5.1   EMPLOYABILITY SKILLS – I

L   T   P
-    -   2

RATIONALE

The present day world requires professionals who are not only well qualified and competent but also possess good communication skills. Our diploma students not only need to possess subject related knowledge but also soft skills to get good jobs or to rise steadily at their work place. The objective of this subject is to prepare students for employability in job market and survive in cut throat competition among professionals.

DETAILED CONTENTS

1.   Writing skills   (08 hrs)

   i)   Official and business correspondence

   ii)   Job application - covering letter and resume

   iii) Report writing - key features and kinds

2.   Oral Communication Skills   (20 hrs)

   i)   Giving advice

   ii)   Making comparisons

   iii) Agreeing and disagreeing

   iv)   Taking turns in conversation

   v)   Fixing and cancelling appointments

3.   Generic Skills   (04 hrs)

   i)   Stress management

   ii)   Time management

   iii) Negotiations and conflict resolution

   iv)   Team work and leadership qualities

5.2   COMPUTER APPLICATIONS IN PRINTING

L T P
4 – 4

RATIONALE

Computers have wide application in printing industry. The subject aims at developing relevant computer application skills among the students to enable them to perform effectively in the industry.

Note:- Teacher will conduct practicals along with theory classes.

DETAILED CONTENTS

UNIT-I   (8 hrs)

Introduction to personal computers, operating systems, linking hardware and softwares, device interfaces.

UNIT-II   (8 hrs)

Primary memory, secondary memory, mass storage devices, HD, DVD etc. Display devices, CRT display, random scan and raster-scan monitor, colour CRT monitors, LCD and LED monitors, Plasma panel display.

UNIT-III   (8 hrs)

I/O devices keyboard, mouse, optical scanners, printers, dot matrix, inkjet, laser, plotters, etc.

UNIT-IV   (30 hrs)

Desk top publishing, origin, introduction, components and application of DTP, DTP technology, advantages and limitations of DTP. Softwares for DTP, word processing (heavy duty programmes, medium duty programmes and light duty programmes) graphic programs, page make up softwares (approach, text and graphic handling), standard program features, ventura publisher, quark express, photoshop, coral draw, adobe-in design etc. different facilities available in standard programs and their applications. Publication by using DTP system. Colour management systems.

UNIT-V   (10 hrs)

Graphic text formats, GIF (Graphic Image Format), TIFF (Tagged Information File Format), JPEG (Joint Photographer Experts Group), BMP(Bitmaps), EPS(Encapsulated post script format), RTF (Rich Text Format) etc.

LIST OF PRACTICALS

1.   Different terminologies of computer

2.   Role and importance of different hardware devices

3. Introduction to softwares used in printing technology.

4. Working word processing and preparing visiting cards, letterheads and receipts

5. Working with page make up softwares, page setup with different sites and managing.

6. Working with Photoshop, coned draw, quack express, adobe-in design.

7. Image and text managing

8. Editing text and graphics

9. Preparing various documents (single, two and multi colour documents)

10. Working with printers

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (hrs)	Marks Allotted (%)
1.	8	12
2.	8	12
3.	8	12
4.	30	44
5.	10	20
Total	**64**	**100**

5.3   IMAGE CARRIER PREPARATION

L T P
4 – 4

RATIONALE

Offset plate, wipe on process of plate, photo-polymer plates, Pre sensitized and flexography plates are often used in printing industry. Diploma holder in printing technology should acquire in depth knowledge about various plate making processes. Also, they should developed the skill in making surface plates and pre sensitized plates in different combinations.   This subject will develop competencies about surface preparation techniques for printing industry.

DETAILED CONTENTS

1.   **Off-set plate making and equipments**   (10 hrs)

Graining, grain structure and basic principle. Surface tension, contact angle, its importance Photomechanical principle and image formation system. Graining machine, whirlers, printing down frames/ light integrating meter/Illuminants flip top frames, step and repeat meter and plate reader.

2.   **Film assembly and Quality Control Aids**   (8 hrs)

Use of lining-up table, layout preparation, film assembly and window making. Densitometer, exposure scale, colour control bar, dot gain scale, star target, use of registration marks.

