# || शीलं परम भूषणम ||

**Shri Acharyaratna Deshbhooshan Shikshan Prasarak Mandal, Kolhapur**
**Mahavir Mahavidyalaya, Kolhapur (Autonomous)**
**Affiliated to Shivaji University, Kolhapur**

**Syllabus for Choice Based Credit System (CBCS) Degree inPrinting & Publishing (B. Voc.) Programme**

| | |
|---|---|
| **Programme** | **Degree in Printing & Publishing** |
| **Part** | **III** |
| **Semester** | **V &**<br>**VI** |
| **Course Code** | **BV**<br>**A51** |
| **Course Name** | **--** |
| **Course Title** | **--** |
| **Paper No.** | **--** |

**Under the Faculty of Interdisciplinary Studies**
(To be introduced from Academic Year 2023-24 onwards)
Subject to the revisions & modifications made from time to time

**Mahavir Mahavidyalaya, Kolhapur (Autonomous)**
**Affiliated to Shivaji University, Kolhapur**
**(New syllabus under Autonomy to be introduced from June, 2023 onwards)**

| **A) Primary Information:** | | | |
|---|---|---|---|
| Programme | **Bachelor of Vocation (B. Voc.) CBCS** | | |
| Part | **III** | Semester | **V** |
| Course | **FLEXOGRAPHY PRINTING TECHNOLOGY (Th)** | Course Code | **AD A51** |
| Paper No. | **--** | Course Type | **Semester** |
| Total Marks | **50 Marks** | Implementation | **2023- 24** |
| Total Credits | **03** | Contact Hours | **04 / Week** |
| Course Title | | | |

| **B) Course Objectives:** | |
|---|---|
| i) | Study of Flexography Printing Process. |
| ii) | To Study about Various Printing plates |
| iii) | To Study of Plate Mounting & Proofing's |
| iv) | Printing Press & Quality Control |

**C) Course Syllabus:**
(CR = Credits / IH: Instructional Hours)

| **Units** | **CR** | **IH** |
|---|---|---|
| **Unit I: INTRODUCTION** | | |
| 1.1 Flexography – Basic principle, advantages, limitations, applications; Design considerations, screen angles, ink, substrates; Press types – stack, CIC, inline, narrow web, wide web; Variations of press – coating, lamination, corrugated post printing; environment & safety aspects | 0.75 | 12 |
| **Unit II: IMAGE CARRIER PREPARATION** | | |
| 2.1 Moulded rubber plates; Photopolymer plates – Sheet photopolymer, liquid photopolymer, Direct Imaged Plates, Plate considerations – plate handling, storage, wrap distortion, Ink & solvent compatibility, quality | 0.75 | 12 |

| | | |
|---|---|---|
| **Unit III : MOUNTING AND PROOFING** | | |
| 3.1 Plate mounting procedures, plate staggering, plate make ready; Manual Mounting, Video mounting, Sleeve mounting, Pin mounting, Proofing procedure. | 0.75 | 12 |
| **Unit IV: PRINTING PRESS & QUALITY CONTROL** | | |
| 4.1 Ink & solvent compatibility, quality Flexographic printing process solvent based ink and substrate, BOPP, PVC. detail study. Ink test and substrate test. Printing station – fountain rollers, anilox rollers, doctor blades,plate cylinders, impression rollers; Roll mechanics, unwind equipment, infeed, substrate treatment, web tension control, web guiding, inking systems, drying systems, cooling rolls, rewind equipment, web viewers, automatic viscosity controls | 0.75 | 12 |
| 4.2 Pressroom Practices, Press Characterization, Flexography QC targets, press optimization Troubleshooting, Case studies. | | |

| **D) Reference Materials** | |
|---|---|
| **D1) Text Books for Reading** | |
| **1.** | "Flexography: Principles & Practices", 5th Edition, FTA, 2000. |
| **2.** | "FIRST: Flexographic Image Reproduction Specifications & Tolerances", 3rd Edition |
| **D2) Books for Reference** | |
| **1.** | Frederick R. Boyle, "The Flexography Environment", Foundation of Flexographic Technical Association, 2002. |
| **2.** | Anthony White, "High Quality Flexography", Pira reviews of Printing, Pira International,1992. |
| **3.** | Donna C.Mulvihill, "Flexography Primer", GATF Press, 1991. |
| **4.** | Helmut Kiphhan, "Handbook of Print Media", Springer Verlag, 200 |

| **E) Suggested methods of Teaching:** | |
|---|---|
| i) | Offline / Online teaching |
| ii) | Power Point Presentation |
| iii) | Group Discussion |

| F) Course Outcomes: | | Blooms Taxonomy |
|---|---|---|
| CO1 | Understanding Flexography Printing Process. | |
| CO2 | Understood the Various Printing plates | |
| CO3 | Understanding Printing Press and quality Control. | |

| G) Scheme of Course Evaluation | | |
|---|---|---|
| **1.** | End Semester Examination (ESE) | 40 |
| **2.** | Continuous Internal Evaluation (CIE) | 10 |
| **3.** | **Total Marks** | **50** |

| H) Suggested techniques for Continuous Internal Evaluation (10 Marks) | | |
|---|---|---|
| **1.** | Home Assignment | |
| **2.** | | |
| **3.** | | |
| **4.** | | |
| **5.** | **Total Marks** | **10** |

| I) Question Paper Pattern (40 Marks) | | |
|---|---|---|
| **Q. No.** | **Nature / Type of Question** | **Marks** |
| **1.** | MCQs | 10 |
| **2.** | Short Answer | 10 |
| **3.** | Short Note | 10 |
| **4.** | Long Answer | 10 |
| **Total Marks** | | **40** |

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**Mahavir Mahavidyalaya, Kolhapur (Autonomous)**
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**(New syllabus under Autonomy to be introduced from June, 2023 onwards)**

| **A) Primary Information:** | | | |
|---|---|---|---|
| Program me | **Bachelor of Vocation (B. Voc.) CBCS** | | |
| Part | **III** | Semester | **V** |
| Course | **Gravure Printing (Th)** | Course Code | **AD A52** |
| Paper No. | **--** | Course Type | **Semester** |
| Total Marks | **50 Marks** | Implementation | **2023 - 24** |
| Total Credits | **03** | Contact Hours | **04 / Week** |
| Course Title | | | |

| **B) Course Objectives:** | |
|---|---|
| i) | To Study of Gravure Process. |
| ii) | Gravure Process and Image Carrier Preparation |
| iii) | Doctor Blade Assembly |
| iv) | To Study of Metalized Films - Aluminum Foil, Foil Laminations |

