121	Basics of Mechanical Engineering	3	45	25	10	40	75
BVWPT-122	Image Carrier Preparation for Gravure, Flexo, Offset	3	45	25	10	40	75
BVWPT-123	Offset Printing Technology	3	45	25	10	40	75
BVWPT-124	Practical Paper-8	3	45	25	-	50	75
BVWPT-125	Practical Paper-9	3	45	25	-	50	75
BVWPT-126	Practical Paper-10	3	45	25	-	50	75
Total		30	450				750

Activity: Deputation of the students for Industrial training of one month during summer vacation.

Semester-III							
Paper Code	Name of the Subject	Credit	Hrs	Marks			Total Marks
				Internal evaluation	MCQ	Theory	
General Education							
BVGE-9	Environmental science	3	45	25	10	40	75
BVGE-10	Soft skills & personality development	3	45	25	10	40	75
BVGE-11	Practical Paper-11	3	45	25	10	40	75
BVGE-12	Practical Paper-12	3	45	25	10	40	75
Skill Education							
BVWPT-231	Basics of packaging	3	45	25	10	40	75
BVWPT-232	Web offset printing Technology	3	45	25	10	40	75
BVWPT-233	Paper, Ink and Coating Technology	3	45	25	10	40	75
BVWPT-234	Practical Paper-13	2	45	10	-	40	50
BVWPT-235	Practical Paper-14	2	45	10	-	40	50
BVWPT-236	Practical Paper-15	2	45	10	-	40	50
BVWPT-237	Project report on the industrial training completed during vacation at the end of sem-II	3		-	-	-	75
Total		30	450				750

Semester -IV							
Paper Code	Name of the Subject	Credit	Hrs	Marks			Total Marks
				Internal evaluation	MCQ	Theory	
General Education							
BVGE-13	Introduction to entrepreneurship	3	45	25	10	40	75
BVGE-14	Principles of marketing management	3	45	25	10	40	75
BVGE-15	Practical Paper-16	3	45	25	10	40	75
BVGE-16	Practical Paper-17	3	45	25	10	40	75
Skill Education							
BVWPT-241	Advance packaging	3	45	25	10	40	75
BVWPT-242	Print Finishing Technology	3	45	25	10	40	75
BVWPT-243	Binding & Print Finishing	3	45	25	10	40	75
BVWPT-244	Practical Paper-18	3	45	25	-	50	75
BVWPT-246	Practical Paper-19	3	45	25	-	50	75
BVWPT-247	Practical Paper-20	3	45	25	-	50	75
Total		30	450				750

Activity : Deputation of the students for Industrial training of one month during summer vacation.

Semester-V							
Paper Code	Name of the Subject	Credit	Hrs	Internal evaluation	MCQ	Theory	Total Marks
General Education							
BVGE-17	General Education 1	3	45	25	10	40	75
BVGE-18	General Education 2	3	45	25	10	40	75
BVGE-19	Practical paper-21	3	45	25	10	40	75
BVGE-20	Practical paper General Education-22	3	45	25	10	40	75
Skill Education							
BVWPT-351	Packaging Converting Machinery and System	3	45	25	10	40	75
BVWPT-352	Press Maintenance and Management	3	45	25	10	40	75
BVWPT-353	Costing and Estimation	3	45	25	10	40	75
BVWPT-354	Practical Paper-23	2	45	10	-	40	50
BVWPT-355	Practical Paper-24	2	45	10	-	40	50
BVWPT-356	Practical Paper-25	2	45	10	-	40	50
BVWPT-357	Project report on the industrial training completed during vacation at the end of sem-III	3	45	-	-	-	75
Total		30	450				750

Semester -VI				
Paper Code	Name of the Subject	Hrs	Marks	Credit
BVWPT-361	Industrial Training	3 Months	400	16
BVWPT-362	Project Work		200	08
BVWPT-363	Seminar		150	060
Total			750	30

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : FIRST
SUBJECT TITLE : INTRODUCTION TO COMPUTER HARDWARE
CONTENTS : THEORY
SUBJECT CODE : BVGE1
MARKS : 75 MARKS
TOTAL HRS : 45

Objectives :

To make aware the students with the knowledge and use of computer hardware and to introduce the basic principle hardware and operational aspects of computers hardware.

Contents:

SR. No.	Topic name	Number of Hours	Marks
1	Unit 1 Definition of Computer, Features, Parts of Computer System: (Input, Output, Storage unit, ALU, CU, CPU), Hardware, Software, Data, Information processing cycle. Computer languages. Memory Devices (RAM, ROM & its types)	12	25
2	Unit 2 Input Devices: Keyboard and Mouse: The Standard Keyboard Layout, Using Mouse, Other Data Input Devices: Pen, Touch Screens, Bar Code Readers, OCR Output Devices: CRT Monitors, Printers: Dot Matrix, Ink Jet, Laser Printers. Number Systems (Binary, Octal, Hexadecimal), Computer Arithmetic ('+', '-', '*', '/), Conversions (Octal to Binary, Binary to Octal, Binary to Hexadecimal, Hexadecimal to Binary). Computer codes: BCD, EBCDIC, ASCII, Unicode.	10	25
3	Unit 3 Data Processing: Factors Affecting Processing Speed, Bus, Cache Memory. Ports: Standard Computer Ports, Serial and Parallel Ports, Ports: SCSI, USB, FireWire, MIDI, Expansion Slots and Boards, PC Cards. Secondary Storage Devices: Magnetic Tapes, Magnetic Disks, Optical Disks (Basic Principles of operation, Types, Advantages, Limitations)	12	15
4	Unit 4 Software: System and Application Software Operating System: Purpose of Operating Systems, Types of Operating System, Popular Operating System, Managing Hardware: Working with Device Drivers, Utility Software, Backup Utilities, and Screen Savers.	11	10

	Total	45	75
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Referances:-

1. Computer Today, Basandara
2. Introduction to Computer and Data Processing, Pawar (Wiley-Dreamtech) 12
3. Computer Fundamentals, P.K. Sinha
4. Fundamental of computers, V. Rajaraman.
5. Introduction to Computers- Norton Peter,
6. Foundations of Computing, 1st ed., BPB Publications - P. K. Sinha&PritiSinha.
7. Introduction to Computers, 4th ed., PHI- V. Raja Raman.
8. Introduction to Computers, Vikas Publishing House- Alex Leon & Mathews Leon.
9. Complete Computer Kit, Wiley Dreamtech, Delhi- Vikas Gupta,

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : FIRST
SUBJECT TITLE : INTRODUCTION TO COMPUTER APPLICATIONS
CONTENTS : THEORY
SUBJECT CODE : BVGE-2
MARKS : 75 MARKS
TOTAL HRS : 45

Objectives :

To acquaint the students with the knowledge and use of computers and to introduce to basic Applications of computers.

Contents:

Sr. No	Topic name	Number of Hours	Marks
1	<p>Unit 1:</p> <p>MS-WORD</p> <p>-File Management: Opening, creating and saving a document, locating files, copying contents in some different file(s), protecting files, giving password protection for a file</p> <p>-Page Set up: Setting margins, tab setting, ruler, indenting - Editing a document: Entering text, Cut, copy, paste using tool- bars</p> <p>-Formatting a document: Using different fonts, changing font size and color, changing the appearance through bold/ italic/ underlined, highlighting a text, changing case, using subscript and superscript, using different underline methods.</p> <p>-Aligning of text in a document, justification of document, Inserting bullets and numbering, Formatting paragraph, inserting page breaks and column breaks, Use of headers, footers: Inserting footnote, end note, use of comments, Inserting date, time, special symbols, importing graphic images, drawing tool.</p> <p>-Tables and Borders: Creating a table, formatting cells, use of different border styles, shading in tables, merging of cells, partition of cells, inserting and deleting a row in a table, print preview, zoom, page set up, printing options. Using Find, Replace options Using Tools like: Spell checker, help, use of macros, mail merge, thesaurus word content and statistics, printing envelopes and labels.</p> <p>-Using shapes and drawing toolbar, Working with more than one window in MS Word, How to change the version of the document from one window OS to</p>	18	30

	another , Conversion between different text editors, software and MS word		
2	<p>Unit 2 : MS-EXCEL- Starting excel, open worksheet, enter, edit, data, formulas to calculate values, format data, create chart, printing chart, save worksheet, switching from another spread sheet -Menu commands: Create, format charts, organize, manage data, solving problem by analyzing data, and exchange with other applications. Programming with MS Excel, getting information while working. -Work books: Managing workbooks (create, open, close, save), working in work books, selecting the cells, choosing commands, data entry techniques, formula creation and links, controlling calculations, working with arrays. Editing a worksheet, copying, moving cells, pasting, inserting, deletion cells, rows, columns, find and replace text, numbers of cells, formatting worksheet. -Creating a chart: Working with chart types, changing data in chart, formatting a chart, use chart to analyze data Using a list to organize data, sorting and filtering data in list - Retrieve data with MS – query: Create a pivot table, customizing a pivot table. Statistical analysis of data -Customize MS-Excel: How to change view of worksheet, outlining a worksheet, customize workspace, using templates to create default workbooks, protecting work book Exchange data with other application: linking and embedding, embedding Objects, linking to other applications, import, export document.</p>	17	30
3	<p>Unit 3 : MS PowerPoint:Creatingowndesign, formatting objects on a slide, Use of Slide Master to control the design & formatting of apresentation, Use of Image, audio, video in the presentation, Slide show setup, slide transition, use of animation, Use of narration in presentation, Print setup & Printing handouts of apresentation.</p>	10	15
	Total	45	75

Reference Books

1. Fundamentals of Computers by E. Balagurusamy (Author) Publisher: McGraw Hill Education (India) Private Limited
2. Ms Office 2007 in a Nutshell by S. Saxena (Author) Publisher: S.Chand (G/L) & Company Ltd
3. Computer Fundamentals Paperback – by P. K. Sinha (Author) Publisher: BPP

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : FIRST
SUBJECT TITLE: PRACTICAL PAPER-1
CONTENTS : PRACTICALS BASED ON COMPUTER HARDWARE
SUBJECT CODE : BVGE-3
MARKS : 75 MARKS
TOTAL HRS : 45

List of the Practical's

1. Study of different parts of CPU
2. Study of SMPS
3. Identification and study of input devices
4. Identification of output devices
5. Identification of and study different parts of motherboard
6. Identification and study of different types of processors
7. Identification and study of different types of RAM
8. Study of different types of networking topology of computers
9. LAN networking
10. Setting of IP Address
11. Sharing of hard disks /printers /scanners etc.
12. Installation of Operating systems
13. Installation of MS Office
14. Installation of antivirus

References:-

- 1) Computer Today, Basandara
- 2) Introduction to Computer and Data Processing, Pawar (Wiley-Dreamtech)12
- 3) Computer Fundamentals, P.K. Sinha
- 4) Fundamental of computers, V. Rajaraman.

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : FIRST
SUBJECT TITLE: PRACTICAL PAPER - 2
CONTENTS : PRACTICALS BASED ON COMPUTER APPLICATION
SUBJECT CODE : BVGE-4
MARKS : 75 MARKS
TOTAL HRS : 45

List of the Practical's

1. To Study Microsoft Office word
2. Use of Microsoft word for creating reports
3. Formatting of reports.
4. To Study Microsoft Excel
5. Applications of MS Excel to create payroll Sheets
6. Formatting of sheets
7. Use of Microsoft Excel for using functions
8. To Study Microsoft Power Point
9. To Study and create power point presentation
10. To Study Web and Networking
11. Visit to Industry and case study problems on computer application
12. Any other practical based on the syllabus decided by the college

Reference Books

1. Fundamentals of Computers by E. Balagurusamy, Publisher: McGraw Hill Education (India) Private Limited
2. Ms Office 2007 in a Nutshell by S. Saxena, Publisher: S.Chand (G/L) & Company Ltd
3. Computer Fundamentals Paperback – by P. K. Sinha, Publisher: BPP

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : FIRST
SUBJECT TITLE : INTRODUCTION TO PRINTING TECHNOLOGY
CONTENTS : THEORY
SUBJECT CODE : BVWPT-111
MARKS : 75 MARKS
TOTAL HRS : 45

Rationale:

This course aims at creating a foundation among entry level students. It introduces common concepts frequently used in the printing industry such as image carrier, design, various printing techniques and finishing processes. After completion of this course, a student can understand the flow of various printing Processes.

