Plano graphic Printing Technique II

Name of the Course: Diploma in Printing Technology	
Course Code:	Semester: Fifth
Duration: 16 Weeks	Maximum Marks: 100
Teaching Scheme	Examination Scheme
Theory: 3 hrs/week	Internal Examination: 20
Tutorial: nil	Assignment & Attendance: 10
Practical: **4** hrs/week	End Semester Exam:70
Credit: 3	

Aim:

Among the wide spectrum of different printing processes the most versatile and popular process is Plano graphic process. A wide range of substrates can be printed by Plano graphic process. Continuous R and D are going on in this process into different printing machines manufacturing companies and allied trades. There are tremendous job opportunities for the printing students in this field. The rapid changes and development in the field of Plano graphic technology obviate certain very old methodology and claim inclusion of up to date concept. The present syllabus reflects this rationale.

Objective: The students will be able to

1) Understand the four units that make up any printing press.
2) Understanding the development of press design from platen presses to rotary presses.
3) Understanding the principle of offset printing
4) Understanding the feeding unit, registration unit, printing unit, inking unit, dampening unit and delivery unit operation of an offset lithographic press.
5) Understanding the basic steps in setting up and operating an offset lithographic press
6) Understanding the several quality control devices commonly used in offset printing.
7) Understanding the concept of offset blanket
8) Understanding the feeding, dampening and inking systems of offset presses.
9) Understanding the common press problems.
10) Understanding the different imposition schemes, precautionary measures in machine room.

Pre-Requisite: Elementary knowledge of Basic Printing & Pre-Press Repro Technique

Contents:

Group-A			Hrs/unit	Marks
Unit 1	1.0	Make – Ready.		
	2.0	Offset Blanket – Usefulness – Construction – Classification – Required qualities – Treatment – Leveling – Restoring – Cleaning – Reasons for damaging – Repairing Dented Blanket–Compressible Blanket.	15	15
Unit 2	3.0	Sheet Feeder – Successive sheet feeding – Stream feeding – Pile feeding – Continuous feeding – Basic requirements to be made by a Feeder.	15	15
	4.0	Inking system including setting of rollers.		
Unit 3	5.0	Fundamentals of Web – Offset press.	12	10
	6.0	Web Delivery – Roll to Roll, Roll to Fold, Roll to Sheet		

	7.0 Drier & Chiller Unit of Heat set Web Offset - Characteristic of Web Offset Printing Ink- Characteristic of Sheet fed Offset Printing Ink		
Group-B Unit 4	8.0 Safety in Machine room. **9.0** Some common problems in Offset printing – Scumming – Tinting – Offsetting – Doubling – Slurring – Hickies – Ghosting – Chalking.	10	10
Group-C			
Unit 5	10.0 Proving – Proof Press. 11.0 Delivery Unit – Transfer point, Delivery Gripper setting, Construction of Chain Delivery, Delivery Joggers, Anti set off Powder spray unit, De-curler, Delivery Pile lowering mechanism **12.0** Different Cylinder arrangement of different printing units both Sheet fed & Web fed-Two cylinder small offset machines. **13.0** Concept of Digital Offset – Digital Printing Technology – Advantages of Digital Printing	12	20

Name of Author	Title of the Book		Name of the Publisher
1. David Cumming 2. Cavuto and Beale 3. GATF 4. GATF 5. Ian Faux 6. GATF 7. GATF 8. GATF 9. GATF 10. GATF	1. Hand Book Of Lithography - David Cumming 2. Solving Sheet Fed Offset Press Problems - Cavuto And Beale(Gatf) 3. Sheetfed Offset Press Operatig - Gatf 4. The Printing Industry 5. Modern Lithography – Ian Faux – Macdonald And Evans 6. Single Colour Lithographing Machine Operating 7. The Lithographers Mannual 8. Small Offset : Preparation And Press 9. Web Offset Press Operating 10.HandBookOfPrinting rocesses.		GATF GATF GATF GATF GATF GATF GATF

CONTACT PERIODS: 64 **INTERNAL ASSESSMENT: 06** **TOTAL PERIODS: 70**

Examination Scheme:

a) Internal Examination Marks: 20
b) End Semester Examination Marks: 70
c) Attendance + Assessment + Interaction : 10
Full Marks: 100

End Semester Examination Marks: 70

Group	**Unit**		**Objective**	**Marks/Qs**	**Total Marks**
		To be set	**To be answered**		
A	1, 2 & 3	10	Any 20Qs	01	20
B	4	05	-		
C	5	10	-		
Group	**Unit**		**Subjective**	**Marks/Qs**	**Total Marks**
A	1, 2 & 3	04	Any five Qs	10	05x10
			Taking atleast		=50
			One from each		
			Group		
B	4	02	-	-	-
C	5	04	-	-	-

Note 1: Teachers' Assessment will be based on performance on given assignments.

Note 2: Assignments may be given on all the topics covered in the syllabus.

Printing Machine Maintenance II

Name of the Course: Diploma in Printing Technology	
Course Code:	Semester: Sixth
Duration: 16 Weeks	Maximum Marks: 100
Teaching Scheme	Examination Scheme
Theory: 3 hrs/week	Internal Examination: 20
Tutorial: 1 hr/week	Assignment & Attendance: 10
Practical: Nil	End Semester Exam:70
Credit: 2	

Aim:

Maintenance of printing machines is important for many reasons. The delay in production for a equipment failure can create serious problem because printing is a service industry. Today's newspaper if supplied tomorrow is no longer news but history. Like other technological fields, new concepts and applications are developing continuously in maintenance also. This proposed syllabus is based on latest changes.

