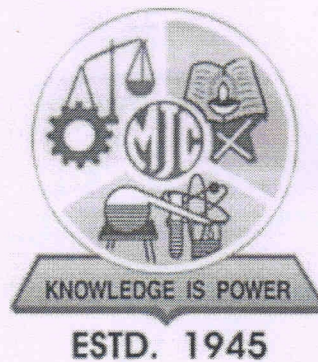


Annexure: I

**Khandesh College Education Society's
Moolji Jaitha College, Jalgaon**

**An "Autonomous College" Affiliated to
KBC North Maharashtra University, Jalgaon**



SYLLABUS

Printing Technology

**T.Y.B. Voc.
(Semester V & VI)**

[w. e. f. Academic Year: 2021-22]

(T)haudhani
HOD
B Voc (PT)

T.Y.B.Voc. (Printing Technology)

Program Specific Outcomes (PSO)

- This program enables students to attain, by the graduation
 - Operate and troubleshoot offset, screen, web offset, gravure and flexographic printing machines
 - Perform prepress and post press operations
 - Co-ordinate and manage the overall printing process
 - Ability perform activities with the help of soft skills, computer skills, financial skills and management skills

Learning Objectives

- To impart the printing technology skills to the student.
- To make student ready for the job.
- To prepare student with life skills that are required to perform any job.
- To develop practical skills with a sound theoretical background

Exam Pattern

- Each theory and practical course will be of 100 marks comprising of 60 marks external and 40 marks internal examination.

External Theory Examination (60 marks)

- External examination will be of two hours duration for each theory course. There shall be 4 questions each carrying equal marks (15 marks each) while the tentative pattern of question papers shall be as follows;
 - Q1 (A) will be MCQ type question for 5 marks (attempt any 5 out of 7 questions).
 - Q1 (B) will be one line questions for 5 marks (attempt any 5 out of 7 questions).
 - Q2 (A) will be for 12 marks (attempt any 6 out of 8 questions).
 - Q2 (B) is compulsory question for 3 marks.
 - Q3 will be of 15 marks (attempt any 5 out of 7 questions).
 - Q4 will be of 15 marks (attempt any 3 out of 5 questions).

External Practical Examination (60 marks):

- Practical examination shall be conducted by the respective department at the end of the semester. Practical examination will be of minimum 3 hours duration and shall be conducted as per schedule. There shall be 10 marks for *viva-voce*. Certified journal is compulsory to appear for practical examination.

Internal Theory/ Practical Examination (40 marks):

- Internal theory assessment of the student by respective teacher will be comprehensive and continuous, based on written test/ assignment. The written test may comprise of both objective and subjective type questions.
- Internal practical examination should be conducted by respective department as per schedule given. For internal practical examination student should have completed journal. There shall be 10 marks for journal.

T.Y.B.Voc. (Printing Technology) NSQF Level VII
(w.e.f. - June 2021)

T. Y. B. Voc. - Printing Technology (NSQF Level VII)					
Semester V					
General Education Component					
Paper No.	Paper Code	Paper Title	Mode	Credits	Marks
1	PT-511	Soft Skill Development - IV	Theory	02	100
2	PT-512	Entrepreneurial Development	Theory	02	100
3	PT-513	Soft Skill Development Lab - IV	Practical	04	100
4	PT-514	Office Operations Lab - III	Practical	04	100
Total				12	400
Skill Development Component					
5	PT-521	Flexography Printing	Theory	02	100
6	PT-522	Gravure Printing	Theory	02	100
7	PT-523	Quality Management in Printing	Theory	02	100
8	PT-524	Mini Project	Practical	04	100
9	PT-525	Flexographic and Gravure Workshop	Practical	04	100
10	PT-526	Machine Maintenance Workshop	Practical	04	100
Total				18	600
Total Credits = General Education Component + Skill Development Component					12+18=30
Job Roles: Printing Quality Control Operator					
Semester VI					
General Education Component					
Paper No.	Paper Code	Paper Title	Mode	Credits	Marks
1	PT-611	Basics of Marketing	Theory	02	100
2	PT-612	Financial Literacy - III	Theory	02	100
3	PT-613	Marketing Lab	Practical	04	100
4	PT-614	Financial Literacy Lab - III	Practical	04	100
Total				12	400
Skill Development Component					
4	PT-621	Packaging Technology	Theory	02	100
5	PT-622	Advanced Printing Technology	Theory	02	100
6	PT-623	Print Production Management	Theory	02	100
7	PT-624	Industrial Training	Practical	12	300
Total				18	600
Total Credits = General Education Component + Skill Development Component					12+18=30
Job Roles: Offset Press Supervisor					

T.Y.B.Voc. (Printing Technology): Semester-V
PT-511: Soft Skill Development - IV

Total Hours: 30

Credits: 02

Course objectives:

- To know about leadership and team building
- To learn motivation and related concepts
- To study various conflict management techniques

Course outcomes:

Student will be able to

- Describe the leadership concept and its role in corporate world
- Elaborate about team building and motivation
- Explain about conflict management

Detailing of syllabus -

Unit 1 - Leadership

Hours: 10

- 1.1 Leadership: Concept, characteristics Importance and styles
- 1.2 Role of Leader, Qualities of a Leader
- 1.3 Leadership and Management, Leader versus Manager
- 1.4 Leadership Ethics

Unit 2 - Team Building

Hours: 10

- 2.1 Team: concept, types; characteristics of an effective team
- 2.2 Team work: concept, advantages and disadvantages
- 2.3 Team Building: concept, stages, exercises and importance; Building an Effective Team
- 2.4 Team Management, Effective Team Management Skills

