CURRICULUM

FOR THE TRADE OF

MEDICAL LABORATORY TECHNICIAN (RADIOLOGY)

UNDER

APPRENTICESHIP TRAINING SCHEME

सत्यमेव जयते
Government of India

GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT& ENTREPRENURESHIP
DIRECTORATE GENERAL OF TRAINING

CONTENTS

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2. Indian Institute of Medical Technology
3. Indu College of Medical Science
4. Toprani Lab

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2. BACKGROUND

1.1 Apprenticeship Training Scheme under Apprentice Act 1961

The Apprentices Act, 1961 was enacted with the objective of regulating the programme of training of apprentices in the industry by utilizing the facilities available therein for imparting on-the-job training. The Act makes it obligatory for employers in specified industries to engage apprentices in designated trades to impart Apprenticeship Training on the job in industry to school leavers and person having National Trade Certificate(ITI pass-outs) issued by National Council for Vocational Training (NCVT) to develop skilled manpower for the industry**.** There are four categories of apprentices namely**; trade apprentice, graduate, technician and technician (vocational) apprentices.**

Qualifications and period of apprenticeship training of **trade apprentices** vary from trade to trade. The apprenticeship training for trade apprentices consists of basic training followed by practical training. At the end of the training, the apprentices are required to appear in a trade test conducted by NCVT and those successful in the trade tests are awarded the National Apprenticeship Certificate.

The period of apprenticeship training for graduate (engineers), technician (diploma holders and technician (vocational) apprentices is one year. Certificates are awarded on completion of training by the Department of Education, Ministry of Human Resource Development.

1.2 Changes in Industrial Scenario

Recently we have seen huge changes in the Indian industry. The Indian Industry registered an impressive growth during the last decade and half. The number of industries in India have increased manifold in the last fifteen years especially in services and manufacturing sectors. It has been realized that India would become a prosperous and a modern state by raising skill levels, including by engaging a larger proportion of apprentices, will be critical to success; as will stronger collaboration between industry and the trainees to ensure the supply of skilled workforce and drive development through employment. Various initiatives to build up an adequate infrastructure for rapid industrialization and improve the industrial scenario in India have been taken.

1.3 Reformation

The Apprentices Act, 1961 has been amended and brought into effect from 22nd December, 2014 to make it more responsive to industry and youth. Key amendments are as given below:

- Prescription of number of apprentices to be engaged at establishment level instead of trade-wise.
- Establishment can also engage apprentices in optional trades which are not designated, with the discretion of entry level qualification and syllabus.
- Scope has been extended also to non-engineering occupations.
- Establishments have been permitted to outsource basic training in an institute of their choice.
- The burden of compliance on industry has been reduced significantly.

3. RATIONALE

[Need for Apprenticeship in Medical Laboratory Technician (Radiology) trade]

1. It will enhance the ability to set up, operate and perform day to day maintenance of the equipment used in radiographic photography.
2. It will help the trainees to understand anatomy of human body viz. regions of the body, bones, joints, various structures and systems etc.
3. It will help the trainees to understand basic physics related to X-ray and radiation technology.
4. It will enhance the ability to implement protection and care while execution of radiographic photography and development of X-ray.

4. JOB ROLES: REFERENCE NCO

Brief description of Job roles:

X-Ray Technician; Radiographer; Radiological Assistant takes X-ray skiagraphs (Photographs) for diagnosis of ailments or gives ray treatment by operating X-ray equipment and exposing patient to rays. Prepares or gets patient prepared by Nurse for ray exposure. Regulates duration and intensity of exposure by adjusting machine and exposes patient to rays as directed by Radiologist. Positions patient on X-ray couch to ensure correct exposure of part of body required to be X-rayed and for ray exposure taking care to protect patient and himself from harmful exposure to X-ray. Adjusts X-ray tube at proper distance and angle, by rotating pivot etc. to ensure centering of tube on part of body to be X-rayed. Regulates controls of X-ray machine or therapy equipment, for duration intensity of exposure and exposes film or patient to rays as directed by Radiologist. Removes cassette with exposed film and hands over to Dark Room Assistant where available for developing fixing, washing, labeling (date and name of patient) etc. mixes develops fixers etc. and processes X-ray films in accordance with techniques and instruction of Radiologist. Keeps records of raw and exposed films, spare parts and of patients X-rayed or treated. May mix developers and process film in accordance with prescribed techniques.