Objectives: The student will be able to:

- Understand flow of printing.
- Understand raw material required for printing.
- Scope of Printing

Contents:

Sr. No.	Details	Hrs.	Marks
1	Unit -1 Introduction	8	13
	Introduction to Printing – History, Need of Printing, Definition,		
	General Workflow of Printing process i.e. Pre-Press, Press, Post-Press,		
	Classification of printing process i.e. Conventional and Digital		
	Classification of Printing Industry – Newspaper, Commercial, Digital etc.		
2	Unit -2 Letter Press	4	7
	Introduction and Working Principle		
	Study of working principle and construction		
	Image carriers preparation / Typesetting- Various type, Font, Size, style Line Block and Halftone Block		
	Configuration : Platen to Platen; Platen to cylinder & Cylinder to cylinder		
	Advantages, Limitations and Application of the Process		
3	Unit -3 Lithographic Offset Printing	8	13
	Introduction and Working Principle		
	Sheet fed machine units- feeding, inking, damping, printing & delivery unit.		
	Definition of perfecting / Printing terminology & it's important in printing. Undercut / Bearer.		

	Web machine- Difference between sheet fed & web fed.		
	Configuration: Blanket to Blanket, Common impression cylinder, Stack, Inline etc.		
	Waterless Offset (Dry Offset)		
	Advantages, Limitations and Application of the Process		
4	Unit -4 Screen Printing	3	6
	Introduction and Working Principle		
	Materials: Cloth, Clamps, Screen stretching, Squeegee.		
	Stencil- Direct, indirect Screen printing- Manual operation. Advantages, Limitations and Application of the Process		
5	Unit -5 Gravure Printing Process	4	8
	Introduction and Working Principle		
	Configuration of machine- Image carrier, Doctor Blade		
	Gravure printing advantages & disadvantages		
	Application in printing industry		
6	Unit -6 Flexography printing Process	5	8
	Study of construction, working principle, advantages and limitations		
	Machine types – Inline, stack and common impression cylinder		
	Different types of plate used in flexography		
	Application in printing industry		
7	Unit -7 Introduction to Digital Printing Process	8	13
	Working Principle, Advantages, Limitations, Applications of Electrophotography and Inkjet digital printing process		
8	Unit -8 Binding	5	7
	Different types of binding-side sewing/stitching,centre,		
	Sewing/stitching,Perfect Binding		
	Raw materials,Thread, Past, Gum, Cloth.		
	Total	45	75

Learning Resources:

Books:

Sr. No.	Author	Title	Publisher
1	Herbert Simonn	Introduction to printing	-
2	Ian Faux	Modern Lithography	Macdonad& Evans plynont
3	Helmut Kipphan	Hand book of print media	Heidelberg

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : FIRST
SUBJECT TITLE : INTRODUCTION TO GRAPHIC DESIGN
CONTENTS : THEORY
SUBJECT CODE : BVWPT-112
MARKS : 75 MARKS
TOTAL HRS : 45

Rationale:

Graphics design is the basics subject in understanding any design, this subject tells about fundamentals that are used in creating designs. This course will also cover the understanding about the color and its effects.

Objectives:

- This course covers basics elements as well as principle used in creating a design.
- This course gives inputs on the process of creating a design.
- This course will impart to knowledge on the basic color theory.
- This course covers the technology used today in making the design.

Contents:

Sr. No.	Details	Hrs.	Marks
1	Unit 1 : Introduction to Graphic Design Understanding graphic design-What is graphic design-Function of design-History of graphic design-Career in graphic design	06	10
2	Unit 2 : Design Process Introduction-Research-Thumbnails-Roughlayout-Comprehensive-Artwork-Type of original-	08	14
3	Unit 3 : Fundamental of Graphic Design Introduction, Elements of design, Principle of design	07	16
4	Unit 4 : Typography Introduction, development of written communication, Fonts-Text formatting, Multilingual and expressive typography	06	09
5	Unit 5 : Colors in Graphic Design Introduction-What is electromagnetic spectrum-Color perception-Color theory-Properties of color-Describing color-Psychology of color/colors and their effects	06	09
6	Unit 6 : Design Layout Introduction-Theme and Content-Layout for design-Copy and type-Design for publication-Layout for visiting card, pamphlets, advertising, bill book, wedding card etc.	07	09
7	Unit 7: Advertisement using different media Introduction-What is media planning-Different types of media-	05	08

	their characteristics, advantages and limitations		
	Total	45	75

Learning Resources:

Books:

Sr. No.	Author	Title	Publisher
1	R. W. G Hunt, M. R. Pointer	Measuring Color, Fourth Edition	Wiley-IS&T Series, 2006
2	Bilmeyer and Saltzman	Principles of Colour Technology, Second Edition	Wiley Interscience publication
3	Wyszecki and Stiles	Color Science, Second Edition	Wiley Interscience Publication
4	Phil Green	Color Management, Understanding and using ICC profiles	Wiley IS& T Series, 2001
5	Richard J. D. Tilley	Color and the optical properties of material	Wiley publication
6	J.A. C. Yele	Principles of Color Reproduction	Wiley, 2009.

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : FIRST
SUBJECT TITLE : BASIC SCIENCE OF PRINTING
CONTENTS : THEORY
SUBJECT CODE : BVWPT-113
MARKS : 75 MARKS
TOTAL HRS : 45

Rationale:

This subject contains concepts about colour, graphic reproduction and properties materials related with pre-press, construction and working of quality control instruments.

Objectives:

- This course covers basics elements of Color.
- To understand the working of graphic reproduction camera/Process camera and its types etc.
- To understand the terminology like film, contact lens, Halftone, dot percentage, Ink trapping.

Contents:

Sr. No	Details	Hrs.	Marks
1	Unit 1: Colour Basic	08	13
	Definition - Colour, Visible spectrum, Wavelength, Frequency, Ultraviolet light, Infrared light		
	Additive & Subtractive colour theory & their applications		
2	Unit 2: Original For Graphic Reproduction	08	12
	Original - Definition, Classification, of the graphic original. Factors governing selection		
	Required physical and optical properties / characteristics of different types of graphic originals		
3	Unit 3: Recording Media	06	11
	Required characteristics and different types of media used in graphic reproduction		
	Digital recording media such as SD card, memory stick and other digital storage media		
4	Unit 4: Equipment's used in Reproduction Photography	10	16
	Formulae and relationship between different quantities of lens such as focal length, depth of focus, depth of field, power etc. Simple numerical problems related to image formation using lens. process camera- vertical /horizontal camera.		

	Lens aberrations and flare		
	Digital Camera - Working principle, Construction, applications, advantages, limitations. Introduction to different photo sensors (CCD, CMOS) used in digital camera. Resolution of digital camera. Comparison between digital photography and conventional photography.		
5	Unit 5: Formatting Page Layout	09	14
	Paragraph style - indentation, Tabs, alignment, leading		
	Character style - font, style, size, spacing		
	Study of graphic terminology associated with page. page layout -Running heads, column guides, page numbering, margins		
	Formatting graphics with the text in columns and tables.		
	Proofing and Proof Reading.		
	Study of graphic terminology associated with page. And different Imposition schemes. Need and setting of headers and footers.		
6	Unit 6: Paper & ink Introduction of various types of substrate used in printing industry, It's application, types, size, coating material. Introduction of inks, content of ink, types of ink, application of inks according to various printing process.	04	9
	Total	45	75

References:

1. R.H. Leach, The Printing Ink Manual, fifth edition, Chapman & Hall, London
2. Robert F Reed, What the Printer should know about inks, GATF
3. Clifwool, A Manual for Flexographic inks, Fishbum Printing ink co. Ltd
4. Fonald E Tood, Printing inks, Pira International, United Kingdom
5. Printing Materials Science and Technology- Bob Thomson, PIRA
6. Advances in Printing Sciences and Technology, Vol. 24-J. Anthony Bristow.
7. Handbook of printing and production-Michael Bernard, John Peacock.
8. Introduction in Printing Technology-Heigh. M. Speir.
9. W.H. Bureau, "What the printer should know about the paper", GATF
10. J.P. Casey, Pulp and paper chemistry and chemical technology.
11. R.J. McGill, " measurement and control in paper making", Adam Hilger Ltd.
12. D.Venkateswaralu, Paer for printing and packaging. SS Graphics

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : FIRST
SUBJECT TITLE : PRACTICAL PAPER -3
CONTENTS : PRACTICALS BASED ON INTRODUCTION PRINTING TECHNOLOGY
SUBJECT CODE : BVWPT-114
MARKS : 75 MARKS
TOTAL HRS : 45

List of the Practical's

1. Introduction of Materials used for Screen Printing.
2. Understanding of +ve and -ve Photographic Films.
3. Preparation of Screen for Exposure.
4. Exposing of the Screen Printing Screen.
5. Image Centering.
6. Single Color Screen Printing.
7. Registration for Multicolor Job Printing.
8. TwoColor Printing by Screen Printing.
9. Personalized Visiting Card Printing.
10. T-Shirt or Textile Screen Printing.
11. Printing of Greeting Cards.
12. Wedding card Printing

Learning Resources:

Books:

Sr. No.	Author	Title	Publisher
1	Herbert Simonn	Introduction to printing	-
2	Ian Faux	Modern Lithography	Macdonad& Evans plynont
3	Helmut Kipphan	Hand book of print media	Heidelberg

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : FIRST
SUBJECT TITLE : PRACTICAL PAPER -4
CONTENTS : PRACTICALS BASED ON INTRODUCTION TO GRAPHIC DESIGN
SUBJECT CODE : BVWPT-115
MARKS : 75 MARKS
TOTAL HRS : 45

List of the Practical's

1. Introduction of Menu Bar in Adobe Pagemaker 7.0 software
2. Introduction of Tool Bar in Adobe Pagemaker 7.0 software
3. Introduction of Property Bar in Adobe Pagemaker 7.0 software
4. Preparation of Personalized Visiting Card Layout using Adobe Pagemaker 7.0
5. Preparation of Pamphlet Layout using Adobe Pagemaker 7.0
6. Introduction of Welcome Screen in Coral Draw Graphic Suit X17
7. Introduction of Home Screen in Coral Draw Graphic Suit X17
8. Introduction of Standard Property Bar and Transformation in Coral Draw Graphic Suit X17
9. How to use Pick Tool and Rectangle Tool by using Coral Draw Graphic Suit X17
10. How to use Shape tool with complete Property and functions by using Coral Draw Graphic Suit X17.
11. How to use Smooth, Smear and Twirl Tool by using Coral Draw Graphic Suit X17
12. How to Create New files and Important settings in Adobe Photoshop CS6.
13. How to work with Layers in Adobe Photoshop CS6.
14. How to use rectangular Marquee Tool in Adobe Photoshop CS6.
15. How to use Magic Wand and Quick Selection Tool in Adobe Photoshop CS6.

