

VOCATIONAL CURRICULUM -2006
(With effect from the Academic year 2006-2007)

Curriculum of Intermediate Vocational Course
In
DTP & PRINTING TECHNOLOGY



STATE INSTITUTE OF VOCATIONAL EDUCATION
OFFICE OF THE COMMISSIONERATE OF INTERMEDIATE EDUCATION, A.P.,
NAMPALLY, HYDERABAD.

&

BOARD OF INTERMEDIATE EDUCATION, A.P.,
NAMPALLY, HYDERABAD.

DTP & PRINTING TECHNOLOGY

DTP & PRINTING TECHNOLOGY

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INTRODUCTION
DESK TOP PUBLISHING & PRINTING TECHNOLOGY

The importance of D.T.P & Printing is fast increasing in to-day's commercial world. It has wide usage and applications. The range of products vary from – newspapers, books, labels, business cards, stationary, inserts, catalogs, pamphlets, advertisements, carton & foil printing etc. The related activities associated with D.T.P. are data imaging, book binding, plate making, prepress services etc. Firms are finding it time saving and economical to print their own news letters and reports. Hence on completion of this course there is a wide scope of wage and self employment. The curriculum includes the required computer education and on job training to the students.

At present 33 Vocational Courses are offered at Intermediate Level in Andhra Pradesh. As per the guidelines given in the National policy on Education, all the Vocational Courses are terminable in nature. To meet the requirement of user organizations, it is decided to introduce DTP & Printing Vocational course. The Present day curriculum is so framed to meet the challenges on one side and the requirements on the other.

It is therefore felt necessary to convert the Vocational Courses as Job oriented courses and to re-vamp the syllabus for the existing Vocational courses, accordingly; to accomplish this task it is decided to conduct the curriculum development work shops with experts committees. The members entrusted with the task of preparation of syllabi hail from various reputed Organizations and Institutions of varied nature i.e. academicians, professionals and stakeholders.

In view of the above a committee has been constituted for revision of syllabus and the names of the members who have participated in this task are mentioned overleaf.

LIST OF PARTICIPANTS

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SCHEME OF INSTRUCTIONS AND EXAMINATIONS

ANNUAL SCHEME OF INSTRUCTION AND EXAMINATION FOR
1st YEAR
DTP & PRINTING TECHNOLOGY

S.No.	Subject	Theory		Practicals		Total	
		Periods	Marks	Periods	Marks	Periods	Marks.
1	English	185	75	-	-	185	75
2	G.F.C	185	75	-	-	185	75
3	Vocational subjects.						
I	PAPER - I	160	50	160	50	320	100
II	PAPER- II	160	50	160	50	320	100
III	PAPER – III	160	50	160	50	320	100
IV	On the Job Training (OJT)	(As per industry /establishment /Organization timings)			50		50
		850	300	480	200	1330	500

SCHEME OF INSTRUCTIONS PER WEEK
PART – A

S.No.	Subject	Theory	Practicals	Total
1	English	6	-	6
2	G.F.C.	6	-	6
3	i) PAPER-I	5	5-	10
	ii) PAPER-II	5	5	10
	iii) PAPER-III	5	5	10
	Total	27	15	42

D.T.P AND PRINTING TECHNOLOGY

OBJECTIVES

To impart necessary training to the students in typesetting D.T.P., Screen Printing, Operating a small offset Printing press and finishing techniques so as to prepare them for wage/Self employment.

- To create professional competence to assist/start a small unit on their own.
- To organize the training unit as a production centre for self sustenance through internal revenue generation.
- To develop skills to operate and use different D.T.P. application Software and peripherals used in D.T.P.
- To develop skills to become a technician such as pre- Press stripping artist, Offset operator, Gravure operator, Flexography etc.

JOB OPPORTUNITIES.

a) Wage Employment :

- Supervisor /Assistant in Govt. /Public sector presses or Printer and Screen Printer Private printing presses.
- Supervisor / Assistant in security press, new papers, advertising agency, Design Studio's, Commercial presses, packaging units, tin printing etc.

b) Self employment

Starting and managing a small D.T.P. unit, Offset printing, digital printing units.

- Middle men and contractors to collect print associated jobs
- Starting & Managing Binding & Packaging units.

PROVIDING SKILLS

- Skills to perform market survey and estimate job requirement
- Purchase of printing material quality testing
- Skills in printing processes and press management
- Graphic design and layout, creating artistic design using D.T.P. artistic tools
- Computer operations, installation procedure and software use.
- Electronic type setting and composition
- Print finishing techniques
- Colour mixing techniques and colour separation
- Plate making techniques.
- Modern Printing Techniques.

- Image setting Techniques

VERTICAL MOBILITY :

- Admission to II year Diploma in Printing Technology, if one passes related bridge course also.
- Eligibility to A-level course designed by DOEAC
- Admission to graduate level courses in Arts and commerce offered by universities.

SYLLABUS
1st YEAR THEORY
PAPER -1
DTP & PRE-PRESS-I
(DESIGNING, DESKTOP PUBLISHING, COLOUR SEPARATION & IMAGE ASSEMBLY)

160 PERIODS

I		
1.0	Design for Printing	4
1.1.	Basic Principles of Design	4
1.2	Typography	12
1.3	Layout – Different Types	9
1.4	Working with illustrations	6
2		
2.0	Desktop Publishing	2
2.1	Concept of DTP System	4
2.2.	Input devices- Key Board, Mouse, Scanner etc.	9
2.3	Output devices – Monitor, Printer, (Laser Printer, Inkjet, dot-matrix)	6
2.4.	Operating system MS DOS, Windows XP, Text Manipulation	7
3		
3.0	Colour Separation	3
3.1	Basic Colour Theory	3
3.2	Light and colour	5
3.3.	Additive Primary Colours	3
3.4	Subtractive primary Colours	3
3.5	Basic separation theory	4
4		
4.0	Image assembly – Stripping and Proofing	12
4.1	Imposition – sheet and half sheet	16
4.2	Purpose of Stripping	6
4.3	Equipment & tools used for stripping	3
4.4	Elementary stripping techniques – Masking Sheets, Laying Out Pre-Printed masking sheet, attaching film negatives, opaueing and attaching the flat attaching film positives.	12
4.5	Purpose of proofing	9
4.6	Photomechanical proofing	9
4.7	Digital Proofing.	9