Objective: The students will be able to

1) Work as a maintenance personnel.
2) Repair machine parts with the help of work – shop.
3) Keep in printing machine in good working order.
4) Achieve and maintaining registration.
5) Follow the safety rules inside the press – room
6) Work in a sheet – fed offset machine and rectify some serious troubles.

Pre-Requisite: Elementary knowledge of Basic Printing & Pre-Press Repro Technique

Contents:

Group-A			Hrs/unit	Marks
Unit 1	**1.0**	**Maintenance Management in Printing Industry** 1.1 Need for planned maintenance in printing industries, inventory and control 1.2 Contract and preventive maintenance in printing 1.3 Implement different Problem Finding Tool (TQM Tool) – Pareto Diagram – Cause & Effect Diagram – Histogram – Control Chart – Scatter Diagram – Graphs – Check Sheet Control	12	10
Unit 2	**2.0**	**Maintenance shop machinery** 2.1 Basic knowledge of following machines. Lathe, Drill, Press, Milling Machine, Grinder, Welder (purpose and overview only)	05	10

Group-B **Unit 3**	**3.0 Press Inspection and Testing** 3.1 Testing cylinders 3.2 Testing and setting grippers 3.3 Testing rollers, Ink fountain, Rust and dirt. 3.4 Testing Bearers	15	10
Unit 4	**4.0 Press Register** 4.1 Objective – in the context of both single colour and multi- color machine. 4.2 Front lay mechanism – constructions, drive, trouble-shooting. 4.3 Side lay mechanism -- constructions, drive, troubleshooting 4.4 Insertion devices 4.5 Mis-registration due to paper 4.6 Axial and circumferential plate cylinder movement	12	15
Group-C			
Unit 5	**5.0 Safety measures** 5.1 Developing positive attitudes towards safety of a printer. 5.2 Safety don'ts in printing establishment 5.3 Occupational dermatitis in Lithography	05	10
Unit 6	**6.0 Sheet-fed offset machine mechanism (case study)** 6.1 Roller arrangement of inking and dampening system – their drives and setting points 6.2 Cylinder parallelism 6.3 Toggle mechanism 6.4 Sheet sequences 6.5 Some printing problems like streaks, doubling, mis-registration, dot-gain, which occur due to fault in machine.	15	15

Name of Author	Title of the Book		Name of the Publisher
1. C. W. Latham 2. Ian Faux 3. G.A.T.F. 4. G.A.T.F.	1. Advanced Pressmanship – C. W. Latham 2. Modern Lithography – Ian Faux 3. Web Offset Press Troubles –		

5. Weber & Geib 6. L.T.F. Inc. 7. L.T.F. Inc. 8. Banks 9. L.T.F. Inc. 10. Victor Strauss 11. G.A.T.F. 12. L.T.F. Inc. 13. G.A.T.F. 14. Durrant 15. Victor Strauss 16. G.A.T.F.	G.A.T.F. 4. Solving Sheet-fed Press Troubles – G.A.T.F. 5. Method Of Conditioning Paper for Multicolour Offset Printing – Weber & Geib 6. Prevention of Occupational Dermatitis in Lithography – L.T.F. Inc. 7. pH Control of Fountain Solution – L.T.F. Inc. 8. Paper in the Printing Processes – Banks 9. Guides, Grippers & Insertion Devices for Litho- Offset Presses – L.T.F. Inc. 10. Graphic Arts Management – Victor Strauss 11. Safety Practices for the Graphic Arts – G.A.T.F. 12. Gauges and Instruments For Offset Lithography – L.T.F. Inc. 13. Lithographers Manual – G.A.T.F. 14. Machine Printing – Durrant 15. The Printing Industry – Victor Strauss 16. Safety Measures – G.A.T.F.		

CONTACT PERIODS: 64 **INTERNAL ASSESSMENT: 06** **TOTAL PERIODS: 70**

Examination Scheme:

a) Internal Examination Marks: 20
b) End Semester Examination Marks: 70
c) Attendance + Assessment + Interaction : 10
Full Marks: 100

End Semester Examination Marks: 70

Group	Unit	Objective	Marks/Qs	Total

					Marks
		To be set	**To be answered**		
A	1, 2	10	Any 20Qs	01	20
B	3 & 4	07	-		
C	5 & 6	08	-		
Group	**Unit**		**Subjective**	**Marks/Qs**	**Total Marks**
A	1, 2	03	Any five Qs	10	05x10
			Taking atleast		=50
			One from each		
			Group		
B	3 & 4	04	-	-	-
C	5 & 6	03	-	-	-

Note 1: Teachers' Assessment will be based on performance on given assignments.

Note 2: Assignments may be given on all the topics covered in the syllabus.

Elective – Machine Printing

Name of the Course: Diploma in Printing Technology	
Course Code:	Semester: Sixth
Duration: 16 Weeks	Maximum Marks: 100
Teaching Scheme	Examination Scheme
Theory: 3 hrs/week	Internal Examination: 20
Tutorial: 1 hr/week	Assignment & Attendance: 10
Practical: Nil	End Semester Exam:70
Credit: 3	

Aim:

In respect to the advancement of modern digital Printing Technology along with its analog counterpart, the Elective subject will groom the students more efficiently to face the challenges and to adapt the new technology.

