

Syllabus For the trade
of
LITHO-OFFSET MACHINE MINDER
(SEMESTER PATTERN)
UNDER
CRAFTSMAN TRAINING SCHEME

Designed in: 2013

By
Government. of India
CENTRAL STAFF TRAINING AND RESEARCH INSTITUTE
Directorate General of Employment & Training
Ministry of Labor & Employment
EN 81, SECTOR – V, SALT LAKE CITY,
Kolkata – 700 091.

List of members attended the Workshop to finalize the syllabi of existing CTS into Semester Pattern held from 6th to 10th May'2013 at CSTARI, Kolkata.

| Sl. No. | Name & Designation | Organisation | Remarks |
|---------|---|--|----------|
| 1. | R.N. Bandyopadhyaya, Director | CSTARI, Kolkata-91 | Chairman |
| 2. | K. L. Kuli, Joint Director of Training | CSTARI, Kolkata-91 | Member |
| 3. | K. Srinivasa Rao, Joint Director of Training | CSTARI, Kolkata-91 | Member |
| 4. | L.K. Mukherjee, Deputy Director of Training | CSTARI, Kolkata-91 | Member |
| 5. | Ashoke Rarhi, Deputy Director of Training | ATI-EPI, Dehradun | Member |
| 6. | N. Nath, Assistant Director of Training | CSTARI, Kolkata-91 | Member |
| 7. | S. Srinivasu, Assistant Director of Training | ATI-EPI, Hyderabad-13 | Member |
| 8. | Sharanappa, Assistant Director of Training | ATI-EPI, Hyderabad-13 | Member |
| 9. | Ramakrishne Gowda, Assistant Director of Training | FTI, Bangalore | Member |
| 10. | Goutam Das Modak, Assistant Director of Trg./Principal | RVTI, Kolkata-91 | Member |
| 11. | Venketesh. Ch. , Principal | Govt. ITI, Dollygunj, Andaman & Nicobar Island | Member |
| 12. | A.K. Ghate, Training Officer | ATI, Mumbai | Member |
| 13. | V.B. Zumbre, Training Officer | ATI, Mumbai | Member |
| 14. | P.M. Radhakrishna pillai, Training Officer | CTI, Chennai-32 | Member |
| 15. | A.Jayaraman, Training officer | CTI Chennai-32, | Member |
| 16. | S. Bandyopadhyay, Training Officer | ATI, Kanpur | Member |
| 17. | Suriya Kumari .K , Training Officer | RVTI, Kolkata-91 | Member |
| 18. | R.K. Bhattacharyya, Training Officer | RVTI, Trivandrum | Member |
| 19. | Vijay Kumar, Training Officer | ATI, Ludhiana | Member |
| 20. | Anil Kumar, Training Officer | ATI, Ludhiana | Member |
| 21. | Sunil M.K. Training Officer | ATI, Kolkata | Member |
| 22. | Devender, Training Officer | ATI, Kolkata | Member |
| 23. | R. N. Manna, Training Officer | CSTARI, Kolkata-91 | Member |
| 24. | Mrs. S. Das, Training Officer | CSTARI, Kolkata-91 | Member |
| 25. | Jyoti Balwani, Training Officer | RVTI, Kolkata-91 | Member |
| 26. | Pragna H. Ravat, Training Officer | RVTI, Kolkata-91 | Member |
| 27. | Sarbojit Neogi, Vocational Instructor | RVTI, Kolkata-91 | Member |
| 28. | Nilotpall Saha, Vocational Instructor | I.T.I., Berhampore, Murshidabad, (W.B.) | Member |
| 29. | Vijay Kumar, Data Entry Operator | RVTI, Kolkata-91 | Member |

General information

1. **Name of the Trade** : LITHO-OFFSET MACHINE MINDER
2. **NCO Code No.** :
3. **Duration** : 1 Year (2 semesters)
4. **Power Norms** : 4 Kw
5. **Space Norm** : 96 sq. mtr
6. **Entry Qualification** : Passed 10th class examination
7. **Unit Strength** : 16 Trainees
8. **Instructor's/Trainer's Qualification:** (i) Diploma in Litho-Offset Machine Minder
+ 2 year Experience
(ii) NTC Litho-Offset Machine Minder trade
under NCVT and 3 years experience in
relevant field.
9. **Desirable qualification** : Preference will be given to a candidate
with Craft Instructor Certificate

Note: At least one Instructor must have degree /Diploma in the relevant experience.