**C) Course Syllabi:**
(CR = Credits / IH: Instructional Hours)

| **Units** | **CR** | **IH** |
|---|---|---|
| **UNIT I: INTRODUCTION** | 0.75 | 12 |
| 1.1 History of gravure. | | |
| 1.2 Gravure products and markets - Publication gravure | | |
| 1.3 Gravure packaging and converting - product gravure. Gravure Screens. Auto registration system. | | |
| **Unit II: GRAVURE PROCESS AND IMAGE CARRIER PREPARATION** | 0.75 | 12 |
| 2.1 Process characteristics, cylinder construction – design, balancing, copper plating and polishing. | | |
| 2.2 Reuse of cylinder; well formation; film positives; cylinder layoutand film assembly. | | |
| 2.3 cross line screen, image carrier preparation techniques diffusion etch process | | |
| 2.4 direct transfer process, electromechanical, laser and electron beam engraving process | | |

| | | |
|---|---|---|
| **Unit III: GRAVURE PRINTING MACHINE** | | |
| 3.1 Doctor blade assembly – conventional, reverse angle, holder, loading, doctor and back-up blades | 0.75 | 12 |
| 3.2 P ositioning; impression rollers – types, loading, deflection; electrostatic assist impression system. | | |
| 3.3 inking system – types; dryer – types; Press design – types; in feed and out feed coating; lamination, inline solvent less lamination; inline converting operations; power transmission system. | | |
| **Unit IV: GRAVURE SUBSTRATES** | | |
| 4.1 Paper Substrates-Roto newspapers, Coated papers, Gravure packaging paper substrates. properties | 0.75 | 12 |
| 4.2 Label stock, Paper board. Non-Paper substrates - surface preparation, plastics-properties. | | |
| 4.3 Metalized films - Aluminum foil, Foil laminations. Gravure advantages, limitations. Future of Gravure Printing Industry. Modern Gravure printing techniques. Gravure QC targets, press optimization Troubleshooting, during printing face problem and remedies. Case studies. | | |
| 4.4 . Ink & solvent compatibility, quality Gravure printing process ink and substrate detail study. Ink test and substrate test. | | |

| **D) Reference Materials** | |
|---|---|
| **D1) Text Books for Reading** | |
| **1.** | "Gravure: Process and Technology", Gravure Education Foundation, 2003 |
| **2.** | Kaj Johansson, Peter Lundberg, Robert Ruberg, "A Guide to Graphic Print Production", Wiley, 2002 |
| **D2) Books for Reference** | |
| **1.** | 1. Harry B. Smith, "Modern Gravure Technology", Pira reviews of Printing, Pira International, 1994 2. Samuel B. Hoff, "Screen Printing – A Contemporary Approach", Delmar Publishers, 1997. |
| **2.** | Ingram, Samuel, "Screen Printing Primer", GATF press, 2nd Edition, 1999. |
| **3.** | William Appleton, "Screen Printing", PIRA International, 1994. 5. NIIR Board, "Screen Printing Technology Handbook", Asia Pacific Business Press Inc., 2004 |

| E) Suggested methods of Teaching: | |
|---|---|
| i) | Offline / Online teaching |
| ii) | Power Point Presentation |
| iii) | Group Discussion |

| F) Course Outcomes: | | Blooms Taxonomy |
|---|---|---|
| CO1 | Understanding of Gravure process. | |
| CO2 | Understanding GRAVURE PROCESS AND IMAGE CARRIER PREPARATION | |
| CO3 | Understanding Doctor blade assembly | |
| CO4 | Understood Metalized films - Aluminum foil, Foil laminations. | |

| G) Scheme of Course Evaluation | | |
|---|---|---|
| **1.** | End Semester Examination (ESE) | 40 |
| **2.** | Continuous Internal Evaluation (CIE) | 10 |
| **3.** | **Total Marks** | **50** |

| (H) Suggested techniques for Continuous Internal Evaluation ( 10 Marks) | | |
|---|---|---|
| **1.** | Home Assignment | |
| **2.** | | |
| **3.** | | |
| **4.** | | |
| **5.** | **Total Marks** | **10** |

| I) Question Paper Pattern (40 Marks) | | |
|---|---|---|
| **Q. No.** | **Nature / Type of Question** | **Marks** |
| **1.** | MCQs | 10 |
| **2.** | Short Answer | 10 |
| **3.** | Short Note | 10 |
| **4.** | Long Answer | 10 |
| **Total Marks** | | **40** |

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**Mahavir Mahavidyalaya, Kolhapur (Autonomous)**
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**(New syllabus under Autonomy to be introduced from June, 2023 onwards)**

| **A) Primary Information:** | | | |
|---|---|---|---|
| Programme | **Bachelor of Vocation (B. Voc.) CBCS** | | |
| Part | **III** | Semester | **V** |
| Course | **PRINT PUBLISHING (Th)** | Course Code | **BV A53** |
| Paper No. | **--** | Course Type | **Semester** |
| Total Marks | **50 Marks** | Implementation | **2023 - 24** |
| Total Credits | **03** | Contact Hours | **04 / Week** |
| Course Title | | | |

## PRINT PUBLISHING

| **B) Course Objectives:** | |
|---|---|
| i) | To study of Introduction to Publishing Technology |
| ii) | Meaning and concept of Manuscripts |
| iii) | Technical requirements for e-publishing |

**C) Course Syllabi:**
(CR = Credits / IH: Instructional Hours)

| **Units.** | **CR** | **IH** |
|---|---|---|
| **Unit I: INTRODUCTION and KINDS OF PUBLICATIONS:** | 0.75 | 12 |
| 1.1 Introduction to Publishing Technology – Meaning, Concept, Scope and Importance | | |
| 1.2 Kinds of Publications: 1. Books for Children, dictionary. | | |
| 1.3 Scientific Technical and Medical Books. | | |
| 1.4 Textbooks, Journals and Manuals. | | |
| 1.5 Newspapers and Magazines. | | |
| **Unit II: PROCESS OF PUBLISHING** | 0.75 | 12 |
| 2.1 Process of Publishing 1. Meaning and concept of Manuscripts, CRCs, and Typesetting 2., content vetting, editing | | |

| | | |
|---|---|---|
| 2.2 Concept of Proof Reading in composed pages Parts in a book. Pre-press activities | | |
| 2.3 Production and Emerging Technologies in Publishing | | |
| 2.4 An overview different binding techniques for publications along with Lamination | | |
| **Unit III: QUALITY STANDARD** | 0.75 | |
| 3.1 Costing and estimation for publications. | | |
| 3.2 Marketing Promotion and Distribution of published books. | | 12 |
| 3.3 Proof reading, why proof reding is important, and how to publish the book.to study the print on demand for book publication. | | |
| **Unit IV: E-PUBLISHING** | | |
| 4.1 e-Publishing – Concept and importance in today's world. | | |
| 4.2 Technical requirements for e-publishing | 0.75 | 12 |
| 4.3 Role of Internet | | |

| **D) Reference Materials** | |
|---|---|
| **D1) Text Books for Reading** | |
| **1.** | Offset press operating; GATF USA published by Graphic Arts Technical Fndtn Publication, USA |
| **2.** | Faux 1; Lithography GATF USA. published by Graphic Arts Technical Fndtn Publication, USA |
| **D2) Books for Reference** | |
| **1.** | Modern Lithography: Ian Faux: Macdonald & Evans |
| **2.** | Machines Printing by Durraut W.R., Focal Press London |
| **3.** | Lithographer's manual GATF USA. published by Graphic Arts Technical Fndtn Publication, USA |
| 4. | Technology of offset Printing by C.S. Mishra; Anupam Prakashan Allahabad. |

| E) Suggested methods of Teaching: | |
|---|---|
| i) | Offline / Online teaching |
| ii) | Power Point Presentation |
| iii) | Group Discussion |

| F) Course Outcomes: | | Blooms Taxonomy |
|---|---|---|
| CO1 | Understanding Introduction to Publishing Technology | |
| CO2 | Understanding the Meaning and concept of Manuscripts | |
| CO3 | Understanding the technical requirements for e-publishing. | |

| G) Scheme of Course Evaluation | | |
|---|---|---|
| **1.** | End Semester Examination (ESE) | 40 |
| **2.** | Continuous Internal Evaluation (CIE) | 10 |
| **3.** | **Total Marks** | **50** |

| H) Suggested techniques for Continuous Internal Evaluation (10 Marks) | | |
|---|---|---|
| **1.** | Home Assignment | |
| **2.** | | |
| **3.** | | |
| **4.** | | |
| **5.** | **Total Marks** | **10** |

| I) Question Paper Pattern (40 Marks) | | |
|---|---|---|
| **Q. No.** | **Nature / Type of Question** | **Marks** |
| **1.** | MCQs | 10 |
| **2.** | Short Answer | 10 |
| **3.** | Short Note | 10 |
| **4.** | Long Answer | 10 |
| **Total Marks** | | **40** |

