।। सा विद्या या विमुक्तये ।।

स्वामी रामानंद तीर्थ मराठवाडा विद्यापीठ, नांदेड

"ज्ञानतीर्थ" परिसर, विष्णुपूरी, 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 बी. व्होक पदवी स्तरावरील द्वितीय व तृतीय वर्षाचे CBCS Pattern नुसारचे अभ्यासक्रम शैक्षणिक वर्ष २०२०–२१ पासून लागू करण्याबाबत.

प रि प त्र क

या परिपत्रकान्वये सर्व संबंधितांना कळविण्यात येते की, प्रस्तुत विद्यापीठाच्या संलग्नित महाविद्यालयांतील विज्ञान व तंत्रज्ञान विद्याशाखेतील बी. व्होक पदवी स्तरावरील द्वितीय व तृतीय वर्षाचे खालील विषयाचे C.B.C.S. (Choice Based Credit System) Pattern नुसारचा अभ्यासक्रम शैक्षणिक वर्ष २०२०–२१ पासून लागू करण्याच्या दृष्टीने मा. कुलगुरू महोदयानी मा. विद्या परिषदेच्या मान्यतेच्या अधीन राहून मान्यता दिलेली आहे.

01. Food Processing, Preservation and Storage II Year (Revised)

02. Food Processing, Preservation and Storage III Year

03. Web Printing Technology III Year

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–१/परिपत्रक/पदवी–सीबीसीएस अभ्यासक्रम/
२०२०–२१/**१५१२**

दिनांक : २०.११.२०२०.

स्वाक्षरित
सहा.कुलसचिव
शैक्षणिक (१–अभ्यासमंडळ) विभाग

प्रत माहिती व पुढील कार्यवाहीस्तव :

१) मा. अधिष्ठाता, विज्ञान व तंत्रज्ञान विद्याशाखा प्रस्तुत विद्यापीठ.
२) मा. संचालक, परीक्षा व मूल्यमापन मंडळ यांचे कार्यालय, प्रस्तुत विद्यापीठ.
३) प्राचार्य, सर्व संबंधित संलग्नित महाविद्यालये, प्रस्तुत विद्यापीठ.
४) सिस्टम एक्सपर्ट, शैक्षणिक विभाग, प्रस्तुत विद्यापीठ.

Maharashtra Mahavidyalaya
Nilanga, Dist. Latur.

Affiliated to

Swami Ramanand Teerth Marathwada University, Nanded

Syllabus

Bachelor of Vocational Courses

Web Printing Technology

T.Y.(Vth and VI th semester)

Effective from June-2020

BACHELOR OF VOCATIONAL COURSES
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, consumables 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 Courses (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.

Exit Options:

Bachelor of Vocational (B. Voc.) is launched under the scheme of University Grants Commission for skill development based on higher education leading to Bachelor of Vocational (B. Voc.) Degree with multiple exits as Diploma/Advanced Diploma under the National Skill Qualification Framework (NSQF). The B. Voc. Program incorporates specific job roles and their National Occupational Standards along with broad based general education.

1. B. Voc. Program has been designed as per National Skill Qualification Framework emphasizing on skill based education.
2. Levels of Award

The certification levels shall lead to

1. Certificate after successful completion of the course at the end of first semester
2. Diploma after successful completion of the course at the end of first year
3. Advanced Diploma after successful completion of the course at the end of second year
4. B. Voc. Degree after successful completion of the course at the end of third year in 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 Power Point, 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 plate making
    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 News paper 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. Material Science
5. Paper and Ink Manufacturing

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

After successful completion of the 3rdyear, 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.
7) Gravure Printing.
8) To understand Printing & packaging industrial atmosphere.

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

In the third year, sixth semester is totally devoted for industrial training. In this semester student will be deputed to various industries for three months. There, these students will be trained to operate various machines to give useful productions. Industrialists will train them, according to their needs. Hence after the completion of the internship period these students will be "Industry fit" to get employed.

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**

Note:

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. Industrial Training
7. 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.

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 as per the directives issued by the government.

Pattern: Semester Pattern.

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 for semester I, II and IV. 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 per semester, of these semesters will be of 750 marks.
- In the III rd & V th semester in addition to 10 papers mentioned above, student will have to submit a project report on industrial training of one month duration, they have undergone during the previous vacation. This project report will be accessed by the examiners appointed by the university and will carry the weightage of 75 marks. Practical papers of these semesters of skill education will carry the weightage of 50 marks each paper.