3.   **Wipe-on-process**   (6 hrs)

Wipe on process of plate making and plate trouble with remedies e.g. streaked and   chalky coating, fibers/tint in, dried coating, weak image, scummy background, etc.

4.   **Pre-sensitized plate preparation**   (4hrs)

Preparation of both negative and positive working plates, short run plates, long run plates, baking of Pre-sensitized plates, use of automatic plate processor.

5.   **Deep etch plate/multi metal plate making process**   (8 hrs)

Various steps in making deep etch plates/ wet and dry methods . Deep etch plate defects and their remedies. Use of bi-metal and tri-metal plates, multi metal plates.

6.   **Gravure surface preparation**   (6 hrs)

Different methods of gravure cylinder preparation, faults in preparation of cylinders and their remedies.

7. **Photo-polymer plate making process**   (6 hrs)

Chemistry of photo polymerization, rigid and flexible photopolymer plates, solvent based plates and eco friendly water washable photopolymer plates for dry and letter press

8. **Flexography plate and letter press**   (4hrs)

Use of rubber plates and synthetic plate their preparation, defects in making plates and their remedies.

1. **Screen Printing image carrier preparation**   (4 hrs)

Different methods of stencil preparation, defects and their remedies.

10. **Computer to Plate:**   (4hrs)

Making of thermal pre-sensitized plate and ultraviolet plates.   Their advantages and disadvantages. Principles of digital imaging system.

11. **Latest trends in surface preparation area**   (4hrs)

LIST OF PRACTICALS

1. Making of flat/ paste-ups and windows using both positive/negative.

2. To know the working of flip-top exposing machine

3. Making of text and graphics-Combination wipe on negative working plates.

4. Making positive working pre-sensitized plate.

5. Use of punch registers system.

NOTE: Practical is to be often repeated during the work semester.

RECOMMENDED BOOKS

1. Printing Technology by Adams Faux Rieber; Publihers M/S Galgotia *Book* Source, New Delhi.

2. Printing and Packaging Technology by Offset plate making, Publishers M/S GATF USA. *GATF Publication*, *USA*

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (hrs)	Marks Allotted (%)
1.	10	16
2.	8	12
3.	6	10
4.	4	6
5.	8	12
6.	6	10
7.	6	10
8.	4	6
9.	4	6
10.	4	6
11.	4	6
Total	**64**	**100**

5.4   PUBLISHING TECHNOLOGY

L   T   P
4   -   4

RATIONALE

In this subject the diploma students shall be given a comprehensive overview of printing technology supplemented with relevant exercises on publishing.

DETAILED CONTENTS

Unit-1   (6 hrs)

Introduction to Publishing Technology – Meaning, Concept, Scope and Importance

Unit-2   (6 hrs)

Kinds of Publications:

1.   Books for Children, dictionary
2.   Scientific Technical and Medical Books
3.   Textbooks, Journals and Manuals
4.   Newspapers and Magazines

Unit -3   (16 hrs)

Process of Publishing

1.   Meaning and concept of Manuscripts, CRCs, and Typesetting
2.   Concept of Proof Reading in composed pages, content vetting, editing
3.   Parts in a book
4.   Pre-press activities
5.   Production and Emerging Technologies in Publishing
6.   An overview different binding techniques for publications along with Lamination

Unit -4   (6 hrs)

1.   Costing and estimation for publications
2.   Marketing Promotion and Distribution of published books

Unit -5   (16 hrs)

1.   Govt. certifications and Licenses required for bringing publications- As Police and RNI Authorities
2.   Copy Right Act, IPR
3.   Quality Standard for Publications – Bar-coding and ISBN etc.

Unit-6 (14 hrs)

1. e-Publishing – Concept and importance in today's world
2. Technical requirements for e-publishing
3. Role of Internet

LIST OF PRACTICALS

1. Publishing of a newsletter for institute

2. Publishing of a Books and Journal (Small)

3. Editing of books, journals and newsletters

4. Publishing of downloaded notes of Printing Concepts in form of books

RECOMMENDED BOOKS

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

3. Lithographer's manual GATF USA. published by Graphic Arts Technical Fndtn Publication, USA

4. Machines Printing by Durraut W.R., Focal Press London.

5. Technology of offset Printing by C.S. Mishra; Anupam Prakashan Allahabad.

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (hrs)	Marks Allotted (%)
1.	6	10
2.	6	10
3.	16	24
4.	6	12
5.	16	24
6.	14	20
Total	**64**	**100**

5.5   CAD/GAT IN PRINTING

L T P
4 - 5

RATIONALE

Computers Aided Design and Graphic Arch. Tech. (CAD/GAT) have wide application in printing industry. The subject aims at developing relevant computer application skills among the students to enable them perform effectively in the industry and work on softwares CAD/GAT being used in Printing Presses.