Objective: The students will be able to

1. Understand the run ability factors.
2. Understand the delivery system.
3. Understand the different parameters of Flexography printing.
4. Understand the different parameters of Gravure printing.
5. Acquire knowledge about the importance of grippers.
6. Acquire knowledge about the trip throw mechanism.
7. Understand the use and importance of proper tools and equipment in offset.
8. Understand the detail concepts of offset printing.
9. Understand the detail concepts of different dampening systems.
10. Understand the printing unit including the adjustments of inking and dampening unit
11. Achieving proper ink and water balance
12. Understand the sequence of colours.
13. Understand Moisture content and dimensional stability of Paper – Paper Conditioning
14. Understand various blanket related problem.
15. Understand printed image size – changing print length.
16. Understand preparing different printing plates for storage.
17. Understand the printability of paper.

Pre-Requisite: Elementary knowledge of Basic Printing & Pre-Press Repro Technique

Contents:

Group-A		Hrs/unit	Marks
Unit 1	1. Automatic Feeder – Successive and Stream feeding a. Air Blast b. Suction c. Lifting and Forwarding mechanism d. Pre-timed rotary valve e. Pile lifting mechanism and pressure foot f. Pull-in-wheels g. Endless belts and trimmings h. Timing	05	05
	2. Delivery mechanism – a. Chute delivery b. Chain delivery	02	05
Unit 2	3. Flexography – a. Fixing stereos b. Anilox roller c. Cell structure d. Cell angle e. Web path	10	10

Group B **Unit 3**	4. Roto Gravure – a. Splicer b. Web tension control c. Impression d. Slitter e. Dryer f. Web path 5. Gripper Setting a. General rules for gripper setting b. Precautions to be taken while gripper setting c. Ill effects of wrongly set grippers. 6. Method of obtaining impression a. Impression on/off mechanism (Toggle mechanism) b. Cylinder parallelism, thumb test, feeler gauge test. c. Ill effects of non-parallel cylinders on printing. 7. Different tools and gauges used in offset workstation.	05 04 02	10 05 05 05
Unit 4	8. 7.0 Offset printing a. Development and latest trend b. Printing unit c. Configuration of bi-colour machine. d. Comparison between single colour and multi colour offset machines 9. Dampening system a. Different Dampening system b. Conventional system c. Dampening rollers	10 05	05 05
Group-C			
Unit 5	10. Preparing the printing unit a. Adjusting the ink system b. Adjusting the dampening system c. Attaching the plate d. Achieving proper ink and water balance e. Clean up procedure 11. Printing colours on sheet-fed offset machine a. Press concerns b. Sequence of colours c. Quality control (GATF Star target, GATF T-mark, GATF Quality control strip)	08 05	05 05
Unit 6	12. Moisture content and dimensional stability of paper – Paper conditioning 13. Printed image size – Changing print length 14. Different Imposition Scheme 15. Preparing plates for storage	08	05

	16. Printability of Paper		

Name of Author	Title of the Book		Name of the Publisher
1. Victor Strauss 2. G.A.T.F. 3. Ian Faux 4. Latham 5. J Page Crouch 6. Web Offset Press Operating 7. A.S.Porter 8. Ian Faux	The Pinting Industry – Victor Strauss The Lithographers Mannual – G.A.T.F. Modern Lithography – Ian Faux Advanced Pressmanship – Latham Flexography Primer Web Offset Press Operating A Mannual For Litho Press – A.S.Porter Offset Lithography – Ian Faux		

CONTACT PERIODS: 64 **INTERNAL ASSESSMENT: 06** **TOTAL PERIODS: 70**

Examination Scheme:

a) Internal Examination Marks: 20
b) End Semester Examination Marks: 70
c) Attendance + Assessment + Interaction : 10
Full Marks: 100

End Semester Examination Marks: 70

Group	**Unit**	**Objective**		**Marks/Qs**	**Total Marks**
		To be set	**To be answered**		
A	1, 2	10	Any 20Qs	01	20
B	3, 4	07	-		
C	5 & 6	08	-		

Group	Unit		Subjective	Marks/Qs	Total Marks
A	1, 2	03	Any five Qs	10	05x10
			Taking atleast		=50
			One from each		
			Group		
B	3, 4	04	-	-	-
C	5 & 6	03	-	-	-

Note 1: Teachers' Assessment will be based on performance on given assignments.

Note 2: Assignments may be given on all the topics covered in the syllabus.