Reference NCO: 3133.10

5. GENERAL INFORMATION

1. **Name of the Trade** **: MEDICAL LABORATORY TECHNICIAN (RADIOLOGY)**

2. **N.C.O. Code No.** : 3133.10

3. **Duration of Apprenticeship Training (Basic Training + Practical Training):**15 Months

3.1 **For Fresher's:- Duration of Basic Training**: -

Block –I: 3 months

Total duration of Basic Training: 3 months

Duration of Practical Training (On -job Training): -

Block–I: 12 months

Total duration of Practical Training: 12 months

3.2**For ITI Passed: - Duration of Basic Training**: - **3 months**

Duration of Practical Training (On -job Training): 12 months

4. **Entry Qualification** : Passed 12th Class Examination under (10+2) System of Education with Physics, Chemistry & Biology.

5. **Selection of Apprentices** **:** The apprentices will be selected as per Apprenticeship Actamended time to time.

6. **Rebate for ITI passed trainees** : NIL

Note: Industry may impart training as per above time schedule, however this is not fixed. The industry may adjust the duration of training considering the fact that all the components under the syllabus must be covered. However the flexibility should be given keeping in view that no safety aspect is compromised and duration of industry training to be remain as 1 year.

6. COURSE STRUCTURE

Training duration details: -

Time (in months)	1-3	4-15
Basic Training	**Block– I**	**-----**
Practical Training (On - job training)	**----**	**Block – I**

Components of Training ↓	**Duration of Training in Months** →														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Basic Training Block - I															
Practical Training Block - I															

7. SYLLABUS

7.1 BASIC TRAINING
(BLOCK – I)
DURATION: 03 MONTHS

GENERAL INFORMATION

1) **Name of the Trade** :**MEDICAL LABORATORY TECHNICIAN (RADIOLOGY)**
2) **Hours of Instruction** : 500 Hrs.
3) **Batch size** : 20
4) **Power Norms** : 5 KW for Workshop
5) **Space Norms** : 35 Sq.m.
6) **Examination** : The internal assessment will be held on completion of the Block.
7) **Instructor Qualification** :

i)	MD Radiology
	OR
ii)	BSC with Diploma in Radiography with one year experience
	OR
iii)	BSC Radiography with one year experience

8) **Tools, Equipments& Machinery required** : - As per Annexure – I

7.1 DETAILSYLLABUS OF BASIC TRAINING

7.1.1 DETAIL SYLLABUS OF PROFESSIONAL SKILLS & PROFESSIONAL KNOWLEDGE

Block –I
Basic Training

Week No.	Professional Skills& Basic Numeracy (270 Hours)	Professional Knowledge (120 Hours)
1-3	Demonstration of Human Skeleton : ▪ Anatomical Position ▪ Axis ▪ Plane ▪ Identification of various bones& joints ▪ Demonstration of movement possible at various joints	**Anatomy:** Regions of the body. Bones and joints; General structures and forms; Important ligaments and muscular attachments. Skull, spine, pelvis, bones of upper and lower extremities. Structure of atypical joint and general descriptions of main joints. Synovial fluid, movements in joints and their limitation; chief relation, group movements of joints.
		Thorax and Abdomen: Structure of thoracic cage, abdominal cavity. Diaphragm and Mediastinum. Heart and vessels. Structure and function of heart. **Respiratory System:** Accessory nasal sinuses, Larynx, trachea, bronchi, lungs, pleura.
4-6	Characteristic features, side determination & applied anatomy of : • Upper Limb bones: a. Scapula b. Clavicle c. Humerus d. Radius e. Ulna • Lower Limb bones: a. Hip b. Femur c. Tibia d. Fibula	**Alimentary System:** Mouth, tongue, salivary glands, pharynx, tonsils, oesophagus, stomach, small and large intestine, liver and biliary tract, spleen, pancreas, mesentery, omentum. Urinary tract; Kidney, ureters, bladder and urethra. **Reproductive System:** Female and Male tract – fallopian tubes, ovaries, uterus, mammary gland. Tests of gonads. **Nervous System:** Bones of skull – General features. Names and position of bones of vault and base (articulatedony). Vertebral column – structure of a typical vertebra, Altas Axis, Sacrum and coccyx. Brain – main sub-divisions and lobes ventricles, spinal cord. Surface