Learning Resources:

Books:

Sr. No.	Author	Title	Publisher
1	R. W. G Hunt, M. R. Pointer	Measuring Color, Fourth Edition	Wiley-IS&T Series, 2006
2	Bilmeyer and Saltzman	Principles of Color Technology, Second Edition	Wiley-Interscience publication
3	Wyszecki and Stiles	Color Science, Second Edition	Wiley-Interscience Publication
4	Phil Green	Color Management, Understanding and using ICC profiles	Wiley IS& T Series, 2001
5	Richard J. D. Tilley	Color and the optical properties of material	Wiley publication

6	J.A. C. Yele	Principles of Color Reproduction	Wiley, 2009.
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COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : FIRST
SUBJECT TITLE: PRACTICAL PAPER -5
CONTENTS : PRACTICAL
SUBJECT CODE : BVWPT-116
MARKS : 75 MARKS
TOTAL HRS : 45

List of the Practical's

1. Understanding and Need of Design and Design Software.
2. Understanding of steps in design
3. Understanding of Color and Light.
4. Physiology of Color.
5. Understanding of Original and their classifications.
6. Installation of Graphic Design Software i.e. Pagemaker
7. Installation of Graphic Design Software i.e. Photoshop
8. Installation of Graphic Design Software i.e. Coral Draw
9. Understanding of Imposition Scheme.
10. Understanding of Full Sheet Work Imposition Scheme.
11. Understanding of Half-Sheet Work Imposition Scheme.
12. Understanding of Different types of Papers and Specialty Papers and their applications.
13. Understanding of Different types of Inks and Special Purpose Inks and their Application.

Learning Resources:

Sr. No.	Author	Title	Publisher
1	L.C. Young	Printing Science	Pitman publication.
2	L.C. Young	Materials in Printing Processes	Focal Press publication.
3	D.S. Mathur	Properties of Matter, (2007)	S. Chand & Co. Ltd.
4	Leach and Pierce	Printing Ink Manual	Springer Publication.
5	Dr. Nelson R. Eldred	What Printer Should Know About Ink	GATF Press, Pittsburgh
6	Lawrence A. Wilson	What Printer Should Know About Paper, 3rd Edition	GATF Press, Pittsburgh
7	A.J. Athaley	Plastics in Packaging	Multi-tech publication
8	R. Holman	Technology of Printing Inks	All India PIMA Publication
9	C. H. Williams	Printing Ink Technology	PIRA UK Publication

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : SECOND
SUBJECT TITLE : COMPUTER OPERATING SKILLS
CONTENTS : THEORY
SUBJECT CODE : BVGE-5
MARKS : 75 MARKS
TOTAL HRS : 45

Rationale : This subject helps to understand the basics of computer operating skills

Objective

- Student will learn about
1. the exchange of information through email
 2. Modes of transmission
 3. Different operating systems
 4. E-commerce

SR.No.	Topic name	Number of Hours	Weightage
1.	UNIT I Basic elements of a communication system, Data transmission modes, Data Transmission speed, Data transmission media, Digital and Analog transmission, Network topologies, Network Types (LAN, WAN and MAN), OSI & TCP/IP Model, Internet: Network, Client and Servers, Host & Terminals, TCP/IP, World Wide Web, Hypertext, Uniform Resource Locator, Web Browsers, IP Address, Domain Name, Internet Services Providers, Internet Security, Internet Requirements, Web Search Engine, Net Surfing, Internet Services, Intranet	15	20
2.	UNIT II Operating System concepts, different types of Operating systems, structure of operating system, DOS/UNIX/LINUX commands, working with Windows, Windows 2007.	10	15
3.	UNIT III E-mail & Internet: 1. Introduction 2. E-mail Account & Its Functions 3. Search Engine 4. Surfing WebPages 5. Basics of Social Networking Site	10	20
4.	UNIT IV E-Commerce Introduction: E-commerce as Business need, E-com Types, Advantages, Disadvantages, e-Commerce Architecture, Internet Payment Systems - Characteristics	10	20

	<ul style="list-style-type: none"> - 4C Payment Methods - SET Protocol for Credit Card Payment - E-Cash, E- Check - Overview of Smart Card <p>E-Commerce security</p> <ul style="list-style-type: none"> - Need of security - Encryption: Public Private & Hybrid - Digital Signature - Authentication 		
5.	Total	45	75

Reference Books

1. Fundamentals of Computers by E. Balagurusamy (Author) Publisher: McGraw Hill Education (India) Private Limited
2. Ms Office 2007 in a Nutshell by S. Saxena (Author) Publisher: S.Chand (G/L) & Company Ltd
3. Computer Fundamentals Paperback – by P. K. Sinha (Author) Publisher: BPP

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : SECOND
SUBJECT TITLE : COMMUNICATION & DOCUMENTATION SKILLS
CONTENTS : THEORY
SUBJECT CODE : BVGE-6
MARKS : 75 MARKS
TOTAL HRS : 45

Learning Objective

To equip the students with skills to write to communicate and articulate in English (verbal as well as writing) and to acquaint the students with the knowledge and use of computers and to introduce the basic principles, organization and operational aspects of computers.

SR.No.	Topic name	Number of Hours	Weightage
1.	UNIT I : Introduction to Communication & Grammar : Consonant & Vowel Sounds, Indianism, Syllable & Syllable Stress, Determiners, Articles, Tense & Time, Preposition, Prepositional Phrases, Subject-Verb Agreement, Active – Passive Voice, Intonation & Modulation, Conjunctions	09	15
2.	UNIT II : Formal Writing Skills: Composition Writing: Business Letters (Functions of a Business Letter, Layout of a Business Letter, Salient Features of a Business Letter, Kinds of Business Letter, Application Writing)	09	15
3.	UNIT III : Conversation Skills: Nature of Conversation, Purpose of Conversation, Guidelines for Effective Conversation Skills, Proverbs used in Everyday Conversation with their Meanings/Explanations	09	15
4.	UNIT IV : Documentation Skills: Introduction to Documentation: Meaning, Purpose, Need.	09	15
5.	UNIT V : A short introduction to Computers, digitalized era, global connection via net, Drafting of Text, Excel, E Mails, Making Presentations, MS Word	09	15
	Total	45	75

Reference Books:

1. High School English Grammar and Composition - Wren & Martin, Publisher - Churchill Livingstone

2. Anthology of English Language and Communication Skills - Sharma S R, Jacob, Mark Publications
3. Language and Communication Skills - Shastri, Rameshchandra, ABD Publications
4. A Course in Academic Writing - Renu Gupta, Orient Blackswan Publications.

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : SECOND
SUBJECT TITLE: PRACTICAL PAPER -6
CONTENTS : PRACTICALS ON COMPUTER OPERATING SKILLS
SUBJECT CODE : BVGE-7
MARKS : 75 MARKS
TOTAL HRS : 45

List of the Practical's

Internet and its Applications

1. Log-in to internet
2. Navigation for information seeking on internet
3. Browsing and down loading of information from internet
4. Sending and receiving e-mail
5. Creating a message
6. Creating an address book
7. Attaching a file with e-mail message receiving a message deleting a message

Practical

8. Introduction to Windows
9. What is an operating system and basics of Windows?

Practical

The User Interface

- 10 Using Mouse and Moving Icons on the screen
- 11 The My Computer Icon
- 12 The Recycle Bin
- 13 Status Bar, Start and Menu & Menu-selection
- 14 Running an Application
- 15 Windows Explorer Viewing of File, Folders and Directories Creating and Renaming of files and folder, opening and closing of different W

Practical

Windows Setting Control Panels

- 16 Wall paper and Screen Savers
- 17 Setting the date and Sound
- 18 Concept of menu Using Help

Practical

Advanced Windows

19. Using right Button of the Mouse
20. Creating Short cuts
21. Basics of Window Setup
22. Notepad
23. Window Accessories

Reference Books

1. Fundamentals of Computers by E. Balagurusamy (Author) Publisher: McGraw Hill Education (India) Private Limited
2. Ms Office 2007 in a Nutshell by S. Saxena (Author) Publisher: S.Chand (G/L) & Company Ltd
3. Computer Fundamentals Paperback – by P. K. Sinha (Author) Publisher: BPP

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : SECOND
SUBJECT TITLE: PRACTICAL PAPER -7
CONTENTS: PRACTICAL
SUBJECT CODE : BVGE-8
MARKS : 75 MARKS
TOTAL HRS : 45

List of the Practical's

1. Verbal & Non Verbal Communication
2. Verbal Communication - Extempore, Just a Minute, Declamation, Dialogue, Monologue
3. Non verbal Communication - Guess the Mime, Dumb Charades, Formal & Informal Writing, Facial
4. Expressions, Dressing & Clothing
5. Oral Communication - Day to today talk, formal talk, informal talk, conversation
6. Body Language
7. Right body postures, Eye Contact, Pet Fiddles, how to walk, talk and present oneself.
8. Group Discussion Skills(Meaning, Characteristic, Do's & Don'ts, Relevance, Moderating a group
9. Discussion
10. Presentation Skills - Confidence, Effective Delivery of ideas, Convincing the audience, basic courtesies
11. Public Speaking - Oration, Debates
12. English Movie Sessions
13. Documentation Skills
14. Basics of Computers, usage of short cut keys, taking out print outs, page set ups.
15. Making of Power point Presentation
16. E- Mail (Subject line, salutation, subscription, how to mark cc, drafting, sending of mails, reverts,
17. forwarding of mails, attaching pictures and documents, attaching ppts
18. Differentiation between hardware and software and practical usage of both.
19. Diagrammatic representation of pie-charts, tabular presentation of data/info, Etc
20. Basic use of MS Excel/Spread Sheets

Reference Books:

5. High School English Grammar and Composition - Wren & Martin, Publisher - Churchill Livingstone
6. Anthology of English Language and Communication Skills - Sharma S R, Jacob, Mark Publications
7. Language and Communication Skills - Shastri, Rameshchandra, ABD Publications
8. A Course in Academic Writing - Renu Gupta, Orient Blackswan Publications.

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : SECOND
SUBJECT TITLE : BASIC MECHANICAL ENGINEERING
CONTENTS : THEORY
SUBJECT CODE : BVWPT-121
MARKS : 75 MARKS
TOTAL HRS : 45

Rationale:

Printing Engineer is expected to develop basic workshop skills. Students are required to identify, select and use different kinds of tools, such as marking, measuring, cutting, supporting, striking and various holding devices.

Objectives:

- This course covers basic Mechanical elements of Machine.
- To understand the working of Mechanical Parts.
- To understand the power transmission devices, and Different Mechanism.

Contents:

Sr. No.	Details	Hrs.	Marks
1	Unit -1 Machine Elements ,Power Transmission shafts, Axels, Keys, Bush & Ball Bearing, Flywheel & Governors.	07	12
2	Unit -2 Engineering Materials Materials used in engineering and their application Metal: Ferrous & non Ferrous, Nonmetallic materials, Material selection criteria. Design Consideration	09	12
3	Unit -3 Power Transmission Devices Types of Belts & Belts Drives, Chain Drive ,Types of Gears	10	18
4	Unit -4 Machine Tools (Basic Elements, working Principles & Types of operations) Lathe Machine- Centre Lathe, Drilling Machine- study of Pillar Drilling Machines. Introduction to NC & CNC Machines Grinding Machines, Power Saw, Milling Machines.	10	18
5	Unit -5 Mechanisms (Descriptive Treatment Only) Slider crank mechanism, four bar chain mechanism.List of various inversion all four bar chain mechanism.General mechanism, Ratchet& Pawl Mechanism.	9	15
	Total	45	75

Learning Resources:**Reference Books**

Sr. No.	Author	Title	Publisher
1	P. K Nag	“Thermodynamics”	Tata McGraw-Hill Publishing Co. Ltd Hajra-Chaudhari “ Workshop Technology”
2	Arora and Domkunwar	“Thermal Engineering”	DhanpatRai and Sons.
3	R. K. Rajput	“Heat transfer”	S Chand Publication, Delhi.
4	V. B. Bhandari	“Design of Machine Elements”	Tata McGraw-Hill Publishing Co. Ltd

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : SECOND
SUBJECT TITLE : IMAGE CARRIER PREPARATION
CONTENTS : THEORY
SUBJECT CODE : BVWPT-122

Rationale: This course covers the details for the preparations of the image carrier required for various printing processes.