Elective – Printing Surfaces

Name of the Course: Diploma in Printing Technology		
Course Code:	Semester: Sixth	
Duration: 16 Weeks	Maximum Marks: 100	
Teaching Scheme	Examination Scheme	
Theory: 3 hrs/week	Internal Examination: 20	
Tutorial: 1 hr/week	Assignment & Attendance: 10	
Practical: Nil	End Semester Exam:70	
Credit: 3		
Aim:		
In respect to the advancement of modern digital Printing Technology along with its analog counterpart, the Elective subject will groom the students more efficiently to face the challenges and to adapt the new technology.		
Objective: The students will be able to		
• Appreciate the Surface Imaging concept. • Understand the Various Image Transfer Machineries for Litho-offset Plates. • Understand the Various Materials & Chemical used in surface developments. • Understand the Processing of various types of positive & negatives preparation through Image Setter. • Understand the Film processing technique on auto processor & Film assembly basics. • Understand the Various quality control measures on Surface Imaging. • Understand the Various trouble shooting on Surface Imaging. • Understand the Safety Measures and Health support. • Understand the Plant Layout for Surface Imaging unit/Department. • Understand Production responsibilities of related departments.		
Pre-Requisite: Elementary knowledge of Basic Printing & Pre-Press Repro Technique		
Contents:		
Group-A	Hrs/unit	Marks

Unit 1	**1.0 Appreciate the Surface Imaging concepts.**	05	05
	2.0 **Various Materials used in surface preparation.**	05	10
	2.1 Different types of material used in surface preparation.		
	2.2 Different types of chemical used in surface imaging department		
Unit 2	3.0 **Film preparation through Image Setter**	06	10
	3.1 Calibrating Image Setter		
	3.2 Converting Image for films output through Image Setter		
	3.3 Processing of various types of positive & negatives.		
	3.4 Film processing technique on auto processor		
	4.0 Imposition	04	05
	4.1 Aspects of Film image assembly 4.2 Preparation of Negative and Positive film flat 4.3 Materials required for film image assembly		
Group B **Unit 3**	**1.0 Electrostatic Plate Making**	05	05
	2.0 Laser Exposed plate	05	05
	3.0 Diffusion Transfer Process	02	05
	3.1 Reflex Plate Making		
	3.2 Projection Speed Plate Making		
Unit 4	4.0 **Ceramic Transfer Process**	05	05
	5.0 **Modern techniques of screen printing**	05	05
	5.1 Preparing a Screen Direct, Indirect, Direct-Indirect, Capillary		
	5.2 Exposing Technique		
Group-C			

Unit 5	6.0 **Gravure Cylinder Making** 6.1 Making a Raw Cylinder 6.2 Elaborate Image transfer on Cylinder surface under conventional process 6.3 Electronic and Other processes (overview) 6.4 Proofing and correction 6.5 Finishing	10	05
Unit 6	7.0 **Computer to Plate Technology – Thermal & Violet**	10	05
	8.0 **Chemicals** **8.1** Chemicals used in surface preparation	02	05

Name of Author	Title of the Book		Name of the Publisher
1. M. H. Bruno 2. J. P. Crouch 3. Albert Kosloft 4. GATF 5. C. C. Ammonds 6. Robert F. Reed 7. P. J. Hartsuch **Magazines:** GATF World, Focal Press, Printers' Voice Etc.	1. Platemaking Department — M. H. Bruno 2. Flexography Primer II Edin. — J. P. Crouch 3. Ceramic Screen Printing — Albert Kosloft 4. Lithographers' Manual — GATF 5. Photoengraving — C. C. Ammonds 6. The Deep-Etch Process — Robert F. Reed 7. Chemistry for the Graphic Arts — P. J. Hartsuch **Magazines:** GATF World, Focal Press, Printers' Voice Etc.		

CONTACT PERIODS: 64 **INTERNAL ASSESSMENT: 06** **TOTAL PERIODS: 70**

Examination Scheme:

a) Internal Examination Marks: 20
b) End Semester Examination Marks: 70
c) Attendance + Assessment + Interaction : 10
Full Marks: 100

End Semester Examination Marks: 70

Group	**Unit**		**Objective**	**Marks/Qs**	**Total Marks**
		To be set	**To be answered**		
A	1, 2	10	Any 20Qs	01	20
B	3, 4	07	-		
C	5 & 6	08	-		
Group	**Unit**		**Subjective**	**Marks/Qs**	**Total Marks**
A	1, 2	03	Any five Qs	10	05x10
			Taking atleast		=50
			One from each		
			Group		
B	3, 4	04	-	-	-
C	5 & 6	03	-	-	-

Note 1: Teachers' Assessment will be based on performance on given assignments.

Note 2: Assignments may be given on all the topics covered in the syllabus.

Elective – Typography & Graphics

Name of the Course: Diploma in Printing Technology			
Course Code:		Semester: Sixth	
Duration: 16 Weeks		Maximum Marks: 100	
Teaching Scheme		Examination Scheme	
Theory: 3 hrs/week		Internal Examination: 20	
Tutorial: 1 hr/week		Assignment & Attendance: 10	
Practical: Nil		End Semester Exam:70	
Credit: 3			
Aim:			
In respect to the advancement of modern digital Printing Technology along with its analog counterpart, the Elective subject will groom the students more efficiently to face the challenges and to adapt the new technology.			
Objective: The students will be able to			
1. Understand the Digital Prepress & Printing Technology 2. Understand the Color Management 3. Understand the Font Management 4. Understand the Workflow Management			
Pre-Requisite: Elementary knowledge of Basic Printing & Digital Pre-Press Technique			
Contents:			
Group-A		Hrs/unit	Marks
Unit 1	1.0 System Configuration 1.1 The Hardware we need – CD drive, Processor, RAM, ROM, HDD, FDD, Cache Memory, Expansion – Bays, Slots, Ports, SCSI, Monitor, Keyboard, Mouse, Track Balls, Touch Pads, Pressure sensitive Tablets and other peripheral devices. 1.2 The Soft ware we need – Operating system, Word processing, Software, Vector based, Illustration software, Pixel based graphics software, Page layout software, Font management utilities, System Maintenance Utilities.	02	04
	2.0 Phototypesetting 2.1 Concept of cold composition, Generation/Original name/Output of character of photo-type setter, Principles of PTS and processing method. 2.2 Concept of Photomechanical to Electro mechanical and finally digital method.	02	04
Unit 2	3.0 Impact and Non-Impact printing output devices. 3.1 Laser printing technology, Basic components of a laser printer, Function of a laser printer, Different aspects of laser printing resolution. 3.2 Daisy wheel printer, Dot-matrix printers, Method of printing and its resolution 3.3 Ink Jet Printer – Method of printing and its resolution 3.4 Thermal Printer, Dye-sublimation printers. 3.5 Image setter – types, parts, print mechanism and output, RIP technology	10	10