DETAILED CONTENTS

UNIT-I   (12 hrs)

Introduction to CAD/GAT , different options available, applications in printing, concepts and importance, future prospects of CAD/GAT. Merits and Limitations of CAD/GAT

UNIT-II   Kinds of Originals   (16 hrs)

Setting drawing requirements, commands and system variables

UNIT-III   Software and Hardware requirements   (12 hrs)

Scanner, printer I/S (PC, DTP, Pentium, Hi-end system) different coordinate system, correcting and editing different objects internet and its uses, antivirus.

UNIT-IV   (12 hrs)

Creating dimensions of different objects and colour separators and colour correcting and editing of different jobs.

UNIT-V   (12 hrs)

Creating, editing of 2D and 3D objects.

LIST OF PRACTICALS

1.   Prepare a page on pagemaker having solid matter, text, H/T picture, bar chart etc
2.   Prepare a book page (tabular) A4 size on MS word.
3.   Prepare a newspaper page with 6 columns on coral draw.
4.   Prepare a effects of picture in photoshop software: Picture cropping, sepia tone, grayscale, mozzac effect, motion effect and store them in various formats
5.   List out various kinds of originals used in page makeup. Place samples on practical copy.
6.   Design of various objects using CAD/GAT softwares 2D/3D.

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (hrs)	Marks Allotted (%)
1.	12	18
2.	16	24
3.	12	20
4.	12	20
5.	12	18
Total	**64**	**100**

ENTREPRENEURIAL AWARENESS CAMP

The employment opportunities for diploma holders especially in public sector are dwindling. The diploma holders need to explore the possibilities of becoming entrepreneurs. For this, they must be acquainted with entrepreneurship development, scope of setting up small-scale industry, existing business opportunities, financial support available and various aspects of managing business. In this context, an entrepreneurial awareness camp is suggested. During the camp, experts from various organizations such as banks, financial corporations, service institutes etc. may be invited to deliver expert lectures. Successful entrepreneurs may also be invited to interact with the students. Students may be encouraged to read papers or give seminar during the camp on Entrepreneurship Development related topics.

The camp is to be organized at a stretch for two to three days during fourth semester. Lectures will be delivered on the following broad topics. There will be no examination for this subject.

1. Who is an entrepreneur?

2. Need for entrepreneurship, entrepreneurial career and self employment

3. Scenario of development of small scale industries in India

4. Entrepreneurial history in India, Indian values and entrepreneurship

5. Assistance from District Industries Centres, Commercial Banks, State Financial Corporations, Small industries Service Institutes, Research and Development Laboratories and other Financial and Development Corporations

6. Considerations for product selection

7. Opportunities for business, service and industrial ventures

8. Learning from Indian experiences in entrepreneurship (Interaction with successful entrepreneurs)

9. Legal aspects of small business

10. Managerial aspects of small business

6.1   EMPLOYABILITY SKILLS – II

L   T   P
-    -   2

RATIONALE

The present day world requires professionals who are not only well qualified and competent but also possess good communication skills. Our diploma students not only need to possess subject related knowledge but also soft skills to get good jobs or to rise steadily at their work place. The objective of this subject to prepare students for employability in job market and survive in cut throat competition among professionals.

DETAILED CONTENTS

1.   Oral Practice

    i)   Mock interview   (05 hrs)

    ii)   Preparing for meeting   (05 hrs)

    iii)   Group discussion   (05 hrs)

    iv)   Seminar presentation   (05 hrs)

    v)   Making a presentation   (12 hrs)

        a) Elements of good presentation

        b) Structure and tools of presentation

        c) Paper reading

        d) Power point presentation

6.2   ENVIRONMENTAL EDUCATION

L T P
3 - -

RATIONALE

Education about environment protection is a must for all the citizens. In addition, a diploma holder must have knowledge of different types of pollution caused by industries and construction activities so that he may help in balancing the eco system and controlling pollution by adopting pollution control measures. He should also be aware of environmental laws related to the control of pollution.