Objectives:

1. To make learner aware about different image carriers used in different printing processes
2. To explain the learner about the process and methods used to prepare image carriers for various printing processes.
3. This course gives the information about various ancillary materials and equipment's required for preparation of image carrier.

Contents:

Sr. No.	Details	Hrs	Marks
1	Unit 1 - Introduction to Image Carrier Image carrier-Letterpress introduction-Different sizes and uses of types-Types of composing-Typecasting machine-Plate as an image carrier	07	14
2	Unit 2 - Image carrier-Offset Structure of plate-Types of plate material-Different types of plates-Processing of offset plate-Computer to plate	10	16
3	Unit 3 - Image carrier-Gravure Introduction-Parts of gravure cylinder-Cell configuration and structure-Types of gravure image carrier-Manufacturing process of gravure cylinder-Gravure Cylinder engraving-Summary of current technology	10	16
4	Unit 4 - Image carrier-flexography Introduction-Structure of flexographic plate-Types of flexo plates-Thickness and Hardness of Plate-Mounting and proofing of flexo plates	10	16
5	Unit 5 - Image carrier-Screen Printing Introduction-Components of image carrier-Different material used in making the screen-Different method of making screen-Image carrier for Pad Printing	08	13
	Total	45	75

References:

1. Eric Chambers, reproduction photography for lithography, GATF.
2. J.W.Burden, Graphic, Reproduction photography, Focal Press, London
3. Hand book of Modern halftone photography, perfect graphic arts, USA
4. Jack Eggleston, Sensitometry for photographers, focal Press, London
5. WoddiffThomas , J R.SPSE handbook of photographic science and engineering, John Wiley & Son
6. J.Michael ADAMS, David D Faux, Lloyd, J.Reiber, Printing Technology, 3E, Delma Publishing
7. PIRA, guide standardized lithographic colour printing
8. Mills southworth, colour separation technique, Graphical arts publishing
9. R.W.G. Hunt, reproduction of colour, Fountain Press
- 10.Principles of cold Reproduction applied to photomechanical reproduction, colour photography and the ink, paper and other related industries, John Wiley & Sons U.K.
11. Graphic Repro, Eaglehead Publishing Ltd. U.K.
12. Dr. R.K. Molla, Electronic colour separation, R.K. printing & Publishing company,USA.
13. Manual for Lithographic Press Operation- A S Porter
14. Lithographic Technology –Edwin A Dennis, OluseganOdesina
15. Introduction to Printing Technology-Hugh M Speirs
16. Sheetfed Press Opertaion-GATF
17. Offset Technology-C S. Mishra.

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : SECOND
SUBJECT TITLE : OFFSET PRINTING TECHNOLOGY
CONTENTS : THEORY
SUBJECT CODE : BVWPT-123
MARKS : 75 MARKS
TOTAL HRS : 45

Rationale:

There are many different Offset presses in the market today with many minute operational differences. The purpose of this course is not to provide a general operational manual, but to deal with the fundamental understanding that will enable the student to run any offset duplicator or single and multi-color sheet-fed offset printing press after studying the manufacturer's operating manual.

This course covers the information necessary to run an offset press and to give important information on press trouble-shooting concerns also.

Objectives: The student will be able to:

1. Understand working of sheet fed and web-fed offset printing machine.
2. Identify the troubles and Understanding of the possible Remedies.
3. Understanding of the different units of the offset Printing Machines.

Contents:

Sr. No.	Details	Hrs.	Marks
1	Unit -1 Lithographic Machine Study of construction and design of sheet fed and Web fed lithographic offset machine. Working principle, Introduction to different units along with functions used on sheet fed lithographic machines Difference between Sheet fed and web fed Printing.	08	12
2	Unit -2Sheet Handling Systems Study of construction, working principle and types of feeder mechanism used in sheet control on sheet fed press. Study of construction, working principle and types of infeed mechanism used in sheet control on sheet fed press.	03	8
3	Unit -3Printing Unit Plate cylinder - Construction, Undercut, Cylinder gap, Bearer contact and bearer clearance, Plate clamps – Types, pin register system., Plate mounting, Cylinder packing – Types, Cylinder gears: comparison of spur and helical gears Blanket cylinder - Construction, blanket mounting, packing, Types of Blanket –	08	12

	requirements of an ideal blanket, compressible, non-compressible, Blanket cleaning devices, handling, storage Impression cylinder – - Types of grippers – Tumbler, swing arm, rotary feed, roll feed.		
4	Unit -4 Inking Unit Construction of Inking unit, types of different inking roller, types of Inking system, material and specification for inking roller settings, roller wash up	05	9
5	Unit -5 Dampening system construction of Dampening unit, types of roller used in dampening unit, types of dampening units and controlling systems	05	9
6	Unit -6 Delivery Unit Parts & its function such as-jogger, gripper bar, skeleton wheel, Transfer cylinder, introduction to various drying systems, anti-set-off spray, delivery system and setting.	4	7
7	Unit -7 Machine Configurations. Sheet Fed Machine: Perfecting, Transfer Drum etc. Web Fed Machine: H Type, Y Type, CIC, Stack and Inline etc.	8	11
8	Unit -8 Troubleshooting Sheet jamming, front or side lay variation, creasing, jogging. Gear streaks, slurring, doubling, and uneven impression. Blanket - Loss of sharpness, puncture (low spot), miss registration, Mottling, dot gain, set-off, hickeys, ghost image, emulsification, , trapping, plate-blinding, scum	4	7
	Total	45	75

Learning Resources:

Books:

Sr. No.	Author	Title	Publisher
1	Ian Faux	Modern Lithography	Macdonald & Evans
2	Latham,	Litho Offset press operating	GATF
3	L. C. Young	Materials in Printing Processes	Focal Press, London

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : SECOND
SUBJECT TITLE : PRACTICAL PAPER -8
CONTENTS : PRACTICALS BASED ON MECHANICAL ENGINEERING.
SUBJECT CODE : BVWPT-124
MARKS : 75 MARKS
TOTAL HRS : 45

List of the Practical's

1. To Study the types and application of different tool like hammer, screwdriver, scale etc.
2. To Study the power transmitting element shaft and axle.
3. To study the types and principle of machine element like key, coupling and bearing.
4. To study the power transmitting element of gear drives.
5. To study o f four bar mechanism and slider crank mechanism.
6. To Study of gears- spur, helical, bevel gear and differential gear tooth meshing.
7. Study of various drives for transmission of powers. Model of belts, pulleys, chains.
8. Study of Mechanical Joints- permanent and temporary and its elements.
9. Study of mechanical system for rotating shaft/cylinder.
10. To study the working principle of drilling machine and grinding machine.
11. To study the working of lathe machine.
12. To study the working of milling machine.

Workshop Practice

1. Introduction to Lathe, Job Mounting, and Tool holding devices
2. Turning practice-Straight and Step turning
3. Study and practice on Carbon arc welding
4. Study and practice on gas welding
5. Practice on shaping machine

Learning Resources:

Sr. No.	Author	Title	Publisher
1	P. K Nag	“Thermodynamics”	Tata McGraw-Hill Publishing Co. Ltd Hajra-Chaudhari “ Workshop Technology”
2	Arora and Domkunwar	“Thermal Engineering”	DhanpatRai and Sons.

3	R. K. Rajput	“Heat transfer”	S Chand Publication, Delhi.
4	V. B. Bhandari	“Design of Machine Elements”	Tata McGraw-Hill Publishing Co. Ltd

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : SECOND
SUBJECT TITLE : PRACTICAL PAPER -9
CONTENTS : PRACTICALS BASED ON IMAGE CARRIER
PREPARATION FOR FEXO, GRAVURE AND OFFSET.
SUBJECT CODE : BVWPT-125
MARKS : 75 MARKS
TOTAL HRS : 45

List of the Practical's

1. To Prepare pre-sensitized plate with positive & negative.
2. To Prepare screen by direct method.
3. To prepare screen by indirect method.
4. Scanning of photograph and colour correction in Photoshop, Proofing
5. To prepare gravure cylinder by mechanical engraving process.
6. To prepare gravure cylinder by Laser engraving process.
7. To prepare sheet photo polymer plate.
8. File compression and transporting.
9. To prepare the master plate for offset printing.
10. Digital printing output
11. Plate setter output
12. Handling and Care of Printers and others systems

Books:

1. Advertising Art and Ideas – Mr.Rege
2. Jahiratiche Jag (Marathi) – ShobhaBhagwat
3. Charles J. Driksen and other- Advertising principles, problems and cases
4. David A. Aker and John G. Myers- Advertising Management
5. B .s. Rathor-Advertising management

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : SECOND
SUBJECT TITLE : PRACTICAL PAPER -10
CONTENTS : PRACTICALS BASED ON OFFSET PRINTING TECHNOLOGY
SUBJECT CODE : BVWPT-126
MARKS : 75 MARKS
TOTAL HRS : 45

List of the Practical's

1. Introduction to offset machine.
2. Feeder setting for various stocks.
3. Mounting of plate with packing.
4. Mounting of blanket with packing.
5. Gripper setting of impression cylinder.
6. Setting of dampening roller.
7. Preparation of fountain solution.
8. Cleaning & washing of dampening and Inking system.
9. Make ready operation
10. Premake ready operation
11. Ink flow setting according to job.
12. Multicolor printing.

Learning Resources:

Books:

Sr. No.	Author	Title	Publisher
1	Ian Faux	Modern Lithography	Macdonald & Evans
2	Latham,	Litho Offset press operating	GATF
3	L. C. Young	Materials in Printing Processes	Focal Press, London

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : THIRD
SUBJECT TITLE : ENVIRONMENTAL SCIENCE
CONTENTS : THEORY
SUBJECT CODE : BVGE-9
MARKS : 75 MARKS
TOTAL HRS : 45

Learning Objective

- As we are aware of the world environmental problems, students should acquaint basic knowledge of environment and its components.
- To solve the environmental problems, it is necessary to develop and invent new advanced technologies to control environmental pollution.

Learning Outcomes:

- Student will possess the intellectual flexibility necessary to view environmental question from multiple perspectives, prepared to alter their understanding as they learn new ways of understanding.