	4.0 Scanner Technology 4.1 Introduction, Types of a scanner, product group. 4.2 Processing method, Limitations of a Scanner, Image Processing(Line Art, Continuous Art, Halftoning),Resolution, Optical Character Reader, Magnetic Ink Character Reader.	04	05
Group B **Unit 3**	5.0 Proper resolution and grayscale adjustments of digital images for print media. 5.1 Concept of Image Resolution – Line Art, Grey scale, Color Resolution, Pixels, lpi, dpi, ppi, epi & their relation, Device resolution 6.0 Types of Fonts –Bitmap & Outlined fonts, TrueType, PostScript Printer font & Screen font and their identification. Page Definition Language. 7.0 Storage and Archiving Media – Magnetic, Optical, Magneto Optical, Tape.	02 02 02	05 05 03
Unit 4	8.0 Image Acquisition 8.1 Scanning Line & Halftone Image 8.2 Scanning Resolution- Input & Output 8.3 Dynamic Range 8.4 Determining File Size 8.5 Resampling Images 8.6 Printing Separation approaches 8.7 Unsharp Mask 9.0 Halftone Reproduction Process 9.1 Continuous tone and Line work 9.2 Transparent Originals 9.3 Setting Levels & Curves	10 05	05 02
Group-C			
Unit 5	10.0 Color Basics 10.1 Additive Colors 10.2 Subtractive Colors 10.3 Color Models 10.4 Color Definition 10.5 Picture Elements 10.6 Bit Depth 10.7 Output basics 11.0 Linear and Non-Linear Tone corrections 11.1 Linear tone correction 11.2 Brightness & Contrast 11.3 Non-Linear tone correction- Gamma correction 12.0 Trapping 12.1 Definition of Prepress Trapping 12.2 Trapping by other names 12.3 Wet & Dry Trapping 12.4 Calculation of Trapping	10 05 02	05 02 05

Unit 6	13.0 Popular Image File Formats – 13.1 Identification, formats, bitmaps & object oriented files. 13.2 File Compression Philosophy. 14.0 Bitmap & Vector Images – 14.1 Definition, arrangement, pixels to halftones, determination of the number of imaging elements for each halftone cell. 15.0 Conception of Amplitude modulated dots & Frequency modulated dots, Resolution independence & dependence	02 04 02	05 05 05

Name of Author	Title of the Book		Name of the Publisher
1. Phil Green GATF 2. Deborah L. Stevenson GATF 3. Howard M. Fenton GATF 4. GATF 5. Dr. Richard M. Adams II & Frank Romano GATF 6. Helmut Kipphan 7. Auton and Peter Kammermeier, The Bath Press,Avon 8. Frank J. Romano 9. Donnie O' Quinn & Matt Leclair, Hayden Books	1. Understanding Digital Colour -- Phil Green GATF 2. Handbook of Printing Processes -- Deborah L. Stevenson GATF 3. On – Demand Printing -- Howard M. Fenton GATF 4. Electronic Pre-press Essentials -- GATF 5. Computer – to- plate : Automating the Printing Industry -- Dr. Richard M. Adams II & Frank Romano GATF 6. Hand Book of Print Media -- Helmut Kipphan 7. Scanning & Printing -- Auton and Peter Kammermeier, The Bath Press,Avon 8. Pocket Guide to Digital Pre-press -- Frank J. Romano 9. Digital Pre-press Complete -- Donnie O' Quinn & Matt Leclair, Hayden Books		

CONTACT PERIODS: 64 **INTERNAL ASSESSMENT: 06** **TOTAL PERIODS: 70**

Examination Scheme:

a) Internal Examination Marks: 20
b) End Semester Examination Marks: 70
c) Attendance + Assessment + Interaction : 10
Full Marks: 100

End Semester Examination Marks: 70

Group	**Unit**		**Objective**	**Marks/Qs**	**Total Marks**
		To be set	**To be answered**		
A	1, 2	10	Any 20Qs	01	20
B	3, 4	07	-		
C	5 & 6	08	-		
Group	**Unit**		**Subjective**	**Marks/Qs**	**Total Marks**
A	1, 2	03	Any five Qs	10	05x10
			Taking atleast		=50
			One from each		
			Group		
B	3, 4	04	-	-	-
C	5 & 6	03	-	-	-

Note 1: Teachers' Assessment will be based on performance on given assignments.

Note 2: Assignments may be given on all the topics covered in the syllabus.