I YEAR THEORY
PAPER -II
PRESSWORK & FINISHING -1
(Press Development in Letterpress, Offset and Gravure processes)
160 PERIODS

I		
1.0	Printing Presses – Introduction (Explanation of Principle of Letter press, Offset and Gravure)	6
1.1.	Press Development in Letterpress process – Platen Presses, Flat bed cylinder Presses, and rotary Presses.	5
1.2	Classify Offset lithography Presses.	5
1.3	Understanding Offset Press operation	5
1.4	Feeder Unit	4
1.5	Registration Unit	4
1.6	Printing Unit	4
1.7	Inking Unit	4
1.8	Dampening Unit	4
1.9	Delivery Unit	4
2		
2.0	Sheet fed presses – Introduction	4
2.1	Single Colour Sheet fed Presses.	6
2.2	Multicolor Sheet fed Presses.	6
3		
3.0	Web-Offset Presses	6
3.1	Single Unit Web-Offset presses	5
3.2	Multi-colour Web Presses	6
3.3.	Perfect Printing (Back and back)	5
3.4	Printing Materials used for Offset process and job suitability	10
4		
4.1	Principle of Gravure Printing process	4
4.2	Classifying gravure Printing presses.	4
4.3	Unwind unit	4
4.4	Printing unit – Doctor blade, impression roller	4
4.5	Rewind Unit	3
4.6	Solvent recovery	4
4.7	Printing materials used for gravure process	6
5		
5.0	Print finishing for Publication – Introduction	3
5.1	Binding Operations	6
5.2	Account Book binding	4
5.3	Publisher’s binding.	4
5.4	Perfect binding	4
5.5	Book repairing works	4
5.6	Materials used for binding	6
5.7	Equipment and Tools used for binding.	4
5.8	Automation in bindery	3

PAPER-III
I YEAR (THEORY)
IT & C LANGUAGE (THEORY)

160 Periods

- | | | |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| 1. | Office suite basics :- | 30 |
| | Introduction to MS Office – word features, Operations on documents – editing, formatting. Spell check, Mail Merge. Excel- Data types, editing options, formatting formulae, functions, charts, graphics power point – creating and developing presentations, slide show. | |
| 2. | Programming Basics | 25 |
| | Structure of a C programme, programming rules character set, Delimiters keywords, constants, variables, data types, Type conversion. Arithmetic, logical, Relational operators and precedence's Assignment, Increment, Decrement operators, evaluation of expressions. Console IO formatted and unformatted functions. - | |
| 3. | Decision and loop control statements | 33 |
| | If, if-else, nested if else, Break, continue, go to and switch statements loops – for, while do while, nesting of loops | |
| 4. | Arrays and strings | 32 |
| | 1D array declaration, initialization, 2D Array declaration, Initialization, Accessing of Array elements, character Arrays declaration and initialization of strings, Display of stings with format. | |
| 5. | Functions, structures, unions and pointers | 40 |
| | Definition, Declaration, function prototypes, Return statements, function types function calls, nesting of Functions and Recursion storage classes of variables, scope and visibility structure features, declaration and initialization, structure within a structure, Array of structure, Accessing of structure members, structures and functions, unions. Pointer declaration, Arithmetic operations and pointers, pointers and Arrays, Array of pointers, pointers to pointers, pointer to structures, pointers and functions | |

Recommended Text Books

1. Programming in ANSIC, TMH, III Edition – Balaguru Swamy ETMH
2. Let U S C – by Yeswanth Kanithkar.

Reference Books

1. Information Technology and programming C-by M.V.S.S.N.Prasad published by Radiant Publishing House, Hyderabad.
2. **Programming in C by Samarjit Ghosh – PHI**
3. **Programming with ANSI and Turbo C by Kamthane, person Education**
4. **Programming in C by Gottfried (Schaum Series)**

I YEAR PRACTICALS
PAPER –I
(DTP & Prepress operations –I)

(DTP, Design & layout, proof Reading and imposition)

160 periods

I	Exercise –I MS – Word	12
II	Exercise – II Windows XP	12
III	Exercise – III Lettering for layouts	14
IV	Exercise – IV Design – Preparation of design for visiting cards, letter heads.	16
V	Exercise – V Preparation of design for title cover	12
VI	Exercise – VI Designing monograms, Trade marks.	16
VII	Exercise – VII Proof Reading – Procedure of showing text and marginal marks	12
VIII	Exercise – VIII Correction of at least four proofs (four exercises)	12
IX	Exercise – IX Preparation of imposing schemes for Two and Four pages – sheet and half sheet methods	12
X	Exercise – X Preparation of imposition schemes for eight and sixteen pages sheet and half sheet methods.	12
XI	Exercise – XI Identification of image carriers for letter press	6
XII	Exercise – XII Preparation of image carriers for offset albumin, Deep etch wipe on, PS plates.	12
XIII	Exercise – XIII Field visit to Gravure printing presses for Studying, making of image carriers for gravure process.	12

**I YEAR PRACTICALS
PAPER –II
PRESS WORK– AND FINISHING -1**

160 periods

PAPER –II

PRESS OPERATIONS – AND FINISHING -1	
(Letterpress, Offset & Gravure – Publication)	
Exercise – I	10
Anatomy of Offset Press	
Exercise – II	10
Plate and blanket fixing.	
Exercise – III	12
Make ready on Offset machines	
Exercise – IV	16
Printing single Colour Job	
Exercise – V	14
Printing Two Colour and multicolor Jobs.	
Exercise – VI	18
Field visit to Offset printing Press and newspaper presses for study of web offset printing.	
Exercise – VII	12
Field visit to Gravure printing presses for study of Gravure printing presses for flexible packaging	
Exercise – VIII	
Wire stitching and spiral binding	12
Exercise – IX	10
Operation of ruling, cutting, stitching, gold foiling, varnishing and lamination machines.	
Exercise – X	12
Preparation of note books – single rule, double rule etc.	
Exercise – XI	12
Testing of GSM, caliper and grain direction of paper	
Exercise – XII	12
Use of densitometers	
Exercise – XIII	10
Use of control charts for recording and assessment of the quality.	