Unit 3 - Motivation

Hours: 06

- 3.1 Motivation: concept, types - internal and external and Importance
- 3.2 Motivating factors and Demotivating factors
- 3.3 Motivation Incentives
- 3.4 Self Motivation at Work

Unit 4 - Conflict Management

Hours: 04

- 4.1 Conflict: concept, types - intra-personal, inter-personal, intra-group and inter-group and phases
- 4.2 Conflict at Workplace, Preventing Conflict
- 4.3 Conflict Management: concept and importance, conflict management skills

Recommended Books:

- Effective Communication and Soft Skills by Nitin Bhatnagar, Pearson Education India
- Personality Development and Soft skills by Barun K. Mitra, Oxford University Press
- Soft Skills: All about Soft Skills by Dr.Krishna Suresh

- Soft Skills Personality Development for Life Success by Prashant Sharma, BPB Publications; Second edition (2019)
- Soft Skills by Alex K, S Chand & Company (2014)

Teaching methods:

- Classroom teaching, Lecture method, ICT enabled teaching

T.Y.B.Voc. (Printing Technology): Semester-V
PT-512: Entrepreneurial Development

Total Hours: 30

Credits: 02

Course objectives:

- To know about entrepreneurship
- To study entrepreneurship journey

Course outcomes:

Student will be able to

- Understand the concept of entrepreneurship
- Explain terms related to entrepreneurship
- Describe entrepreneurship journey

Detailing of syllabus -

Unit 1- Entrepreneurship

Hours: 06

- 1.1 Entrepreneurship: concept, functions, need and importance
- 1.2 Myths about Entrepreneurship
- 1.3 Pros and Cons of Entrepreneurship
- 1.4 Process of Entrepreneurship

Unit 2 - Entrepreneur

Hours: 06

- 2.1 Entrepreneur: concept, types
- 2.2 Competencies and Characteristics; Ethical Entrepreneurship
- 2.3 Entrepreneurial Value: Values, Attitudes and Motivation
- 2.4 Mindset of an Employee and an Entrepreneur
- 2.5 Intrapreneur: Importance in Any Organization

Unit 3 - Entrepreneurship Journey

Hours: 08

- 3.1 Self Assessment of Qualities, Skills, Resources and Dreams
- 3.2 Generation of Ideas
- 3.3 Feasibility Study
- 3.4 Opportunity Assessment
- 3.5 Business Plan Preparation
- 3.6 Execution of Business Plan
- 3.7 Role of Society and Family in the growth of an entrepreneur.
- 3.8 Challenges faced by women in Entrepreneurship

Unit 4 - Entrepreneurship as Innovation and Problem Solving

Hours: 10

- 4.1 Entrepreneurs: as problem solvers
- 4.2 Innovations and Entrepreneurial Ventures
- 4.3 Social Entrepreneurship: Concept and Importance
- 4.4 Risk taking: Concept; types of business risks

T.Y.B.Voc. [Printing Technology] syllabus, 2021-22, Moolji Jaitha College (Autonomous), Jalgaon

(T)haudhan
Ho D
BVoc(PT)

4.5 The role of technology/social media in creating new forms of firms, organizations, networks and cooperative clusters

4.6 Barriers to Entrepreneurship

4.7 Support structure for promoting entrepreneurship (various government schemes)

Recommended Books:

- Entrepreneurship - Class XI- C.B.S.E, Delhi
- Everyday Entrepreneurs - The harbingers of Prosperity and creators of Jobs - Dr. Aruna Bhargava
- Entrepreneurial Development by S S Khanka, S. Chand Publication
- Entrepreneurship by Sanjay Gupta, Jay Bansal, SBPD Publications

Teaching methods:

- Classroom teaching, Lecture method, ICT enabled teaching

T.Y.B.Voc. (Printing Technology): Semester-V
PT-513: Soft Skill Development Lab - IV

Total Hours: 120

Credits: 04

Course objectives:

- To know himself/herself
- To learn concept of SWOT
- To make ready the student for interview

Course outcomes:

Student will be able to

- Do self analysis
- Perform SWOT analysis
- Face interview process

Practical No.	Name of Practical	No. of Hours
01	Below are the goals of some smart kids like you. Now your task is to plan a SMART goal for each one of them so that they can achieve their goals: 1) Name: Mitesh Jain; Age: 15 years; School: Modern Public School; Passion: Play football; Dream: Wants to buy a football. SMART goal:? 2) Name: Ankita Singh; Age: 14 years; School: Laxmibai Public School; Passion: Learn business studies; Dream: Start a business. SMART goal:?	4
02	Discuss your lifetime goal you want to set (e.g. Career, Financial, Physical and Pleasure).	12
03	Find out your strengths and weaknesses. Discuss the action plan to overcome your weaknesses.	12
04	Discuss the SWOT analysis of printing industry.	12
05	Weigh positives and negatives to take decision for buying car, computer and TV.	12
06	Draw 24 squares to list one or two words that describe the activities that you do for 24 hours. Examples: Sleep, getting ready, study, exercise, time pass, etc. • Colour those that involve family as you use your time Yellow. • Colour those that involve exercise in Green. • Colour those that involve study in Blue. • Colour those that involve others giving away your time in Red.	20
07	Discuss case study of leadership.	24
08	Learning to face interview.	24

Recommended Books:

- Effective Communication and Soft Skills by Nitin Bhatnagar, Pearson Education India