DETAILED CONTENTS

1.   Definition, Scope and Importance of Environmental Education   (02 hrs)

2.   Basics of ecology, biodiversity, eco system and sustainable development

(03 hrs)

3.   Sources of pollution - natural and manmade, causes, effects and control measures of pollution (air, water, noise, soil, radioactive and nuclear) and their units of measurement   (12 hrs)

4.   Solid waste management – Causes, effects and control measures of urban and industrial waste   (06 hrs)

5.   Mining and deforestation – Causes, effects and control measures   (04 hrs)

6.   Environmental Legislation - Water (prevention and control of pollution) Act 1974, Air (Prevention and Control of Pollution) Act 1981 and Environmental Protection Act 1986, Role and Function of State Pollution Control Board, Environmental Impact Assessment (EIA)   (10 hrs)

7.   Role of Non-conventional Energy Resources (Solar Energy, Wind Energy, Bio Energy, Hydro Energy)   (04 hrs)

8.   Current Issues in Environmental Pollution – Global Warming, Green House Effect, Depletion of Ozone Layer, Recycling of Material, Environmental Ethics, Rain Water Harvesting, Maintenance of Groundwater, Acid Rain, Carbon Credits.

(07 hrs)

INSTRUCTIONAL STRATEGY

The contents will be covered through lecture cum discussion sessions. In addition, in order to have more appreciation of need for protection of environment, it is suggested that different activities pertaining to Environmental Education like video films, seminars, environmental awareness camps and expert lectures may also be organized.

RECOMMENDED BOOKS

1. Environmental Engineering and Management by Suresh K Dhameja; SK Kataria and Sons, New Delhi.
2. Environmental Science by Dr. Suresh K Dhameja; SK Kataria and Sons, New Delhi.
3. Environmental and Pollution Awareness by Sharma BR; Satya Prakashan, New Delhi.
4. Environmental Protection Law and Policy in India by Thakur Kailash; Deep and Deep Publications, New Delhi.
5. Environmental Science by Deswal and Deswal; Dhanpat Rai and Co. (P) Ltd. Delhi.
6. Engineering Chemistry by Jain and Jain; Dhanpat Rai and Co. (P) Ltd. Delhi.
7. Environmental Studies by Erach Bharucha; UGC University Press.

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted for Lectures (Periods)	Marks Allotted (%)
1	02	04
2	03	06
3	12	24
4	06	12
5	04	10
6	10	20
7	04	10
8	07	14
Total	**48**	**100**

6.3   ESTIMATING AND COSTING IN PRINTING

L T P
3 2 -

RATIONALE

Many of the diploma holders in printing technology opt for starting their own units. Even in the industry when they are employed, often they have to make estimates of various jobs involved in the field. It is with this background that elements of costing and estimating are essential for the training of diploma holders in job estimates.

DETAILED CONTENTS

1.   Introduction   (4 hrs)

Brief introduction to Indian and Federation costing system. Importance of costing and estimating in printing and publishing trade, definition of cost, price and profit.

2.   Estimating   (8 hrs)

2.1   Estimating and its inter-relationship with purchasing sales and management.
2.2   Importance of accurate estimating, Requirements, qualifications and tools of an estimator. Estimating errors and their rectification, estimating on the basis of price lists, reprint work, charge back system, standard catalogues, etc.
2.3   Calculation of paper, board, ink covering and other finishing materials, wastage formulas
2.4   Estimating for the warehouse operations
2.5   Estimating for letter assembly, camera work, processing and planning, various methods of image carrier preparation, machine hours for various processes of printing.
2.6   Operational times and current market rates.

3.   Costing   (8 hrs)

3.1   Definition, Purposes and functions, aims and objects of costing, elements of cost, principles of a scientific costing system.
3.2   Foundations of costing system, classes of departments, allocation and apportionment of expenses, basis of apportionment.
3.3   Direct and indirect cost, hourly rates, recovery of elements of cost distribution of expenses. Calculation of machine hour rates
3.4   Fixed cost and variable cost, total cost and unit cost, brake-even analysis – determination and graphical representation.
3.5   Principles, stages, forms and specimens, costing routine.