		anatomy in relation to Radiography. Ductless glands.
	• Review of Anatomy, Physiology & Related Pathology i.e. Surface Marking & Identification of various parts and structures in of Human Body • Identification of bones and parts on X-Ray Film • X-Ray Equipment for Radiographers • X-Ray tubes and general features and • Mobile equipment • Image Intensifier • Care and Maintenance of X-Ray equipment	Basic idea of X-Ray , Generation of X-Ray., its characteristics, Photoelectric effect, Compton effect, Fluorescence, Phosphorescence Production of X Ray, X Ray Tubes, Design. Diagnostic H T circuits, H T generators, Measuring Instruments. Scattered radiation: Control of Scattered radiation, cones diaphragms, filters. Interaction of X –ray with mater, Energy absorption from x – rays, measurement of x- rays, Roentgen and Rad, Simple principle of Dosimeter, Fluorescent effect, photographic effect.
7-12	• To study effects of KV and MAS. • Demonstration of radiation safety • devices • To Survey X-Ray control for Radiation • X-Ray intensifying Screens • Demonstrate the uses of grid, potter • Bucky and Radio graphic contrast • Demonstrate effects of improper o centering of X-Ray tube • Radiation field coincidence. • Basics of Imaging • Radiographic dark room techniques • Radiographic positioning • Special Investigations Radiography in various position for all the special radiological procedures, using contrast media as per syllabus	Protection: Code of practice for the protection of person against ionising radiation, protective materials, lead, lead equivalent, building material, personnel monitoring, international recommendations against hazards of ionising radiation. Radiographic photography and dark room technique : X – Ray materials: types of emulsion characteristic and control, screen and non-screen films, dental films, X-ray paper under and over exposure, speed contrast. Intensifying screen: Fluorescence, application of fluorescence in radiography, types of intensifying screens, intensifying factors, cleaning and general care of screen-after glow. X-ray cassettes: testing for proving good screen contact, general care. X-ray developers: Characteristics, details and contrast freedom from chemical fog and staining, function and constituent of developers, standardization of time and temperature, exhaustion of developers,

		Replenisher.
		X-ray fixer and fixing: fixing agents, acids and preservative in fixer, inclusion of hardener, time of fixation, silver recover. Rinsing, washing and drying: Object, methods employed, method of drying films. Processing methods, method of preparation of solution, nature of mixing order mixing solution filtration, solution. X-ray Dark room, size, light proof entrance, hatches, construction of walls for protection against chemicals and radiation, ceiling, colour schemes, water proofing of floors, loading bench design, disposition of processing and accessory equipment for efficient working, arrangement of drying cabinets in dark room or in adjacent rooms, dark-room illumination and testing for safety, ventilation.
13.	**Internal Assessment 03days**	

7.1.2EMPLOYABILITY SKILLS

GENERAL INFORMATION

1)	**Name of the subject**	**:**	**EMPLOYABILITY SKILLS**
2)	**Applicability**	**:**	ATS- Mandatory for fresher only
3)	**Hours of Instruction**	**:**	**110 Hrs.**
4)	**Examination**	**:**	The examination will be held at the end of two years Training by NCVT.
5)	**Instructor Qualification**	**:**	

i) MBA/BBA with two years experience or graduate in sociology/social welfare/Economics with two years experience and trained in Employability skill from DGET Institute.

And

Must have studied in English/Communication Skill and Basic Computer at 12th /diploma level

OR

ii) Existing Social Study Instructor duly trained in Employability Skill from DGET Institute.

7.1.2.1 SYLLABUS OF EMPLOYABILITY SKILLS

A. Block – I
Basic Training

Topic No.	Topic	Duration (in hours)
	English Literacy	**15**
1	**Pronunciation :** Accentuation (mode of pronunciation) on simple words, Diction (use of word and speech)	
2	**Functional Grammar** Transformation of sentences, Voice change, Change of tense, Spellings.	
3	**Reading** Reading and understanding simple sentences about self, work and environment	
4	**Writing** Construction of simple sentences Writing simple English	
5	**Speaking / Spoken English** Speaking with preparation on self, on family, on friends/ classmates, on know, picture reading gain confidence through role-playing and discussions on current happening job description, asking about someone's job habitual actions. Cardinal (fundamental) numbers ordinal numbers. Taking messages, passing messages on and filling in message forms Greeting and introductions office hospitality, Resumes or curriculum vita essential parts, letters of application reference to previous communication.	
	I.T. Literacy	**15**
1	**Basics of Computer** Introduction, Computer and its applications, Hardware and peripherals, Switching on-Starting and shutting down of computer.	
2	**Computer Operating System** Basics of Operating System, WINDOWS, The user interface of Windows OS, Create, Copy, Move and delete Files and Folders, Use of External memory like pen drive, CD, DVD etc, Use of Common applications.	
3	**Word processing and Worksheet** Basic operating of Word Processing, Creating, opening and closing Documents, use of shortcuts, Creating and Editing of Text, Formatting the Text, Insertion & creation of Tables. Printing document. Basics of Excel worksheet, understanding basic commands, creating simple	