- Personality Development and Soft skills by Barun K. Mitra, Oxford University Press
- Soft Skills: All about Soft Skills by Dr.Krishna Suresh
- Soft Skills Personality Development for Life Success by Prashant Sharma, BPB Publications; Second edition (2019)
- Soft Skills by Alex K, S Chand & Company (2014)

Teaching methods:

- Laboratory method, Lecture cum demonstration methods

T.Y.B.Voc. (Printing Technology): Semester-V

PT-514: Office Operations Lab - III

Total Hours: 120

Credits: 04

Course objectives:

- To study advanced concepts of word processing
- To know about formulae handling
- To perform slide animations

Course outcomes:

Student will be able to

- Perform advanced word processing operations like link and equation insertion.
- Use of various formulae in spreadsheet software
- Prepare presentation with animation

Practical No.	Name of Practical	No. of Hours
01	Insert links in word processing software	04
02	Insert equations in word processing software	04
03	Proof the document and Insert comments in word processing software	04
04	Track changes in word processing software	04
05	Insert Object in word processing and spreadsheet software	12
06	Use comparison operators (=, <, >, <=, >=, <>) in spreadsheet software	12
07	Use mathematical functions in spreadsheet software	12
08	Use statistical functions (count, countif, max, min, average, median, mode) in spreadsheet software	12
09	Use logical functions (if, AND, OR) in spreadsheet software	04
10	Use lookup and reference functions (VLOOKUP, HLOOKUP, MATCH, INDEX) in spreadsheet software	04
11	Use financial functions (Compound interest, EMI, CAGR, XIRR, FV) in spreadsheet software	12
12	Apply the custom animation to the text and image by using presentation software	12
13	Apply the custom animation to the chart by using presentation software	12
14	Set up slide show by using presentation software	12

Recommended Books:

- MS-CIT Study Material Book
- Microsoft Office Word 2007 Plain & Simple by Jerry Joyce & Marianne Moon

- MS-Office by S. S. Shrivastava, Firewall Media, 2008
- Learning MS Office 2007 by Ramesh Bangia, Khanna
- MS Office 2007 in A Nutshell by Saxena Sanjay, Vikas Publishing House

Teaching methods:

- Laboratory method, Lecture cum demonstration methods

T.Y.B.Voc. (Printing Technology): Semester-V
PT-521: Flexography Printing

Total Hours: 30

Credits: 02

Course objectives:

- To understand concept of flexography printing
- To learn flexographic printing plates
- To understand quality control in flexography

Course outcomes:

Student will be able to

- Describe flexography printing process
- Explain flexographic printing plates
- Elaborate quality control and maintenance of flexography machines

Detailing of syllabus -

Unit 1 - Flexography printing

Hours: 04

- 1.1 Flexography printing: overview, types - stack press, central impression cylinder press, inline press
- 1.2 Flexographic substrates: concept, type - absorbent and non-absorbent substrate, properties
- 1.3 Flexographic inks: concept, classification, properties - surface and optical

Unit 2 - Flexographic printing plates

Hours: 08

- 2.1 Flexography printing plates: concept, characteristics, types - molded plate, polymer plate (sheet and liquid plate) and flexo CTP
- 2.2 Flexographic plate - making process
- 2.3 Care handling and storage of flexography plates

Unit 3 - Mounting and proofing

Hours: 04

- 3.1 Mounting: introduction, types - double sided tap, magnetic, sleeve, pin register system
- 3.2 Plate mounting and proofing machines

Unit 4 - Flexographic printing press

Hours: 08

- 4.1 Mechanical principles of flexography: Fountain roll, Anilox roll, plate cylinder, impression cylinder
- 4.2 Anilox Rolls: Construction and Types of based on roller surfaces – Laser engraved ceramic anilox rolls and Conventional or mechanically engraved chrome anilox rolls
- 4.3 Flexography Inking Systems, Types of Flexography Inking systems
- 4.4 Concept of reverse angle doctor blade system

Unit 5 - Maintenance and Quality Control

Hours: 06

- 5.1 Quality control at press side - web inspection: stroboscope, mirror drum, TV print scanner, static control and film steaters
- 5.2 Troubleshooting during press run
- 5.3 Wastage control and management

T.Y.B.Voc. [Printing Technology] syllabus, 2021-22, Moolji Jaitha College (Autonomous), Jalgaon

Page 12 of 36

(T)haudhari
HOD
(B.Voc PT)

Recommended Books:

- Handbook of Print Media: Technologies and Production Methods by Helmut Kipphan, Springer
- The Complete Book On Printing Technology by NIIR Board, APBP Publication
- Hand Book of Printing Technology by EIRI Board, EiRi Publication
- Hand Book of Offset Printing Technology by EIRI Board, EiRi Publication
- The Essential Handbook for Flexography & Packaging Printing by Whitmar Publications, 2014

Teaching methods:

- Classroom teaching, Lecture method, ICT enabled teaching

T.Y.B.Voc. (Printing Technology): Semester-V
PT-522: Gravure Printing

Total Hours: 30

Credits: 02

Course objectives:

- To know basic concept of gravure printing
- To study gravure printing process
- To understand inking system of inking system

Course outcomes:

Student will be able to

- Explain basic concept of gravure printing
- Learn design and printing process of gravure printing
- Explain inking system of gravure printing

Detailing of syllabus -

Unit 1 - Introduction

Hours: 04

- 1.1 Gravure printing: Overview and History
- 1.2 Publication Gravure

Unit 2 - Surface Preparation for Gravure

Hours: 04

- 2.1 Basic Gravure Machine Design & Gravure printing process
- 2.2 Basic Methods of Gravure Image Production: Chemical Etching, Electronic Engraving and Laser Engraving
- 2.3 Comparison between Etching and Engraving