4.   Job Estimates   (8 hrs)

Making of estimates of complete jobs from designing to binding and finishing, original and reprint jobs, estimation and consideration for filler works, repeat works,

out source works, rush works, charity works, work for new customers and contract works.

5. Calculation of hourly rates of minimum machines operations; and depreciation of machines (6 hrs)

6. Terms and conditions of the trade, imprint, copyright and other legal matters.
(6 hrs)

7. Preparation of tender documents and job specifications. (4 hrs)

8. Recent trends in costing and estimating; Management Information System Entrepreneur Resource Planning (MIS, ERP) (4 hrs)

RECOMMENDED BOOKS

1. Printer's Costing and estimating by B.D. Mendiratta; Printrade India Publications Pvt. Ltd., New Delhi.

2. Costing for the smaller Printing Business, BPIF, and London.

3. Estimating for Printers, BPIF, and London. published by Orion *Publishing* Group, London

4. Printing Estimating Principles and practice by Philip Kent Rugged, California Polytechnic State University.

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (hrs)	Marks Allotted (%)
1.	4	8
2.	8	16
3.	8	16
4.	8	16
5.	6	12
6.	6	14
7.	4	10
8.	4	8
Total	**48**	**100**

6.4   PRODUCTION MANAGEMENT

L T P
4 - 4

RATIONALE

Modern manufacturing industries have complex production processes. A technician entering into such field comes across various problems involving production processes, methods, planning, scheduling etc. One has to effectively use the industrial engineering techniques to optimise the resources such as man machine and material for performance enhancement. Therefore, the knowledge of work-study, work-measurement, Material handling devices, Alternate manufacturing process is very essential, The effective control over the inventory of material and equipments also plays a vital role.

Due to phenomena of recent global trade policy changes, international competition and firm's question of survival, the strict adhesion to quality becomes order of the day.. An organization either employed in manufacture, supply, design, test or service area have to maintain strict quality at all levels and the recent dominance of adopting and safeguarding quality systems demands quality mindedness on part of each of those who contribute to any of the above mentioned areas. Hence the technicians at supervisor level must be fully aware of aspects of quality.

DETAILED CONTENTS

1.   Web Offset presses   (6 hrs)
      Kinds, Sizes, Specifications, Scopes and Limitations, suitability of job, cutting, slitting and folding attachments.

2.   Gravure presses   (8 hrs)
      Kinds, Sizes, Specifications, Scopes and limitations, suitability of job

3.   Flexography presses   (8 hrs)
      Kinds, Sizes, Specifications, Scopes and limitations, suitability of job

4.   Screen printing presses   (8 hrs)
      Kinds, Sizes, Specifications, Scopes and limitations, suitability of job

5.   Production schedules of different presses   (8 hrs)
      Requisition of materials, pre make ready, break even point.

6.   Power transmission devices   (4 hrs)

7.   Lubrication and Lubricants   (6 hrs)

8.   Electronics controls in web machines, stroboscope splicess, relays, limit switch, contactor.   (6 hrs)

9.   Repair and Maintenance   (6 hrs)
      Tools and equipments required, scheduled maintenance preventive maintenance.

10. Sample problems and their rectification (4 hrs)

LIST OF PRACTICALS

1. Introduction to technical specification of web offset machine, flexography machine and gravance machine
2. Preparation of dumaking
3. Premake ready and make ready of machine
4. Study of lubrication systems and lubricants used.
5. Study of general problem and their remedis.

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (hrs)	Marks Allotted (%)
1.	06	10
2.	08	12
3.	08	12
4.	08	12
5.	08	12
6.	04	06
7.	06	10
8.	06	10
9.	06	10
10.	04	06
Total	**64**	**100**

6.5   FINISHING AND CONVERTING

L T P
4 – 4

RATIONALE

One of the important functions of diploma holders in printing technology is to work in the area of finishing and converting. In this subject competencies related to warehouse operations, securing operations, forwarding operations, covering operations and finishing shall be developed in the students. They shall also be provided with knowledge and skills related to different types of bindings, adhesives, binding materials, binding defects and quality control operations of the subject which are absolutely essential for effective working in printing and print finishing industry.