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**Mahavir Mahavidyalaya, Kolhapur (Autonomous)**
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**(New syllabus under Autonomy to be introduced from June, 2023 onwards)**

| **A) Primary Information:** | | | |
|---|---|---|---|
| Programe | **Bachelor of Vocation (B. Voc.) CBCS** | | |
| Part | **III** | Semester | **V** |
| Course | **COSTING AND ESTIMATING (Th)** | Course Code | **BV A54** |
| Paper No. | **--** | Course Type | **Semester** |
| Total Marks | **50 Marks** | Implementation | **2023 - 24** |
| Total Credits | **03** | Contact Hours | **04 / Week** |
| Course Title | | | |

| **B) Course Objectives:** | |
|---|---|
| i) | Basic concepts of costing, pricing, estimating and investment analysis |
| ii) | Estimating cost of printing materials and different processes for various print jobs |
| iii) | Classification of cost; elements of cost; costing of direct materials |

**C) Course Syllabi:**
(CR = Credits / IH: Instructional Hours)

| **Units** | **CR** | **IH** |
|---|---|---|
| **Unit I: INTRODUCTION** | 0.75 | 12 |
| 1.1 Brief introduction to Indian and Federation costing system | | |
| 1.2 Importance of costing and estimating in printing and publishing trade, definition of cost, price and profit. Costing systems - cost; profit; price; functions of costing; costing models. | | |
| **Unit II: COSTING AND PRICING** | | |
| 2.1 Types of costing – marginal costing, job costing, budgeting costing | | |

| | | |
|---|---|---|
| 2.2 Types of budgets; budgetary control; sales forecasts and budgets for printing and allied industries; relationship between cost control and budgetary control | 0.75 | 12 |
| **Unit III: ESTIMATING PRINTING MATERIALS FOR PROCESSES** | | |
| 3.1 Cost estimating, price estimating, estimator needs; procedure for selling, estimating, pricing and quoting for printing; estimating methods; production planning; computerized estimating. | 0.75 | 12 |
| 3.2 Paper- sheet and web; ink; toners; pre-press; machine printing – sheet-fed offset, web offset, flexography, gravure, screen printing, digital printing; post press; e-publishing. Tender and types of tender . | | |
| **Unit IV: COST ANALYSIS And INVESTMENT ANALYSIS** | 0.75 | 12 |
| 4.1 Classification of cost; elements of cost; costing of direct materials; costing of machine operations; costing of manual operations; costing – typesetting, scanning, plate-making, printing, binding and finishing operations. | | |
| 4.2 Time value of money, compound value, present value, annuities, pay back method | | |
| 4.3 average rate of return and internal rate of return method; Depreciation, Return on Investment, Return on Capital Expenditure; Break even analysis | | |
| 4.4 analysis, calculation of break-even points, margin of safety, sensitivity analysis and profit graphs. | | |

| **D) Reference Materials** | |
|---|---|
| **D1) Text Books for Reading** | |
| **1.** | Hugh Speirs, "Print Estimator's Handbook", 2nd edition, Pira International Ltd., 2004 |
| **2.** | Prasanna Chandra, Financial Management, Theory and Practice, Tata McGraw Hill, New Delhi, 6th Ed. 2004 |
| **3.** | "Cost Accounting for Printers", Part I and Part II, British Printing Industries |
| | |
| **D2) Books for Reference** | |
| **1.** | K. S. Venkataraman and K. S. Balaraman, "Estimating Methods and Cost Analysis for Printers", Ramya Features and Publications, 1987 |
| **2.** | Dipl.-Ing. B. D. Mendiratta, "Printer's Costing and Estimating", Printing India Publications Pvt. Ltd., 1999. |
| **3.** | James C. Van Hrone & John M. Wachowicz Ja, Fundamentals of Financial management, Prentice Hall India Pvt. Ltd., Eastern Economy Edition, New Delhi 2004, 11th Edition. |

| | |
|---|---|
| 4. | N. D. Vohra, "Quantitative Techniques in Management", Tata McGraw Hill |
| 5 | Estimating for Printers, BPIF, and London. published by Orion Publishing Group, London |

| **(E) Suggested methods of Teaching:** | |
|---|---|
| i) | Offline / Online teaching |
| ii) | Power Point Presentation |
| iii) | Group Discussion |

| **F) Course Outcomes:** | | **Blooms Taxonomy** |
|---|---|---|
| CO1 | Understanding Basic concepts of costing, pricing, estimating and investment analysis | |
| CO2 | Understanding the Estimating cost of printing materials and different processes for various print jobs. | |
| CO3 | Understanding Classification of cost. | |
| CO4 | Understanding costing of direct materials | |

| **G) Scheme of Course Evaluation** | | |
|---|---|---|
| **1.** | End Semester Examination (ESE) | 40 |
| **2.** | Continuous Internal Evaluation (CIE) | 10 |
| **3.** | **Total Marks** | **50** |

| **H) Suggested techniques for Continuous Internal Evaluation (10 Marks)** | | |
|---|---|---|
| **1.** | Home Assignment | |
| **2.** | | |
| **3.** | | |
| **4.** | | |
| **5.** | **Total Marks** | **10** |

| **I) Question Paper Pattern (40 Marks)** | | |
|---|---|---|
| **Q. No.** | **Nature / Type of Question** | **Marks** |
| **1.** | MCQs | 10 |
| **2.** | Short Answer | 10 |
| **3.** | Short Note | 10 |
| **4.** | Long Answer | 10 |
| **Total Marks** | | **40** |

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**Mahavir Mahavidyalaya, Kolhapur (Autonomous)**
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**(New syllabus under Autonomy to be introduced from June, 2023 onwards)**

| **A) Primary Information:** | | | |
|---|---|---|---|
| Programmer | **Bachelor of Vocation (B. Voc.) CBCS** | | |
| Part | **III** | Semester | **VI** |
| Course | **PRINTING MANAGEMENT (Th)** | Course Code | **BV A61** |
| Paper No. | **--** | Course Type | **Semester** |
| Total Marks | **50 Marks** | Implementation | **2023- 24** |
| Total Credits | **02** | Contact Hours | **04 / Week** |
| Course Title | | | |

**B) Course Objectives:**

| | |
|---|---|
| i) | To study overview of the printing machinery maintenance and maintenance management |
| ii) | To study about Marketing management – Marketing and its functions |
| iii) | Business Environment – Printing industry in India. |
| iv) | Production and operations Management |