Unit 3 - Gravure Press Mechanism

Hours: 06

- 3.1 Cylinder base, Balancing the cylinder, cylinder Imbalance - static and dynamic
- 3.2 Gravure cylinder: Sleeve & integral shafting
- 3.3 Copper Base technique, Ballard Shell method
- 3.4 Functions of Copper, Chrome and Zinc in Variables Plating Process

Unit 4 - Inking and Drying System

Hours: 08

- 4.1 Inking system: concept, types, viscosity control, effect of viscosity on gravure print quality
- 4.2 Doctor Blade: Purpose, types, Doctor Blade assembly, doctor blade problems
- 4.3 Dryers: Concept, types, efficiency of dryers

Unit 5 - Impression Roller Mechanism

Hours: 08

- 5.1 Gravure Impression Roller: Function, Specifications for impression rollers
- 5.2 Impression mechanisms: Roller pressure, Balance - static & dynamic
- 5.3 Storage & Handling, Impression roller problems

Recommended Books:

- Handbook of Print Media: Technologies and Production Methods by Helmut Kipphan, Springer
- The Complete Book on Printing Technology by NIIR Board, APBP Publication
- Hand Book of Printing Technology by EIRI Board, EiRi Publication
- Hand Book of Offset Printing Technology by EIRI Board, EiRi Publication

Teaching methods:

- Classroom teaching, Lecture method, ICT enabled teaching

T.Y.B.Voc. (Printing Technology): Semester-V
PT-523: Quality Management in Printing

Total Hours: 30

Credits: 02

Course objectives:

- To know about quality control in printing
- To study quality control of instruments
- To learn ISO standards

Course outcomes:

Student will be able to

- Understand role of quality control in printing
- Learn material inspection and testing
- Explain quality control of instruments
- Understand the ISO standards

Detailing of syllabus -

Unit 1 - Introduction

Hours: 06

- 1.1 Quality control: definition and concept
- 1.2 Quality management: basic elements and function
- 1.3 Ink film thickness, solid ink density, dot gain, print contrast, hue error, grayness, ink trapping
- 1.4 Statistical quality control, quality circle

Unit 2 - Material Inspection and Testing

Hours: 08

- 2.1 Storage and Handling of Substrates and Chemicals, maintenance of data sheets of materials
- 2.2 Testing procedures for Paper and board
- 2.3 Dampening solution testing methods
- 2.4 Ink testing methods

Unit 3 - Process Control

Hours: 06

- 3.1 Quality control Process, Quality control targets
- 3.2 Quality control in pre-press, press and post-press
- 3.3 Colour Control patches, Wastage Management and Process control charts

Unit 4 - Instruments in quality control

Hours: 06

- 4.1 Principle of Densitometer
- 4.2 Principle of Spectrophotometer
- 4.3 Colour and colour difference measurement
- 4.4 Analysis of Print Attributes: Solid Ink Density (SID), Dot Gain, Print contrast, Ink Trapping and Dot Area

Unit 5 - Implementation of ISO for Print Quality

Hours: 04

5.1 ISO standards: Introduction, Benefits

5.2 Customer Satisfaction for print industry

5.3 Implementation of ISO for Print Quality

Recommended Books:

- The Printing Ink Manual by Robert Leach, Ray Pierce, Springer
- Handbook of Print Media: Technologies and Production Methods by Helmut Kipphan, Springer
- The Complete Book on Printing Technology by NIIR Board, APBP Publication
- Hand Book of Printing Technology by EIRI Board, EiRi Publication

Teaching methods:

- Classroom teaching, Lecture method, ICT enabled teaching

T.Y.B.Voc. (Printing Technology): Semester-V
PT-524: Mini Project

Total Hours: 120

Credits: 04

Course objectives:

- To provide real life experience

Course outcomes:

Student will be able to

- Student will understand the whole printing process and able to handle the problems.

Mini Project Guidelines

- Student has to work 120 Hrs at printing workshop training
- Student has to perform the assignment independently given by guide.
- Student has to follow the rules and regulations at printing workshop.
- Student must maintain a diary to record daily activities during the assignment.
- Student has to submit a detailed report on the assignment in **two copies** which shall be used for evaluation.
- Student has to submit the finished product of the assignments. **If student does not submit the finished product then the report of student will not be evaluated.**
- Mini Project will be evaluated on the basis of the student's attendance, assignment report, project/seminar presentation and viva-voce.

Mini Project Evaluation

Evaluation Type	Assessment Type	Marks
Internal Evaluation	Attendance	05
	Report	10
	Presentation	15
	Viva Voce	10
	Total	40
External Evaluation	Attendance	05
	Report	15
	Presentation	30
	Viva Voce	10
	Total	60
	Grand Total	100

T.Y.B.Voc. (Printing Technology): Semester-V
PT-525: Flexographic and Gravure Workshop

Total Hours: 120

Credits: 04

Course objectives:

- To understand material and tools required in flexography and gravure printing
- To learn flexography and gravure printing

Course outcomes:

Student will be able to

- Identify the material and tools required in flexography and gravure printing
- Perform make ready operation for flexography and gravure printing
- Print on various substrates using flexography and gravure printing

