

MAHARASHTRA STATE BOARD OF VOCATIONAL EDUCATION EXAMINATION, MUMBAI

1	Name of Syllabus	C. C. IN <u>OFFSET PRINTING, PLATEMAKING AND BINDING</u> (303232) (2019-2020)						
2	Max. No's of Student	25 Students						
3	Duration	1 year						
4	Type	Full time Time						
5	No's Of Days / Week	6 Days						
6	No's Of Hours /Days	6 Hrs.						
7	Space Required	1. Workshop/Open Space = 1000 sq feet 2. Class Room = 660 sq feet TOTAL = 1660 sq feet						
8	Entry Qualification	S.S.C. Pass /fail (9 th pass)						
9	Objective Of Syllabus/ introduction	Introduction – the syllabus of C.C.In <u>Plate making Offset Printing & Binding</u> has been evolved in such a way that after completion of course of 1 year the student would acquire good working skill suited to work as Printer. He would also gain confidence to operate Plate making, Printing & Binding Machines Objective: - . 1) Develop skill for Select raw material for printing and finishing operations 2) Develop plate making knowledge for offset printing. 3) Understand working of sheet fed offset printing machine. 4) Understand the use of Tools & Equipment and their care Select different Binding Material and method to suit the product requirement. 5) Develop confidence and entrepreneurship by arranging industrial visit and arranging study lecture of personnel from industries						
10	Employment Opportunity	Self Employment: - Passed candidate can start his own Printing workshop. Wage Employment :- Passed candidate may get job in Pre-press unit, Printing Press, Packaging Printing Industry, Book publishing house, News Paper Industry						
11	Teacher's Qualification	One Year certificate course in Printing or Diploma In Printing Technology with 2 year Experience.						
12	Teaching System	Teaching System Per Week						
		Theory		Practical		Total		
		06 hrs		18 hrs		24 hrs		
13	Exam. System	Sr. No.	Paper Code	Name of Subject	TH/PR	Hours	Max. Marks	Mini. Marks
		1	30323211	Plate Making	TH - I	3 hrs	100	35
		2	30323212	Offset Printing	TH - II	3 hrs	100	35
		3	30323213	Binding	TH - III	3 hrs	100	35
		4	30323221	Plate Making	PR - I	3 hrs	100	50
		5	30323222	Offset Printing	PR - II	3 hrs	100	50
		6	30323223	Binding	PR - III	3 hrs	100	50
				Total			600	255

Plate Making		Hours	Marks
1.	Introduction to offset plate making- Image carriers: Plate making metals, need of graining	05	06
2.	Imposition Schemes <ul style="list-style-type: none"> Imposition schemes: Definition of Imposition, Full sheet work & Half sheet work – work & turn, work & tumble Terms related with imposition schemes- gripper margin, folding margin, gutter margin, cutting marks, centerline, plate clamping allowance and binder's marks, page characteristics- portrait and landscape, verso and recto. Variation in imposition schemes according to binding styles i.e. center, side, loose leaf binding Advances in imposition Scheme - Imposition Workflows 	18	24
3.	Equipments used in Plate Making <ul style="list-style-type: none"> Introduction to Step & Repeat System: Plate register, multiple negatives or positives contact. Working of semi-automatic, automatic Machines Plate making equipment – Whirler , Printing down frame, Introduction to auto plate processor.plate punching/bend 	15	10
4.	Environment and Storage conditions required for offset Plate <ul style="list-style-type: none"> Room layout, lighting, ventilation, flooring, air conditioning, temperature and humidity, coloring, waste disposal Storing methods, care and precaution, dark reaction, shelf life and pot life. Storage and handling of offset plate 	20	22
5.	Types of plate <ul style="list-style-type: none"> Preparation and chemistry involved. Chemistry of graining, counter Etching, coating, sensitizer, developer, gumming. Plate processing steps, Types of offset plate: Wipe on plate, P.S. Plate, Positive & Negative working plates. Introduction to Computer to Plate Workflow -CTP plates Thermal plate & Violet plate Introduction to waterless offset concept, Preparation of Toray waterless plates, advantages and limitations. 	30	28
6.	Quality Control aid in Plate making. Importance of pH scale, star target, densitometer, standardization of plate exposure. Plate control wedge. Offset plate making Troubleshooting	20	10
	Total	108	100