- **Scheme of examination for a theory paper.**

Credits	Teaching Scheme	Examination Scheme			
		Theory Paper Hrs.	Continuous Assessment / Internal evaluation Average of 2 Unit Test of 25 Marks Each	End Semester Examination Marks	Total Marks
03	04 Hrs. per week	2.50.Hrs.	25	50	75

- **Scheme of exam for a practical paper for sem I, II & IV.**

Credits	Teaching Scheme	Examination Scheme			
		Practical Paper Hrs.	Continuous Assessment / Internal evaluation	End Semester Examination Marks	Total Marks
03	03 Hrs. per week per paper	3.00.Hrs.	25	50	75

- **Scheme of exam for a practical paper for sem III & V.**

Credits	Teaching Scheme	Examination Scheme			
		Practical Paper Hrs.	Continuous Assessment / Internal evaluation	End Semester Examination Marks	Total Marks
02	03 Hrs. per week	3.00.Hrs.	10	40	50

- **Scheme of Examination for Project semi III & V.**

Credits	Teaching Scheme	Examination Scheme			
		Industrial Training. Marks	Project Work Marks	Seminar Marks.	End Semester Examination Total Marks
03	Industrial Training of 01 Month	50	15	10	75

- **Scheme of Examination for VI Semester**

Credit	**Teaching scheme**	**Exam scheme**			
03	Industrial training three month	Industrial training	Project work	Seminar	End semester examination Total mark
		400	200	150	750

Question Paper Pattern (Theory)

Continuous assessment = 25, End semester examination mark = 50,

Time:2.5 Hrs. **Total Marks-75**

Q.1	A) Long Answer Type	15 Marks
	OR	
	B) Long Answer Type	15 Marks
Q.2	A) Long Answer Type	07 Marks
	B) Long Answer Type	08 Marks
	OR	
	C) Long Answer Type	07 Marks
	D) Long Answer Type	08 Marks
	OR	
Q.3	A) Long Answer Type	10 Marks
	OR	
	B) Long Answer Type	10 Marks
Q.4	A) Long Answer Type	10 Marks
	OR	
	B) Long Answer Type	10 Marks

Question Paper Pattern (Practical) Semi I, II & IV

Continuous assessment =25, End semester examination = 50 Total marks = 75

Question	Mark
Experiment	**35**
Viva	**10**
Record Book	**05**

Total Marks:50

Question Paper Pattern Practical Semi III & V

Continuous assessment =10, End semester examination = 40 Total marks = 50

Question	Mark
Experiment	**25**
Viva	**10**
Record Book	**05**

Total Marks: 40

Syllabus Structure of the B. Voc. degree course(WPT)						
Semester -I						
Paper Code	**Name of the Subject**	**Credit**	**Hrs.**	**Marks**		**Total Marks**
				C.A / Internal Evaluation	**Theory**	
General Education						
BVGE-1	Introduction to Computer Hardware	3	45	25	50	75
BVGE-2	Introduction to Computer Application	3	45	25	50	75
BVGE-3	Practical on "Introduction to Computer Hardware"	3	45	25	50	75
BVGE-4	Practical on "Introduction to Computer Application"	3	45	25	50	75
Skill Education						
BVWPT-111	Introduction to Printing Technology	3	45	25	50	75
BVWPT-112	Introduction to Graphic Design	3	45	25	50	75
BVWPT-113	Basic science of Printing	3	45	25	50	75
BVWPT-114	Practical on "Screen Printing"	3	45	25	50	75
BVWPT-115	Practical on "Introduction to Design software"	3	45	25	50	75
BVWPT-116	Practical on "Graphic design & layout"	3	45	25	50	75
	Total	30	450	-	-	750

Semester -II						
Paper Code	**Name of the Subject**	**Credit**	**Hrs.**	**Marks**		**Total Marks**
				C.A / Internal Evaluation	**Theory**	
General Education						
BVGE-5	Computer Operating Skills	3	45	25	50	75
BVGE-6	Communication & documentation skills	3	45	25	50	75
BVGE-7	Practical on "Computer Operating Skills"	3	45	25	50	75
BVGE-8	Practical on "Communication & documentation skills"	3	45	25	50	75
Skill Education						
BVWPT-121	Basics of Mechanical Engineering	3	45	25	50	75
BVWPT-122	Image Carrier Preparation for Gravure, Flexo, Offset	3	45	25	50	75
BVWPT-123	Offset Printing Technology	3	45	25	50	75
BVWPT-124	Practical on "Basic of Mechanical Engineering"	3	45	25	50	75
BVWPT-125	Practical on "Image Carrier Preparation for Gravure, Flexo, Offset"	3	45	25	50	75
BVWPT-126	Practical on "Offset Printing Technology"	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**
				C.A / Internal Evaluation	**Theory**	
General Education						
BVGE-9	Environmental science	3	45	25	50	75
BVGE-10	Soft skills & personality development	3	45	25	50	75
BVGE-11	Practical on “Environmental science”	3	45	25	50	75
BVGE-12	Practical on “ Soft skills & personality Development”	3	45	25	50	75
Skill Education						
BVWPT-231	Basics of packaging	3	45	25	50	75
BVWPT-232	Web offset printing Technology	3	45	25	50	75
BVWPT-233	Paper, Ink and Coating Technology	3	45	25	50	75
BVWPT-234	Practical on “Basics of packaging”	2	30	10	40	50
BVWPT-235	Practical on “Web offset printing Technology”	2	30	10	40	50
BVWPT-236	Practical on “Paper, Ink and Coating Technology”	2	30	10	40	50
BVWPT-237	Project report on the “Industrial training” completed during vacation at the end of sem-II	3	45	-	-	75
	Total	30	450	-	-	750