**C) Course Syllabus:**
(CR = Credits / IH: Instructional Hours)

| **Units** | **CR** | **IH** |
|---|---|---|
| **Unit I: Business Environment** | 0.75 | 12 |
| 1 1. Business Environment – Printing industry in India. Impact of globalization and IT. Management – Nature scope and importance of Management | | |
| 1.2 Solid waste Management: Causes, effects and control measures of urban and industrial wastes. Role of an individual in prevention of pollution. | | |
| **Unit II: Production and operations Management** | 0.75 | 12 |
| 2.1 Production and operations Management – Locations and Layout of plant, Maintenance management. | | |
| 2.2 Marketing management – Marketing and its functions, distribution channels, salesmanship and advertising | | |

| | | |
|---|---|---|
| 2.3 Human resource management: Manpower planning – recruitment, selection, Training performance appraisal Wage and salary administration. | | |
| **2.4** Quality assurance, Total quality management (TQM), ISO. | | |
| **Unit III: Financial Management** | | |
| 3.1 Financial Management, Nature, Scope objectives and functions of Financial Management. | 0.75 | 12 |
| 3.2 Work flow and organizational structure in a printing press. | | |
| 3.3 Cost Accounting: Cost concept, cost sheet | | |
| 3.4 B.E.P. analysis, cost reduction and cost control. | | |
| 3.5 Depreciation - Introduction to different methods and their comparison. | | |
| **Unit IV: MACHINE MAINTENANCE** | 0.75 | 12 |
| 4.1 Problems and challenges, Organization, Maintenance methods, Criticality determination, Categorization, Economic aspects of maintenance. Emerging trends.<br>4.2 System components, documentation, facility register, records, safety related issues. Spare parts management. Maintenance schedules and control system. Inspection and lubrication, purpose, lubricants, lubricating systems.<br>4.3 Repairs and reconditioning methods for various parts, roller copper sing, re-rubberizing. Replacement models - Replacement policy, replacement of items, Determination of average life. | | |

**D) Reference Materials**

**D1) Text Books for Reading**


| | |
|---|---|
| **1.** | Venkataraman, "Maintenance Engineering and Management", Prentice-Hall of India Private Limited., 2007. |
| **2.** | P. Gopal Krishnan , A .K. Banerji, "Maintenance and Spare Parts Management", Prentice- Hall of India, 1977. |
| **3.** | R.D. Aggarwal-Organization and Management-Tata McGraw Hill Publishing Ltd., New Delhi |


**D2) Books for Reference**


| | |
|---|---|
| **1.** | T.A. Saifuddin – Management aspects of printing industry by Nirmal Sadanadn Publishers, Mumbai, I st edition |
| **2.** | G.G. Field- Printing Production Management by Graphic Arts Publishing, 1996. |
| **3.** | Mendiratta B.D. – Estimating & Costing by Print Trade Publications, 1999-2000. |
| **4.** | H.P. Garg, "Industrial Maintenance", S. Chand & Company Ltd., 1990. |

| E) Suggested methods of Teaching: | |
|---|---|
| i) | Offline / Online teaching |
| ii) | Power Point Presentation |
| iii) | Group Discussion |

| F) Course Outcomes: | | Blooms Taxonomy |
|---|---|---|
| CO1 | Understanding overview of the printing machinery maintenance and maintenance management. | |
| CO2 | Understanding marketing management – Marketing and its functions. | |
| CO3 | Understanding Business Environment – Printing industry in India. | |
| CO4 | Understanding Production and operations Management | |

| G) Scheme of Course Evaluation | | |
|---|---|---|
| **1.** | End Semester Examination (ESE) | 40 |
| **2.** | Continuous Internal Evaluation (CIE) | 10 |
| **3.** | **Total Marks** | **50** |

| H) Suggested techniques for Continuous Internal Evaluation (10 Marks) | | |
|---|---|---|
| **1.** | Home Assignment | |
| **2.** | | |
| **3.** | | |
| **4.** | | |
| **5.** | **Total Marks** | **10** |

| I) Question Paper Pattern (40 Marks) | | |
|---|---|---|
| **Q. No.** | **Nature / Type of Question** | **Marks** |
| **1.** | MCQs | 10 |
| **2.** | Short Answer | 10 |
| **3.** | Short Note | 10 |
| **4.** | Long Answer | 10 |
| **Total Marks** | | **40** |

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**(New syllabus under Autonomy to be introduced from June, 2023 onwards)**

| **A) Primary Information:** | | | |
|---|---|---|---|
| Programme | **Bachelor of Vocation (B. Voc.) CBCS** | | |
| Part | **III** | Semester | **VI** |
| Course | **ELECTRONIC COLOUR SEPARATION TECHNIQUES (Th)** | Course Code | **BV A62** |
| Paper No. | **--** | Course Type | **Semester** |
| Total Marks | **50 Marks** | Implementation | **2023- 24** |
| Total Credits | **03** | Contact Hours | **04 / Week** |
| Course Title | | | |

| **B) Course Objectives:** | |
|---|---|
| i) | Basic color theory, additive and subtractive colors. |
| ii) | To study of Introduction To Colour. |
| iii) | To study application of the color theory to color reproduction. |
| iv) | Overview of color reproduction from original to printing. |

**C) Course Syllabus:**
(CR = Credits / IH: Instructional Hours)

| **Units** | **CR** | **IH** |
|---|---|---|
| **Unit I: INTRODUCTION TO COLOUR** | 0.75 | 12 |
| 1.1 Basic color theory, additive and subtractive colors. | | |
| 1.2 process colors, application of the color theory to color reproduction. Overview of color reproduction from original to printing. | | |
| **Unit II: COLOUR REPRODUCTION** | 0.75 | 12 |
| 2.1 Essential requirements of cameras, lens, illuminations filters and half tone screen for color reproduction work. | | |
| 2.2 Tone and colour controls gray scale and colour control patches the ink/paper/colour interaction Measurement and control of colour printing Using the densitometers. | | |
| 2.3 Additive and subtractive colours, process colours, | | |
| 2.4 Application of the colour theory to colour reproduction. | | |

| | | |
|---|---|---|
| **Unit III: COLOUR SEPARATING METHODS** | | |
| 3.1 Basic principles of colour separation Direct separation method and Indirect colour separation method | 0.75 | 12 |
| 3.2 procedure followed for each method Methods and procedures followed for making the black printer negative for the indirect method for making continuous tone positives and the making of final screened negatives and positives establishing a colour reproduction procedure. | | |
| **Unit IV: COLOUR CORRECTION AND COLOUR PROOFING** | 0.75 | 12 |
| 4.1 Introduction & Working of image capturing techniques of Drum, Flat Bed Scanners & Image Setters. | | |
| 4.2 Objectives of colour correction; Hand correction, Purposes and procedure followed; retouching techniques; correcting colours, tones and shades given inks and paper. | | |
| 4.3 Dot etching, purposes and procedure, flat etching, staging and etching, local reduction, blending. | | |
| 4.4 Masking; purposes of masking types of masking's. their clarification and uses; Electronic colour separation and correction. | | |
| 4.5 Press proofing methods and various pre-press proofing systems; uses and limitations of prepress sheet Interpreting pre-press proofs and predicting, press results Control devices for proofing systems. | | |