DETAILED CONTENTS

1.   **Historical Development, Definition and Classification:**   (6 hrs)

Cutting and Folding, Section Binding, Adhesive Binding and Loose Leaf Binding

2.   **Warehouse Operations**   (6 hrs)

2.1   Printed and unprinted paper warehouse; requirements for proper storage and safety of paper.
2.2   Paper and other binding materials: stocking, storage and issue.
2.3   International (ISO)/BIS papers, their used and scopes subdivisions of BIS papers, comparisons of ISO and BIS.

3.   **Securing Operations**   (6 hrs)

3.1   Use of thread, tape, cord, stitching wire, spiral glue, paste etc.
3.2   Different kinds of sewing, hand sewing and machine sewing. All along sewing, tape sewing, cord sewing, sawn in sewing over casting for loose leaf work. Sewing two sections on and their suitability for different styles of binding.
3.3   End papers: kinds and purposes, single, double, reinforced made in end paper (cloth-joint and leather joint) and zig-zag end papers. Suitability for different jobs.
3.4   Plates and Maps: Definition, kinds of plates, methods of fixing plates; and their suitability for different kinds of jobs.

4.   **Forwarding Operations**   (6 hrs)

4.1   In-board and out-board forwarding, different kinds of binding and styles of cover. Introduction to publishers, library style and stationery binding. flat back, loose back and tight back.
4.2   Gluing the back, rounding and backing, objects care and precautions, reducing swell at the back, back lining
4.3   Binding defects, causes and remedies

5.   Preparing and Attaching Boards   (6 hrs)

5.1   Kinds, sizes and gram mage of boards, lining, are cutting to size, warping of boards and its prevention, attaching boards, pasting, and lacing-in and split board work.

5.2   Re-binding and repairing of books

6.   Covering Operations   (6 hrs)

Different kinds of covering materials, selecting leather and other materials, measuring and cutting to size and shape, applying adhesive and turning-in, pressing, setting the groove or joints, setting the head bands, polishing, pressing and pasting down.

7.   Finishing Operations   (6 hrs)

7.1   Decorating the cover and back with the finishing tools: fillets, rolls, pallets, rules and brass types; Type holder and its use; marking for tooling and lettering, heating, testing and pressing. Cleaning blurred image: Gold and blind blocking.

7.2   Edge decoration: Kinds and purposes, colouring, spraying, tinting, marbling and gilding.

8.   Machine Binding   (6 hrs)

Mechanical and operational features and care and maintenance of binding machines; folding machine; bundling machine; gathering machine; wire stitching machine; thread sewing machine, three knife trimmer; back gluing machine; rounding and backing machine; back-lining and banding machine; case-making and casing machine; die cutting, creasing and embossing machine; perfect binder; gang stitcher-its operation and use; ruling machines, pen ruling machine and disc ruling machine.

9.   Account Book Binding   (6 hrs)

Account Book End paper, sewing, pasting spine gluing, split board   ticketing, spring back, cutting and attaching the boards, covering half, quarter and full binding styles, account book finishing and index cutting.

10.   Adhesives: Kinds, purposed, preparation and suitability.   (4 hrs)

11.   Production, Planning and Quality Control   (6 hrs)

Planning and layout preparation for a modern binding unit, modern binding techniques, work-flow sequence and quality control.

LIST OF PRACTICALS

1. Study of binding room tools and equipments.
2. Practicing jogging, knocking, counting, folding and gathering
3. Care and handling of machines and safety precautions.
4. Making end papers.
5. Stitching and sewing.
6. Making of writing pads, glue and fancy pads.
7. Perforating, perfetting punching and numbering.
8. Loose leaf binding.
9. Flexible and hard case binding.

RECOMMENDED BOOKS

1. Binding and Finishing (Part-I) published by B.D. Mendiratta, New Delhi
2. Binding and Finishing published by Focal Press, London
3. Pitman Series on 'Binding and Finishing', Published by Sir Isaac Pitman & Sons, Ltd. London

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (hrs)	Marks Allotted (%)
1.	6	8
2.	6	8
3.	6	8
4.	6	8
5.	6	8
6.	6	10
7.	6	10
8.	6	10
9.	6	10
10.	4	10
11.	6	10
Total	**64**	**100**

6.6   MAJOR PROJECT WORK

L T P
- - 9

RATIONALE

The industrial/practice based major project is intended to printing students for project oriented practical training in actual situations for the stipulated period with a view to:

DETAILED CONTENTS

(i)   Develop understanding regarding the size and scale operations and nature of field work in which students going to play their role after completing the courses study.