Offset Printing		Hours	Marks
1.	Basic Printing Process <ul style="list-style-type: none"> • Basic Principle of letterpress/ Flexography Printing • Basic Principle of Offset Printing • Basic Principle of Gravure Printing • Basic Principle of Screen Printing • Comparison of Relief & Intaglio, Plano & Intaglio, Relief & Plano 	10	10
2.	Introduction to Offset Printing <ul style="list-style-type: none"> • Basic principal of Offset Printing • Function of each Unit of Sheet fed offset machine. • Basic L Shape design, Single Colour & Multi colour printing. • Applications Advantages & limitations 	08	08
3.	Feeding Unit <ul style="list-style-type: none"> • Feed board – Different parts of feed board & purpose • Types of Grippers - Tumbles, swing arm, rotary feed, 	18	16
4.	Printing Unit <ul style="list-style-type: none"> • Plate Cylinder - Construction, purpose of Cylinder gap & Undercut. Purpose of Cylinder packing • Blanket Cylinder - Purpose of blanket, Types of blanket, handling & storage of blanket. • Impression Cylinder purpose 	14	12
5.	Dampening Unit <ul style="list-style-type: none"> • Conventional & other dampening system • Contents of dampening solution • Modern Dampening System 	10	8
6.	Inking Unit <ul style="list-style-type: none"> • Inking System - Central Drum & Multi roll inking system. • Function of each roller in inking unit. 	10	8
7.	Delivery unit and dryers Transfer cylinder. Types of Dryer Conventional Dryer, UV,EB,IR Dryer Anti set off Powder	10	10
8.	Troubleshooting Sheet jamming, front or side lay variation, creasing, jogging. Slurring, marking, doubling, uneven impression. Blanket - Loss of sharpness, puncture (low spot), glazing, misregister, Mottling, dot gain, set-off, hickeys, ghosting, chalking, emulsification, piling, tinting, trapping, plate-blinding, scum	10	10
9.	Quality control Printing of test forme, contents of test forme, UGRA, Gracol test chart Density, Dot Gain, Contrast, Trapping etc elements of test chart	08	08
10.	Web Offset <ul style="list-style-type: none"> • Introduction to web offset, Comparison with sheet fed Machine • Reel Stands Splicing meaning, types of automatic splicing • Folders Former, Jaw & Chopper folder. 	10	10
Total		108	100

Binding		Hours	Marks
1	Introduction <ul style="list-style-type: none"> History and importance of binding. Classification and Divisions of binding. Parts of book 	08	10
2	Materials used in binding <ul style="list-style-type: none"> Paper, board, covering material, reinforcing material, securing material. Paper Size British & ISO paper sizes 	10	10
3	Pre forwarding & Forwarding Operations <ul style="list-style-type: none"> Detailed study of pre-forwarding operation- jogging & knocking, removing mis-registrered sheets, counting, folding, bundling, gathering, collating, sewing, etc. Detailed study of forwarding operations- removing the swell, fixing end papers, fraying out the slips, gluing the back, trimming, rounding and backing, fixing head & tail bands, lining the back, edge decoration, cutting the boards, capping up, squaring the board, lacing in, covering, setting the joints, pasting down, pressing, jacketing. 	20	20
4	Machinery and Equipments in Binding <ul style="list-style-type: none"> Forwarding Tools Finishing Tools Construction and working of different machines and equipments used in binding such as- single knife trimmer, nipping, perforating, perfect binding, gathering machine, sewing and stitching machine. Construction and working Knife folding; Buckle folding, Combination folding. Paper Bag Making Machine, Carton creasing & folding machine 	30	20
5	Binding Techniques <ul style="list-style-type: none"> Working principle and stages involved in Burst, Notch, and two shot wet on wet binding. Case binding, Case making machine - Parts, Function Covering- Quarter, Half, Full, Limp & Library style binding. Boarding methods- pasting down, split, and drawn in work, cut flush, extra square, ASTI (all sides turned in). Thread securing methods. Wire-o-wire, spiral, comb binding techniques, machine Construction & working, Loose leaf binding – Thong binder, Universal style 	20	20
6	Finishing Techniques used in Binding <ul style="list-style-type: none"> Study of types and applications of lamination and varnishing operations. Troubles and remedies associated with lamination operation. Study of construction and working principle of creasing and die cutting machine. Study of design and materials used in cutting rules.. Applications of die cutting. Study of types and applications of foil stamping and embossing operation. Study of types and applications of edge decoration and index cutting operations. 	20	20
Total		108	100