PAPER-III
I YEAR PRACTICALS
PRACTICALS
INFORMATION TECHNOLOGY & “C” LANGUAGE LAB

160 Periods

1	COURSE CONTENTS	
	1. Exercises to know and use menu bar options and tool bar buttons of the word window	12
	2. Exercises on use of excel window components	16
	3. Exercise on creation of worksheet	12
	4. Exercise on use of formulae and functions	12
	5. Exercise on creation and development of presentations	16
	6. Exercise to demonstrate C programmed structure, use of print f and scan f Functions	12
	7. Exercise on if, if – else, netted if else	16
	8. Exercise on which and break statement	12
	9. Exercise on 1D Arrays using loops	16
	10. Exercise on functions to demonstrate prototyping parameter passing function Returning values	12
	11. Exercise on structures	12
	12. Exercise to demonstrate to use of pointers, pointers as function arguments, functions Returning pointers, pointers and structures.	12

II YEAR THEORY
PAPER –I
DTP & PREPRESS – II

(Software for graphic arts, CTF, CTP, and image carrier making)

160 periods

1		
1.0	Software for Graphic Arts – Introduction	10
1.1	Pagemaker - Basics of Pagemaker & quark press Job suitability overview of tools in pagemaker	10
1.2	Setting up of Printer and page setting – paragraphs, bullets, columns, drop letters.	8
1.3	Creating style sheets	10
1.4	Importing of text and graphics	8
1.5	Master pages and multiple master pages	8
1.6	Layers	12
1.7	Plug in operations – imposition of pages	14
2		
2.0	Photoshop – Basics	14
2.1	Overview of Tools	12
3		
3.0	Illustrator and Corel Draw	14
3.1.	Creating various images	10
3.2	Creating monograms	10
3.3.	Saving the file.	5
4		
4.0	Computer to film (CTF)	5
4.1	Image setter – its principle and functions	10

II YEAR THEORY
PAPER –II
PRESS WORK & FINISHING –II
(Press development in flexography process – Introduction)

160 periods

1		
1..0	Press development in flexography presses – Introduction	
1.1	Classifying flexography printing presses	25
1.2	Understanding flexography press operations	
1.3	Printing Unit	
1.4	Inking system – Fountain roller, anilox roller	
1.5	Materials used for flexographic	
1.6	Suitability of Jobs in flexography	
2		20
2.0	Press development in Screen printing process – Introduction	
2.1	Classifying screen printing presses.	
2.2	Understanding screen printing operations	
2.3	Preparation of screen printing table	
2.4	Materials used for screen printing presses	
2.5	Suitability of Jobs in Screen Printing.	
3		25
3.0	Print finishing for packaging – Introduction – purpose of package	
3.1	– Its importance. Materials used for packaging – paper board, metal, glass, plastics, timber and textiles.	
3.2	Plastic based packaging materials	
3.3	Flexible packagings	
3.4	Specialty packagings	
3.5	Plastic corrugated boxes	
3.6	Rigid boxes	
4		20
4.0	Converting Process – Introduction	
4.1	Principles of carton design	
4.2	Sequence of operations involved in die-making for cartons and envelopes	
4.3	Die-cutting and creasing make ready	
4.4.	Folding and gluing	
5	Computer to plate (LTP) Introduction	20
5.1	Concept of CTP	

5.2	Advantages and disadvantages of CTP	
6		20
6.0	Image carrier making of Flexography and screen printing process – Introduction	
6.1	Making of rubber image carriers for flexography	
6.2	Making of photopolymer plates for flexography.	
7		
7.0	Image carrier for screen printing	15
7.1	Preparation of screen by direct method	
7.2	Preparation of screen by transfer method	
8		15
8.0	Miscellaneous processes – Introduction	
8.1	Thermography	
8.2	Xerography	
8.3.	Die-Stamping	
8.4	Embossing.	

PAPER-III
II YEAR THEORY
BASIC ENGINEERING (THEORY).

160 Periods

COURSE CONTENTS :

- | | | |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| 1. | BASIC PRINCIPLES OF ELECTRICITY | 20 |
| | Define and state the units of electrical potential, potential difference, voltage, electromotive force and electric current. Ohm's law. Compute resistance of a conductor given its length, area of cross section and reactivity. Kirchoff's laws. Series and parallel circuits. Definitions of electric power and electrical energy, magnetic flux, magnetic field strength, permeability and reluctance. Faradays laws of electromagnetic induction. Lenz's law. Dynamically induced e.m.f and statically induced e.m.f. statically induced e.m.f. self-inductance and mutual inductance. Fleming's right hand rule and left hand rule. Define electrical field electric flux, and electric field intensity ad capacitance. | |
| 2. | D.C. MACHINES | 15 |
| | D.C. Machines, D.C. generator, Formula for EMF equation of D.C. Generator and solve simple equations. Types of D.C. Generator, working principle of D.C. Motor, types of D.C. Motors, uses of all D.C. Motors, Starter of a D.C. Motor. | |
| 3. | A.C. FUNDAMENTALS : | 20 |
| | Define alternating quantity, amplitude, cycle, periodic time, frequency, Instantaneous value and angular velocity. Phase and phase difference, alternating sinusoidal voltage and current equations, Define average value, RMS value, form factor and peak factor. Solve simple series circuits containing R, L and C. define poly phase and 3-phase system and single – phase system. | |
| 4 | A.C. Machines | 20 |
| | Working principle of alternator, relation between frequency, speed and poles. EMF equation of alternation and solve simple problems. Working principle of Transformer. EME equation of transformer and solve simple problems. Define turn rotation, working principle of 3-phase induction motor and single – phase induction motor and its types and uses synchronous motor and its application. | |
| 5. | Storage batteries and safety procedures | 10 |
| | Types of cells, active materials of lead acid cell, Nickel iron cell, uses of storage batteries. Electrical shock and burns, its effects, Precautions for electrical shock | |

- 6. Basic work shop tools** **20**
 Classification, hand tools, marking and measuring tools, cutting tools, striking tools, holding tools, miscellaneous tools, machine tools, neat sketches with specifications and uses.
- 7. Mechanical working of metals** **20**
 Hot working process, cold working process, advantages and disadvantages of both and comparison.
- 8. Simple stress and strains :**
 Stress, strain, various types of stresses and strains. Hook's law, Module of elasticity, lateral strain, poisson's ratio, relation among elastic constants, calculation of stress, strain and dimensional changes in bodies, thermal stresses.
- 9. Fundamental of thermodynamics** **20**
 Heat, temperature, specific heat, loss of thermodynamics, loss of perfect gases, internal energy, law of conservation of energy, thermodynamic processes, air cycles.
- 10 Internal combustion Engines** **25**
 Definition, examples, classification, I.C., Engine parts, engine terminology, Four stroke (Petrol and diesel) engines, Two stroke (Petrol and diesel) engines, Four stroke vs. Two stroke, petrol vs. diesel engines, fuel supply system in petrol engines, fuel injections system for diesel engines, cooling system of I.C. engine, necessity of cooling and methods of cooling, lubrication system of I.C. engine, function of lubrication, governing of I.C. engine and methods of governing.