Syllabus for SURFACE PREPARATION TECHNIQUE W/SHOP – II

Name of the Course: Diploma in Printing Technology			
Course Code:		**Semester: Sixth**	
Duration: : Seventeen weeks/Semester		**Maximum Marks: 100**	
Teaching Scheme		**Examination Scheme: Continuous Evaluation**	
Theory: Nil hrs./week		Mid Semester Exam.: Nil	
Tutorial: Nil hrs./week		Attendance & Teacher's Assessment : 50 Marks	
Practical: 4 hrs./week		End Semester Exam: 50Marks	
Credit: 2			
Aim: To impart practical knowledge in Work Shop/Lab related with course of study.			
Objective: Student will able to			
Sl. No.			
1.	Know basic Surface Preparation Processes.		
2.	Read and interpret Print Production Planning.		
3.	Identify, select, & use of various tools, equipment & software.		
4.	Operate, control different machines & equipment.		
5.	Inspect the job for specified dimensions.		
6.	Produce jobs as per specified dimensions.		
7.	Adopt safety practices (tools, jobs & personal) while working on various machines.		
8.	Acquaint with the chronological operational processes involving in the jobs.		
9.	Care & maintenance of the tools & machines.		
Pre-Requisite:			
Sl. No.			
1.	Elementary knowledge of Basic Printing		
2.	Process Camera, Block & Plate, Color		
Contents: **CONTINUOUS INTERNAL ASSESSMENT OF 50 MARKS IS TO BE CARRIED OUT BY THE TEACHERS THROUGHOUT THE SEMESTER WHERE MARKS ALLOTTED FOR ASSESSMENT OF SESSIONAL WORK UNDERTAKEN IN EACH SEMESTER IS 25. DISTRIBUTION OF MARKS IN 3RD SEMESTER: PERFORMANCE OF JOB– 10; LABORATORY NOTEBOOK – 10, & ATTENDANCE – 05.** **EXTERNAL ASSESSMENT (END SEMESTER EXAM) OF 50 MARKS** SHALL BE HELD AT THE END OF THE THIRD SEMESTER ON THE ENTIRE SYLLABI OF . ONE JOB PER STUDENT FROM ANY ONE OF THE JOBS DONE IS TO BE PERFORMED. JOB IS TO BE SET BY LOTTERY SYSTEM. **DISTRIBUTION OF MARKS: ON SPOT JOB – 20; VIVA-VOCE – 30** **Unit: 1,2,3 &4** **TOTAL PERIODS: 64 (16 Weeks) + 4 (1 Week) = 68 (17 Weeks)** **Practical Class – 64 hrs/16 weeks & Evaluation 4 hrs/1 week**		Hrs./Unit 14/Unit 1 05/Unit 2 05/Unit 3 40/Unit 4	Marks 25 25 25 25
		64 Hrs	100

Syllabus for SURFACE PREPARATION TECHNIQUE W/SHOP – I

UNIT: 1

1.0 Preparation of deep etch plate by Glue process

2.0 Plate making by deep etch process using Gum Arabic

Unit: 2

3.0 Plate making by deep etch process using Poly-Vinyl-Alcohol

4.0 Production of surface plate using positive working pre-sensitized plate

5.0 Plate treatment, care and storage

Unit: 3

6.0 Production of plate using automatic plate processor.

7.0 Preparation of Silk-Screen stencil (line & half-tone)

Unit: 4

8.0 Demo on Gravure Cylinder

9.0 Demo on Flexographic Plate

10.0 Demo on Offset CTP – Thermal & Violet

Syllabus for PLANOGRAPHIC PRINTING TECHNIQUE W/SHOP – II

Name of the Course: Diploma in Printing Technology			
Course Code:		**Semester: Sixth**	
Duration: : Seventeen weeks/Semester		**Maximum Marks: 100**	
Teaching Scheme		**Examination Scheme: Continuous Evaluation**	
Theory: Nil hrs./week		Mid Semester Exam.: Nil	
Tutorial: Nil hrs./week		Attendance & Teacher's Assessment : 50 Marks	
Practical: 4 hrs./week		End Semester Exam: 50Marks	
Credit: 2			
Aim: To impart practical knowledge in Work Shop/Lab related with course of study.			
Objective: Student will able to			
Sl. No.			
1.	Know basic Offset Printing Processes.		
2.	Read and interpret Print Production Planning.		
3.	Identify, select, & use of various tools, equipment & software.		
4.	Operate, control different machines & equipment.		
5.	Inspect the job for specified dimensions.		
6.	Produce jobs as per specified dimensions.		
7.	Adopt safety practices (tools, jobs & personal) while working on various machines.		
8.	Acquaint with the chronological operational processes involving in the jobs.		
9.	Care & maintenance of the tools & machines.		
Pre-Requisite:			
Sl. No.			
1.	Elementary knowledge of Basic Printing		
2.	Image Carrier, Ink, & Substrate		
Contents: **CONTINUOUS INTERNAL ASSESSMENT OF 50 MARKS IS TO BE CARRIED OUT BY THE TEACHERS THROUGHOUT THE SEMESTER WHERE MARKS ALLOTTED FOR ASSESSMENT OF SESSIONAL WORK UNDERTAKEN IN EACH SEMESTER IS 25. DISTRIBUTION OF MARKS IN 3RD SEMESTER: PERFORMANCE OF JOB– 10; LABORATORY NOTEBOOK – 10, & ATTENDANCE – 05.** **EXTERNAL ASSESSMENT (END SEMESTER EXAM) OF 50 MARKS** SHALL BE HELD AT THE END OF THE THIRD SEMESTER ON THE ENTIRE SYLLABI OF . ONE JOB PER STUDENT FROM ANY ONE OF THE JOBS DONE IS TO BE PERFORMED. JOB IS TO BE SET BY LOTTERY SYSTEM. **DISTRIBUTION OF MARKS: ON SPOT JOB – 20; VIVA-VOCE – 30** **Unit: 1,2,3 &4** **TOTAL PERIODS: 64 (16 Weeks) + 4 (1 Week) = 68 (17 Weeks)**		Hrs./Unit 14/Unit 1 05/Unit 2 05/Unit 3 40/Unit 4	Marks 25 25 25 25