Contents:-

SR. No.	Topic name	Number of Hours	Marks
1	<p>Unit I</p> <p>Multidisciplinary nature of environmental studies Definition, scope and importance, need for public awareness.</p> <p>Natural Resources: Renewable and non-renewable resources: Natural resources and associated problems</p> <p>Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest and tribal people.</p> <p>Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems</p> <p>Food resources: World food problems, changes caused by agriculture and over-grazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.</p> <p>Energy resources: Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources, Case studies.</p> <p>Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification.</p> <p>Role of an individual in conservation of natural resources.</p>	5	10

	Equitable use of resources for sustainable lifestyles.		
2	<p>Unit II</p> <p>Ecosystems: • Introduction, types, characteristic features, structure and function Concept of an ecosystem, Producers, consumers and decomposers, Energy flow in the ecosystem, Ecological succession, Food chains, food webs and ecological pyramids, of the following ecosystems :- a. Forest ecosystem b. Grassland ecosystem c. Desert ecosystem d. Aquatic ecosystems(ponds, streams, lakes, rivers, oceans, estuaries)</p>	10	15
3	<p>Unit III</p> <p>Biodiversity and its conservation: Introduction – Definition: genetic species and ecosystem diversity, Biogeographically classification of India, Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values, Biodiversity at global, National and local levels, India as a mega-diversity nation, Hot-spot of biodiversity, Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts. Endangered and endemic species of India, Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.</p>	10	15
4	<p>Unit IV</p> <p>Environmental Pollution: Definition, Cause, effects and control measures Of: - a. Air pollution b. Water pollution c. Soil pollution d. Marine pollution e. Noise pollution f. Thermal pollution g. Nuclear hazards Solid waste Management: Causes, effects and control measures of urban and industrial wastes. Role of an individual in prevention of pollution, Pollution case studies, Disaster management: floods, earthquake, cyclone and landslides.</p>	10	15
5	<p>Unit V</p> <p>Social Issues and the Environment: From Unsustainable to Sustainable development, Urban problems related to energy, Water conservation, rain water harvesting, watershed management, Resettlement and rehabilitation of people; its problems and concerns. Case Studies, Environmental ethics: Issues and possible solutions, Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case Studies, Wasteland reclamation, Consumerism and waste products, Environment Protection Act, Air (Prevention and Control of Pollution) Act, Water (Prevention and control of Pollution) Act , Wildlife Protection Act ,</p>	5	10

	Forest Conservation Act , Issues involved in enforcement of environmental legislation, Public awareness.		
6	Unit VI Human Population and the Environment: Population growth, variation among nations, Population explosion – Family Welfare Programme, Environment and human health, Human Rights, Value Education, HIV/AIDS, Women and Child Welfare, Role of Information Technology in Environment and human health, Case Studies.	5	10
	Total	45	75

Reference Books;

1. Agarwal, K.C. (2001). Environmental Biology, Nidi Publ. Ltd. Bikaner.
2. Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt. Ltd.,
3. Ahmedabad –380 013, India, Email:mapin@icenet.net (R)
4. Brunner R.C. (1989), Hazardous Waste Incineration, McGraw Hill Inc. 480p
5. Clark R.S., Marine Pollution, Clarendon Press Oxford (TB)
6. Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001,
7. Environmental Encyclopedia, Jaico Publ. House, Mumbai, 1196p
8. De A.K., Environmental Chemistry, Wiley Eastern Ltd.
9. Down to Earth, Centre for Science and Environment (R)

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : THIRD
SUBJECT TITLE : SOFT SKILLS AND PERSONALITY DEVELOPMENT
CONTENTS : THEORY
SUBJECT CODE : BVGE-10
MARKS : 75 MARKS
TOTAL HRS : 45

Learning Objective:-

- This course helps students to select their professional career as per their inborn qualities and potential, and also this course develops many soft skills in students which are essential in all types of career.

Learning Outcome:-

SR. No.	Topic name	Number of Hours	Marks
1	Unit I:- 1. Skill of selection career 2. Finding out inborn qualities and interest. 3. Interest- attraction or love 4. Entrepreneurship: definition, definition of entrepreneur, qualities of entrepreneur, scope and limitations of entrepreneurship 5. Business:- definition of business, definition of businessman, qualities of businessman, scope and limitations of businessman. 6. Service: definition of service, service sectors in India and Abroad, scope and limitation of service	5	10
2	Unit II Spoken English a) Vocabulary building *Listening, *Reading, *Writing, *Speaking b) Basic pattern of Sentence *Present tense, *Past tense, *Future tense c) Art of asking questions * Question starting with helping verb	10	15
3	Unit III:- Stage Courage and Presentation skill a) Stage courage development b) Selection of topic	10	15

	c) Self introduction d) Presenting our self e) Appreciation f) Opening, middle explanation and closing g) Importance of curiosity in presentation		
4	Unit IV:- Communication Skill a) Enthusiasm b) Pure listening and pure response c) Body language d) Open ended communication and close ended communication e) Yes or yes technology	10	15
5	Unit V:- Leadership and Team Management a) Definition of leader b) Qualities of leader c) Duties of leader d) Definition of team e) Importance of team f) Formation of team g) Management of team	5	10
6	Unit VI:-Personality Development a) Definition of personality b) External factors affecting personality c) Internal factors affecting personality d) Meditation e) Use of meditation as a tool to achieve health, wealth and happined	5	10
	Total	45	75

Reference Books:-

1. Seven habits of highly effective peoples – Stephen Covey
2. You can heal your life – Dr. Lueis Hey
3. How to win and influence people – Dell Karnogi
4. Granthawali- Swami Vivekananda
5. Rich Dad Poor Dad – Robert Kiwasoki
6. Marketing Management – Philip Kotler
7. You can win – Shiv khera
8. Body language – Dr. UjwalPatani
9. How I raised my self from failure to success – Frank Betgar
10. Agnipankh – Dr. A.P.J. Abdul Kalam.

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : THIRD
SUBJECT TITLE : PRACTICAL PAPER-11
CONTENTS : PRACTICALS BASED ON ENVIRONMENTAL SCIENCE
SUBJECT CODE : BVGE-11
MARKS : 75 MARKS
TOTAL HRS : 45

List of the Practical's:-

1. Environment and its analysis
2. Water quality parameters
3. Determination of pH of water samples
4. Determination of acidity of water
5. Determination of Alkalinity of water sample
6. Measurement of turbidity of water samples
7. Visit to a local area to document environmental assets, river/forest/grasslands
8. visit to a local polluted site(Enlisting the types of pollutants/wastes visible in nilanga,)
9. Study of common plants, insects, birds. Documenting the special resource features of individual ecosystems. (river/ forest)
10. Study of simple ecosystems. Observing the energy cycle - by looking different types of insects and birds in the trees.

Reference Books;

1. Agarwal, K.C. (2001). Environmental Biology, Nidi Publ. Ltd. Bikaner.
2. BharuchaErach, The Biodiversity of India, Mapin Publishing Pvt. Ltd.,
3. Ahmedabad –380 013, India, Email:mapin@icenet.net (R)
4. Brunner R.C. (1989), Hazardous Waste Incineration, McGraw Hill Inc. 480p
5. Clark R.S., Marine Pollution, Clanderson Press Oxford (TB)
6. Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001,
7. Environmental Encyclopedia, Jaico Publ. House, Mumabai, 1196p
8. De A.K., Environmental Chemistry, Wiley Eastern Ltd.
9. Down to Earth, Centre for Science and Environment (R)

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : THIRD
SUBJECT TITLE : PRACTUCAL PAPER-12
CONTENTS : PRACTICALS BASED ON SOFT SKILLS & PERSONALITY DEVELOPMENT
SUBJECT CODE : BVGE-12
MARKS : 75 MARKS
TOTAL HRS : 45

List of the Practical's:-

- 1. Project presentation**
Case study on any successful person in particular profession
(Entrepreneurship, business, service)
- 2. Project presentation**
Self case study and future projection about your professional career
- 3. Conversation on daily situation (Group discussion)**
- 4. Eye to eye contact and story explanation**
- 5. Making of PPT and giving presentation on given topic**
- 6. Cold canvassing and filling survey forms (Taking and giving interview)**
- 7. Activity based on competition (Indoor) (*Drama presentation)**
- 8. Activity based on competition (Outdoor) (*Sport activity)**
- 9. Meditation (Best personality competition)**

Reference Books:-

1. Seven habits of highly effective peoples – Stephen Covey
2. You can heal your life – Dr. Lueis Hey
3. How to win and influence people – Dell Karnogi
4. Granthawali- Swami Vivekananda
5. Rich Dad Poor Dad – Robert Kiwasoki
6. Marketing Management – Philip Kotler
7. You can win – Shiv khera
8. Body language – Dr. UjwalPatani
9. How I raised my self from failure to success – Frank Betgar
10. Agnipankh – Dr. A.P.J. Abdul Kalam

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : THIRD
SUBJECT TITLE : BASICS OF PACKAGING
CONTENTS : THEORY
SUBJECT CODE : BVWPT-231
MARKS : 75 MARKS
TOTAL HRS : 45

Rationale:

Packaging is becoming one of the large segments of printing and related industry. This course intends to deal with knowledge of packaging, its requirements such as variety of substrates, finishing operations, conversion, etc. It also includes use of paper, board, metals, glass in packaging, ecology of packaging and tests performed on packaging.

Objectives: The student will be able to:

- Understand Packaging
- Understand material required for Packaging

Contents:

Sr. No.	Details	Hrs.	MARKS
1	Unit -1 Basics of Packaging. Introduction, Need, Evolution of Packaging. Classification – Primary, Secondary, Tertiary / Bulk, Flexible, Rigid.	06	10
2	Unit -2 Functions Of Packaging. Functions of Packaging – Contain, Preserve, Protect, Inform, Identify, Sell. Packaging Hazards – Storage, Transportation, Chemical, Climatic, Biological.	08	13
3	Unit -3 Product-Package Compatibility Studies. Product Characteristics – <ul style="list-style-type: none"> ➤ Physical – Nature, Shape, Size, Texture, Centre Of Gravity, etc. ➤ Chemical – Acidic, Basic, Reactivity, etc. ➤ Effect of Atmosphere – Oxygen, CO₂, Moisture Contents. Package Characteristics – <ul style="list-style-type: none"> ➤ Material – Plastics, Glass, Paper & Board, Wood, etc. ➤ Chemical – Unreacted & Reacted Chemicals, pH, etc. ➤ Physical – Tensile, Breaking Load, Burst, Molecule/Fiber Direction. ➤ Effect of Atmosphere – Oxygen, CO₂, Moisture Contents, Gases. 	08	15

4	Unit -4 Packaging as a Marketing Tool. <ul style="list-style-type: none"> ➤ Market Considerations – Demography & Psychology, Retail Market, Equity & Brand Name. ➤ Package Embellishment – Graphic Design Element, Shape, Size, Color, Font, Texture. ➤ Shelf Appeal Studies – Recall Questioning, Eye Tracking. 	07	12
5	Unit -5 Types Of Cartons. <ul style="list-style-type: none"> ➤ Reverse Tuck End. (R.T.E.) ➤ Straight Tuck End.(S.T.E.) ➤ Snap lock Bottom. ➤ Crash Lock Bottom. ➤ Display Outer. ➤ Sleeve. ➤ Tray. ➤ Half Slotted Carton. (H.S.C.) ➤ Regular Slotted Carton. (R.S.C.) ➤ Roll End Tray. ➤ Hexagonal Shape Carton. ➤ Octagonal Shape Carton. ➤ Etc. 	10	15
6	Unit -6 Wrapping Techniques. <ul style="list-style-type: none"> ➤ Shrink wrapping, Process. ➤ Stretch wrapping, Process. ➤ Comparison between Stretch and Shrink wrapping. 	06	10
TOTAL		45	75

Learning Resources:

Books:

Sr. No.	Author	Title	Publisher
1	Herbert Holik	Wiley-VCH, 2006	Wiley-VCH, 2006
2	Mark J. Kirwan	Paper and paperboard Packaging Technology	Blackwell Publishing, 2005
3	Herbert Sixta	Handbook of Pulp Vol.1	Wiley-VCH, 2005
4	G.A. Smook	Handbook for pulp and paper technologists	Angus Wilde Publications, 2001
5	W. Soroka	Fundamentals of Packaging Technology,	4th edIoPP, 2009
6	Yam K. L	The Wiley Encyclopedia of	Wiley, 2009.