Reference books

1. Strength of materials – by RS Khurmi,
2. A text book on Mechanical technology – RS Khurmi
3. Work shop technology
4. Electrical Technology volume I and II – by BL Theroja and AK Theroja,
5. Electrical Technology

II YEAR PRACTICALS
PAPER –I
DTP & PRE PRESS OPERATIONS –II
(Software for graphic arts and preparation of image carriers for flexo and Screen printing)

		160 periods
I	Exercise – I DTP software for publishing industry – study the application of page maker, Photoshop, Illustrator, instant artist, coral draw, quark press and In design	18
II	Exercise –II Preparation of any design using pagemaker	16
III	Exercise –III Preparation of any design using Photoshop	18
IV	Exercise – IV Preparation of any design, using instant artist	16
V	Exercise – V Preparation of any design with graphics using corel draw	14
VI	Exercise –VI Preparation of any design with text using Quark Xpress	16
VII	Exercise – VII preparation of any design using in design	14
VIII	Exercise – VIII Preparation of any design with text and graphics using In design	16
IX	Exercise – IX Preparation of image carriers For flexography – field visit to study the image preparation	10
X	Exercise – X Preparation of screen for screen printing by direct method	12
XI	Exercise -XI Preparation of Screen for Screen printing by transfer method.	10

II YEAR PRACTICALS
PRESS OPERATIONS & FINISHING –II
(PAPER – II)
(Flexography and Screen printing packaging)

160 periods

I	Exercise – I	12		
	Anatomy of Flexography Press		}	Field visit to flexo printing press
II	Exercise –II	14		
	Plate mounting and make ready			
III	Exercise –III	14		
	Printing Single Colour Job by flexo			
IV	Exercise – IV			14
	Printing Multi colour Job by flexo			
V	Exercise – V			14
	Printing of Single color by Screen printing			
VI	Exercise – VI			14
	Printing of Multicolor Job by Screen Printing			
VII	Exercise – VII			14
	Printing on different objects by Screen Printing			
VIII	Exercise – VIII			14
	Die- making for cartons and envelopes			
IX	Exercise – IX	14		
	Die- Cutting of Cartons and envelopes		}	Field visit to packaging unit making cartons.
X	Exercise – X	12		
	Folding and gluing of cartons and envelopes			
XI	Exercise – XI	12		
	Quality checking of Cartons			
XII	Exercise – XII	12	}	Field visit to a flexible packaging unit
	Slitting, rewinding, Pouch Making and Pouch filling			

PAPER-III
II YEAR PRACTICAL
ENGINEERING DRAWING

160 Periods

NOTE

1. **I.S./B.S Latest specification should invariably be followed in all topics**
 2. **A-3 size drawing sheets are to be used for all drawing practice exercises.**
1. **Understand the importance of engineering drawing.** **15**
 Explanation of the scope and objectives of the subject of Engineering Drawing its importance as a graphic communication need for preparing drawing as per standards – SP -46 -1988 – Mention of I.S.O and B.I.S- Role of drawing in Engineering Education- Link between engineering drawing and other subjects of study
 2. **Engineering drawing Instruments -** **15**
 Classifications : Basic Tools, tools for drawing straight lines, tools for curved lines, tools for measuring distances and special tools like mini drafter & drafting machine – mentioning of names under each classification and their brief description – scales : Recommended scales reduced & enlarged – lines – types of lines, selection of line thickness – selection of pencils – sheet sizes A0, A1, A2, A3,A4, A5, layouts of drawing sheets in respect of A0,A1, A3 sizes, sizes of the title block and its contents – care and maintenance of Drawing sheet, drawing plate.
 To draw “ Lay out of sheet” and as per SP – 46-1988 to a suitable scale.
 Simple exercises on the use of Drawing Instruments.
 Importance of Title Block
 Drawing Plate 1 : (Consisting of about two exercises)
 To draw geometric shapes (Standard) using drawing instruments – To draw layout of sheet and title block
 3. **Free hand lettering & Numbering** **10**
 Importance of lettering – Types of lettering – Guide lines for lettering
 Recommended sizes of letter & numbers – Advantages of single stroke or simple style of lettering – Using of lettering stencils.
 Drawing plate 2 (consisting of about 5 to 6 exercise)
 To print the table of types of lines as per latest ISI standards.
 To print the table of “Recommended sizes of letters and numerals” – as per standards.
 Selection of suitable size of letters and numbers and draw the given titles, phrases using both vertical and sloping styles.

4. Dimensioning practice **20**

Purpose of engineering drawing, need for I.S.I code in dimensioning shape description of an Engineering object.

Definition of Dimensioning size description – location of features, surface finish, fully dimensioned Drawing.

Notations or tools of dimensioning, dimensioning extension line, leader line, arrows, symbols, number and notes, rules to be observed in the use of above tools –

Placing dimensions : Aligned system and unidirectional system

(SP-46 -1988).

Arrangement of dimensions chain, parallel, combined progressive and dimensioning by co-ordinate methods.

The rules for dimensioning standard, features “Circles (holes) arcs, angles, tapers, chamfers, and dimension of narrow spaces.

Drawing plate : 3 (Consisting of above 12 to 15 exercises)

Dimensioning a given drawing using the above tools, rules and systems of dimensioning.

Dimensioning practice in various methods of dimensioning stated above

Dimensioning, given common features listed.