Practical Syllabus structure

List of Practical's for DTP (Practical 04 Hours per Week)

Chapter 1

- Basics of Computer & DTP Course
- Introductions, Scope, Advantages of Computer.
- Parts of Computer, important software for Printing & their features.

Chapter 2

- Introduction to MS Word, MS Excel, MS Paint, PageMaker, CorelDraw, Photoshop etc., Creation of Email account and email communication.

Chapter 3

- Introduction & Installation of Page Maker application, front-end system
- Menu bar
- Various Tools in Toolbox palette.
- Various Palettes, i. e. Control Palette, Style Palette, Color Palette, Master Page Palette etc.

Chapter 4

- Document Setup, File operations.
- File, Save, Close, Open, Place.
- Insert Pages, Remove Pages etc.

Chapter 5

- Setting of Master Pages
- Inert Page No. to Master Page
- Use of Auto Option.
- Import text in PM
- How to Text wrap option use.
- Use of Paste Multiple option.
- Text Formatting
- Paragraph Formatting
- Mask, Group/ungroup Option
- Various Shortcuts used in PM
- Use of Bullets & Numbering, Drop Cap option
- Polygon Settings, Rounded Corners, Fill & Stroke options.
- House Styles, Parts of Bookwork

Chapter 6

- Prepare Visiting Card (Business / Personal)
- Prepare Photo stand Frame

Chapter 7

- Setting of 8-page Bookwork.
- Setting of 8-page Magazines.
- Prepare Half Page Advertisement for Magazine.
- Prepare Quarter Page Advertisement for Magazine.

Chapter 8

- Introduction of CorelDraw Software.
- Various versions of CorelDraw, Latest version of CorelDraw.
- Introduction to CorelDraw application
- Introduction to CorelDraw Window Front-end System.
- Menu Bar, Standard Tool Bar, Property Bar
- Various Tools in Toolbox.
- Document Setup, File operations.
- File, Save, Close, Open, Import
- Insert Pages, Remove Pages etc.
- Colour Palette, Docker Windows.
- Use of CorelDraw Application Software.

Chapter 9

- Prepare Visiting Card (Business / Personal)
- Prepare the Logos by using various options such as Duplicate, Transformations, Align & Distribute, Order, Group, Ungroup, and Combine. Break Apart, Lock object, Shaping,

Chapter 11

- Design a Product Label. Use various option such as Power-clip option, Insert Symbol Characters, Fit Text to Path, Convert to Bitmap, Resample option, Blur Effect.
- Book Cover Design / Book Jacket design.

Plate Making

List of Practical's: (Practical 08 Hours per Week)

1. Single page layout.
 2. 4-page half sheet work.
 3. 8-page sheet work, 8-page half sheet work and turn.
 4. 8-page half sheet work and tumble.
 5. 16-page full sheet work.
 6. 4-page half sheet work and twist.
 7. 12-page full sheet work.
 8. 32-page full sheet work.
 9. Preparation of wipe-on plates
 10. Preparation of plate by- P.S. positive
 11. Preparation of plate by- P.S. negative,
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Offset Printing

List of Practical: (Practical 10 Hours per Week)

1. Introduction of Sheet Fed Offset Machine
2. Feeder setting for various stocks.
3. Mounting of plate with packing.
4. Mounting of blanket with packing.
5. Gripper setting of impression cylinder.
6. Setting of dampening roller.
7. Preparation of dampening solutions
8. Cleaning & washing of dampeners.
9. Setting of inking rollers.
10. Cleaning & wash up.
11. Setting – joggers, skeleton wheels, delivery anti set-off spray.
12. Printing single colour proofs.