(ii)   Develop understanding of subject bases knowledge given the class room in the context of its application at place.

(iii) Develop first hand experience and confidence amongst students to enable them to use and apply polytechnic institute based knowledge and skills to solve practical problems in the world of work.

(iv) Develop special skills and abilities like interpersonal skills, Communication skills, attitudes and values.

The major project should not be considered as merely conventional industrial training in which student's are sent at work plan with minimal supervision. This experience is required to be planned and supervised on regular basis by the polytechnic faculty for the fulfillment of above objectives, polytechnic establish close linkage with 8-10 relevant organization providing such an experience. It is necessary that organization is visited well in advance and activities to be performed by students are well defined. The chosen activity should be such which is of curricular interest to students of professional value to industrial/field organizations.

The teacher is expected to supervise and 5-6 students.

Effort should be made to identify actual field problems imprinting industries to be given as project work to the student. Project selected should not be too complex which is; beyond level of the students. The placement of the for such practical cum project work should match with the computer profile of students and the project work assigned to the students may be assessed both by industry and polytechnic faculty the suggested performance criteria is given below:

> (1)   Punctuality and regularity.
> (2)   Initiative in learning/working at site.
> (3)   Level/proficiency of practical skills acquired.
> (4)   Ability to solve live practical problems.
> (5)   Sense of responsibility.
> (6)   Self expression/communication skills.
> (7)   Interpersonal skills/human relation.

(8) Report writing skills.
(9) Viva voce.
(10) Submission of Report – About the product
- Process and equipments used
- Raw materials
- Time required to complete introduction
-Cost Factor
-Analysis

Some of the suggested project activities are given below

1. Print a four colour folder on art card 300 gms in the folded size 8¼"x 3¾ for an educational tour of all India for 30 days giving detailed information.
2. Print a table calendar on Art card 275 GSM in the size 6"x 4" spiral binding at the top containing 12 sheets. Each month has a four colour picture at the back.
3. Prepare a layout for invitation latter-to-the artists to discuss the "future of Artists" a seminar to be held on March 1, 2012. It contains four pages and multi-colour printing. Details of programme to be given in the inner side.
4. Prepare a layout for a wall poster appealing pollution free environment in six colour printing in the given size.
5. Print a executive diary for 2012 containing 140 pages of A-5 size with raxine cover full bound. Also print few pages in the beginning giving standard terms of printing technology.
6. Planning and printing of a syllabus of the department page size and type size given
7. Planning and printing of a newsletter
8. Planning and printing of a planner (single sheet)
9. Design and print four colour greeting card containing line and half tone illustrations for annual day with its envelopes.
10. Design and print four colour poster for special purpose containing line and halftone illustration.
11. Design a collage of a college pictures given various effects to each picture in Photoshop software
12. Design a poster of monuments of world heritage in India in coral software
13. Design a work flow docket of a magazine in a press in page maker software.
14. Design a calendar of annual/month events of college in different coral softwares quick express, page makers and adobe indexes
15. Colour correction of photograph in adobe photoshop and adobe image ready
16. Light viewer table
17. Ink kitchen
18. Blank hardness tester
19.   Plate grazing machine
20. Paper R++ tester.
21. Paper brightness tester
22. folding indunance tester
23. prototype gravure m/c
24. Flexo m/c