	worksheets, understanding sample worksheets, use of simple formulas and functions, Printing of simple excel sheets	
4.	**Computer Networking and INTERNET** Basic of computer Networks (using real life examples), Definitions of Local Area Network (LAN), Wide Area Network (WAN), Internet, Concept of Internet (Network of Networks), Meaning of World Wide Web (WWW), Web Browser, Web Site, Web page and Search Engines. Accessing the Internet using Web Browser, Downloading and Printing Web Pages, Opening an email account and use of email. Social media sites and its implication. Information Security and antivirus tools, Do's and Don'ts in Information Security, Awareness of IT - ACT, types of cyber crimes.	
	Communication Skill	**25**
1	**Introduction to Communication Skills** Communication and its importance Principles of Effective communication Types of communication - verbal, non verbal, written, email, talking on phone. Non verbal communication -characteristics, components-Para-language Body - language Barriers to communication and dealing with barriers. Handling nervousness/ discomfort. Case study/Exercise	
2	**Listening Skills** Listening-hearing and listening, effective listening, barriers to effective listening guidelines for effective listening. Triple- A Listening - Attitude, Attention & Adjustment. Active Listening Skills.	
3	**Motivational Training** Characteristics Essential to Achieving Success The Power of Positive Attitude Self awareness Importance of Commitment Ethics and Values Ways to Motivate Oneself Personal Goal setting and Employability Planning. Case study/Exercise	
4	**Facing Interviews** Manners, Etiquettes, Dress code for an interview Do's & Don'ts for an interview	

5	**Behavioral Skills** **Organizational Behavior** Problem Solving Confidence Building Attitude Decision making Case study/Exercise	
	Entrepreneurship skill	**15**
1	**Concept of Entrepreneurship** **Entrepreneurship**- Entrepreneurship - Enterprises:-Conceptual issue Entrepreneurship vs. Management, Entrepreneurial motivation. Performance & Record, Role & Function of entrepreneurs in relation to the enterprise & relation to the economy, Source of business ideas, Entrepreneurial opportunities, The process of setting up a business.	
2	**Project Preparation & Marketing analysis** Qualities of a good Entrepreneur, SWOT and Risk Analysis. Concept & application of Product Life Cycle (PLC), Sales & distribution Management. Different Between Small Scale & Large Scale Business, Market Survey, Method of marketing, Publicity and advertisement, Marketing Mix.	
3	**Institutions Support** Preparation of Project. Role of Various Schemes and Institutes for self-employment i.e. DIC, SIDA, SISI, NSIC, SIDO, Idea for financing/ non financing support agencies to familiarizes with the Policies /Programmes& procedure & the available scheme.	
4	**Investment Procurement** Project formation, Feasibility, Legal formalities i.e., Shop Act, Estimation & Costing, Investment procedure - Loan procurement - Banking Processes.	
	Productivity	**10**
1	**Productivity** Definition, Necessity, Meaning of GDP.	
2	**Affecting Factors** Skills, Working Aids, Automation, Environment, Motivation How improves or slows down.	
3	**Comparison with developed countries** Comparative productivity in developed countries (viz. Germany, Japan and Australia) in selected industries e.g. Manufacturing, Steel, Mining, Construction etc. Living standards of those countries, wages.	