Practical No.	Name of Practical	No. of Hours
Flexographic Printing		
01	Study of tools, materials and equipments of flexography printing	04
02	Make ready procedures for a flexography printing machine	08
03	Study of liquid & sheet polymer plates	04
04	Preparation of rubber plates	04
05	Study of registering and plate mounting on flexography plate cylinder	08
06	Study 6 colour and 8 colour flexography machine	08
07	Printing on various substrates - LDPE, HPDE, Paper and Aluminium foil	16
Gravure Printing		
08	Study of tools, material and equipments of gravure printing	04
09	Study of various components of a gravure printing machine	08
10	Study of gravure cylinder preparation methods	08
11	Pre-make and make ready in gravure printing process	08
12	Study of feeding unit of gravure printing process	08
13	Study the cylinder setting in gravure printing process	08
14	Printing on single colour and multi-colour on different Substrate	16
15	Check the practical problem in gravure printing	08

Recommended Books:

- Handbook of Print Media: Technologies and Production Methods by Helmut Kipphan, Springer
- The Complete Book on Printing Technology by NIIR Board, APBP Publication

T.Y.B.Voc. [Printing Technology] syllabus, 2021-22, Moolji Jaitha College (Autonomous), Jalgaon

(T)haudhan'
HOD
BVoc (PT)

- Hand Book of Printing Technology by EIRI Board, EiRi Publication
- Hand Book of Offset Printing Technology by EIRI Board, EiRi Publication
- The Essential Handbook for Flexography & Packaging Printing by Whitmar Publications, 2014

Teaching methods:

- Laboratory method, Lecture cum demonstration methods

T.Y.B.Voc. (Printing Technology): Semester-V
PT-526: Machine Maintenance Workshop

Total Hours: 120

Credits: 04

Course objectives:

- To understand various faults in offset machines
- To learn preventive maintenance schedules
- To study safety measures in offset printing

Course outcomes:

Student will be able to

- Explain various system of offset printing
- Identify and resolve faults
- Perform preventive maintenance
- Explain safety measures in offset printing

Practical No.	Name of Practical	No. of Hours
01	Study of following printing machine mechanical parts and its types (Gears, Belt drive, chain drive, Couplings, Bearings, Levers and Cams)	08
02	Study of Hydraulic & pneumatic pressure systems	08
03	Study of motors: Stepper motor, D. C. Motors, A.C. motors, speed control & synchronize - electrical, mechanical	12
04	Study of common faults and their remedies, Maintenance fault finding techniques, electrical fault finding techniques	16
05	Study of Preventive maintenance schedules	16
06	Study of breakdown maintenance handling- day to day	16
07	Study of requirement of preventive maintenance and productivity gain by preventive maintenance	16
08	Study of different safety codes according to national & international standards	12
09	Study of specification of lubricating oils, greases	16

Recommended Books:

- Handbook of Print Media: Technologies and Production Methods by Helmut Kipphan, Springer
- The Complete Book on Printing Technology by NIIR Board, APBP Publication
- Hand Book of Printing Technology by EIRI Board, EiRi Publication
- Hand Book of Offset Printing Technology by EIRI Board, EiRi Publication

Teaching methods:

- Laboratory method, Lecture cum demonstration methods

T.Y.B.Voc. [Printing Technology] syllabus, 2021-22, Moolji Jaitha College (Autonomous), Jalgaon

(Signature)
HOD
B Voc (PT)

T.Y.B.Voc. (Printing Technology): Semester-VI

PT-611: Basics of Marketing

Total Hours: 30

Credits: 02

Course objectives:

- To understand about marketing
- To learn macro and micro marketing environment
- To understand market segmentation
- To study marketing mix

Course outcomes:

Student will be able to

- Explain basic concepts of marketing
- Describe marketing environment
- Describe market segmentation
- Explain marketing mix

Detailing of syllabus -

Unit 1 - Introduction

Hours: 04

1.1 Market

1.2 Marketing: Meaning, nature, objectives, scope and importance

1.3 Marketing philosophies

1.4 Difference between marketing and selling

Unit 2 - Marketing Environment

Hours: 06

2.1 Meaning and Importance

2.2 Macro Environment Factors

2.3 Micro Environment Factors

Unit 3 - Marketing Segmentation, Targeting & Positioning

Hours: 10

3.1 Meaning & Importance of Segmentation

3.2 Bases of Market Segmentation

3.3 Meaning and Need for Targeting

3.4 Types of Targeting

3.5 Meaning & Need for Positioning

3.6 Positioning Strategies

Unit 4 - Fundamentals of Marketing Mix

Hours: 04

4.1 Meaning and Importance of Marketing Mix

4.2 Marketing Mix Components - Service Sector & Consumer Goods

Unit 5 - Consumer Behaviour

Hours: 06

5.1 Meaning and Importance of Consumer Behaviour

5.2 Factors Affecting Consumer Buying Behaviour

5.3 Roles of Buying Behaviour

5.4 Stages of Buying Behaviour

Recommended Books:

- Harsh V. Verma, Ekta Duggal, Marketing, 1st pub., Oxford University Press, 2015
- Michael D. Hutt, Dheeraj Sharma, Thomas W. Speh, B2B marketing: a south - Asian perspective, 11th ed, Cengage Learning, 2014
- Alvin Lee, Mark G, Edward, Marketing strategy: a life cycle approach, Cambridge University Press, 2014.
- Tapan K.Panda, Marketing management text and cases: Indian Context, 2nd ed, Excel Books
- James C. Anderson, Business market management (B2B), 3rd. ed., Pearson education, 2012
- Maheshwari, R.P. (2013), Marketing Management: An Indian Perspective – Text and Cases, New Delhi: International Book House