Exercise in identifying the departures made in a given dimensioned drawing from I.S.I. code of practice

5. Geometric construction **20**

Division of a line: to divide a straight line into given number of equal parts internally examples in Engineering application.

Construction of tangent lines: to draw tangent lines touching circles internally and externally.

Construction of tangent arcs

- i) To draw tangent arc of given radius to touch two lines inclined at given angle (acute, right and obtuse angles)
- ii) Tangent arc of given radius touching a circle or an arc and a given line.
- iii) Tangent arcs of radius R, touching two given circles internally and externally.

Hexagon: Inscribing a Hexagon in a circle of given dia and circumscribing a given circle, using.

- i) Set squares.
- ii) Compass – given a side to construct a Hexagon using set squares or compass.

Conical curves: Explanation of Ellipse, parabola, Hyperbola, as section of a double cone and loci of a moving point, eccentricity of above curves – Their Engg. Application viz. Bolts and Nuts, projectiles, reflectors P.V. Diagram of a Hyperbolic process, construction of Ellipse using.

- i) concentric circles method
- ii) Paper trammel, method.
- iii) Construction of parabola by rectangular method
- iv) Construction of Rectangular Hyperbola when given the position of point on the curve.

General Curves : Involutives, cycloid and Helix, explanations as locus of a moving point, their Engineering application, Viz. Gear tooth profile, screw threads, springs etc. their construction.

Drawing plate : 4 (Consisting of a bout 12 to 15 exercises)

Exercises mentioned above at the rate of at least one problem on each “Construction”.

6. Projection of points, lines and planes 20

Projecting a point on two planes of Projection –
projecting a point on three planes of projection –
Projection of straight line.

- (a) Parallel to one or both the planes.
- (b) Contained by one or both the planes.
- (c) Perpendicular to one of the planes.
- (d) Inclined to one plane and parallel to other planes.

Projection of perpendicular planes

- a) Plane perpendicular to both HP and VP
- b) Plane perpendicular of HP and parallel to VP and Vice versa.
- c) Plane perpendicular to HP and inclined to VP and vice versa.

7 Orthographic projections 10

Meaning of orthographic projection – using a viewing Box and a model – number of views obtained on the six faces of the box. – neat sketches of only 3 views for describing object – concept of front view, top views, and sides view sketching these views for a number of Engg. Objects – Explanation of “first angle projection” – Positioning of three views in First angle projection – Positioning of three views in First angle projection – Projection of points as means of locating the corners of the surfaces of an object – use of miter line in drawing a third views when other two view are given method of

representing hidden lines – Selection of minimum number of views to describe an object fully.

Drawing plate 5 : (Consisting of about 10 to 12 number of exercises)

Given an engineering object(s) to sketch the three views.
Given the pictorial view of simple objects to sketch the three views in First and third angle projections, on the views with reference to the object.

Given two views and simple object – Draw the missing of third view.

Drawing plate : 6 (Consisting of about 6 to 8 exercises)

Given the engineering objects (Pictorial views) Drawing the three views in first angle projection.

Identifying the object, when give a number of objects and the orthographic views (Matching exercises)

8

Sectional views

15

Need for drawing sectional views – What is a sectional view – location of cutting plane –purpose of cutting plane line – selection of cutting plane to give maximum information (vertical and offset planes)- meaning of full, half revolved and removed, local or practical Sections – Hatching – adjacent components (Two or more) large areas, a part in different parallel planes Conventional practices to represent sections of ribs, shafts, bolts, nuts, screws, rivets, spokes, webs, keys, cotters, thin sections etc. as per B.I.S specifications – conventional representation of materials as per B.I.S. standard.

Preparing conventional representation of materials as per latest / B.I.S code.

Given the object (pictorial or orthographic view), and cutting plane line to draw sectional view.

To identify the object when given number of objects and number of sectional views (Matching exercise)

9

Auxiliary views

15

Need for drawing auxiliary view – explanation of the basic principles of drawing an auxiliary views explanation of reference plane and auxiliary plane – Partial auxiliary view.

Drawing plate No.8 (Consisting of about 8 exercises)

Given a set of objects, state whether an auxiliary view is needed – if required sketch the same

Given the object and its auxiliary view (partial of full, to sketch the auxiliary pane on the pictorial view)

10

Pictorial Drawings

10

Brief description of different types of pictorial drawing viz Isometric oblique, and perspective, - use of these –

Isometric drawings : ISO axis, angle between them, meaning them, meaning of visual distortion in dimensions – Need for as isometric scale, difference between Isometric scale, and ordinary scale difference between isometric drawing (or view, and Isometric Projection) and orthographic drawing – Isometric and non-Isometric projection) and orthographic drawing – Isometric and non-Isometric lines – Isometric drawing of common features like rectangles, circular- shapes, non-isometric lines, use of box and offset construction-oblique drawings ;

Their use – Cavalier and cabinet drawings – oblique drawing of common features like rectangular, circular and inclined, surfaces – selection of the face of the object to be included in the front view

Draw plate :9 (consist of about 10 to 12 exercises)

Given the Orthographic view to draw isometric views.

Construction of isometric scale

Given the Orthographic vies to draw isometric projections.

Given the orthographic views to draw cavalier Drawings.

Given the orthographic views to draw cabinet Drawings.

11 **Development of surfaces :**

Need for preparing development of surface with refinance to sheet metal work – concept of true length of a line with reference to its orthographic projection when the line is (i) parallel to the plane of Projection (ii) when it is inclined to one principle and parallel to the other – development of Engineering common solids like Cubes, prisms, cylinders, cones, pyramid (Sketches only) Types of development : parallel line and radial line development - procedure of drawing development, drawings of trays funnels , 90 degree elbow pipes and rectangular ducts.

Drawing plate No.10 (consist of about 10 exercises)

Development drawing by “ Parallel – line “ method such as prisms and

Cylinders (Truncated)

Development drawing by “ Radial- line” method such as cones and pyramids

(Truncated)

Development drawings of tray funnel 90 degree elbow and rectangular duct.

Reference Books

10

1. First year Engineering Drawing – B.R. Gupta.
2. Engineering Drawing by N.D.Bhatt.
3. “ A First Year Engineering Drawing” - AC Parkinson (Metric Edition)
4. T.S.M. & S.S.M on “Technical Drawing” prepared by T.T.T.I Madras.
5. SP-46-1988 – Bureau of Indian standards.
6. Introduction to engineering drawing R.C.Mouli – V. Rama Rao – M.Venkateswarlu.