4	**Personal Finance Management** Banking processes, Handling ATM, KYC registration, safe cash handling, Personal risk and Insurance.	
	Occupational Safety, Health & Environment Education	**15**
1	**Safety & Health** Introduction to Occupational Safety and Health importance of safety and health at workplace.	
2	**Occupational Hazards** Basic Hazards, Chemical Hazards, Vibro-acoustic Hazards, Mechanical Hazards, Electrical Hazards, Thermal Hazards. Occupational health, Occupational hygienic, Occupational Diseases/ Disorders & its prevention.	
3	**Accident & safety** Basic principles for protective equipment. Accident Prevention techniques - control of accidents and safety measures.	
4	**First Aid** Care of injured & Sick at the workplaces, First-Aid & Transportation of sick person	
5	**Basic Provisions** Idea of basic provision of safety, health, welfare under legislation of India.	
6	**Ecosystem** Introduction to Environment. Relationship between Society and Environment, Ecosystem and Factors causing imbalance.	
7	**Pollution** Pollution and pollutants including liquid, gaseous, solid and hazardous waste.	
8	**Energy Conservation** Conservation of Energy, re-use and recycle.	
9	**Global warming** Global warming, climate change and Ozone layer depletion.	
10	**Ground Water** Hydrological cycle, ground and surface water, Conservation and Harvesting of water	
11	**Environment** Right attitude towards environment, Maintenance of in -house environment	
	Labour Welfare Legislation	**5**
1	**Welfare Acts** Benefits guaranteed under various acts- Factories Act, Apprenticeship Act, Employees State Insurance Act (ESI), Payment Wages Act, Employees Provident Fund Act, The Workmen's compensation Act.	
	Quality Tools	**10**

1	**Quality Consciousness :** Meaning of quality, Quality Characteristic	
2	**Quality Circles :** Definition, Advantage of small group activity, objectives of quality Circle, Roles and function of Quality Circles in Organization, Operation of Quality circle. Approaches to starting Quality Circles, Steps for continuation Quality Circles.	
3	**Quality Management System :** Idea of ISO 9000 and BIS systems and its importance in maintaining qualities.	
4	**House Keeping :** Purpose of Housekeeping, Practice of good Housekeeping.	
5	**Quality Tools** Basic quality tools with a few examples	

7.2 PRACTICAL TRAINING (ON-JOB TRAINING)
(BLOCK – I)
DURATION: 12 MONTHS

GENERAL INFORMATION

1) **Name of the Trade** :**MEDICALLABORATORY TECHNICIAN (RADIOLOGY)**

2) **Batch size** : a) Apprentice selection as per Apprenticeship Guidelines

b) Maximum 20 candidates

3) **Examination** : i) The internal assessment will be held on completion of the block

ii) NCVT exam will be conducted at the end of Apprenticeship Training

4) **Instructor Qualification** :

i)	MD Radiology
	OR
ii)	BSC with Diploma in Radiography with one year experience
	OR
iii)	BSC Radiography with one year experience

5) **Infrastructure for On-Job Training** : - As per Annexure – II

7.2.1 BROAD SKILL COMPONENT TO BE COVERED DURING ON-JOB TRAINING

BLOCK – I

1. **Safety and best practices (5S, KAIZEN etc.)**
2. **Record keeping and documentation**

DURATION: 12MONTHS (52WEEKS)	
SL NO	**LIST OF PRACTICAL SKILLS TO BE COVERED DURING ON JOB TRAINING**
1	Practice on identification of different parts of the human body.
2	Demonstration with Models and A.V. Show.
3	Examining a patient following prescribed steps.
4	Study of X-Ray Tube. Practice on operation of X-Ray Tube, taking various safety Measures.
5	Setting up of X-Ray Dark-room.
6	Designing of loading bench.
7	Preparation of solution and storage of dry chemicals.
8	Preparing film plates for taking X-Rays.
9	Preparing patient for general X-Ray examination and also various special investigations.
10	Placing and adjusting the film plates on frame.
11	Preparing and adjusting of X-Ray machines.
12	Taking X-Ray.
13	Rinsing, Washing and Drying of plates using different methods.
14	Day to day care and maintenance of the equipments.

8. ASSESSMENT STANDARD

8.1 Assessment Guideline:

Appropriate arrangements should be made to ensure that there will be no artificial barriers to assessment. The nature of special needs should be taken into account while undertaking assessment. Due consideration to be given while assessing for team work, avoidance/reduction of scrape/wastage and disposal of scarp/wastage as per procedure, behavioral attitude and regularity in training.

The following marking pattern to be adopted while assessing:

a) Weightage in the range of 60-75% to be allotted during assessment under following performance level:

For this grade, the candidate with occasional guidance and showing due regard for safety procedures and practices, has produced work which demonstrates attainment of an acceptable standard of craftsmanship.