**D) Reference Materials**

**D1) Text Books for Reading**

| | |
|---|---|
| **1.** | Gary G. Field: - Tone & Colour correction (GATF). |
| **2.** | Miles Southworth & Donna South worth: - Colour Reproduction. Graphic Arts Publishing, |

**D2) Books for Reference**

| | |
|---|---|
| **1.** | Dr. R.W.G. Hont :- The reproduction of colour. Fountain Press, 4th edition. |

| E) Suggested methods of Teaching: | |
|---|---|
| i) | Offline / Online teaching |
| ii) | Power Point Presentation |
| iii) | Group Discussion |

| F) Course Outcomes: | | Blooms Taxonomy |
|---|---|---|
| CO1 | Understanding of Basic color theory, additive and subtractive colors. | |
| CO2 | Understanding of INTRODUCTION TO COLOUR. | |
| CO3 | Understanding of application of the color theory to color reproduction. | |
| CO4 - | Understanding of Overview of color reproduction from original to printing. | |

| G) Scheme of Course Evaluation | | |
|---|---|---|
| **1.** | End Semester Examination (ESE) | 40 |
| **2.** | Continuous Internal Evaluation (CIE) | 10 |
| **3.** | **Total Marks** | **50** |

| H) Suggested techniques for Continuous Internal Evaluation ( 10 Marks) | | |
|---|---|---|
| **1.-** | Home Assignment | |
| **2.** | | |
| **3.** | | |
| **4.** | | |
| **5.-** | **Total Marks** | **10** |

| I) Question Paper Pattern (40 Marks) | | |
|---|---|---|
| **Q. No.** | **Nature / Type of Question** | **Marks** |
| **1.** | MCQs | 10 |
| **2.** | Short Answer | 10 |
| **3.** | Short Note | 10 |
| **4.** | Long Answer | 10 |
| **Total Marks** | | **40** |

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**Mahavir Mahavidyalaya, Kolhapur (Autonomous)**
**Affiliated to Shivaji University, Kolhapur**
**(New syllabus under Autonomy to be introduced from June, 2023 onwards)**

| **A) Primary Information:** | | | |
|---|---|---|---|
| Programme | **Bachelor of Vocation (B. Voc.) CBCS** | | |
| Part | **III** | Semester | **VI** |
| Course | **PACKAGING TECHNOLOGY (Th)** | Course Code | **BV A63** |
| Paper No. | **--** | Course Type | **Semester** |
| Total Marks | **50 Marks** | Implementation | **2023 - 24** |
| Total Credits | **03** | Contact Hours | **04 / Week** |
| Course Title | | | |

| **B) Course Objectives:** | |
|---|---|
| i) | Definition and function of Packaging. |
| ii) | Definition and History of paper |
| iii) | Definition of Composite containers and its application |
| iv) | Board construction – Liners and Flutes |

**C) Course Syllabi:**
(CR = Credits / IH: Instructional Hours)

| **Units** | **CR** | **IH** |
|---|---|---|
| **Unit I: Function of Packaging** | 0.75 | 12 |
| 1.1 Definition and function of Packaging , Types of packaging, basic packaging Fundamental, Product properties influencing packaging development | | |
| 1.2 Packaging criteria and packaging development, Theory on testing's available for paper and their significance. | | |
| 1.3 Types of packaging material and printing techniques for different materials. | | |
| **Unit II: Manufacturing processes for paper and board** | 0.75 | 12 |
| 2.1 Definition and History of paper. Defects of paper and their detections. Manufacturing processes for paper and board. | | |

| | | |
|---|---|---|
| 2.2 Application of paper in packaging. | | |
| 2.3 Types of paper and their selection criteria. | | |
| **Unit III: Relevant properties of paper board for Carton** | | |
| 3.1 Definition and types of folding board cartons. | 0.75 | 12 |
| 3.2 Relevant properties of paper board for carton, Manufacturing process and flow chart for carton | | |
| 3.3 Type of laminations and special effects for ornamentation available in market | | |
| 3.4 Definition of Composite containers and its application. Types of composite containers and their manufacturing process. | | |
| **Unit IV Board construction** | | |
| 4.1 Definition and types of CFB's | 0.75 | 12 |
| 4.2 Board construction – Liners and Flutes | | |
| 4.3 Manufacturing Joints, Coatings, Design and flute selection, Manufacturing process with diagrams | | |
| 4.4 Advantages and limitations | | |

| **D1) Text Books for Reading** | |
|---|---|
| **1.** | Modern Food Packaging – By Indian Institute of Packaging |
| **2.** | H.P. Garg, "Industrial Maintenance", S. Chand & Company Ltd., 1990. |
| **D2) Books for Reference** | |
| **1.** | [R1] Modern Food Packaging – By Indian Institute of Packaging |
| **2.** | [R2] Packaging Technology Educational Volume – 1 – By Indian Institute of Packaging |
| **3.** | [R3] Packaging Technology Educational Volume – 2 – By Indian Institute of Packaging 52 |
| **4.** | H.P. Garg, "Industrial Maintenance", S. Chand & Company Ltd., 1990. |

| E) Suggested methods of Teaching: | |
|---|---|
| i) | Offline / Online teaching |
| ii) | Power Point Presentation |
| iii) | Group Discussion |

| F) Course Outcomes: | | Blooms Taxonomy |
|---|---|---|
| CO1 | To studying function of Packaging. | |
| CO2 | Understanding History of paper | |
| CO3 | Understanding Definition of Composite containers and its application | |
| CO4 | To studying of Board construction – Liners and Flutes | |

| G) Scheme of Course Evaluation | | |
|---|---|---|
| **1.** | End Semester Examination (ESE) | 40 |
| **2.** | Continuous Internal Evaluation (CIE) | 10 |
| **3.** | **Total Marks** | **50** |

| H) Suggested techniques for Continuous Internal Evaluation (10 Marks) | | |
|---|---|---|
| **1.** | Home Assignment | |
| **2.** | | |
| **3.** | | |
| **4.** | | |
| **5.** | **Total Marks** | **10** |

| I) Question Paper Pattern (40 Marks) | | |
|---|---|---|
| **Q. No.** | **Nature / Type of Question** | **Marks** |
| **1.** | MCQs | 10 |
| **2.** | Short Answer | 10 |
| **3.** | Short Note | 10 |
| **4.** | Long Answer | 10 |
| **Total Marks** | | **40** |

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**Mahavir Mahavidyalaya, Kolhapur (Autonomous)**
**Affiliated to Shivaji University, Kolhapur**
**(New syllabus under Autonomy to be introduced from June, 2023 onwards)**

| **A) Primary Information:** | | | |
|---|---|---|---|
| Programme | **Bachelor of Vocation (B. Voc.) CBCS** | | |
| Part | **III** | Semester | **VI** |
| Course | **Security Printing (Th)** | Course Code | **BV A64** |
| Paper No. | **--** | Course Type | **Semester** |
| Total Marks | **50 Marks** | Implementation | **2023 - 24** |
| Total Credits | **03** | Contact Hours | **04 / Week** |
| Course Title | | | |

| **B) Course Objectives:** | |
|---|---|
| i) | To get an understanding of various security features |
| ii) | The studying materials and methods involved in Security Printing. |
| iii) | To know the appropriate Printing Techniques for different applications |
| iv) | To study about, Types of security printing inks. |