Semester -IV						
Paper Code	**Name of the Subject**	**Credit**	**Hrs.**	**Marks**		**Total Marks**
				C.A / Internal Evaluation	**Theory**	
General Education						
BVGE-13	Introduction to entrepreneurship	3	45	25	50	75
BVGE-14	Principles of marketing management	3	45	25	50	75
BVGE-15	Practical on " Introduction to entrepreneurship"	3	45	25	50	75
BVGE-16	Practical on "Principles of marketing management"	3	45	25	50	75
Skill Education						
BVWPT-241	Advance packaging	3	45	25	50	75
BVWPT-242	Digital Printing & Proofing	3	45	25	50	75
BVWPT-243	Binding & Print Finishing	3	45	25	50	75
BVWPT-244	Practical on "Advance packaging"	3	30	25	50	75
BVWPT-245	Practical on "Digital Printing & Proofing"	3	30	25	50	75
BVWPT-246	Practical on "Binding & print Finishing"	3	30	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.**	**Continuous assessment / Internal Evaluation**	**Theory**	**Total Marks**
	General Education					
BVGE-17	Introduction to Business Management and Industrial Laws	3	45	25	50	75
BVGE-18	Introduction to Business Accounting	3	45	25	50	75
BVGE-19	Practical on "Introduction to Business Management and Industrial Laws"	3	45	25	50	75
BVGE-20	Practical on "Introduction to Business Accounting"	3	45	25	50	75
	Skill Education					
BVWPT-351	Gravure Printing / Flexographic Printing Process	3	45	25	50	75
BVWPT-352	Press Maintenance and Management	3	45	25	50	75
BVWPT-353	Costing and Estimation	3	45	25	50	75
BVWPT-354	Practical on "Gravure Printing / Flexographic Printing Process"	2	30	10	40	50
BVWPT-355	Practical on "Press Maintenance and Management"	2	30	10	40	50
BVWPT-356	Practical on "Costing and Estimation"	2	30	10	40	50
BVWPT-357	Project report on the industrial training completed during vacation at the end of sem-IV	3	3 months	-	-	75
	Total	30	450	-	-	750

Semester -VI					
Paper Code	**Name of the Subject**	**Credit**	**Hours / Duration**	**Marks**	**Total mark**
BVWPT-361	Industrial Training	30	3 Months	400	750
	Project Work			200	
	Seminar			150	
	Total	30	---	750	750

V Semester
General Education

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : FIFTH
SUBJECT TITLE : INTRODUCTION TO BUSINESS MANAGEMENT AND INDUSTRIAL LAWS
CONTENTS : THEORY
SUBJECT CODE : BVGE -17
MARKS : 75 MARKS
TOTAL HRS : 45

Objectives: -

The core objective of this paper is to provide the knowledge about business management and industrial laws to the students

Course Outcomes: - After studying this paper the students will be able to

1. Understand the basics of business management
2. Understand the functions and role of business management
3. Practically understand the work culture of management

SR.No.	Topic name	Number of Hours	Marks
1	**Unit-I:- Introduction to Business Management** a) Meaning, Concept and Definitions of Business Management, b) Objective and characteristics of management c) Types of management d) Components of business management e) Importance of business management	**I5**	**20**
2	**Unit-II :- Function of Business Management** a) Role of management in decision making b) Planning and forecasting c) Recruitment and staffing **d)** Motivation and controlling	12	20
3	**Unit-III :- The Factories Act,1948** Introduction to the Factories Acts, 1948 Provision of the Act regarding a) General duties of the manufacturer b) Health, Cleanliness and Hygiene in the factory premises c) Safety of the workers	9	20

	d) Provision regarding hazardous procedure e) Workers, welfare and working hours of the adults **f)** Employment of young persons		
4	**Unit-IV:- The Minimum Wages Act, 1948** **Introduction to the Minimum Wages Act, 1948, Provision regarding,** a) Fixing of minimum rates of wages b) Minimum rates of wages c) Fixing hours for a normal working day d) Provisions of the minimum wages (Central) Rules, 1950 e) Workers unions.	9	15
	Total	45	75