In this work there is evidence of:

- Good skill levels in the use of hand tools, machine tools and workshop equipment
- Many tolerances while undertaking different work are in line with those demanded by the component/job.
- A fairly good level of neatness and consistency in the finish
- Occasional support in completing the project/job.

b) Weightage in the range of above75%- 90% to be allotted during assessment under following performance level:

For this grade, the candidate, with little guidance and showing due regard for safety procedures and practices, has produced work which demonstrates attainment of a reasonable standard of craftsmanship.

In this work there is evidence of:

- Good skill levels in the use of hand tools, machine tools and workshop equipment
- The majority of tolerances while undertaking different work are in line with those demanded by the component/job.
- A good level of neatness and consistency in the finish
- Little support in completing the project/job

c) Weightage in the range of above 90% to be allotted during assessment under following performance level:

For performance in this grade, the candidate, with minimal or no support in organization and execution and with due regard for safety procedures and practices, has produced work which demonstrates attainment of a high standard of craftsmanship.

In this work there is evidence of:

- High skill levels in the use of hand tools, machine tools and workshop equipment
- Tolerances while undertaking different work being substantially in line with those demanded by the component/job.
- A high level of neatness and consistency in the finish.
- Minimal or no support in completing the project

8.2 FINAL ASSESSMENT- ALL INDIA TRADE TEST (SUMMATIVE ASSESSMENT)

SUBJECTS	Marks	Sessional Marks	Full Marks	Pass Marks	Duration of Exam.
Practical	300	100 20	400	240	**08 hrs.**
Trade Theory	100		120	48	3 hrs.
Employability Skill	50		50	17	2 hrs.
Grand Total	**450**	**120**	**570**	**-**	

Note: - The candidate pass in each subject conducted under all India trade test.

9. FURTHER LEARNING PATHWAYS

1. CT SCAN
2. MRI
3. PET SCAN

Employment opportunities:

On successful completion of this course, the candidates shall be gainfullyemployed in the following industries:

1. Hospitals
2. Radiology diagnostic centres
3. Research institute

ANNEXURE – I

TOOLS & EQUIPMENT FOR BASIC TRAINING

INFRASTRUCTURE FOR PROFESSIONAL SKILL & PROFESSIONAL KNOWLEDGE

TRADE:MEDICAL LABORATORY TECHNICIAN (RADIOLOGY)

LIST OF TOOLS & EQUIPMENTS FOR 20 APPRENTICES

A: TRAINEES TOOL KIT:-

Sl. No.	Name of the items	Quantity (indicative)
1.	Radiation protection toolkit	As req.
2.	Lead apron	As req.
3.	Lead markers	As req.
4.	Lead gloves	As req.

B:TOOLS INSTRUMENTS AND GENERAL SHOP OUTFITS

Sl. No.	Name of the items	Quantity (indicative)
5.	Cassettes all sizes	1 no.
6.	Screen all sizes	1 no.
7.	Hanger all sizes	1 no.
8.	Dark room with accessories	As req.
9.	Lead divider	1 no.

C: GENERAL MACHINERY INSTALLATIONS:-

Sl. No.	Name & Description of Machines	Quantity (indicative)
1.	X-Ray Machine	1 no.

Note: In case of basic training setup by the industry the tools, equipment and machinery available in the industry may also be used for imparting basic training.

ANNEXURE – II

INFRASTRUCTURE FOR ON-JOB TRAINING

TRADE: MEDICAL LABORATORY TECHNICIAN (RADIOLOGY)

For Batch of 20 APPRENTICES

Actual training will depend on the existing facilities available in the establishments. However, the industry should ensure that the broad skills defined against On-Job Training part (i.e. 12 months) are imparted. In case of any short fall the concern industry may impart the training in cluster mode/ any other industry/ at ITI.

ANNEXURE-III

GUIDELINES FOR INSTRUCTORS AND PAPER SETTERS

1.Due care to be taken for proper & inclusive delivery among the batch. Some of the following some method of delivery may be adopted:

A) LECTURE
B) LESSON
C) DEMONSTRATION
D) PRACTICE
E) GROUP DISCUSSION
F) DISCUSSION WITH PEER GROUP
G) PROJECT WORK
H) INDUSTRIAL VISIT

2. Maximum utilization of latest form of training viz., audio visual aids, integration of IT, etc. may be adopted.

3. The total hours to be devoted against each topic may be decided with due diligence to safety & with prioritizing transfer of required skills.