SYLLABUS FOR THE TRADE OF LITHO-OFFSET MACHINE MINDER UNDER C.T.S

Duration: Six months

First Semester

Semester Code: LMM: SEM I

| Week no. | Trade Practical | Trade Theory |
|----------|---|--|
| 1-3 | Handling and care of materials and equipment for litho-graphic plate making and litho-offset printing, Apron/Boiler suit correct working posture. Cleaning, lubrication and general maintenance of machinery and equipment. | Brief history of printing. Comparative analysis of different printing process. Printing surfaces – outline of preparation for all processes. |
| 4-7 | Lining-up table, layout sheets – preparation and use. | Lithographic plate and printing machinery – outline of history and development. Photomechanical process, classification, equipment and materials used for plate making and offset printing. |
| 8 | Measuring gauges – Use and application of Hydrometer, boume thermo-metre, densitometer, etc. handling, care and use of Chemical balance machine and handling, PH Meter sensitivity guide and Step wedge. | <ul style="list-style-type: none"> - Use of automatic plate processor, their care and handling. - Use of Step and Repeat machine, their care and handling. |
| 9-11 | Graining of metal plates and preservation equipment and materials – their use, plate graining machine and handling care. | Different type of plates: Study of aluminum plates, photo polymer plates, multimeter plates. P.S. and wipe on plates – their properties and use. |
| 12-14 | Solutions of plate making – surface and deep-etch plates – materials used, preparation and handling. | Lining-up table, layout sheets, imposition, punch register, use of step wedges, sensitivity guide, etc. – handling and use. |
| 15-19 | Plates making by surface process kind and deep-etch process – kinds, their care, handling and use, pre-sensitized plates. | Plate graining equipment and type of materials used – chemical, mechanical, sand blast, electro-grain, etc. – quality of the grain. |
| 20-22 | Proofing press-practice in checking of color density with densitometer. | Plate making – surface and depth-etch plates, outline of chemical and solutions used for plate-making, coating of plate for light sensitivity – use of whirler – P.S. Plates, wipe on plates, photopolymer plates, multimetallic plates, xerographic polyester plates. |
| 23-24 | Use of pre-maker ready equipment and their care. | Light source – kinds, exposure – printing – down frame and their effective uses. Use of photo-integrator, inverse-square law, law of reciprocatation. |
| 25 | Project work / Industrial Visit (optional) | |
| 26 | Examination | |

SYLLABUS FOR THE TRADE OF LITHO-OFFSET MACHINE MINDER UNDER C.T.S

Duration: Six months

Second Semester

Semester Code: LMM: SEM II

| Week no. | Trade Practical | Trade Theory |
|----------|--|--|
| 1-10 | Two-color perfecter Offset Printing Machine (sheet fed) – handling and care, preparation for printing – fixing the plate and blanket, setting the lays, damping, inking, automatic feeders, setting and adjustment of cylinders, printing of line, half tone and multi-color work, jogging and fanning paper, use of pre-make ready equipment. | Measuring gauges, hydrometer, hygrometer, densitometer, room thermometer, etc., their handling, care and use. Proof and transfer process by proofing – kinds, mechanical and operational features, hand transferring of images. Printing machines for litho-offset printing – kinds, mechanical and operational features, inking and damping systems. Rollers – kinds, setting, cleaning, handling and storage, nap roller – preparation and treatment. |
| 11-21 | Practice on two unit web offset printing machine with folder attachment setting, adjustment and taking out prints. | Paper – standard sizes, division and sub-division, kinds, qualities. Seasoning of papers and paper calculation. Ink-kinds, qualities. Problems in plate making/printing and their remedies. Safety – hazards in plate making and machine rooms – preventive measures including fire-safety. |
| 22-24 | Project work. | |
| 25 | Revision | |
| 26 | Final Examination. | |

SOCIAL STUDIES

The syllabus has already been approved and is same for all the trades including the trades of plate-maker cum impositor & Litho-offset Group under Craftsman Training Scheme.

Note :- 1. Trade committee revised the syllabus of Litho-offset machine minder trades and recommended the new name of trade as "Litho-Offset Machine Minder" also semester system introduced.

TRADE: LITHO OFFSET MACHINE MINDER

LIST OF TOOLS & EQUIPMENT

| Sl no | Item | Qty. in Nos. |
|-------|--|--------------|
| 1. | Two colour perfecter offset printing machine with automatic feeder accessories and computerised control system: size – Demy or equivalent. | 1 No.. |
| 2. | Web offset printing machine with folder attachment size or equivalent with automatic feeder, accessories. | 1 No. |
| 3. | Lining up table – size: double demy or equivalent. | 1 No. |
| 4. | Vacuum printing – down frame, with metal halide lame size: Demy or equivalent with auto control and computerised. | 1 No. |
| 5. | Whirler machine – size: Demy or equivalent with speed control. | 1 No. |
| 6. | Plate graining machine – size: double Demy or equivalent. | 1 No. |
| 7. | Glass jar or container (for keeping / mixing solution). | 8 Nos |
| 8. | Measuring cylinder – different sizes. | 12 Nos |
| 9. | Enamelled / glass funnel. | 12 Nos |
| 10. | Hydrometer for measuring beaume. | 2 Nos |
| 11. | Timer. | 2 Nos |
| 12. | P.V.C. sink (180 cm. x 750 cm. x 20 cm.) | 1 No. |
| 13. | Room thermometer. | 1 No. |
| 14. | Hygrometer. | 1 No. |
| 15. | Steel Rule, graduated | 2 Nos |
| 16. | Micrometer | 2 Nos |
| 17. | Vernier calliper. | 2 Nos |
| 18. | Spatula – long and small size. | 4 each |
| 19. | Pumice stone | 1 No. |
| 20. | Densitometer (reflection type) | 1 No. |
| 21. | Enamel bowls. | 2 Nos |
| 22. | Magnifying glass (x 8) | 4 Nos |
| 23. | Cupboard steel (height 185 cm.) | 1 No. |
| 24. | Instructor table. | 1 No. |
| 25. | Instructor chair. | 1 No. |
| 26. | Fire extinguisher. | 2 Nos |
| 27. | Roller stand Demy size | 1 No. |
| 28. | Ink Slab 50 x 50 cm. | 1 No. |
| 29. | Development tray | 2 Nos |
| 30. | Plate drying cabinet 30 x 40 cm. with 2.5 cm. slots. | 1 No. |
| 31. | Plate storage cabinet | 2 Nos |
| 32. | Heater 1500 watt | 1 No. |
| 33. | Rubber squeezer 30 cm. | 1 No. |
| 34. | Black board. | 1 No. |