**C) Course Syllabi:**
(CR = Credits / IH: Instructional Hours)

| **Units** | **CR** | **IH** |
|---|---|---|
| **Unit I: Introduction** | 0.75 | 12 |
| 1.1 Need for Security printing – special issues, counterfeiting - Creation & Graphics, Making of a bank note, Circulation & Bank maintenance. | | |
| 1.2 RBI specifications- General security aspects of currencies- Importance of Academic and industrial security | | |
| 1.3 types of products – Suitable Printing techniques for various applications | | |
| 1.4 Fan out and controlling fan out (RPL& RPW) mechanical & electrical color register, web to web register | | |
| **Unit II Inks** | 0.75 | 12 |
| 2.1 Types of security printing inks, features - metal revealable, migrating, heat reactive, erasable, fugitive, copy-protection. | | |
| 2.2 thermal chromic, coin reactive, bleeding, pen reactive, irreversible, visible infrared, penetrating, chemical reactive | | |
| 2.3 Optically variable ink (OVI) Introduction, UV Curing, Photo chromic inks | | |
| 2.4 Monochromic Inks, Invisible, Phosphorescent inks, Water Resistant Inks. | | |

| Unit III : SECURITY SUBSTRATES | | |
|---|---|---|
| **3.1** Security Fibers, Planchettes, Fluorescent Hilites, Iridescent coating, Security threads, Holographic foil, colour centered paper | 0.75 | 12 |
| **3.2** Chemical reactive, chemically void, toner fused paper | | |
| **3.3** Visible security fibers, invisible fluorescent fibers and other security papers | | |
| **Unit IV : SECURITY PRINTING TECHNOLOGY** | | |
| **4.1** Water marking – Digital Watermark – Hologram – Uv- visible printing, rainbow printing, micro lines, guilloches, numbering, Line- printing, stamp embossing, hot-foil embossing, embossing / punching | 0.75 | 12 |
| **4.2** Designed hologram, blind red printing, solvent colors, multi color Fluorescence stitching thread, hologram foil or lamination of a page, principles of Bar coding. | | |

| D1) Text Books for Reading | |
|---|---|
| **1.** | Martin Monestics, "The Art of Paper Currency", Quarlet Books Ltd.,1983. |
| **2.** | Leibigner, "Numbering Machines & Systems", Company Leibigner Numbering Systems. |
| **D2) Books for Reference** | |
| **1.** | EIRI Board of Consultants and Engineers "Hand Book of Printing Technology" Engineers India Research Institute, New Delhi |
| **2.** | Indian Institute of Bankers (1999) "Bank Credit Card Business" Macmillan, Delhi |
| **3.** | William H.Erdei, "Barcode - Design, Printing & Quality Control", McGraw Hill Inc., 1998. |
| **4.** | R.Narayanan, "Computer Stationery &MICR – Cheque Production" Association for Research & Development in Printing, 1998. |

| E) Suggested methods of Teaching: | |
|---|---|
| i) | Offline / Online teaching |
| ii) | Power Point Presentation |
| iii) | Group Discussion |

| F) Course Outcomes: | | Blooms Taxonomy |
|---|---|---|
| CO1 | Understanding o f various security features. | |
| CO2 | Understanding o f materials and methods involved in Security Printing. | |
| CO3 | Understanding o f appropriate Printing Techniques for different applications | |
| CO4 | Understanding o f about, Types of security printing inks. | |

| G) Scheme of Course Evaluation | | |
|---|---|---|
| **1.** | End Semester Examination (ESE) | 40 |
| **2.** | Continuous Internal Evaluation (CIE) | 10 |
| **3.** | **Total Marks** | **50** |

| H) Suggested techniques for Continuous Internal Evaluation (10 Marks) | | |
|---|---|---|
| **1.** | Home Assignment | |
| **2.** | | |
| **3.** | | |
| **4.** | | |
| **5.** | **Total Marks** | **10** |

| I) Question Paper Pattern (40 Marks) | | |
|---|---|---|
| **Q. No.** | **Nature / Type of Question** | **Marks** |
| **1.** | MCQs | 10 |
| **2.** | Short Answer | 10 |
| **3.** | Short Note | 10 |
| **4.** | Long Answer | 10 |
| **Total Marks** | | **40** |

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**Mahavir Mahavidyalaya, Kolhapur (Autonomous)**
**Affiliated to Shivaji University, Kolhapur**
**(New syllabus under Autonomy to be introduced from June, 2023 onwards)**

| **A) Primary Information:** | | | |
|---|---|---|---|
| Programme | **Bachelor of Vocation (B. Voc.) CBCS** | | |
| Part | **III** | Semester | **V** |
| Course | **FLEXOGRAPHY PRINTING TECHNOLOGY (PR)** | Course Code | **BV A51 Practical** |
| Paper No. | **--** | Course Type | **Semester** |
| Total Marks | **40 Marks** | Implementation | **2023-24** |
| Total Credits | **04** | Contact Hours | **06 / Week** |
| Course Title | | | |

| **B) Course Objectives:** | |
|---|---|
| i) | To study ng of flexo machine 6 and 8 color |
| ii) | To studying modern flexo machine with inline operations |
| iii) | To studied rubber plates in flexo process. |

**C) Course Syllabi:**
(CR = Credits / IH: Instructional Hours)

| **Practical's** | **CR** | **IH** |
|---|---|---|
| **Unit I : Introduction** | 4 | 75 |
| 1. Introduction and familiarizing flexo machine and other related elements. | | |
| 2. Preparation of rubber plates. I. Liquid photo polymerplates, ii.sheet photo polymer plates. | | |
| 3. Registering and plate mounting on flexo plate cylinder. | | |
| 4. Make ready procedures a flexo machine and modern flexo machines with inline operations. | | |
| 5. Demonstration of 6 color and 8 color flexo machines | | |

| D) Reference Materials | |
|---|---|
| **D1) Text Books for Reading** | |
| **1.** | "Flexography : Principles & Practices", 5th Edition, FTA, 2000. |
| **2.** | "FIRST: Flexographic Image Reproduction Specifications & Tolerances", 3rd Edition |
| **D2) Books for Reference** | |
| **1.** | Frederick R.Boyle, "The Flexo Environment", Foundation of Flexographic Technical Association, 2002. |
| **2.** | Anthony White, "High Quality Flexography", Pira reviews of Printing, Pira International,1992. |
| **3.** | Donna C.Mulvihill, "Flexography Primer", GATF Press, 1991. |
| **4.** | Helmut Kiphhan, "Handbook of Print Media", Springer Verlag, 2001 |

| E) Suggested methods of Teaching: | |
|---|---|
| i) | Offline / Online teaching |
| ii) | Power Point Presentation |
| iii) | Group Discussion |

| F) Course Outcomes: | | Blooms Taxonomy |
|---|---|---|
| CO1 | To Understood of flexo machine 6 and 8 color | |
| CO2 | To Understood modern flexo machine with inline operations | |
| CO3 | To stuying rubber plates in flexo process. | |

| I) Question Paper Pattern (40 Marks) | | |
|---|---|---|
| **Q. No.** | **Nature / Type of Question** | **Marks** |
| **1.** | Practical | 25 |
| **2.** | Submission Practical record book | 10 |
| **3.** | Viva voce | 15 |
| **Total Marks** | | **50** |