Practical Class – 64 hrs/16 weeks & Evaluation 4 hrs/1 week			
		64 Hrs	100

Syllabus for PLANOGRAPHIC PRINTING TECHNIQUE W/SHOP – II

UNIT: 1

1.0 Setting of feeding mechanism.

2.0 Adjustment of Delivery unit.

Unit: 2

3.0 Make-ready and printing line and half-tone jobs.

4.0 Make-ready and printing of multi-color jobs with proper registration.

5.0 Housekeeping

Unit: 3

6.0 Ink roller wash up and damper cleaning.

7.0 Preparing plates for storage.

8.0 Color mixing and matching.

Unit: 4

9.0 Demo on Web Offset M/c – cold set & heat set

Syllabus for: Screen Printing Workshop

Name of the Course: Diploma in Printing Technology			
Course Code:		**Semester: Sixth**	
Duration: : Eight weeks/Semester		**Maximum Marks: 50**	
Teaching Scheme		**Examination Scheme: Continuous Evaluation**	
Theory: Nil hrs./week		Mid Semester Exam.: Nil	
Tutorial: Nil hrs./week		Attendance & Teacher's Assessment : 25 Marks	
Practical: 3 hrs./week		End Semester Exam:25 Marks	
Credit: 2			
Aim: To impart practical knowledge in Work Shop/Lab related with course of study.			
Objective: Student will able to			
Sl. No.			
1.	Know basic Screen Printing		
2.	Read and interpret Screen Print Production & Planning.		
3.	Identify, select, & use of various tools, equipment & software.		
4.	Operate, control different machines & equipment.		
5.	Inspect the job for specified dimensions.		
6.	Produce jobs as per specified dimensions.		
7.	Adopt safety practices (tools, jobs & personal) while working on various machines.		
8.	Acquaint with the chronological operational processes involving in the jobs.		
9.	Care & maintenance of the tools & machines.		
Pre-Requisite:			
Sl. No.			
1.	Elementary knowledge of Stencil Printing Techniques		
2.	Knowledge of allied materials		
Contents: **CONTINUOUS INTERNAL ASSESSMENT OF 25 MARKS IS TO BE CARRIED OUT BY THE TEACHERS THROUGHOUT THE SEMESTER WHERE MARKS ALLOTTED FOR ASSESSMENT OF SESSIONAL WORK UNDERTAKEN IN EACH SEMESTER IS 25. DISTRIBUTION OF MARKS IN 4TH SEMESTER: PERFORMANCE OF JOB– 10; LABORATORY NOTEBOOK – 10, & ATTENDANCE – 05.** **EXTERNAL ASSESSMENT (END SEMESTER EXAM) OF 25 MARKS** SHALL BE HELD AT THE END OF THE THIRD SEMESTER ON THE ENTIRE SYLLABI OF . ONE JOB PER STUDENT FROM ANY ONE OF THE JOBS DONE IS TO BE PERFORMED. JOB IS TO BE SET BY LOTTERY SYSTEM. **DISTRIBUTION OF MARKS: ON SPOT JOB – 10; VIVA-VOCE – 15** **Unit: 1,2,3 &4** **TOTAL PERIODS: 24 (8 Weeks) + 3 (1 Week) = 27 (9 Weeks)** **Practical Class – 24 hrs/8 weeks & Evaluation 3 hrs/1 week**		Hrs./Unit 06/Unit 1 08/Unit 2 08/Unit 3 03/Unit 4	Marks 10 15 15 10
		24 Hrs	50

Syllabus for: Screen Printing Workshop

Unit: 1

1. To be acquainted with the fundamentals of Screen-printing techniques.

2. To study the materials and accessories for Screen-printing.

3. To prepare Screen.

Unit: 2

4. To prepare Photographic Stencil by Direct Method.

5. To expose the direct coated screen in sunlight and to develop it with cold water.

6. To be acquainted with transfer method or Five-star Film method.

Unit: 3

7. To practice development in hot water, fixing the Five-star film on the screen, fixing the Bolting.

8. To cloth and to develop Five-star film in Hydrogen-per-oxide.

9. To be acquainted with Direct – Indirect combined method (Chromalin Process).

10. To practice printing (fixing registration & cleaning).

Unit: 4

11. To study Screen Printing Ink and its qualities.

12. To identify defects and to know the rectifying methods.

13. To practice experiments on different surface printing.

INDUSTRIAL PROJECT WORK

Courses offered in Printing Semester - 6

OBJECTIVE

Project Work is intended to provide opportunity for students to develop understanding of the interrelationship between different courses learnt in the entire diploma programme and to apply the knowledge gained in a way that enables them to develop & demonstrate higher order skills. The basic objective of a project class would be to ignite the potential of students' creative ability by enabling them to develop something which has social relevance, again, it should provide a taste of real life problem that a diploma-holder may encounter as a professional. It will be appreciated if the polytechnics develop interaction with local industry and local developmental agencies viz. different *Panchayet* bodies, the municipalities etc. for choosing topics of projects and / or for case study. The course further includes preparation of a Project Report which, among other things, consists of technical description of the project. The Report should be submitted in two copies, one to be retained in the library of the institute. The Report needs to be prepared in computer using Word and CAD software wherever necessary.