Teaching methods:

- Classroom teaching, Lecture method, ICT enabled teaching

T.Y.B.Voc. (Printing Technology): Semester-VI

PT-612: Financial Literacy - III

Total Hours: 30

Credits: 02

Course objectives:

- To gain basic knowledge on loan and related terminologies
- To study retirement planning
- To learn financial fraud and its preventions
- To understand about consumer rights

Course outcomes:

Student will be able to

- Elaborate loan and related terms
- Explain retirement planning
- Identify and describe financial fraud
- Explain consumer rights

Detailing of syllabus -

Unit 1 - Loan

Hours: 08

- 1.1 Loan: concept, need, advantages and disadvantages
- 1.2 Sources of loan
- 1.3 Secured loan and unsecured loan
- 1.4 Flat rate loan and floating rate loan
- 1.5 Loan types - Home Loan, Car Loan, Education Loan, Personal Loan, Business Loan and Gold Loan
- 1.6 How much to take loan?
- 1.7 Key terminologies - CIBIL score, CIBIL Report, down payment, EMI and NPA

Unit 2 - Retirement planning

Hours: 10

- 2.1 Retirement planning: Introduction and importance
- 2.2 Financial life phases - accumulation phase, preservation phase and distribution phase
- 2.3 Retirement Assets - real asset and financial asset
- 2.4 Calculating retirement corpus
- 2.5 Annuity: meaning, working, types - deferred and immediate, fixed and variable
- 2.6 Will - meaning and making process

Unit 3 - Financial Fraud

Hours: 04

- 3.1 Financial Fraud: concept
- 3.2 Types of Financial fraud: Pyramid Schemes, Ponzi Schemes, Identity theft, Phishing, Fake payment links, KYC fraud, Skimming(card cloning), Credit card transactions over phone
- 3.3 Fraud Prevention

Unit 4 - Consumer Rights

Hours: 08

- 4.1 Consumer Protection Act

4.2 Consume rights - Right to Safety, Right to be Informed, Right to Choose, Right to be Heard, Right to Seek redressal and Right to Consumer Education

4.3 Consumer Grievance redressal

4.4 Banking Ombudsman Scheme

4.5 Insurance Ombudsman scheme

Recommended Books & links:

- Financial Planning : A Ready Reckoner by Sinha, Tata McGraw-Hill Education, 2008
- I Can Do: Financial Planning by Swapna Mirashi, Academic Foundation
- Financial Management by Khan & Jain, Tata McGraw-Hill Education
- Consumer Rights and Protection in India by M K Nabi, M I Nabi, Kishore C. Raut, New Century Publications
- Consumer Rights and You by Rajyalakshmi Rao, Nabankur Gupta, Pearson Education India
- <https://pmjdy.gov.in/files/financial-Literacy/literacy/guide.pdf>

Teaching methods:

Classroom teaching, Lecture method, ICT enabled teaching

T.Y.B.Voc. (Printing Technology): Semester-VI

PT-613: Marketing Lab

Total Hours: 120

Credits: 04

Course objectives:

- To know products marketing strategies
- To study market segmentation
- To study marketing tools

Course outcomes:

Student will be able to

- Experience products marketing strategies
- Perform market segmentation
- Learn marketing tools

Practical No.	Name of Practical	No. of Hours
01	Select any ten products that you consume daily basis. List the manufacturer and marketer of the same.	08
02	Select any ten products of different categories that are used by you in daily basis. Find out alternate products for them. Why you use these products than alternate products?	08
03	Collect five advertisements from latest newspaper or magazines for marketing. Discuss the messages conveyed in each advertisement.	08
04	Discuss the historical taglines of any product.	12
05	Prepare advertisement tagline for any ten products from different categories.	12
06	Select a brand and design the logo. The logo should be different than the existing one.	12
07	Visit any one organization and prepare the report of their marketing activities.	12
08	Identify segments to market cold drink in India on the basis of geography, demographic, usage, Income, product related variables, industry-related variables.	12
09	Identify the segmentation variables for the following products: (i) Strawberry flavoured infant toothpaste (ii) Herb-based natural toothpaste (iii) Air Travel (iv) Car loan (v) Milk, butter, cheese, and ghee (vi) Magazine (vii) Sport Shoes (viii) Maruti Suzuki SWIFT (ix) iPhone 11 (x) Health activity tracker	12
10	Discuss the various tools used in marketing (e.g. coupons, sample). Student can add any innovative tool for marketing.	12
11	Collect various ten packages for fast moving consumer goods. Discuss packaging and labelling strategies adopted by various firms.	12

Recommended Books:

- Harsh V.Verma, Ekta Duggal, Marketing, 1st pub., Oxford University Press, 2015
- Alvin Lee, Mark G, Edward, Marketing strategy: a life cycle approach, Cambridge University Press, 2014.
- Tapan K.Panda, Marketing management text and cases: Indian Context, 2nd ed, Excel Books
- James C. Anderson, Business market management (B2B), 3rd. ed., Pearson education, 2012
- Maheshwari, R.P. (2013), Marketing Management: An Indian Perspective – Text and Cases, New Delhi: International Book House

Teaching methods:

- Laboratory method, Lecture cum demonstration methods

T.Y.B.Voc. (Printing Technology): Semester-VI
PT-614: Financial Literacy Lab - III

Total Hours: 120

Credits: 04

Course objectives:

- To understand returns calculation of various investment products
- To learn premium for insurance policies
- To study consumer complaint

Course outcomes:

Student will be able to

- Calculate returns on investment in different forms
- Calculate online premium for health and life insurance policy
- Calculate online EMI and compare loan rates
- Launch online consumer complaint

Practical No.	Name of Practical	No. of Hours
01	Calculate absolute return of investment	08
02	Calculate Compound Annual Growth Rate (CAGR) of investment	08
03	Calculate Extended Internal Rate of Return (XIRR) of investment	08
04	Calculate online premium for health insurance policy	12
05	Calculate online premium for life insurance policy	12
06	Compare housing loan interest rate for different lenders	12
07	Compare personal loan interest rate for different lenders	12
08	Calculate EMI online	12
09	Understand document required for loan proposal	12
10	Identify the various after retirement investment options and discuss any one in detail.	12
11	Make consumer complaint online	12

Recommended Books &links:

- Financial Planning : A Ready Reckoner by Sinha, Tata McGraw-Hill Education, 2008
- I Can Do: Financial Planning by Swapna Mirashi, Academic Foundation
- Financial Management by Khan & Jain, Tata McGraw-Hill Education
- Consumer Rights and Protection in India by M K Nabi, M I Nabi, Kishore C. Raut, New Century Publications
- Consumer Rights and You by Rajyalakshmi Rao, Nabankur Gupta, Pearson Education India

T.Y.B.Voc. [Printing Technology] syllabus, 2021-22, Moolji Jaitha College (Autonomous), Jalgaon

Page 28 of 36

(T) Thaudhari
HoD
BVoc (PT)

- <https://pmjdy.gov.in/files/financial-Literacy/literacy/guide.pdf>

Teaching methods:

- Laboratory method, Lecture cum demonstration methods

T.Y.B.Voc. (Printing Technology): Semester-VI
PT-621: Packaging Technology

Total Hours: 30

Credits: 02

Course objectives:

- To know about packaging technology
- To study package design and manufacturing process
- To understand special types of packaging

Course outcomes:

Student will be able to

- Learn basic concepts of packaging technology
- Explain package design and manufacturing process
- Elaborate special types of packaging
- Explain packaging testing method

Detailing of syllabus -

Unit 1 - Introduction

Hours: 06

- 1.1 Packaging: Definition, Need, functions, types
- 1.2 Packaging materials: selection criteria, interaction of package and contents
- 1.3 Classification of packaging: Primary, Secondary, Tertiary, Rigid and flexible

Unit 2 - Package Design and Manufacture Process

Hours: 08

- 2.1 Package specification: Package design, colour in package design
- 2.2 Fundamentals of graphic layout design, Factors influencing design
- 2.3 Folding Carton: cutting; creasing; punching, die making
- 2.4 Common Styles: Glue end carton, Tuck in flap carton, Lock end carton, Lock bottom carton and Auto lock bottom carton

Unit 3 - Specialty Packaging

Hours: 08

- 3.1 Aerosol packaging, shrink and stretch wrapping, strip packaging, blister packaging, aseptic packaging
- 3.2 Cosmetic packaging, hardware packaging, textile packaging, food packaging; child resistant and health care packaging
- 3.3 Electrostatic discharge protective packaging, export packaging, medical packaging, modified atmospheric packaging

Unit 4 - Package Testing

Hours: 08

- 4.1 Package Testing procedure
- 4.2 Types of test: vibration test, impact testing, compression test, drop test, migration test, hot track method
- 4.3 Product Coding and Identification: Bar-coding, Tags, Labelling, Holographic packaging
- 4.4 Packaging laws and regulations

T.Y.B.Voc. [Printing Technology] syllabus, 2021-22, Moolji Jaitha College (Autonomous), Jalgaon

Recommended Books:

- Fundamentals of Packaging Technology by S. Natarajan, M. Govindarajan, B. Kumar, PHI Learning Pvt. Ltd
- Hand Book Of Packaging Technology by EIRI
- Hand Book of Printing, Packaging and Lamination: Packaging Technology by Shrikant P Athavale, Notion Press
- The Wiley Encyclopedia of Packaging Technology by Kit L. Yam, John Wiley & Sons
- Illustrated Glossary of Packaging Terminology by Walter Soroka, DEStech Publications

Teaching methods:

- Classroom teaching, Lecture method, ICT enabled teaching

T.Y.B.Voc. (Printing Technology): Semester-VI
PT-622: Advanced Printing Technology

Total Hours: 30

Credits: 02

Course objectives:

- To learn about digital printing technologies
- To understand non-impact printing technologies
- To study security printing

Course outcomes:

Student will be able to

- Explain digital printing process
- Describe non-impact printing technologies
- Explain security printing technologies and its processes

Detailing of syllabus -

Unit 1 - Digital Printing Technologies

Hours: 08

- 1.1 Digital printing: definition, scope and job suitability
- 1.2 Elements of Digital Page - Text, Images, Graphics, Layout and Prepress checklist
- 1.3 Dot Shape: Round, square, elliptical and composite
- 1.4 AM and FM Screening: concept, difference between AM and FM screening
- 1.5 Input and Output Resolution: Scanning Frequency – Moire and interference of dot pattern

Unit 2 - Non-Impact Printing Technologies

Hours: 06

- 2.1 Electrophotography: types, working principle, and Properties of ink toner
- 2.2 Thermography: types, working principle and Properties of ink toner
- 2.3 Ink jet printing: types, working principles and Properties of ink toner

Unit 3 - Security Printing

Hours: 04

- 3.1 Security Printing: Introduction and History
- 3.2 Security printing: Importance and Application

Unit 4 - Security Printing Processes

Hours: 06

- 4.1 Printing processes: by sheet and web fed gravure, offset, dry offset, and digital printing
- 4.2 Security design features: Panto-graph screens, Void panto-graph Screen, Secret Patterns
- 4.3 ODT: optical deterrent technology, Warning bands, Code safe, Fine line Printing, Micro Printing, Identification standards

Unit 5 - Security Printing Material

Hours: 06

- 5.1 Security papers: characteristic and types - safety paper, chemical reactive paper, special papers, water mark paper and copy evident paper.