Reference Book:

1. Koontz, O Donnell, Management, McGraw-Hill
2. Appaniah, Reddy, Essentials of Management, Himalaya Publishing House.
3. Prasad, L. M., Principles of management, Sultan Chand and Sons.
4. Srinivasan, Chunawalla, Management Principles and Practice, Himalaya Publishing House.
5. Tulsian, P.C., & Pandey, Vishal, Business Organization and Management, Pearson Education

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : FIFTH
SUBJECT TITLE : INTRODUCTION TO BUSINESS ACCOUNTING
CONTENTS : THEORY
SUBJECT CODE : BVGE-18
MARKS : 75 MARKS
TOTAL HRS : 45

SR.No.	Topic name	Number of Hours	Marks
1	**Unit 1 Introduction of Accountancy and Final Accounts** a) Meaning and Objectives Accountancy b) Types and rules of debit and credit c) Introduction to Journal and Ledger d) Indian Accounting Standard	**I5**	**20**
2	**Unit 2 Final Accounts of Sole Trader** a) Meaning and objectives of Final Account b) Trading and Profit and Loss Account c) Balance Sheet with Adjustment Entries d) Numerical Problems on Final A/c of Sole Trader	12	20
3	Unit 3 Introduction to Cost Accounting a) Meaning and Objectives of cost accounting b) Elements of cost and cost classification. c) Basic concepts of cost, cost unit and preparation of cost sheet d) Treatment of stocks : Opening stock, stock of work-in-progress, closing stock	9	20
4	Unit 4 Introduction to Management Accounting a) Meaning, Definition, Nature of Management Accounting b) Significance and Limitations of Management Accounting. c) Meaning, Advantages and Limitations of Ratio Analysis. d) Calculations of Ratios and their Interpretation - Current Ratio, Liquid Ratio, Stock Turnover Ratio, Debtor Turnover Ratio, Creditor's Turnover Ratio, Operating Ratio, Proprietary Ratio, Fixed Asset Turn Over Ratio, Debt Equity Ratio	9	15
	Total	45	75

Reference Book:

- Advanced Accountancy Jain, Narang Advanced Accountancy R.C. Shukla Cost
- Accounting- S.P. Jain and K. L. Narang Cost Accounting, Dr. S.N Maheshwari
- Management Accounting by Manmohan Goyal Management Accounting by Khan M.Y. & Jain R. K.

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : FIFTH
SUBJECT TITLE : PRACTICAL ONINTRODUCTION TO BUSINESS MANAGEMENT AND INDUSTRIAL LAWS
CONTENTS : PRACTICAL
SUBJECT CODE : BVGE-19
MARKS : 75 MARKS
TOTAL HRS : 45

Practical :

1. Visit to any local business and write a report on the business administration by the owner.
2. Collect case studies of effective business management practices
3. Take interview of business Owner/ Manager regarding their business management
4. Make SWOC analysis of business Management
5. Take interview of industrial employees regarding awareness of industrial laws.
6. Prepare own business plan or module.
7. Write an assignment on business management aspect.
8. Make a survey of the local industries and find business opportunities.
9. Prepare a study report on ideal business management.
10. Write up a detailed report about any outstanding business unit irrespective of area of its functioning.
11. Alternatively, the students will prepare a project report on a topic after proper research and industry practice. The project report (Approx 5000 words) will be evaluated as above.

Duration of the practical

1) One day in a week, preferably Saturday or Sunday (min. 7 hours)
2) 12 weeks in a semester * 7 hours of each practical day= 84 hours/semester.

Weightage of marks – 50 for practical + 20 viva voce + 5 attendance = 75 marks

Reference Book:

1. Koontz, O Donnell, Management, McGraw-Hill

2. Appaniah, Reddy, Essentials of Management, Himalaya Publishing House.

3.Prasad, L. M., Principles of management, Sultan Chand and Sons.

4.Srinivasan, Chunawalla, Management Principles and Practice, Himalaya Publishing House.

5.Tulsian, P.C., & Pandey, Vishal, Business Organization and Management, Pearson Education

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : FIFTH
SUBJECT TITLE : PRACTICAL ON INTRODUCTION TO BUSINESS ACCOUNTING
CONTENTS : PRACTICAL
SUBJECT CODE : BVGE-20
MARKS : 75 MARKS
TOTAL HRS : 45

Practical:

1) Write up a summary report on financial accounting and reporting methods.
2) Write up a summary report on management accountancy and it's reporting.
3) Visit to a production unit and prepare it's different cost sheets.
4) Visit to a Chartered Accountant office and conduct an interview.
5) Visit to a tax consultancy agency at local place and conduct an interview.
6) Write up different financial statements of visited units.
7) Comparative study of two or more units with regard to accounting methods.
8) Write up a report on computer based accounting.
9) Prepare a project report of a manufacturing unit focused of different accounts.
10) Assignments on accountancy.