GENERAL GUIDELINE

Project Work is conceived as a group work through which the spirit of team building is expected to be developed. Students will be required to carry out their Project Works in groups under supervision of a lecturer of their core discipline who will work as a Project Guide. It is expected that most of the lecturers of the core discipline will act as project guide and each should supervise the work of at least two groups. Number of students per group will vary with the number of lecturers acting as Project Guide and student strength of that particular class, but it is preferred that this number does not exceed ten.

Credits = 3 Practical Class = 3 Total Marks = 100

THE PROJECT

The project will be mainly based on Printing Technology subjects.

GRAND VIVA – VOCE

Courses offered in Printing Semester - 6

COURSE CONTENT

The syllabi of all the theoretical and sessional subjects taught in the three years of diploma education.

EXAMINATION SCHEME

The Final Viva-Voce Examination shall take place at the end of the Semester - 6. It is to be taken by one External and one Internal Examiner. The **External Examiner** is to be from industry / engineering college / university / government organisation and he / she should give credit out of **50 marks;** whereas, the **Internal Examiner** should normally be the Head of the Department and he / she should give credit of **50 marks.** In the absence of the Head of the Department, the senior most lecturers will act as the Internal Examiner.

Credits = 3 Total Marks = 100

Syllabus for: Professional Practice IV(Package Printing)

Name of the Course: Diploma in Printing Technology			
Course Code:		**Semester: Sixth**	
Duration: : Eight weeks/Semester		**Maximum Marks: 50**	
Teaching Scheme		**Examination Scheme: Continuous Evaluation**	
Theory: Nil hrs./week		Mid Semester Exam.: Nil	
Tutorial: Nil hrs./week		Attendance & Teacher's Assessment : 25 Marks	
Practical: 3 hrs./week		End Semester Exam:25 Marks	
Credit: 2			
Aim: To impart practical knowledge in Work Shop/Lab related with course of study.			
Objective: Student will able to			
Sl. No.			
1.	Know basic Printing – Offset, Flexography & Gravure.		
2.	Read and interpret Print Production & Planning.		
3.	Identify, select, & use of various tools, equipment & software.		
4.	Operate, control different machines & equipment.		
5.	Inspect the job for specified dimensions.		
6.	Produce jobs as per specified dimensions.		
7.	Adopt safety practices (tools, jobs & personal) while working on various machines.		
8.	Acquaint with the chronological operational processes involving in the jobs.		
9.	Care & maintenance of the tools & machines.		
Pre-Requisite:			
Sl. No.			
1.	Elementary knowledge of Plano graphic, Relief & Recess Techniques		
2.	Knowledge of allied materials		
Contents: **CONTINUOUS INTERNAL ASSESSMENT OF 25 MARKS IS TO BE CARRIED OUT BY THE TEACHERS THROUGHOUT THE SEMESTER WHERE MARKS ALLOTTED FOR ASSESSMENT OF SESSIONAL WORK UNDERTAKEN IN EACH SEMESTER IS 25. DISTRIBUTION OF MARKS IN 4TH SEMESTER: PERFORMANCE OF JOB– 10; LABORATORY NOTEBOOK – 10, & ATTENDANCE – 05.** **EXTERNAL ASSESSMENT (END SEMESTER EXAM) OF 25 MARKS** SHALL BE HELD AT THE END OF THE THIRD SEMESTER ON THE ENTIRE SYLLABI OF . ONE JOB PER STUDENT FROM ANY ONE OF THE JOBS DONE IS TO BE PERFORMED. JOB IS TO BE SET BY LOTTERY SYSTEM. **DISTRIBUTION OF MARKS: ON SPOT JOB – 10; VIVA-VOCE – 15** **Unit: 1,2,3 &4** **TOTAL PERIODS: 24 (8 Weeks) + 3 (1 Week) = 27 (9 Weeks)** **Practical Class – 24 hrs/8 weeks & Evaluation 3 hrs/1 week**		Hrs./Unit 12/Unit 1 12/Unit 2	Marks 25 25
		24 Hrs	50

Syllabus for: Professional Practice IV(Package Printing)

PRACTICE ON OFFSET PRINTING MACHINE

UNIT: 1

1. Installation of Plate & Blanket
2. Setting of Feeder, Impression & Delivery according to the thickness and size of the stock
3. Applying ink, dampening solution – make ready, printing with registration

PRACTICE ON FLEXOGRAPHY & GRAVURE PRINTING MACHINE

Unit: 2

4. Installation of Stereo or Image Cylinder, Fitting the Web path, maintaining proper tension
5. Choosing the right Anilox/adjusting the Doctor Blade, Adjusting the ink viscosity by Flow cup
6. Maintaining the proper drying temperature - make ready, printing with registration