5.2 Security inks: characteristic and types- Trademark colours, Colour changing ink, Magnetic ink, Copy protection ink, Erasable ink, Fugitive ink, Pen reactive ink, Heat reactive ink, Coin reactive inks, Migrating ink, Bleeding inks, florescent ink, Metallic ink and UV ink

Recommended Books:

- Brett, G, Digital Prepress Technologies, Leatherhead: Pira International, 2001.
- Brett, G, Short-run Digital Colour Printing, Leatherhead: Pira International, 2001.
- H. Kipphan, Handbook of Print Media, ISBN: 3-540-67326-1 Springer-Verlag Berlin Heidelberg, 2001.
- Lake, M., The future of Digital Colour Printing: Key global markets and Forecasts, Leatherhead: Pira International, 2004.
- Martin, G., Non-impact Printing, Leatherhead: Pira International, 1993.
- Smyth, S., Digital Commercial Printing, Leatherhead: Pira International, 2001

Teaching methods:

- Classroom teaching, Lecture method, ICT enabled teaching

T.Y.B.Voc. (Printing Technology): Semester-VI
PT-623: Print Production Management

Total Hours: 30

Credits: 02

Course objectives:

- To learn about basic of management concepts
- To study estimation and costing
- To understand planning for print production

Course outcomes:

Student will be able to

- Describe basic management concepts
- Explain estimation and costing of printing jobs
- Perform print production planning

Detailing of syllabus -

Unit 1 - Management

Hours: 04

- 1.1 Management: concept, objectives, and importance
- 1.2 Levels of Management
- 1.3 Management functions - planning, organizing, staffing, directing and controlling
- 1.4 Coordination: concept and importance

Unit 2 - Estimating and Costing

Hours: 12

- 2.1 Estimating for various printed products – Definition of costing and estimating, Components of cost, Advantages of costing, Difference between costing and estimating.
- 2.2 Costing for printing materials and Production – Qualification of an Estimator, Estimating form, Estimating for Paper, Calculating the number of sheets required for a job and Cost of Paper for job.
- 2.3 Overhead Expenses and Classification of Overhead Expenses and Importance of Overhead Expenses.
- 2.4 Preparation of Competitive Estimate and Costing – Economical consideration for preparing competitive estimates, Fixed and variable cost in printing – Graphical representation of fixed and variable cost.

Unit 3 - Planning for Print Production

Hours: 14

- 3.1 Production system administration, Planning for various printed Products – Production control systems – Works initiation Procedures - Estimate, Purchase order, Raw material purchase, job card, changes in the specification of the Job, Proof, Material release authorization and final print order.
- 3.2 Planning consideration - Material purchasing and inventory control suitable material selection – Material management, Principles of purchasing, Production planning and control – Production scheduling, Production control, Quality control and Press layouts.
- 3.3 Value system in the industry - Developing Interpersonal management skills and Communication skills. Decision making and stages of decision making.

3.4 Role of supervisor and manager in effective management workflow – managerial roles, Management influences and process integration, Ergonomics – Physical requirements of employees – Working environment - Lighting, Glare and Contrast, Climate, Safety and Noise.

Recommended Books:

- Printing Production Management by Gary G. Field, Printing Industries Pr
- Management Information Systems, Text and Cases by Waman S. Jawadekar, Tata McGraw Hill
- Management Information Systems by Davis and Olson Tata McGraw Hill
- Management Information Systems by Sadagopan, Prentice Hall

Teaching methods:

- Classroom teaching, Lecture method, ICT enabled teaching

T.Y.B.Voc. (Printing Technology): Semester-VI

PT-624: Industrial Training

Total Hours: 360

Credits: 12

Course objectives:

- To provide real life experience

Course outcomes:

Student will be able to

- Student will get real life printing job handling experience

Industrial Training Guidelines

- Student has to undergo 360 Hrs training in printing or printing related industry. The training can be preferably between 1st Jan to 15 Feb or as per the guidelines by guide.
- Student has to follow the rules and regulations of the organisation in which he/she is doing his/her industrial training.
- Student must maintain a diary to record daily activities during industrial training.
- Industrial training would also include periodic reports and discussions by student with respective guide.
- Student has to submit his/her biometric attendance report or attendance report signed by supervisor/ any higher authority.
- Student has to submit the samples of assignments done during the industrial training.
- Student has to submit a detailed report on industrial training in **two copies** which shall be used for evaluation.
- Student has to add industrial training completion certificate issued by higher authority of the organisation into the project report. **If student does not add industrial training completion certificate in the report then the report of student will not be evaluated.**
- Industrial training will be evaluated on the basis of the student's attendance, industrial training report, project presentation and viva-voce.

Industrial Training Evaluation

Evaluation Type	Assessment Type	Marks
Internal Evaluation	Attendance	08
	Report	40
	Presentation	40
	Viva Voce	32
	Total	120
External Evaluation	Attendance	12
	Report	60
	Presentation	60
	Viva Voce	48
	Total	180
Grand Total		300