25.   water absorbing tester.
26.   Print a 16 pages booklet containing line and half-tone illustrations in two colour.
27.   Design a publicity folder for tourism department which should include text; and illustration.
28.   Prepare a final and finish dummy of 200 pages hard bound reference book with a total estimate for 2000 copies.
29.   Design a multi-colour poster on social, political or commercial theme-make a negative and positive of the design and print the same on offset press (up to finishing).
30.   Design and print 16 pages text book for class II student (selection of type-face, selection of paper, use of photography and illustration/preparation of negatives, positives, printing and binding).
31.   Making a sales promotion carton, selection of board and printing in for colour will lock button and top with tuck flap
32.   Design and produce a four colour jacket for book for 200 pages in A4/A5-size title of book to be printed with gold embossing/silk screen.
33.   Prepare a feasible project report of small offset press with capacity of 2000 pages of A4 per day 2 to 4 colour unit in addition to a pre-press set-up in term of budget forecasting and flow chart basis to show annual net income; keeping into consideration space ;and layout (giving machines to be in stalled).
34.   Design and produce a personal and business letter head by screen process.
35.   Bind a book of 400 pages, section; sewn hard bound with rounding and backing. There will be 10 plates, and few double spreads using head bands, book marks etc.
36.   Design, develop and print a wall calendar, table calendar etc.

Note:

Project work in ideal condition should be done individually. If it is not possible then it can be done in a group of not more than five students.

10. RESOURCE REQUIREMENTS

10.1 LIST OF EQUIPTMENT AND MACHINES

Sr. No.	Particulars	Quantity

PRESS WORK

1.	Single colour offset machine	4 Nos
2.	Digital Reprographic Machine	1 No
3.	Flexography Machine	1 No
4.	Semi automatic Silk Screen Printing Machine	1 No
5.	Reflection Densitometer	1 No
6.	Dampening Roller Washing Machine	1No
7.	Digital Reprographic Machine	1 No

PRE-PRESS

1.	Desktop Publishing System with at least 15 terminals complete with software's and other accessories.	
2.	Laser Printer	2 Nos
3.	Photocopier Machine	1 No
4.	Dot Matrix Printer	3 Nos
5.	Table Top Scanner	1 No
6.	Image Setter	1 No
7.	Digital camera with Accessories	1 No
8.	Automatic Film Processor	1 No
9.	Plate Storing Rack	1 No
10.	Chromatin Proofing/Irish Proofing System	1 No
11.	Registration Punch System Film/Plate	1 No
12.	Densitometers (Printing Science Lab)	1 No

Sr. No.	Particulars	Quantity	

POST PRESS

1.	Folding Machine	1	No
2.	Gathering Machine	1	No
3.	Wire Stitching Machine	3	Nos
4.	Power Driven Sewing Machine	1	No
5.	Gullotine Machine	2	Nos
6.	Programmatic Cutting Machine	1	Nos
7.	Rounding and Backing Machine	1	No
8.	Pressing Machine	5	No
9.	Loose Leaf Binding Machine Spico, Spiral and Thermal	1	each
10.	Bundling Machine	1	No
11.	Laminating Machine (Hot and Cold)	1	each
12.	Die Cutting Machine	1	No
13.	Gold Blocking Machine	1	No
14.	Foil Stamping Machine	1	No
15.	Punching Machine	2	Nos
16.	Perforation Machine	2	Nos
17.	Perfect Binding Machine	1	No
18.	Hand Numbering Machines	1	No

Sr. No.	Particulars	Quantity	

PRINTING SCIENCES

Sr. No.	Particulars	Quantity	
1.	pH meter	6	Nos
2.	Bursting Strength Testing Machine	1	No
3.	Tensile Strength Testing Machine	1	No
4.	Folding Endurances Testing Machine	1	No
5.	Ink Testing Kit	2	Nos
6.	Opacity Tester	1	No
7.	Gloss/Brightness Tester	1	No
8.	Ink Testing Bench	1	No
9.	Cobb Testing Machine	1	No
10.	Ink Emulsification Tester	1	No
11.	Digital Weighing Balances	1	No
12.	Hydraulic Trzxolley	2	Nos
13.	Peel Bond Tester	1	No
14.	Binocular Microscope	1	No
15.	Viscometer	1	No
16.	Ford cup No. 4	1	No

10.2   SUPPORTING STAFF

Sr. No.	Particulars	Quantity	
1.	Technicians		
2.	Press work	2	Nos
3.	Letter Assembly	1	No
4.	Reproduction Photography	1	No
5.	Printer's Science (Lab Assistant)	1	No
6.	Surface preparation	1	No
7.	Binding and Finishing	1	No
8.	Computer Application	1	No
9.	Maintenance Staff (Electrical and Mechanical)	2	Nos
10.	Basic Engineering Staff (Electrical and Mechanical)	2	Nos
11.	Helpers	8	Nos