INSTRUMENTS AND MATERIALS
REQUIRED FOR ENGINEERING DRAWING
PAPER -III
PRACTICAL
II YEAR

- 1 Drawing table & Boards must be supplied by the College
2. Drafter
3. Long scale
4. Protractor
5. Circular templates
6. Compass.
7. H.B, 2 H.B Pencils
8. Erasers
9. Drawing sheets.
10. Drawing clips & pins
11. Divider.

MODEL QUESTION PAPER
I YEAR THEORY
PAPER -1

DTP & PRE-PRESS-I
(DESIGNING, DESKTOP PUBLISHING, COLOUR SEPARATION & IMAGE ASSEMBLY)

Time : 3 Hours

Max.Marks:50

PART -A

I Answer all Question

Each question carries 2 marks

2x10=20

1. Briefly explain balance.
2. What is the purpose of a layout?
3. Mention any 5 parts of DTP
4. State the function of a scanner
5. Explain basic colour theory.
6. What is imposition?
7. State the purpose of stripping
8. What is colour separation?
9. Explain Digital proofing
10. State the concept of DTP system.

PART – B.

II. Answer any 5 questions

Each question carry 6 marks

5x6=30

11. Mention the basic principles of a design
12. State the role of Typography in Design. How do you prepare a layout?
13. Explain the input and output devices of a DTP system. Briefly mention about each one of them.
14. What do you know about primary, secondary and tertiary colours ? State the importance of colour in a design
15. What are the points to be kept in mind while dividing an imposition scheme? Draw an imposition scheme of your choice and mention the folio numbers.
16. State the importance of digital proofing. How is it popular these days ?
17. What do you know about elementary stripping techniques? Explain briefly about them.
18. Explain the importance of proofing. How does it help the printer?

MODEL QUESTION PAPER
I YEAR THEORY
PAPER -II

PRESSWORK & FINISHING –I
(PRESS DEVELOPMENT IN LETTER PRESS, OFFSET, GRAVURE AND
PUBLICATIONS)

Time: 3 Hours

Max.Marks:50

PART -A

I Answer all Question

Each question carries 2 marks

2x10=20

1. State the principle of letterpress process
2. What is the principle of Offset?
3. What do you understand by 'registration'?
4. Explain perfect printing
5. State the purpose of solvent recovery
6. State the purpose of 'Doctor Blade'?
7. State the principle of Gravure process.
8. What do you understand by binding operations?
9. Explain book repairing works
10. List the materials used for binding.

PART – B

II Answer any 5 questions

Each question carries 6 marks.

5x6 =30

11. Classify printing processes and mention the different types of machines that come under them.
12. Explain the various printing operations on an offset machine explain about each one of them.
13. What do you understand by single unit web presses and multi-colour web presses? Explain
14. State the different operations that come under publisher's binding. Explain about each one of them.
15. What do you understand by automation in bindery? Explain about each one of them
16. Explain the different equipments and tools used for binding.
17. Classify gravure printing press. Mention the jobs undertaken by them.
18. What do you know about feeder unit? Explain automatic feeding.

PAPER-III
I YEAR THEORY
IT & "C" LANGUAGE.
MODEL QUESTION PAPER

Time: 3 Hours

Max.Marks:50

PART –A

2x10
=20

Answer all questions

Each question carries two marks.

1. What is a word processor, Explain?
2. Write a procedure to create a new word document and save it by a name?
3. Explain undo and redo Options?
4. Write the procedure to create columns on the selected text?
5. Write the structure of a "C" programme?
6. Define increment and decrement operation?
7. Define a "String"
8. Write briefly about array of a structure?
9. List out different loop control statements?
10. Explain briefly about nesting of functions?

Part – B

Answer any five questions

5x6
= 30

Each question carries six marks.

11. Write briefly about Arithmetic, logical, relational operations and precedence's?
12. What are the different alignments available in M.S. Word? Explain?
13. How to create a table with required number of rows and columns in M.S word?
14. Explain the procedure to create a chart in Excel?
15. What are designed templates, explain?
16. State and explain the use of if, if-else, Nested if else, break, continue, Go to and switch statements?
17. Write short notes on declaration, function prototypes, return statements. ?
18. Write short notes on storage classes of variables, scope and visibility structure features.

MODEL QUESTION PAPER
I YEAR PRACTICALS
PAPER -1
PREPRESS OPERATIONS – I
(DTP, DESIGN & LAYOUT, PROOF READING & IMPOSITION)

Time: 3 Hours

Max.Marks:50

PART -A

1. Prepare a design for a visiting card showing the required 15
founts

- II Read the given proof and show relevant Text and marginal 20
arks.

- III Viva – voice & Record 10+5 =15

MODEL QUESTION PAPER
I YEAR PRACTICALS
PAPER -II

PRESS OPERATIONS (Letterpress, Offset, Gravure) & FINISHING – I
(Publication)

Time: 3 Hours
Max.Marks:50

PART -A

1. Write down your observations made during the field visit to a newspaper Office, where it is printed by Offset process. 15

- II Prepare a control chart for recording and assessing the quality of carton in respect of operations like die cutting, creasing, folding and gluing 20

- III Viva – voice and Record 10+5 =15

PAPER-III
I YEAR PRACTICAL
IT & "C" LANGUAGE.
MODEL QUESTION PAPER

Time: 3 Hours

Max.Marks:50

- 1 Create a worksheet which is showing the marks obtained by 20
10 students in 5 subjects, total and percentage of the students
- 2 Write a programme to print sum of digits 15
- 3 Viva voice & Record 10+5=15

INTERMEDIATE VOCATIONAL COURSE

II YEAR – THEORY

PAPER -1

(Software for Graphic Arts, CTF, CTP, and Image – Carrier making)

MODEL QUESTION PAPER

Time: 3 Hours

Max.Marks:50

**I Answer all questions – Each question carries two marks 10x2=20
marks.**

1. List out the software used for graphic arts and state the advantage of computers in crating a design.
2. How would you create a style sheet in Pagemaker?
3. A poster fully consisting of illustrations needs to be designed for a customer. Which software would you use and why?
4. Which is the programme best suitable for combining text and illustrations and state the reasons for doing so?
5. How would you create monograms using Corel Draw?
6. What is an image setter and what are its uses?
7. State the advantages and disadvantages of CTP?
8. Explain the principle of Flexography with a neat sketch.
9. What is Screen Printing and what are its applications?
10. What is Thermography?