		Packaging Technology”, 3rd Ed	
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COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : THIRD
SUBJECT TITLE : WEB OFFSET PRINTING
CONTENTS : THEORY
SUBJECT CODE : BVWPT-232
MARKS : 75 MARKS
TOTAL HRS : 45

Rationale:

Web machine operation is required to be learnt in order to understand efficient working procedures. There is plenty of scope for skillful personnel in this branch of printing. This course imparts extensive knowledge about all the elements of web machines used in all the printing processes such as offset, flexography, gravure, as well as quality control procedures & auxiliary operations.

Objectives: The student will be able to:

- Understand working of web offset printing machine.
- Identify the trouble.
- Perform the registration on the machine.

Contents:

Sr. No.	Details	Hrs.	MARKS
1	Unit -1Introduction Construction & Design – Common impression cylinder (Satellite), Blanket to blanket, Inline, Stack, I, Y, H, N configurations, paper path Comparison with sheetfed machines based on feeding, dampening, Inking, Printing, Delivery,	05	08
2	Unit -2Infeed Reel stands- Single, Multiple, revolving; locations such as inline, perpendicular, basement; Expanding shaft, tilt lock, chuck systems. Automatic Splicers- Need , types , comparison a. Zero speed- festoons b. Flying splicer (match speed) Web tension – Dancer roller & its types, Infeed metering rollers, tension control principles Brakes – Core brakes, Straps, Reel motors, Running bands, Angle bar, Turner bar, Web guide rollers, web cleaning brushes,	07	10

	surface treatments, static charge elimination.		
3	Unit -3Dryers Need, operations and types- Open flame, High velocity hot air, radiation-UV, EB, IR curing, Combination	06	09
4	Unit -4Chill rollers Need, operations and types- Baffle plates, Jacketed (Embedded)	06	09
5	Unit -5Folders & related ancillary equipment's Need, operations, maintenance, types, - Former & its types, Jaw, Chopper, Combination; cut-off and different products, types of folds.	06	09
6	Unit -6Image and web control Box tilt, Compensators, Cut-off, Fan out and Controlling fan out(RPL & RPW) mechanical and electrical color register, Web to web register, Register control devices: Differential gears, Displacing units, Stroboscopes, Oscillating mirrors, Video viewers.	06	09
7	Unit -7Ancillary operations Slitting and trimming – Blades, slot type, rotary scissors, hard on hard slitters, perforators, sprocket punching. Web reconditioners, water-cooled ink oscillators, Blanket washers, Web break detectors, imprinters, side lay sensors, Cut-off control, anti static devices, remoisturisers.	06	09
8	Unit -8Trouble Shooting for Web Machines Paper troubles – Out of round rolls, telescopic rolls, de-laminating, web-wrinkles, web-breaks. Delivery – sagging of web in folder, wrinkling on former, poor folding, smudging and scuffing in folder, set-off on chill rolls / folders, un-even drying, blistering, ink tacky after chill rolls.	09	12
	TOTAL	45	75

Learning Resources:**Books:**

Sr. No.	Author	Title	Publisher
1	Ian Faux	Modern Lithography	Macdonald & Evans
2	J. Odhams	Practical Printing & Binding	--
3	L. C. Young	Materials in Printing Processes	Focal Press, London
4	Bisset, Goodacre, Idle, Leach & Williams	The Printing Ink Manual	Northwood Books, London
5	E. J. Kelly	Web Offset- Press Operating	GATF, USA
6	W. R. Durrant	Web Control	Focal Press, London
7	--	Handbook of Print Media	Heidelberg
8	--	Solving Web-fed press troubles	GATF

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : THIRD
SUBJECT TITLE : PAPER, INK AND COATING TECHNOLOGY
CONTENTS : THEORY
SUBJECT CODE : BVWPT233
MARKS : 75 MARKS
TOTAL HRS : 45

Rationale:

Paper and Ink are the basic raw material used in Printing Industry. Student should know the Physical and Chemical properties of Paper and Ink. In today's state of art print houses, the tests for various properties are carried out in the Q.C department using different instruments. A Diploma Holder is required to supervise this section in Press and therefore knowledge of this Subject is very essential. Student should know how good quality paper and ink will provide high-speed production with better quality and greater accuracy.

Objectives: The student will be able to:

- Develop knowledge of Paper and ink properties.
- Use effectively different instruments to carry out property tests.
- Analyse various tests to offer the best or required quality material.

Contents:

Sr. No.	Details	Hrs.	MARKS
1	Unit -1Paper Manufacturing Process Preparing the Stock Manufacturing process- Paper, Board After Treatments – Calendaring, Coating, conditioning, other finishing processes	07	12
2	Unit -2Paper Properties : Printability Appearance Properties - Brightness and whiteness, Color, Gloss, opacity. Chemical composition related properties – Coating Composition, Fiber and filler composition, Moisture contents and RH, pH :Acidity- Alkalinity, Sizing and water resistance Structural Properties - Blister resistance, Compressibility, Resiliency, Hardness and softness, dimensional stability, Formation and levelness, Grain direction, Curl and sheet flatness, Internal Bond strength, Porosity, App. Density, Basis weight & grammage, Caliper and bulk Surface properties – Cleanliness, Dirt, Ink absorbency, Printability, Smoothness, Surface strength and Pick resistance, Wire and	08	14

	felt side		
3	<p>Unit -3Paper properties: Runnability and End Use</p> <p>Chemical composition and Related properties - Adhesion from surface, Flame resistance, Light fastness, Moisture contents, permanence and durability, Resistance from chemicals, water resistance and vapor resistance</p> <p>Mechanical Properties - Bursting strength, Folding Endurance, Softness, Tearing strength, Wet strength</p> <p>Surface properties -Abrasion resistance, cleanliness, Frictional resistance, Smoothness</p>	07	12
4	<p>Unit -4Introduction To Ink Technology</p> <p>Different Printing Processes and types of inks used</p> <p>Pigment properties – Organic, Inorganic, White, Black</p> <p>Ink terminology – pH, Viscosity, Thixotropy, Length, Tack, Water in Ink emulsion and Ink in Water emulsion</p>	07	12
5	<p>Unit -5Ingredients of Inks</p> <p>Vehicles – Function &Types- Drying vehicles, Non Drying vehicles</p> <p>Resins -Natural resins, Synthetic Resins</p> <p>Solvents –Hydrocarbons, Aliphatic, Alcohols, Wash up solvents</p> <p>Additives – Plasticizers, Waxes, wetting agents, Anti set off compounds, Shortening compounds, Reducers, Stiffening agents</p> <p>Driers –Liquid driers, Paste driers, Inhibitors, Accelerators</p>	09	15
6	<p>Unit -6Ink Manufacture and Properties</p> <p>Liquid Ink Manufacture –Mixing & milling – ball mill, microplough mill</p> <p>Paste Ink Manufacture –Mixing & milling – three roll mill</p> <p>End use properties - Rub and scuff resistance, Adhesion flexibility</p> <p>Special inks: Heat set, quick set, fugitive, metallic, gloss, moisture set, magnetic, inks for ultra violet and infra red, florescent and their suitability in different applications, Eco-friendly inks, Ink Testing.</p>	07	10
	TOTAL	45	75

Learning Resources:

Books:

Sr. No.	Author	Title	Publisher
1	L. C. Young	Materials in Printing Processes	Focal Press Ltd., London
2	D. E. Visset	The Printing Ink Manual	Northwood Books London
3	P. J. Hartsuch	Chemistry for the Graphic Arts	GATF, USA
4	Surjeet Gupta	A guide to Printing Inks	Print India Journal, Delhi
5	Arthur W. Johnson	Manual For Book Binding	Thames and Hudson

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : THIRD
SUBJECT TITLE : PRACTICAL PAPER -13
CONTENTS : PRACTICAL
SUBJECT CODE : BVWPT234
MARKS : 75 MARKS
TOTAL HRS : 45

Rationale:

Packaging is becoming one of the large segments of printing and related industry. This course intends to deal with knowledge of packaging testing, its requirements such as variety of substrates, finishing operations, conversion, etc. It also includes use of paper, board, metals, glass in packaging, ecology of packaging and tests performed on packaging.

Objectives: The student will be able to:

- Understand packaging testing methods
- Understand material required for packaging

Contents:

Sr. No.	Details
1	To study about Printing & Packaging Materials.
2	Describing the various types of Packaging materials on the basis of Physical & Chemical properties.
3	Learn the factors affecting on Package during transportation.
4	Understand the different testing methods on Package.
5	Physically Test – Drop test and Rolling.
6	Physically Test – COBB Test and Vibration.
7	Physically Test – Compression
8	Climatic Test – Rain and Sand
9	Climatic Test – Dust and Salt Spray.
10	Climatic Test – Mithile Alkaline and Fainting.

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : THIRD
SUBJECT TITLE : PRACTICAL PAPER -14
CONTENTS : PRACTICAL
SUBJECT CODE : BVWPT235
MARKS : 75 MARKS
TOTAL HRS : 45

Rationale:

Web machine operation is required to be learnt in order to understand efficient working procedures. There is plenty of scope for skillful personnel in this branch of printing. This course imparts extensive knowledge about all the elements of web machines used in all the printing processes such as offset, flexography, gravure, as well as quality control procedures & auxiliary operations.

Objectives: The student will be able to:

- Understand working of web offset printing machine.
- Identify the trouble.
- Perform the registration on the machine.

Contents:

Sr. No.	Details
1	Study of detailed technical specification of important web offset machines
2	Study of tools, equipment required in work shop.
3	Cleaning and lubrication of machine.
4	Study of Web tension control and registration unit
5	Clamping of plate on plate cylinder of machine.
6	Clamping of Blanket on Blanket cylinder of machine.
7	Setting of rollers of Inking and Dampening unit.
8	Mounting of reel and paper feeding up to folder unit.
9	Setting of folder for tabloid, jaw folding and chopper folding.
10	Setting of dryer chamber and chiller unit.
11	Pre make ready operations on machine.
12	Make ready operations on machine.
13	Printing and folding of newspaper.

Practice:a. Press Visits & Demonstration. b. Print various jobs on web fed presses.

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : THIRD
SUBJECT TITLE : PRACTICAL PAPER -15
CONTENTS : PRACTICAL
SUBJECT CODE : BVWPT-236
MARKS : 75 MARKS
TOTAL HRS : 45

Rationale:

Paper and Ink are the basic raw material used in Printing Industry. Student should know the Physical and Chemical properties of Paper and Ink. In today's state of art print houses, the tests for various properties are carried out in the Q.C department using different instruments. A Diploma Holder is required to supervise this section in Press and therefore knowledge of this Subject is very essential. Student should know how good quality paper and ink will provide high-speed production with better quality and greater accuracy.

Objectives: The student will be able to:

- Develop knowledge of Paper and ink properties.
- Use effectively different instruments to carry out property tests.
- Analyse various tests to offer the best or required quality material.