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**Mahavir Mahavidyalaya, Kolhapur (Autonomous)**
**Affiliated to Shivaji University, Kolhapur**
**(New syllabus under Autonomy to be introduced from June, 2023 onwards)**

| **A) Primary Information:** | | | |
|---|---|---|---|
| Programme | **Bachelor of Vocation (B. Voc.) CBCS** | | |
| Part | **III** | Semester | **V** |
| Course | **GRAVURE PRINTING (Pr)** | Course Code | **BV A52 Practical** |
| Paper No. | **--** | Course Type | **Semester** |
| Total Marks | **50 Marks** | Implementation | **2022 - 23** |
| Total Credits | **04** | Contact Hours | **06 / Week** |
| Course Title | | | |

| **B) Course Objectives:** | |
|---|---|
| i) | To study about various gravure M/C and there components. |
| ii) | To Understading feeding unit of various types of gravure machine. |
| iii) | To study about cylinder setting in gravure process. |

**C) Course Syllabi:**
(CR = Credits / IH: Instructional Hours)

| **Practical** | **CR** | **IH** |
|---|---|---|
| 1. Study of various Gravure printing machine and there components configurations. | 4 | 75 |
| 2. Pre-make ready in Gravure Printing Process. | | |
| 3. Plate preparation/ Cylinder preparation. | | |
| 4. Study of feeding unit of a Sheet-fed/ Web-fed Gravure printing machine. | | |
| 5. During printing find out trouble shooting. | | |
| 6. Cylinder setting in a Gravure printing machine. | | |

**D) Reference Materials**

**D1) Text Books for Reading**


| | |
|---|---|
| **1.** | "Gravure: Process and Technology", Gravure Education Foundation, 2003 |
| **2.** | Kaj Johansson, Peter Lundberg, Robert Ruberg, "A Guide to Graphic Print Production", Wiley, 2002 |

| | D2) Books for Reference |
|---|---|
| **1.** | Harry B. Smith, "Modern Gravure Technology", Pira reviews of Printing, Pira International, 1994 |
| **2.** | Samuel B. Hoff, "Screen Printing – A Contemporary Approach", Delmar Publishers, 1997. |
| **3.** | Ingram, Samuel, "Screen Printing Primer", GATF press, 2nd Edition, 1999. |
| **4.** | William Appleton, "Screen Printing", PIRA International, 1994 |

| **E) Suggested methods of Teaching:** | |
|---|---|
| i) | Offline / Online teaching |
| ii) | Power Point Presentation |
| iii) | Group Discussion |

| **F) Course Outcomes:** | | **Blooms Taxonomy** |
|---|---|---|
| CO1 | Understood about various gravure M/C and there components. | |
| CO2 | Understood feeding unit of various types of gravure machine. | |
| CO3 | Understood cylinder setting in gravure process. | |

| **I) Question Paper Pattern (40 Marks)** | | |
|---|---|---|
| **Q. No.** | **Nature / Type of Question** | **Marks** |
| **1.** | Practical | 25 |
| **2.** | Submission Practical record book | 10 |
| **3.** | Viva voce | 15 |
| **Total Marks** | | **50** |

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**Mahavir Mahavidyalaya, Kolhapur (Autonomous)**
**Affiliated to Shivaji University, Kolhapur**
**(New syllabus under Autonomy to be introduced from June, 2023 onwards)**

| **A) Primary Information:** | | | |
|---|---|---|---|
| Programme | **Bachelor of Vocation (B. Voc.) CBCS** | | |
| Part | **III** | Semester | **V** |
| Course | PRINT PUBLISHING (Pr) | Course Code | **BV A53 Practical** |
| Paper No. | **--** | Course Type | **Semester** |
| Total Marks | **50 Marks** | Implementation | **2023-24** |
| Total Credits | **04** | Contact Hours | **06 / Week** |
| Course Title | | | |

| **B) Course Objectives:** | |
|---|---|
| i) | To study about publishing of printing concepts in form of books. |
| ii) | To study books and journal how publishing. |
| iii) | Understading the how to publish newsletter for institute. |

**C) Course Syllabi:**
(CR = Credits / IH: Instructional Hours)

| **Practical's** | **CR** | **IH** |
|---|---|---|
| 1. Publishing of a newsletter for institute | 4 | 75 |
| 2. Publishing of a Books and Journal (Small) | | |
| 3. Editing of books, journals and newsletters | | |
| 4. Studying the print on demand for book publishing. | | |

| D) Reference Materials | |
|---|---|
| **D1) Text Books for Reading** | |
| **1.** | "Gravure: Process and Technology", Gravure Education Foundation, 2003 |
| **2.** | Kaj Johansson, Peter Lundberg, Robert Ruberg, "A Guide to Graphic Print Production", |
| **D2) Books for Reference** | |
| **1.** | Harry B. Smith, "Modern Gravure Technology", Pira reviews of Printing, Pira International, 1994 |
| **2.** | Samuel B. Hoff, "Screen Printing – A Contemporary Approach", Delmar Publishers, 1997. |
| **3.** | Ingram, Samuel, "Screen Printing Primer", GATF press, 2nd Edition, 1999. |

| E) Suggested methods of Teaching: | |
|---|---|
| i) | Offline / Online teaching |
| ii) | Power Point Presentation |
| iii) | Group Discussion |

| F) Course Outcomes: | | Blooms Taxonomy |
|---|---|---|
| CO1 | To studying publishing of printing concepts in form of books. | |
| CO2 | To studying books and journal publishing. | |
| CO3 | To Understading the publish newsletter for institute. | |

| I) Question Paper Pattern (40 Marks) | | |
|---|---|---|
| **Q. No.** | **Nature / Type of Question** | **Marks** |
| **1.** | Practical | 25 |
| **2.** | Submission Practical record book | 10 |
| **3.** | Viva voce | 15 |
| **Total Marks** | | **50** |

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**Mahavir Mahavidyalaya, Kolhapur (Autonomous)**
**Affiliated to Shivaji University, Kolhapur**
**(New syllabus under Autonomy to be introduced from June, 2023 onwards)**

| **A) Primary Information:** | | | |
|---|---|---|---|
| Programme | **Bachelor of Vocation (B. Voc.) CBCS** | | |
| Part | **III** | Semester | **VI** |
| Course | **ELECTRONIC COLOUR SEPARATION TECHNIQUES (Pr)** | Course Code | **BV A62 Practical** |
| Paper No. | **--** | Course Type | **Semester** |
| Total Marks | **50 Marks** | Implementation | **2023-24** |
| Total Credits | **04** | Contact Hours | **06 / Week** |
| Course Title | | | |

| **B) Course Objectives:** | |
|---|---|
| i) | To Study about half tone negative using process |
| ii) | Draw the Gray scale images to help spectro densitometer. |
| iii) | Understanding the color separation negative using the ECS |
| iv) | To study of various Software used in ECS. |