Binding

List of Practical's (Practical 10 Hours per Week)

1. Introduction to Binding and Binder's Tools, Machines and Equipments.
 2. To Make Quarter Bound Cut Flush Book.
 3. To Make Quarter Bound Cut Flush Turn-In Book.
 4. To Make Limp Binding Books.
 5. To Make Tear-Off and Perforated Pad.
 6. To Make Loose Leaf File.
 7. To Make Half and Full Bound Book.
 8. To repair and binding of old book.
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List of Machines and Equipments

A) Plate making :-

o.	Name of Machine	Qty	Rate	Total	Power Consumption
	Computer		30000 Per Computer	1200000	
	Pasting Table	02	5000 Per Table	10000	
	Printing down frame	01	5000 Per Machine	5000	
			Total=	12,15,000	

B) Offset Printing:-

o.	Name of Machine		Rate	Total	Power Consumption
	Single color Sheet fed offset machine		297000 Per Machine	594000	
			Total=	5,94,000	

C) Binding:-

Sr. No.	Name of Machine	Qty	Rate	Total	Power Consumption
1.	Cutting Machine	01	75000 Per Machine	75000	
2.	Nipping Press	01	1,50,000 Per Machine	150000	
3.	Stitching Machine	01	1,25,000 Per Machine	125000	
4.	Perforating Machine	01	24,000 Per Machine	24000	
5.	Embossing tools	01	15,000 Per Machine	15000	
			Total=	3,89,000	

Note: Power Consumption for all Machines 600 Units Per Month. (15KW)

Total:- A+B+C= 21,98,000

(Rs. Twenty One Lakh Ninty Eight thousand Only)

Reference Books for One Year Certificate course in Plate making, Offset Printing and Binding

Sr.No.	Author	Title of Book	Publisher's Name
1.	Ian Foux	Modern Lithography	Macdonald & Evans
2.	L.C.Young	Material in Printing Processes	Focal Press London
3.	GATF Staff	Solving Sheet fed offset Problems	-
4.	W.R.Durrant	Machine Printing	Focal Press London
5.	Adams, Faux	Printing Technology	Delmar Publication
6.	A.L.Gatehouse K.N.Roper	A Manual for film planning and Plate making	Litho training services London
7.	P.J.Hartsuch	Chemistry for the Graphic Arts	GATF USA
8.	R.Read	Offset lithographic Plate making	GATF USA
9.	-	Lithographers Manual	GATF USA
10.	A.G.Martin	Finishing Process in Printing	Focal Press London
11.	-	Binding and Finishing	GATF USA
12.	Arther W.Johnson	Manual for book binding	Thames and Hudson
13.	J. Odham	Practical Printing & Binding	-
14.	Alex J. Vaughan	Modern book binding	-
15.	Goff & Poter	Binding and Finishing	Blue Print

Learning Recourses: Offset Printing, Plate making & Binding One Year Certificate Course.

Books

Sr. No.	Author	Title	Publisher
01	Herbert Simonn	Introduction to Printing	
02	Ian Faux	Modern Lithography	Macdonad& Evans Plynont
03	J. Odhams	Practical Printing & Binding	
04	Surjeet Gupta	Printing Today	Print India Journal, Delhi
05	Ian Faux	Modern Lithography	Macdonald & Evans
06	Latham,	Litho Offset press operating	GATF
07	L. C. Young	Materials in Printing Processes	Focal Press, London
09	GATF staff	Solving Sheet fed offset problems	--
10	W. R. Durrant	Machine Printing	Focal Press, London
11	Faux	Litho printing	Blue printing
12	Adams, Faux	Printing Technology	Delmar Publication