**II Answer any five questions – Each question carries Six 5x6=30
marks marks.**

1. Compare Pagemaker and Quark X press in detail.
2. How Would you carry out imposition of pages using pagemaker ?
3. Photoshop is the most extensively used software in Graphic Arts industry. Why? What are its special features?
4. Explain what you know about adobe Illustrator?
5. What is Corel Draw and state its applications.
6. Bring out the salient features of Computer – to- Film (CTF) and Computer- to – plate.
7. Explain the procedure of rubber plate – making for Flexography.
8. Write short notes on a) Xerography b) Die-stamping c) Embossing d) Gold foiling.

INTERMEDIATE VOCATIONAL COURSE**II YEAR – THEORY****PAPER -II****PRESSWORK & FINISHING –II**
(Flexography & Printing) (Packaging)
MODEL QUESTION PAPER**Time: 3 Hours****Max.Marks:50****I Answer all questions – Each question carries two marks 10x2=20 marks.**

1. What is an in-line press in Flexography?
2. What is CIS in Flexography? What does it do?
3. State the role of Anilox Roller
4. Draw a neat sketch showing the printing unit of Flexography.
5. How is a screen printing table prepared?
6. List out the materials used for screen printing process.
7. What is packaging and state its purpose.
8. List out the materials used for packaging.
9. What is carton designing?
10. What is die- cutting?

II Answer any Five Questions – Each question carries six marks 5x6=30 marks.

1. Classify Flexographic printing presses and explain any one of them
2. What jobs are recommended for printing by Flexography and state the reasons.
3. Explain the working of inking system in Flexography.
4. Classify Screen Printing presses and explain any one of them
5. How would you carry out make – ready for screen printing?
6. Explain the importance of Flexible packaging and list out the post printing operations involved for making a carry bag, for example.
7. What factors would you keep in mind before designing a carton?
8. Explain the operations of die-cutting, creasing, folding and glueing for cartons and labels.

II YEAR THEORY
PAPER –III
BASIC ENGINEERING
MODEL QUESTION PAPER

Time: 3 Hours

Max.Marks:50

Part -A

**I Answer all questions each question carries two marks 10x
2=20**

1. Define Cottage and current?
2. Write any two laws of resistance?
3. Explain the working principle of D.C. Generators?
4. Define poly phase?
5. Explain briefly about transformer ratio?
6. Write any three precautions have to be taken against shock?
7. List out various cutting tools used in workshop?
8. Write any three advantages of hot working process?
9. Define stress and strain?
10. Write any three properties of lubricants?

PART – B

**II Answer Any Five Questions each question carries six marks.
5X6=30**

11. State and explain Ohm's law ?
12. Explain briefly about the types of D.C. motors?
13. Write briefly simple wave form?
14. What is the difference between cells and batteries, and list out the types of cells
15. Define lubrication and write its purpose?
16. Write the classification of IC engineers of reciprocating type?
17. What are the different types of stress and explain?
18. Four conductors which are having the resistances of 2 ohms, 4 ohms, 6 ohms and 8 ohms are connected in series across a battery of 40 volts, find the current flowing through the circuit and power consumed by the circuit ?

INTERMEDIATE VOCATIONAL COURSE**II YEAR – PRACTICALS****PAPER -1****PREPRESS OPERATIONS -II****(Software for Graphic Arts, CTF, CTP, and Image – Carrier making)****MODEL QUESTION PAPER****Time: 3 Hours****Max.Marks:50**

- | | | |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| I | Prepare a design for a Title Cover of a book using Pagemaker. The text for the design is given below :
Scientists who have changed the world
Johann Gutenberg
The story of the invention of movable type and how printing led to a knowledge of exposition
PRINTING | 20Marks |
| II | Write down your observations you made during your field visit to a Flexography Printing Press | 15
Marks |
| III | Viva voce & Record | 10 +5 = 15Marks. |

**INTERMEDIATE
II YEAR – PRACTICALS
PAPER -II**

**PRESSWORK & FINISHING –II
(Flexography & Printing) (Packaging)**

MODEL QUESTION PAPER

Time: 3 Hours

Max.Marks:50

- I Explain how a plate is mounted and makeready carried out on a Flexography press. 15 marks.
- II Take the given screen and print ten neat copies in single colour and write the procedure of how you printed them 20marks .
- III Viva voce & Record 10 + 5 =15 marks

II YEAR PRACTICALS
PAPER –III
ENGINEERING DRAWING
MODEL QUESTION PAPER -I

Time: 3 hours

Max. Marks: 50

I Answer any three questions each question carries five marks. 3x5=15

1. Write the following in capital inclined letters
Use 10 mm size “ ANDHRA PRADESH”
2. Draw a Hexagon of side 40 mm.
3. Draw the first angle projection of the given isometric view shown in fig.1
4. Fig. :2 shows the front view and side view of an object in 3rd angle projection draw an Isometric view of the objects.

II Answer Any Three Questions each Question Carries 10 Marks 3X10 = 30

5. Construct a hyperbola with the following data
 - a) The distance of focus from directrix is 50 mm
 - b) The eccentricity is $\frac{3}{2}$
6. A Straight line of 60 mm long has one of its ends 35 mm in front of V.P. and 30 mm above H.P. the line is inclined at 30 degree to H.P. and 50 degree to V.P. Draw its projections ?
7. Draw the projection of a cylinder 30 mm diameter and 50 mm long, lying on the ground with its axis inclined at 45 degree to V.P. and parallel to the ground.
8. A hexagonal pyramid of base side 30 mm and height 75 mm is resting on the ground with its axis vertical. It is cut by plane inclined at 30 degree to the H.P. and passing through a point on the axis at 20 mm from the vertex. Draw its front and top views.
9. Draw the development of truncated pyramid show in fig. 3
10. Inscribe a parabola in a rectangle of side 100 mm and side 50mm. whose inclined angle is 60 degree use parallelogram method. ?