Duration of the practical

1) One day in a week, preferably Saturday or Sunday (min. 7 hours)
2) 12 weeks in a semester * 7 hours of each practical day= 84 hours/semester.

Weightage of marks – 50 for practical + 20 viva voce + 5 attendance = 75 marks

Books:

1. Advanced Accounts- M.C. Shukla, T.S. Grewal, S.C. Gupta, S. Chand Publication- New Delhi.
2. Financial Accounting for B.com- CA (Dr.) P.C. Tulsian S.C. Gupta, S. Chand Publication- New Delhi.
3. Financial Accounting- Dr.JintendraAhirrao
4. Basic Accounting- Rajni Sofat and Preeti Hiro, PHI Learning Pvt. Ltd.- New Delhi.

COURSENAME : B.VOC. IN WEB PRINTING TECHNOLOGY

SEMESTER :FIFTH

SUBJECTTITLE : GRAVURE PRINTING / FLEXOGRAPHIC PRINTINGPROCESS

SUBJECTCODE : BVWPT-351

MARKS : 75

TOTALHRS :45

Objectives:

1. Understand the basic principle of Gravure printing process and itscharacteristics
2. Learn the various operations involved gravure printingprocess
3. To help learners acquire basic knowledge for flexographic printingprocess.
4. To help learners to identify printing challenges on thepress.

Outcomes: Upon successful completion of this course, the learner will be able to

1. Describe the various components of gravure /flexo printing machine and itsfunctions.
2. Explain various design aspects gravure cylinder and the process of engravingit.
3. Summarize the various operations performed while printing on Gravuremachine
4. Develop ability to operate flexography machine
5. Acquire skills to handle trouble shoot on flexography presses.
6. Identify press type & configuration.

Sr. No	Details	Hrs	Marks
1	**Introduction, History and Gravure Products** Characteristics of Gravure printing-comparison with other processes, History of Gravure product and Market-Publication gravure, Gravure packaging and converting, Product gravure Gravure development stages- Use of Engravings, Roulette tool, Rotary press invention, Aquatint process, Diffusion etch (carbon tissue) process, Direct transfer process, Well formation, Cylinder proofing and correction, Advances in Engraving and Cylinder Imaging.	07	12
2	**Gravure Press and its components** A general printing unit, Typical press configurations, Gravure ink fountain-ink fountain and ink transfer, Ink temperature, Ink viscosity Gravure Ink dryers- Need, Solvent removal, drying of water based inks, dryer functioning, Environmental considerations The gravure doctor Blade-Setup, Pressure, cylinder considerations, doctor blade Material, Variations in doctor blade usage,	08	14

3.	**Introduction to Flexography** Overview of major conventional printing technologies, the flexographic potential, brief history of process. Working principle, features, characteristics and advantages of flexography. Comparison with other major printing process basic elements of flexography. Mounting & Proofing Need and significance of plate mounting operation. Introduction to mounting. Types of mounting procedures: Double-sided Tape, Magnetic, Sleeve, pin register system. Plate mounting and proofing machines. Troubles and trouble- shooting with regard to improper plate mounting.	**07**	12
4	**Flexographic Press** Presstypes:Working,advantages&LimitationsofStack,CommonImpression, Inline. Basics of Tension zones and web tension control systems. PrintingStation:TypesofInkingsystems,FountainRoller,AniloxRoller,Plate Cylinder, Impression Rollers, Dryers and Cooling Rollers, side and circumferential registercontrol. WebTensions:TensionZones&Tensionranges,Transducerfeedbackcontrol, Unwind tension control, In-feed Tension Control, Rewind TensionControl. Web Inspection: Stroboscope, Mirror Drum, TV Print Scanner, Static Control, Film Theaters.	**07**	12
5	**Gravure / Flexo Ink and Substrates** Ink Composition, Classification of Gravure Inks, Special inks and coating, water-based inks, Physical properties of Gravure inks, Ink test and Measurement, Problems and trouble shooting Gravure packaging paper substrates- Packaging substrate requirements, Label stock, Paper board, Run ability Tests, Print quality Tests, Waste and Spoilage Gravure non-paper substrates- Types, Properties- Physical properties, Appearance, primer and overprint coatings, Surface Versus Reverse Printing, Problems and trouble shooting **Substrates and Inks** Absorbent and Non-absorbent substrates, physical properties, printing characteristics, Special substrate. Substrate's surface and optical properties affecting printing resolution. **Inks** End-use requirements, introduction to printing inks, ink vehicles, ink classifications, principles of ink selection, ink consumption, ink quality assurance tests and ink storage. Ink's surface and optical properties affecting printing resolution.	09	15