Contents:

Sr. No.	Details
	Ink Testing:
1	To check Hue of an Ink and Opacity by Drawdown Method
2	Proofing Offset Ink (Paste Ink)
3	Dispersion Test of Ink
4	Viscosity Test (Liquid and Paste Ink)
5	End Use Properties of Ink
	Paper testing:
6	Determine GSM of Sample Paper
7	Thickness of Paper
8	COBB Factor of Paper
9	Grain and cross grain direction test of paper
10	Top and Bottom Side of Paper
11	Tensile strength

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : FOURTH
SUBJECT TITLE : INTRODUCTION TO INTREPRENEURSHIP
CONTENTS : THEORY
SUBJECT CODE : BVGE-13
MARKS : 75 MARKS
TOTAL HRS : 45

LEARNING OBJECTIVES:-

- To understand the concept and need of entrepreneurship
- To create awareness amongst students about entrepreneurship
- To motivate students towards rising opportunities in entrepreneurship
- To provide updated knowledge about skill development and entrepreneurial development initiatives

SR. No.	Topic name	Number of Hours	Marks
1	UNIT I: Introduction to Entrepreneurship Meaning and concepts of entrepreneur and entrepreneurship, characteristics of a good entrepreneur, classification of entrepreneurs, role of entrepreneurship in economic development	10	15
2	UNIT II : Micro, small and medium Enterprises(MSME) Meaning, Definitions and concept micro, small and medium enterprise, nature and scope of MSMEs, Role of MSMEs in industrial development, problems of micro and small enterprise.	15	20
3	UNIT III : Financing for MSMEs Meaning and need of financial planning, sources of finance, capital structure and factors affecting on capital structure, management of working capital, short term finance for MSMEs	10	20

4	UNIT IV: Entrepreneurship Development: Recent Trends Women entrepreneurship, social entrepreneurship, joint ventures, role of govt. in entrepreneurship development, start up Indian, stand up India, Mudra Yojana, Skill India.	10	20
	Total	45	75

Recommended Books:

1. Vasant Desai, - Dynamics of Entrepreneurial development and management, Himalaya publishing house, Mumbai
2. Dr. C.B. Gupta and Dr. P.N. Srinivasan – Entrepreneurship developments in India, S. chand and sons, New Delhi
3. E. Gordan and K. Natrajan, Entrepreneurship development, Himalaya publication House, Mumbai.
4. Anita H.S., Entrepreneurship development, role of commercial Banks, Mangal deep publication, Jaipur.
5. S.S. Khanka – Entrepreneurial development, S. chand publication, New Delhi

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : FOURTH
SUBJECT TITLE : MARKETING MANAGEMENT
CONTENTS : THEORY
SUBJECT CODE : BVGE-14
MARKS : 75 MARKS
TOTAL HRS : 45

LEARNING OBJECTIVES:-

- To introduce students to basics of marketing
- To provide knowledge about recent marketing trends
- To provide practical knowledge about different marketing practices

LEARNING OUTCOME:-

CONTENT:-

SR. No.	Topic name	Number of Hours	Marks
1	UNIT I: Introduction to Marketing Meaning, Definitions and concepts of marketing, nature and scope of marketing, evolution of marketing significance and objective of marketing, difference between marketing and sales. Marketing management in India. planning, process of marketing planning,	10	15
2	UNIT II : Marketing Planning Meaning, Definitions of marketing planning, objective of marketing planning, process of marketing planning, types of marketing planning, marketing programme: concept, factors affecting marketing programme.	15	20
3	UNIT III : Marketing Decisions Products Decision – concept, process and classification Price Decision – concept, significance and factors affecting pricing decisions. Physical Distribution – concept, importance and function of distribution decisions Promotion Decision – concept of sales promotion, importance of sales promotion,	10	20

	system of sales promotion.		
4	UNIT IV: Recent Trends in Marketing and Advertisements Meaning and concept of advertisement, need and importance of advertisement, e-marketing, digital marketing, social media marketing, green marketing, rural marketing, challenges in marketing	10	20
	Total	45	75

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : FOURTH
SUBJECT TITLE : PRACTICAL PAPER- 16
CONTENTS : PRACTICAL ONINTRODUCTION TO INTREPRENEURSHIP
SUBJECT CODE : BVGE-15
MARKS : 75 MARKS
TOTAL HRS : 45

List of the Practical's:-

1. Field visit and study tours
2. Meeting with entrepreneurs
3. Project report
4. Power-points presentation
5. Assignments and tutorials
6. Study tour reports

Recommended Books:

1. Vasant Desai, - Dynamics of Entrepreneurial development and management, Himalaya publishing house, Mumbai
2. Dr. C.B. Gupta and Dr. P.N. Srinivasan – Entrepreneurship developments in India, S. chand and sons, New Delhi
3. E. Gordan and K. Natrajan, Entrepreneurship development, Himalaya publication House, Mumbai.
4. Anita H.S., Entrepreneurship development, role of commercial Banks, Mangal deep publication, Jaipur.
5. S.S. Khanka – Entrepreneurial development, S. chand publication, New Delhi

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : FOURTH
SUBJECT TITLE : PRACTICAL PAPER-17
CONTENTS : PRACTICAL
SUBJECT CODE : BVGE-16
MARKS : 75 MARKS
TOTAL HRS : 45

List of the Practical's:-

1. Survey of the local market
2. Survey of the local industries
3. Survey of the sales promotion methods
4. Visit to advertising agencies
5. Project report on marketing
6. Question naive designing
7. Data collection and analysis regarding marketing of different products.
8. Observation of different TV advertisement
9. Seminars and power point presentation
10. Assignments
11. Projects on product design, branding and advertisement
12. Group Discussions.

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : FOURTH
SUBJECT TITLE : ADVANCE PACKAGING
CONTENTS : THEORY
SUBJECT CODE : BVWPT-241
MARKS : 75 MARKS
TOTAL HRS : 45

Rationale: At the end of the course, learners should be able to;

1. Analyse and choose a barrier material for a specific food product based on barrier properties studied.
2. Analyse and choose a preservation method for a specific food product based product sensitivity and shelf life required.
3. Describe the various characteristics of pharmaceutical drugs and their sensitivities.
4. Select the right type of package form for a pharma product, based on the product nature, form & size.

Objectives:

- Learn and understand the types of food, their modes of deterioration and the fundamentals of package barriers.
- Learn shelf life studies and sensory evaluation based on type of product.
- Study the various food preservation techniques with real-life packaging examples.
- Study the fundamental characteristics of pharmaceutical drugs & their dosage forms.
- Understand the various existing pharma package forms

Contents:

Sr. No.	Details	Hrs.	MARKS
1	Unit -1Introduction & Concept. <ul style="list-style-type: none"> • Food & Pharma Packaging System – Introduction, Science, Technology, Packaging Function, Packaging System, Label & Forms, Preservation, Technique, Packaging material science, Physical properties of material. • Chemical Constituents, Bonding, inter molecule force, thermal, electromagnetic & mechanical properties. 	06	10
2	Unit -2Properties. <ul style="list-style-type: none"> • Gas & Vapor Permeation • Basic Concept of Permeation. • Permeability of Packaging polymers & Permeations & units. • Food Packaging Compatibility & Migration theories, issues, testing. 	06	10
3	Unit -3Food & Pharma Packaging Media. <ul style="list-style-type: none"> • Food Packaging media – Glass, Metal, Plastics, Their Advantages, Disadvantages, Application. 	07	12

	<ul style="list-style-type: none"> • Aseptic Packaging – Types & systems – Injectable and orals/ointments – Ampules, Vials, strip / blister packaging. Packaging of bulk drugs. Reference to IP/BP and significance – packaging regulations – labeling requirements 		
4	Unit -4Different Types Of Special Packs. <ul style="list-style-type: none"> • Blister Pack – Application, Function, Advantages, Disadvantages. • Vacuumed Pack – Application, Function, Advantages, Disadvantages. • Intelligence Pack – Application, Function, Advantages, Disadvantages. • Temper Proof Pack – Application, Function, Advantages, Disadvantages. • Child Resistance Pack – Application, Function, Advantages, Disadvantages. • Etc. 	06	10
5	Unit -5Properties Of Media. <ul style="list-style-type: none"> • Food Packaging – Polymer glass, metal & cellulosic. Glass Structure, Mechanical – Thermal – Chemical & Electromagnetically Properties. • Types,. Classification & Properties- Aluminum, Tinplate , Stainless Steel, Corrosion Prevention, • Coating types, lacquers. • Paper Boards for food, cartons, bags, composite boxes, liquid. 	06	10
6	Unit -6Corrugation. <ul style="list-style-type: none"> • Corrugated Folding Box.(C.F.B.) • Types of C.F.B. • Printing Process. • Types of Flutes – A, B, C, E, F, etc. • Advantages & Disadvantages. • Applications. 	08	13
7	Unit -7Converting Processes <ul style="list-style-type: none"> • Extrusion and Co-extrusion technology, Advantages, Limitations, • Polymer compatibility for co-extrusion process, applications of co-extrusion. • Lamination technique such as Dry, Wet, Hot-melt, Thermal and Extrusion, Metallization, Varnishing. • Closures, Purpose, Types of Closures. 	06	10
	TOTAL	45	75

COURSE NAME : B.VOC. IN PRINTING TECHNOLOGY
SEMESTER : FOURTH
SUBJECT TITLE : BINDING & PRINT FINISHING
CONTENTS : THEORY
SUBJECT CODE : BVPT-242
MARKS : 75 MARKS
TOTAL HRS : 45

Rationale:

Binding is required to protect as well as to enhance the appearance of the printed product. This subject is required for students to understand various binding techniques depending upon the need of the product. In today's state of art print houses, most of the finishing operations are carried out using machines, the working and principle of these machines is also a part of the course. Hotfoil stamping, numbering, perforating, embossing, die cutting, are the various finishing processes a student should know in order to understand how these processes increase the utility and beauty of the product.

Objectives: The student will be able to:

- Understand relevance of print finishing techniques in various segments of industry.
- Understand material, machinery and equipments used in various print finishing process.

Contents:

Sr. No.	Details	Hrs.	MARKS
1	Unit -1Introduction History and importance of binding Classification and Divisions of binding Parts of book	08	12
2	Unit -2Binding Materials Paper, board, covering material, reinforcement material, securing, Miscellaneous material	06	10
3	Unit -3Tools and Equipment Forwarding Tools Finishing Tools Equipment used in binding	06	10
4	Unit -4Paper sizes Types of papers British standard paper sizes :- merits and demerits ISO standard paper sizes:- advantages and disadvantages	06	10
5	Unit -5Pre forwarding operations	07	13

	Receiving and checking printed material Jogging, counting, cutting, slitting, trimming and binders aids Folding – folding styles, folding schemes, hand folding:-merits and demerits Making up- tipping in, gathering, Insetting, collating, inter leaving Securing- stapling, thread sewing, adhesive binding, loose leaf binding		
6	Unit -6Forwarding Operations End papers- properties, selection, types and applications Spine gluing, smashing, rounding, backing, lining Boarding methods- attachments care	06	10
7	Unit -7Finishing Operations Different covering styles Suitability and application Hotfoil stamping, numbering, perforating, embossing, die cutting, are the various finishing processes	06	10
	TOTAL	45	75

Learning Resources:

Books:

Sr. No.	Author	Title	Publisher
1	Mendiratta	Binding & Finishing	Printek Publication, NewDelhi
2	--	Binding & Finishing	GATF
3	Geoff & Potter	Binding & Finishing	Blue Print
4	Arther W. Johnson	Manual For Book Binding	Thames and Hudson

COURSE NAME : B.VOC. IN PRINTING TECHNOLOGY
SEMESTER : FOURTH
SUBJECT TITLE : DIGITAL PRINTING & PROOFING
CONTENTS : THEORY
SUBJECT CODE : BVPT-243
MARKS : 75 MARKS
TOTAL HRS : 45

Rationale:

Pre-press activities such as operating reproduction photography camera, printing down frame, off-line chemical processing of exposed film and plate require more manpower, number of raw materials and are time consuming and perhaps less environment friendly. Digital Imaging techniques sans camera, printing down frame and even film are replacing conventional imaging technologies at faster rate. Output quality rendered by any of the digital imaging technique promises saving in turnaround time, cost incurred on account of manpower required, and ineffective use of raw materials. These techniques also offer easiest ways of storing original, positives and negatives in digital form and unmatched digital quality. Thus understanding the concepts of digital imaging and its scope is inevitable for aspirants of career in printing technology.