**C) Course Syllabi:**
(CR = Credits / IH: Instructional Hours)

| **Practical** | **CR** | **IH** |
|---|---|---|
| 1.To demonstrate spectrophotometercurve by using Spectro densitometer | | |
| 2. How to make colour separation negative of a four colored original by using Electronic colour separation system. | | |
| 3. Software for colour separation Photoshop, CorelDraw. | | |
| 4. Use of different Quality Control Aids. New developments in Electronic Imposition & DTP etc | | |

| D) Reference Materials | |
|---|---|
| **D1) Text Books for Reading** | |
| **1.** | Fundamentals of Electronic Imaging Systems: Some Aspects of Image Processing William F. Schreiber |
| **D2) Books for Reference** | |
| **1.** | Dr. R.W.G. Hont :- The reproduction of colour. Fountain Press, 4th edition. |
| **2.** | Miles Southworth & Donna Southworth :- Colour Reproduction. Graphic Arts Publishing, 3.1 edition. |
| **3.** | Gary G. Field :- Tone & Colour correction (GATF). |

| E) Suggested methods of Teaching: | |
|---|---|
| i) | Offline / Online teaching |
| ii) | Power Point Presentation |
| iii) | Group Discussion |
| iv) | |

| F) Course Outcomes: | | Blooms Taxonomy |
|---|---|---|
| CO1 | To Studying about half tone negative using process | |
| CO2 | Drawing the Gray scale images to help spectro densitometer. | |
| CO3 | To Understand the color separation negative using the ECS | |

| I) Question Paper Pattern (40 Marks) | | |
|---|---|---|
| **Q. No.** | **Nature / Type of Question** | **Marks** |
| **1.** | Practical | 25 |
| **2.** | Submission Practical record book | 10 |
| **3.** | Viva voce | 15 |
| **Total Marks** | | **50** |

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**Mahavir Mahavidyalaya, Kolhapur (Autonomous)**
**Affiliated to Shivaji University, Kolhapur**
**(New syllabus under Autonomy to be introduced from June, 2023 onwards)**

| **A) Primary Information:** | | | |
|---|---|---|---|
| Programme | **Bachelor of Vocation (B. Voc.) CBCS** | | |
| Part | **III** | Semester | **VI** |
| Course | **PACKAGING TECHNOLOGY (Pr)** | Course Code | **BV A63 Practical** |
| Paper No. | **--** | Course Type | **Semester** |
| Total Marks | **50 Marks** | Implementation | **2022 - 23** |
| Total Credits | **04** | Contact Hours | **06 / Week** |
| Course Title | | | |

| **B) Course Objectives:** | |
|---|---|
| i) | To Study of Bulk density of paper |
| ii) | To Study about packaging moisture, tensile, bursting and folding. |
| iii) | To study Stiffness |

**C) Course Syllabi:**
(CR = Credits / IH: Instructional Hours)

| **Practical** | **CR** | **IH** |
|---|---|---|
| 1. To demonstration Thickness of paper. | 4 | 75 |
| 2. To demonstration Bulk density of paper. | | |
| 3. To demonstration Stiffness. | | |
| 4. To demonstration Moisture content. | | |
| 5. To demonstration Tensile Strength all plastic or papers. | | |
| 6. To demonstration Dye making Process. | | |
| 7. To demonstration Tearing, Bursting Strength resistance all plastic or papers. | | |
| 8. To demonstration of compression of given box. | | |

| D) Reference Materials | |
|---|---|
| **D1) Text Books for Reading** | |
| **1.** | Modern Food Packaging – By Indian Institute of Packaging |
| **2.** | [R2] Packaging Technology Educational Volume – 1 – By Indian Institute of Packaging |
| **3.** | [R3] Packaging Technology Educational Volume – 2 – By Indian Institute of Packaging 52 |

**D2) Books for Reference**

| | |
|---|---|
| **1.** | Hand book of printing packaging and laminations |

| E) Suggested methods of Teaching: | |
|---|---|
| i) | Offline / Online teaching |
| ii) | Power Point Presentation |
| iii) | Group Discussion |

| F) Course Outcomes: | | Blooms Taxonomy |
|---|---|---|
| CO1 | To Study of Bulk density of paper | |
| CO2 | To Study about packaging moisture, tensile, bursting and folding. | |
| CO3 | To study Stiffness | |

| I) Question Paper Pattern (40 Marks) | | |
|---|---|---|
| **Q. No.** | **Nature / Type of Question** | **Marks** |
| **1.** | Practical | 25 |
| **2.** | Submission Practical record book | 10 |
| **3.** | Viva voce | 15 |
| **Total Marks** | | **50** |

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**Mahavir Mahavidyalaya, Kolhapur (Autonomous)**
**Affiliated to Shivaji University, Kolhapur**
**(New syllabus under Autonomy to be introduced from June, 2023 onwards)**

| **A) Primary Information:** | | | |
|---|---|---|---|
| Programme | **Bachelor of Vocation (B. Voc.) CBCS** | | |
| Part | **III** | Semester | **VI** |
| Course | **SECURITY PRINTING (Pr)** | Course Code | **BV A64 Practical** |
| Paper No. | **--** | Course Type | **Semester** |
| Total Marks | **50 Marks** | Implementation | **2023-24** |
| Total Credits | **04** | Contact Hours | **06 / Week** |
| Course Title | | | |

| **B) Course Objectives:** | |
|---|---|
| i) | To Study Ink used in security printing |
| ii) | To study Barcode scanning, security thread, hologram and micrometer. |
| iii) | To study about numbering anticopying marks and MICR |

**C) Course Syllabi:**
(CR = Credits / IH: Instructional Hours)

| **Practical** | **CR** | **IH** |
|---|---|---|
| 1. To study inks used in security Printing | 4 | 75 |
| 2. To study substrates used in security Printing. | | |
| 3. Study about Barcode scanning, security thread, holograms and micro printing | | |
| 4. Study about serial numbering anticopying marks copy evident and MICR cheques | | |
| 5. Study about RFID device | | |
| 6. Identify minimum three security features in given security documents. | | |
| 7. investigate minimum three security features embedded. In education marksheet. | | |

**D) Reference Materials**

| D1) Text Books for Reading | |
|---|---|
| **1.** | Martin Monestics, "The Art of Paper Currency", Quarlet Books Ltd.,1983. |
| **2.** | Leibigner, "Numbering Machines & Systems", Company Leibigner Numbering Systems. |

| D2) Books for Reference | |
|---|---|
| **1.** | EIRI Board of Consultants and Engineers "Hand Book of Printing Technology" Engineers India Research Institute, New Delhi |
| **2.** | Indian Institute of Bankers (1999) "Bank Credit Card Business" Macmillan, Delhi |
| **3.** | William H.Erdei, "Barcode - Design, Printing & Quality Control", McGraw Hill Inc., 1998. |
| **4.** | R.Narayanan, "Computer Stationery &MICR – Cheque Production" Association for |

| E) Suggested methods of Teaching: | |
|---|---|
| i) | Offline / Online teaching |
| ii) | Power Point Presentation |
| iii) | Group Discussion |

| F) Course Outcomes: | | Blooms Taxonomy |
|---|---|---|
| CO1 | To Study Ink used in security printing | |
| CO2 | To study Barcode scanning, security thread, hologram and micrometer. | |
| CO | To study about numbering anticopying marks and MICR | |

| I) Question Paper Pattern (40 Marks) | | |
|---|---|---|
| **Q. No.** | **Nature / Type of Question** | **Marks** |
| **1.** | Practical | 25 |
| **2.** | Submission Practical record book | 10 |
| **3.** | Viva voce | 15 |
| **Total Marks** | | **50** |

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