6	**Finishing and converting Operation** Blocking, Numbering, Perforation, Creasing, Die-cutting, round cornering, Edge decoration-gilding, Index cutting, Foil stamping, graining, varnishing, Embossing, eyeleting, ruling and numbering. Spot UV.	07	10
	Total	45	75

References:

1. Gravure Education Foundation and Gravure Association of America, "Gravure Process and Technology" Edition2003
2. J. Michael Adams, Penny Ann Dolin, "Printing Technology 5E", Delmar Publishing 5th Edition
3. Basic Gravure Technology, PIRA
4. H. Kipphan, Handbook of print Media, ISBN: 3-540-67326-1 Sringer-Verlagn Berlin Heidelberg
5. Ronald E. Todd, (1994), Printing Inks: Formulation Principles, Manufacture and Quality Control, Pira International
6. Foundations of FTA, Flexography Principles & Practices, 5thEdition.
7. Herbert L. Weiss, Flexography Proficiency, Converting Technology Corp.
8. Tony White, High Quality Flexography, Pira International Reviews.
9. J. Michael Adams, Printing Technology, 5th Edition, Delmar.
10. Michael Barnard "The Print & Production Manual" PIRA.

COURSENAME : B.VOC. IN WEB PRINTING TECHNOLOGY

SEMESTER :FIFTH

SUBJECTTITLE : PRESS MAINTENANCE & MANAGEMENT

SUBJECTCODE : BVWPT-352

MARKS : 75

TOTALHRS :45

OBJECTIVES OF MAINTENANCE

1. **To minimize the breakage and maximize the plant availability**
2. **To extend the useful life of assets by minimizing wear & tear and deterioration**
3. **To ensure the operational readiness of all equipment.**
4. **To ensure the safety of workers.**
5. **To establish a satisfactory working condition**

	Detail	Hrs.	Marks
1	Maintenance Management 1 - Maintenance – Definition, Objectives, Types of Equipment Maintenance – Planned maintenance and unplanned maintenance. 2 - Types of Planned maintenance - Preventive Maintenance, Predictive Maintenance and Scheduled maintenance - Merits and demerits. Unplanned maintenance - Breakdown Maintenance or Emergency maintenance - Merits and Demerits. Contract maintenance - Definition - Merits and Demerits. 3 - Preventive Maintenance Functions - Planning, scheduling, Repair cycles, Dispatching and Controlling. 4 - Safety Precautions and House Keeping – safety precautions to be followed in press area and Five steps of housekeeping (5S method).	12	15
2	Mechanical – moving parts & their functions. Gear box, various types of gears (Spur/ Bevel/ helical)adjusting its backlash , drive belts , Sprockets , chain & various types of other drives, cams& cam-followers, ,leavers, couplings ,shafts, joints & bearings / bushes , breaks & clutches used in machine.. its proper maintenance , lubrication, antifriction , is very importance .	08	14
3	Lubrication & greasing system. centralize lubrication, manual lubrication, lubricating oil ,-grease – its grade	06	12

	& properties , schedule of its change & frequency .Pneumatic & Electrical maintenance .Now a days in most of the machines pneumatics & Electric drives are of PLC base technology.. This helps in the easy & speedy works & also easy to fault findings.. But for this special type of training is needed &Only expertise can solve these problems.		
4	Types of Tools used in Maintenance .Bearing Pullers, Spanners, Allen-keys, Cir-clip pillars, Hardness tester, Vernier / micrometer.	04	09
5	Keep the maintenance schedule record / machine history should be maintain Logbook, break down history, Problem solving method , etc .. Record should be maintained helps to solve the problems & study the frequency of problems occurs to solve permanently. Log book Maintenance on each machine separately with all records as history of machine. Stock keeping, their records, minimum inventory requirement of parts. Maintenance management, Assignment of job work, reporting of maintenance activity.	09	14
6	Important areas in Printing Machine needs special maintenance- Paper Feeder /Reel stand-Printing unit (Various types of Cylinder & its Gears side) Dampening / Inking System—Rollers- Diameter / Hardness / Bearings conditions Delivery System / Folder	06	11
	Total	45	75

Reference Books:

1. The Handbook of Maintenance Management - Joel Levitt
2. “Reliability, Availability and Maintainability” by J W Foster
3. “Maintenance Engineering Hand Book” by L T Higgins and L C Marrow
4. “Maintenance Engineering and Management” by Venkataraman
5. “Maintenance Engineering and Management” by Mishra R C

COURSENAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER :FIFTH
SUBJECTTITLE :COSTING & ESTIMATION
SUBJECTCODE : BVWPT-353
MARKS : 75
TOTALHRS :45

Objective and Pre-requisite:

In the industry, job estimate, is an important factor through customer point of view. It is with this back-ground that elements of costing and estimating are essential for this work. For publishing industry costing, plays an important role for price determination. This subject covers elements of cost, costing system, finding out the consumption of material, fixed cost, variable cost, finding out the machine hour rates etc. Student should have the prior knowledge of pre-press processing, printing process, printing finishing process and the material involved.