Objectives: The student will be able to:

- Understand the various principles used in digital printing system.
- Use different illuminant and outputting devices required in digital printing techniques.
- Understand the Security printing inks, substrate and process

Contents:

Sr. No.	Details	Hrs.	MARKS
1	<p>Unit -1 Brief Overview of conventional Printing Technologies</p> <p>Brief study of characteristics of conventional impact and non-impact printing technologies, their application areas and limitations.</p> <p>Definition, applications and factors that accelerated the use and development of Digital Printing technologies.</p> <p>Comparison of conventional and digital printing technologies used in graphic reproduction processes. Advantages of Digital Printing Techniques</p> <p>i.e. computer-to-print, and computer-to-press.</p>	06	10
2	<p>Unit -2 Study of components of electro-photographic Digital Printing system.</p> <p>Study of working principle & stages involved in different</p>	06	10

	<p>electrophotographic i.e. toner based Digital Printing systems</p> <p>Study of photo-mechanics behind latent image formation in electrophotographic digital printing system.</p> <p>Study of working principle, types and examples of photoconductors, charge generation materials and charge transport materials.</p> <p>Study of working principle, types, requirements and examples of developing medium i.e. liquid and dry toners used in electrophotographic digital printing system.</p> <p>Study of application areas of electro photographic digital printing system.</p> <p>Study of working principle of digital photocopier as well as digital printing system using electro photography and laser methods.</p> <p>Study of Ink Jet and Thermal Transfer Digital Printing System</p>		
3	<p>Unit -3 Study of Ink Jet and Thermal Transfer Digital Printing systems.</p> <p>Study of working principle, construction, application and classification or types of ink jet digital printing system.</p> <p>Study of working principle, construction, application and classification or types of thermal transfer digital printing system.</p> <p>Study of required properties of substrates used in ink jet and thermal transfer digital printing system.</p> <p>Study of troubles and remedies related to substrates as observed in Digital Printing processes, Comparative study of electro photographic and ink jet digital printing technologies.</p>	06	10
4	<p>Unit -4 Hardware and Software used in Digital Printing</p> <p>Study of functions, types and comparison of different types of (RIP) Raster Image Processor. Study of CIP4 – purpose, advantages</p> <p>Study of general technical specifications such as memory, processor, etc., as required for different hardware and output devices.</p>	06	10
5	<p>Unit -5 Introduction</p> <p>Need for Security Printing, Special issues, Counterfeiting-Creation and Graphics, Circulation and Bank maintenance, RBI Specifications, Security aspects of currencies, Importance of Academic and Industrial security, Types of products.</p> <p>Application: Security design and processes for various print</p>	06	10

	products:Barcodes, Holograms, cheque printing- MICR cheques and Reserve Bank of India (RBI) specifications, finishing, paper specifications, Manufacturingprocess of Bank Notes, Business forms, Certificates, Passports.		
6	Unit -6 Security Inks and Substrates Types of security printing inks, Features-Metal revealable, migrating, heat reactive, erasable, fugitive, copy-protection, thermal chromic, coin reactive, bleeding, pen reactive, irreversible, visible infrared, penetrating, chemical reactive and optically variable ink (OVI) Introduction, UV Curing, Photo chromic inks, Monochromic Inks, Invisible Phosphorescent inks, Water Resistant Inks. Security Fibres, Planchettes, Fluorescent Hilites, Iridescent coating, Security threads, Holographic foil, Color Centred paper, Chemical reactive, Chemically Void, Toner fused Paper, Visible security fibers, Invisible fluorescent fibers and Other security papers.	08	13
7	Unit -7 Security and Brand Protection Water marking – Digital Watermark -Holograms - UV-visible Printing, rainbow printing, micro lines,guilloches, numbering, Line-printing, stamp embossing, hot-foil-embossing, embossing / punching,customer - designed hologram, blind red printing, solvent colors, multi color UV-fluorescence stitchingthread, holographic foil or lamination of a page, optical variable graphics, diffraction structures, liquidcrystal materials, optical security in laminates, Principles of Bar coding, Types of Coding EAN 13 Code,Code 3 ACA etc.	07	12
	TOTAL	45	75

Learning Resources:

Books:

Sr. No.	Author	Title	Publisher
1	Helmut Kipphan	Handbook of Print Media: Technologies and Production methods.	Heidelberg and Springer
2	Joe Farace	Digital Imaging	Focal Press Ltd. London
3	Martin Monestics, (1983),	The Art of Paper Currency,	Quarlet Books Ltd.
4	R.Narayanan, (1998),	Computer Stationery & MICR - Cheque Production	Association for Research & Development in Printing.

5	Richard D. Warner and Richard M.Adams II	Introduction to security printing	PIA GATF Press
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COURSE NAME : B.VOC. IN PRINTING TECHNOLOGY
SEMESTER : FOURTH
SUBJECT TITLE : PRACTICAL PAPER -18
CONTENTS : PRACTICAL
SUBJECT CODE : BVPT-244
MARKS : 75 MARKS
TOTAL HRS : 45

Rationale:

Computers and software help printer and prepress operator in creating a good design is important. This subject deals with electronic ways of page making, designing and imposing techniques. The emphasis is given on practice of Corel Draw and Photoshop, In design and Illustrator software packages related to the printing industry and creative use of the tools available with aesthetic sense.

Objectives: The student will be able to

- Understand importance of publishing software in prepress.
- Study and compare features and tools available to printer for digital origination.
- Understand the multimedia and designing for advertising
- The concepts of Advertising.
- Role of the media
- Advertising Production and Business in detail

Contents:

Sr. No.	Details
1	<p>Practical 1 – Advertising</p> <ul style="list-style-type: none"> ➤ Introduction to Advertising ➤ Types of Advertising ➤ According to Geographical <ul style="list-style-type: none"> ▪ National Advertising ▪ Local Advertising ▪ Global Advertising ➤ According to Categories <ul style="list-style-type: none"> ▪ Product Advertising ▪ Service Advertising ▪ Institutional Advertising ▪ Public Relation Advertising ▪ Public Service Advertising ▪ Financial Advertising
2	<p>Practical 2 – Multimedia</p> <ul style="list-style-type: none"> ➤ Introduction to Multimedia ➤ Categories of Multimedia <ul style="list-style-type: none"> ▪ Textual Information ▪ Audio, Speech, Music etc. ▪ Video, Animation ➤ Types of Media <ul style="list-style-type: none"> ▪ Print Media

	<ul style="list-style-type: none"> ▪ Broadcast Media ▪ Outdoor Media
3	Practical 3 – Design All Stationary Material Require for Company <ul style="list-style-type: none"> ➤ Visiting Card ➤ Letter Head ➤ Bill Book ➤ Etc.
4	Practical 4 – Design Newspaper Advertise and Pamphlet <ul style="list-style-type: none"> ➤ Create a design of newspaper advertise and pamphlet in any software
5	Practical 5 – Design Magazine Advertise <ul style="list-style-type: none"> ➤ Create a design of Magazine Page (Single and Double Page)
6	Practical 6 – Design Poster, Banner and Hoarding <ul style="list-style-type: none"> ➤ Create a design of Poster ➤ Create a design of Banner ➤ Create a design of Hoarding
7	Practical 7 – Design Book Cover with Jacket <ul style="list-style-type: none"> ➤ Create a design of Book Cover and jacket
8	Practical 8 – Design a Carton Layout <ul style="list-style-type: none"> ➤ Create a design of any Carton
9	Practical 9 – Design Newspaper Layout or Inner Book Pages <ul style="list-style-type: none"> ➤ Create a design of Newspaper Layout or Inner Book Pages
10	Practical 10 – Design Box Layout <ul style="list-style-type: none"> ➤ Create a design of Box for use any product.

COURSE NAME : B.VOC. IN PRINTING TECHNOLOGY
SEMESTER : FOURTH
SUBJECT TITLE : PRACTICAL PAPER -19
CONTENTS : PRACTICAL
SUBJECT CODE : BVPT-245
MARKS : 75 MARKS
TOTAL HRS : 45

Rationale:

Packaging is becoming one of the large segments of printing and related industry. This course intends to deal with knowledge of packaging development, its requirements such as variety of substrates, finishing operations, conversion, design etc.

Objectives: The student will be able to:

- Become acquainted with the nature and impact of visual communications in packaging design
- To familiarize with the various graphic design and software's
- To conduct various characterization tests for packaging materials

Contents:

Sr. No.	Details
1	<p>Basics Introduction of Package Development.</p> <ul style="list-style-type: none"> • Introduction, Concept, Need of Packaging. • Classification – Primary, Secondary, Tertiary / Bulk, Flexible, Rigid. • Functions of Packaging – Contain, Preserve, Protect, Inform, Identify, Sell.
2	<p>Basics Introduction of Carton Styles.</p> <ul style="list-style-type: none"> • R.T.I. (Reverse Tuck In) • S.T.I. (Straight Tuck In) • Lock Bottom • Snap lock Bottom. • Display Cartons. • Sleeve. • Trays. • Hexagon & Octagon Cartons. • Pillow Box. • Gable Top. • Half Slotted • Regular Slotted. • Full Overlap Slotted Cartons.
3	<p>Carton Styles Design & Development.</p> <p>Above All Cartons are design & development on the basis of-</p> <ul style="list-style-type: none"> ➤ Dimensions - Length, Width, Height. ➤ Pasting Flap, Margins, Ear Flap, Top Flap. ➤ Front Panel, Back Panel, Side Panel.

4	Carton Styles Design & Development. <ul style="list-style-type: none"> • R.T.I. (Reverse Tuck In) • S.T.I. (Straight Tuck In)
5	Carton Styles Design & Development. <ul style="list-style-type: none"> • Lock Bottom • Snap lock Bottom.
6	Carton Styles Design & Development. <ul style="list-style-type: none"> • Display Cartons. • Sleeve. • Trays.
7	Carton Styles Design & Development. Hexagon & Octagon Cartons.
8	Carton Styles Design & Development. Pillow Box.
9	Carton Styles Design & Development. <ul style="list-style-type: none"> • Gable Top. • Half Slotted • Regular Slotted. • Full Overlap Slotted Cartons.
10	New Development of Package. <ul style="list-style-type: none"> • Paper Board. • Corrugated Cartons.

COURSE NAME : B.VOC. IN PRINTING TECHNOLOGY
SEMESTER : FOURTH
SUBJECT TITLE : PRACTICAL PAPER -20
CONTENTS : PRACTICAL
SUBJECT CODE : BVPT-246
MARKS : 75 MARKS
TOTAL HRS : 45

Rationale:

Binding is required to protect as well as to enhance the appearance of the printed product. This subject is required for students to understand various binding techniques depending upon the need of the product. In today's state of art print houses, most of the finishing operations are carried out using machines, the working and principle of these machines is also a part of the course. Hotfoil stamping, numbering, perforating, embossing, die cutting, are the various finishing processes a student should know in order to understand how these processes increase the utility and beauty of the product.

Objectives: The student will be able to:

- Understand relevance of Binding techniques in various segments of industry.
- Understand material, machinery and equipments used in various print finishing process.

Contents:

Sr. No.	Details
1	Studying and observing various types of Automatic folders and their principles, purpose, handling, care.
2	Understanding working of jogging, counting, Tipping in machines, Gathering Machines.
3	Handling wire stitching machine for side stitching and Center stitching.
4	Observing functions of Automatic cutting Machine.
5	Studying different types of sewing machines- Side Sewing, Section sewing.
6	Understanding the working of Perfect Binding Machine.
7	Observing gluing, in-line gluing (Modular Binder) smashing, rounding, Backing Machine.
8	Observing and understanding case making, casing in machines.
9	Observing Operations for hot foil stamping, die cutting, punching, Numbering, ruling machines.
10	Studying and observing various types of Automatic folders and their principles, purpose, handling, care.