III Record

5

List of equipments

- | | | | |
|----|-------------------------------------|----|-----------------------------------------------------------------------------------------------------|
| 1. | Pentiums | :: | 5 |
| 2. | Software | :: | Windows 95, Page
maker, Corel Draw,
Adobe illustrator, Adobe
Photoshop, Instant
Artist. |
| 3. | Plate making equipment | | |
| | 1. Whirler- single demy | :: | 1 |
| | 2. Plate processing sinks | :: | 1 |
| | 3. Printing down frame(Single demy) | :: | 1 |
| 4. | Small offset Printing Machine | :: | 1 |
| 5. | Screen Printing Equipments | :: | 5 |
| 6. | Cutting machine | :: | 1 |
| 7. | Hard Press | :: | 1 |
| 8. | Spiral and comb binding equipments | :: | 1 |

Note: Twenty students can be made into two batches of Ten students each

To carryout the laboratory work a min. of 4 laboratory rooms are required.

One computer lab and the remaining 3 halls are required for erecting machinery

Hall -1	::	Computer Lab
Hall-2	::	Pre-Press Lab
Hall-3	::	Press Lab
Hall-4	::	Finishing Lab

Equipment / Main Labs :

- | | | | |
|----|--------------------------------------------------------------------------|----|----|
| 1. | Computer Lab (With Air Conditioning) Apple Mac-1 with relevant software | | |
| | No. of terminals required | :: | 5 |
| | Flat bed scanner | :: | 1 |
| | Printers | | |
| | 1. Laser Printer | :: | 1 |
| | 2. Ink Jet Printer (4 colour) | :: | 1 |
| | 3. Dot matrix printer | :: | 1 |
| | Software: As prescribed in the course and practical syllabi. | | |
| 2. | Pre-press Labs | | |
| | - Lining up table | :: | 1 |
| | - Retouching tables | :: | 2 |
| | - Glass work tables | :: | 10 |
| | - Whirler | :: | 1 |
| | - Plate development sink | :: | 1 |
| | - Printing down frame | :: | 1 |

3. Press Lab

- | | | |
|----------------------------------|----|---|
| 1. Baby offset machine | :: | 1 |
| 2. Two colour perfecting machine | :: | 1 |

4. Finishing & Screen Printing Lab

- | | | |
|-------------------------------------------------|----|--------|
| 1. Cutting machine | :: | 1 |
| 2. Stitching machine | :: | 1 |
| 3. Ruling machine | :: | 1 |
| 4. Hard press | :: | 1 |
| 5. Laminating machine | :: | 1 |
| 6. Varnishing machine | :: | 1 |
| 7. Spiral binding machine | :: | 1 |
| 8. Screen printing frames and other accessories | :: | 5 sets |

Web Offset – field visit to a newspaper office ::

Gravure Flexography –field visit

5. JOB TRAINING ORGANISATIONS.

1. A.P. Govt. Text Book Press, Mint Compound, Hyderabad.
2. A.P. Govt. Central Press, Chenchalguda, Hyderabad.
3. News paper organizations – Eenadu, Hindu, Deccan chronical, Indian Express, Andhra Jyothi, Vaartha, etc.,
4. Pragathi Art Printers, Hyderabad.
5. A.P. Govt. Printing Press, Vijayawada
6. South Central Railway Press, Secunderabad.
7. Kala Jyothi, R.T.C. “X” Road, Hyderabad.
8. Hi-Tech Print system, Nagarjuna Hills, Hyderabad
9. Caxton Printers, Lakdi-ka-pool, Hyderabad
10. Kanakadurga Press, Lakdi-ka-pool, Hyderabad
11. All News paper printing Presses.
12. All leading printing presses.

5. A] ON JOB TRAINING & EVALUATION**1st Year**

1. Study, Observation, applying the concepts of DTP in a Government or Private commercial press, assisting in all DTP & Press activities – overall exposure to press environment. 10
2. Designing & Lay outing of
 - i) Visiting cards
 - ii) Letter heads
 - iii) Title page of a book
 - iv) Wedding cards
 - v) Invitation cards etc. in MS Words & Other DTP Software. 10

- | | | |
|----|-------------------------------------------------------------------------------------------------------------------------------------------|----|
| 3. | Exposure to press equipment & press operations and Development of abilities in printing of single color job works & multicolor job works. | 10 |
| 4. | Acquiring skills in preparation of spiral binding & note books. | 10 |
| 5. | Over all performance of the candidate, punctuality, learning abilities , development of DTP Skills, communications, Personality etc. | 10 |

II Year

- | | | |
|----|-------------------------------------------------------------------------------------------------------------------------------------|----|
| 1. | Designing of 2 or 3 job work lay outs by using Photo shop, Coral draw, Instant artist or other needy soft ware. | 10 |
| 2. | Preparation of screen for screen printing & also printing Techniques. | 10 |
| 3. | Die cutting procedures. | 10 |
| 4. | Exposure to flexography press and printing of various job works by flexo. | 10 |
| 5. | Over all performance of the candidate, punctuality, learning abilities , development of DTP Skills, communications Personality etc. | 10 |

6. Qualifications for the Teaching Staff & Others:

1. B.Tech Printing Technology or Diploma in Printing Technology.
2. B.Tech with Computer Sceinece/MCA/M.Sc
(Maths/Physics) with PGDCS or Diploma in Printing Technology.
3. For Technical Sub Staff II class Diploma in Printing Technology or Certificate in the concerned branch from ITI or Vocational Inter with Printing Technology with at lest II Class.

REFERENCE BOOKS

1. The manual of lithography – Thames & Hudson
2. Screen Printing – Kailash Takale
3. Understanding – WordStar
4. Printing Materials – by Fry & Metal Fparenties ltd.
5. What the Printer should know about paper – GATF
6. Finishing Process in Printing – A.G.Martin
7. Fundamentals of packaging – F.A pain
8. Prototype setting – LG Health & I Faux
9. Fundamentals of Modern Photo composition
- 10 Web offset troubles – GATF
- 11 Offset Plate making – Robert – F- Reed
- 12 Formulary – Robert F- Reed
- 13 Desk Top Publishing – Graham Johnes / Joseph John
- 14 Mastering Page maker – Joves
- 15 Shipping – S.Misra
- 16 Technology of Offset Printing – CS Misra.