Learning Outcome:

After completing the subject student will be able to know about the element of cost, finding machine hour rates, calculating consumption of variables material, estimating of printing job etc.

Sr. No	Detail	Hrs.	Marks
1.	**UNIT-I** **Introduction**: Introduction to Indian and Federation Costing System, importance and estimating in printing trade, definition of cost, price and profit. **Estimating:** Estimating and its inter-relationship with purchasing, sales and management, Importance of accurate estimating, requirement, qualification and tools of an estimator. Estimating errors-their causes and remedies, estimating on the basis of price lists, past works charge, standard catalogues, etc. Estimating on the basis operational times and hourly rates.	07	14
2.	**UNIT-II** Calculation of paper board, securing materials and adhesives Estimating for the warehouse operations Estimating for typesetting, processing and planning, various methods of surface preparation, machining for different processing of printing.	10	16

	Operational times and current market rates. Estimate ink. **Job Estimates:** Making of estimates of complete jobs, computer aided estimating and relevant software's.		
3.	**UNIT-III** **Costing:** Definition, purpose and function, aims and objects of costing, Element of cost, principles of a scientific costing system, Types of costing system, classes of departments, allocation and apportionment of expenses, basis of apportionment. Direct and Indirect cost, Calculation of hourly rates, recovery of elements of cost, distributes of expense.	10	16
4.	**UNIT-IV** Fixed cost, variable cost, total cost. unit cost and their inter-relationship. Principles of costing stages, developing forms and specimens used by small, medium and large printers, costing and standard press routine. Types of Setting (DTP) Process-Costing off, copy fitting. Preparing offset plate, machine operation(Offset), Binding and finishing processing.	10	16
5.	**UNIT-V** Process capability indices, DOE, OVAT, OEE, Case study and problems. Team approach introduction, basic assumption, quality improvement department teams, quality team effort, quality-oriented projects, Establishing Quality control program in different department of printing organization. Data collection, principles and analysis, Measurement of critical print variables.	08	13
	Total	45	75

COURSENAME : B.VOC. IN WEB PRINTING TECHNOLOGY

SEMESTER : FIFTH

SUBJECT TITLE : PRACTICAL ON GRAVURE PRINTING / FLEXOGRAPHIC PRINTING

CONTENTS :PRACTICAL ON GRAVURE & FLEXOGRAPHY

SUBJECT CODE : BVWPT-354

MARKS : 75

TOTAL HRS :45

Module	Details
1	Introduction to construction and features of flexographic unit.
2	Understanding design and working of tension control elements of Flexographic web threading path.
3	Flexographic Plate Mounting with varying plate dimensions, adhesive strength and repeat length.
4	Setting up of single and multi-color flexographic press for printing.
5	To study tension setting on flexographic machine.
6	To analyze effect of anilox & fountain roller pressure on print.
7	To analyze effect of flexographic inks on print.
8	Study of Gravure Machine principles.
9	Gravure cylinder mounting and de-mounting
10	Analysis of Gravure Cell Structures
11	To print a single color job with etched cylinder on a given substrate
12	To print a single color job with engraved cylinder with varying viscosity on a given substrate.
13	To print a single color job with varying speed.
14	To evaluate effect of Air Gap distance on print quality
15	To print a two color job with engraved cylinder with varying pressure on a given substrate.

COURSENAME : B.VOC. IN WEB PRINTING TECHNOLOGY

SEMESTER :FIFTH

SUBJECT TITLE : PRACTICAL ON PRESS MAINTENANCE & MANAGEMENT

CONTENT : PRACTICAL ON PRESS MAINTENANCE

SUBJECT CODE : BVWPT-355

MARKS : 75

TOTAL HRS :45

1	Types of maintenance, breakdown, preventive, predictive, proactive.
2	Scheduling of maintenance & Records
3	Gear system Types of gears spur, bevel, worm, helical gears
4	Bearing Types of Bearing Ball bearing, Needle bearing, Roller bearing, Taper Bearing, thrust bearing.
5	Shaft & coupling, Flange, Belt & chain Drive V-Belts, Timer belt
6	Cam & follower their use in printing machine
7	Pulleys & Key its function
8	Rollers Diameter Ovality hardness measurement.
9	Lubrication Oil & Grease their use & requirement
10	Measuring Instrument Vernier calipers, Screw gauge ,micrometer, Hardness meter, level indicator, DTI (Dial Test Indicator), scale.
11	Stock keeping, their records, minimum inventory requirement of parts
12	Maintenance management, Assignment of job work, reporting of maintenance activity.
	Cylinder, Bushes, their design.

COURSENAME : B.VOC. IN WEB PRINTING TECHNOLOGY

SEMESTER :FIFTH

SUBJECTTITLE :PRACTICAL ON COSTING & ESTIMATION

CONTENT : PRACTICAL ON COSTING & ESTIMATION

SUBJECTCODE : BVWPT-356

MARKS : 75

TOTALHRS :45

Objective:

1.To develop the understanding of various cost elements in printing & packaging industry

2. To learn about the different designs and material on costing.

Outcome: Upon successful completion of this course, learner will be able to

1. Enlist the various cost factors involved in a package or a printed job.
2. Estimate cost for various print job.
3. Estimate costing for various package forms.

List of Assignments:(Minimum 10 Assignments to be given)

Sr.No	Assignments
1	various costs involved in packaging.
2	various costs involved in printing.
3	Estimate costing for a folding carton.
4	Estimate costing for a corrugated fiberboard box.
5	Estimate costing for a print job.
6	Estimate costing for a print finishing & conversion of a book/diary.
7	Estimate costing for flexible laminated pouch.
8	Estimate costing for a wooden package.
9	Estimate costing for a mono carton
10	Estimate costing for a broacher printing
11	Estimate costing for a four color wedding card.
12	Estimate costing for a multicolor pamphlets.

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : FIFTH
SUBJECT TITLE : PROJECT REPORT ON THE INDUSTRIAL TRAINING COMPLETED DURING VACATION AT THE END OF IV SEM
CONTENTS : SUMMER VACATIONAL TRAINING
SUBJECT CODE : BVWPT -357
MARKS : 75 MARKS
TOTAL HRS : 45

OBJECTIVES :-

a) To expose the students to Industrial environment, which cannot be simulated in the university
b) To familiarize the students with various Materials, Machines, Processes, Products and their applications along with relevant aspects of shop management
c) To make the students understand the psychology of the workers, and approach to problems along with the practices following at factory
d) To make the students understand the scope, functions and job responsibility-ties in various department of an organization
e) Exposure to various aspects of entrepreneurship during the programme period

Scheme of Examination for Project semi V.

Credits	Teaching Scheme	Examination Scheme			
		Industrial Training. Marks	Project Work Marks	Seminar Marks.	End Semester Examination Total Marks
03	Industrial Training of 01 Month	50	15	10	75

COURSE NAME : B.VOC. IN WEB PRINTING TECHNOLOGY
SEMESTER : SIX
SUBJECT TITLE : PROJECT REPORT ON THE INDUSTRIAL TRAINING COMPLETED DURING VACATION AT THE END OF VI SEM
CONTENTS : INDUSTRIAL TRAINING
SUBJECT CODE : BVWPT -361
MARKS : 750 MARKS
TOTAL HRS : 45

Technology and globalization are ushering an era of unprecedented change. To augment this, the need and pressure for change and innovation is inevitable. In this training, students will exposure to different departments and activities of the industry and submit the reports to the university. Such in-plant trainings will provide an industrial exposure to the students as well as to develop their career in the high tech industrial requirements. In-Plant training is meant to correlate theory and actual practices in the industries. It is expected that sense of running an industry may be articulated in a right way through this type of industrial attachment mode. To enrich the practical knowledge of the students, In-plant Training shall be mandatory in the last semester for a period of up to 3 months. In-plant trainings will provide an industrial exposure to the students as well as to develop their career in the high tech industrial requirements. In-plant training is meant to correlate theory and actual practices in the industries with the following

OBJECTIVES:-

a) To expose the students to Industrial environment, which cannot be simulated in the university
b) To familiarize the students with various Materials, Machines, Processes, Products and their applications along with relevant aspects of shop management
c) To make the students understand the psychology of the workers, and approach to problems along with the practices following at factory
d) To make the students understand the scope, functions and job responsibility-ties in various department of an organization
e) Exposure to various aspects of entrepreneurship during the program period
f) To acquire enterprise management capabilities

Industrial Training Procedure

Industrial training will be arranged in VI semester of Degree program. In-plant training cell of the college will be established to coordinate and monitor the In-plant training program. In-plant training cell should be collaborated with training and placement cell of the college. A student shall be sent to various printing / packaging Industries approved by Academic Council of University.

SEMESTER –VI					
Sr. No.	**Course Number**	**Course Title**	Duration	Marks	Credit
1	BVWPT -361	Industrial Training	3 Months	400	16
		Project work		200	08
		Seminar		150	06
		Total		750	30