

**CURRICULUM**

**FOR THE TRADE OF**

**MEDICAL LABORATORY TECHNICIAN**  
**(PHYSIOTHERAPY)**

**UNDER**

**APPRENTICESHIP TRAINING SCHEME**

2017



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

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## 2. BACKGROUND

### 2.1 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.

### 2.2 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.

### 2.3 Reformation

The Apprentices Act, 1961 has been amended and brought into effect from 22<sup>nd</sup> 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 (Physiotherapy)trade]**

Medical assistants are vital to efficient and successful patient care. Working alongside doctors, nurses and other staff, these professionals help with patient procedures, undertakes complex tests for diagnosis, treatment, and prevention of disease. Medical assistants in the physiotherapy field perform these basic functions in addition to more specialized duties.

Assistant Physiotherapist specialize in diagnosing and treating conditions of patients suffering from reduced mobility and demonstrate clinical competency in evaluation, treatment planning and implementation. Physical therapeutic treatments to patients in circumstances where functional movement is threatened by injury, disease or impairment. Assistant Physiotherapist include setting up equipment, preparing clients for therapy and demonstrating mobility aids and exercises. Other duties may include keeping the department tidy and basic administration work.

## **4. JOB ROLES: REFERENCE NCO**

### **Brief description of Job roles:**

#### **3212.0701**

##### **Medical Laboratory Technician**

Medical Laboratory Technician (MLT) is also referred to as Clinical Laboratory Science professionals, Medical Technologists and Medical Laboratory Scientists. The Medical Laboratory Technician performs complex tests for diagnosis, treatment, and prevention of disease. These professionals are responsible for supporting and assisting doctors and scientists in their day-to-day healthcare work in a variety of roles. They function as the main support to biomedical scientists in pathology laboratories. They are also sometimes responsible for imparting training and supervision to the staff.

#### **3255.0101**

##### **Assistant Physiotherapist**

Assistant Physiotherapist in the Healthcare Industry is also known as Physical Therapist Assistant (PTA). Assistant Physiotherapist work alongside qualified physiotherapists, assisting in the rehabilitation of patients suffering from reduced mobility. Key tasks of an Assistant Physiotherapist include setting up equipment, preparing clients for therapy and demonstrating mobility aids and exercises. Other duties may include keeping the department tidy and basic administration work.

Physiotherapy Technicians and Assistants provide physical therapeutic treatments to patients in circumstances where functional movement is threatened by injury, disease or impairment. Therapies are usually provided as per rehabilitative plans established by a physiotherapist or other health professional.

**Reference NCO-2015 :3212.0701 , 3255.0101**



## 5. GENERAL INFORMATION

1. Name of the Trade : Medical Laboratory Technician (Physiotherapy)  
2. N.C.O. Code No. : 3212.0701,3255.0101  
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: - Nil**

**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.

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

1. Rebate for ITI passed trainees : 3 Months basic training for Passed CTS in Physiotherapy Technician

*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 remains as 1 year.*

## 6. COURSE STRUCTURE

Training duration details: -

<b>Time (in months)</b>	<b>1-3</b>	<b>4-15</b>
<b>Basic Training</b>	<b>Block – I</b>	<b>-----</b>
<b>Practical Training (On - job training)</b>	<b>----</b>	<b>Block – I</b>

<b>Components of Training</b>	<b>Duration of Training in Months</b>														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<b>Basic Training Block - I</b>															
<b>Practical Training Block - I</b>															

**7. SYLLABUS**  
**7.1 BASIC TRAINING**  
**(BLOCK – I)**  
**DURATION: 03 MONTHS**

**GENERAL INFORMATION**

- 1) **Name of the Trade** : **Medical Laboratory Technician (Physiotherapy)**
- 2) **Hours of Instruction** : 500 Hrs.
- 3) **Batch size** : 20
- 4) **Power Norms** : 4 KW
- 5) **Space Norms** : 35 .Sq.m.
- 6) **Examination** : The internal assessment will be held on completion of the Block.
- 7) **Instructor Qualification** :

- |   |    |
|---|----|
| i) MD Physiotherapy                                 | OR |
| ii) DNB Physiotherapy                               | OR |
| iii) BSC MLT Trained Staff with one year experience |    |

- 8) **Tools, Equipment's& Machinery required** : - As per Annexure – I

## 7.1 DETAIL SYLLABUS OF BASIC TRAINING

### 7.1.1 DETAIL SYLLABUS OF PROFESSIONAL SKILLS & PROFESSIONAL KNOWLEDGE

**Block –I**  
**Basic Training**

Week No.	Professional Skills	Professional Knowledge
1.	Familiarization of safety appliances, Laboratory works, solutions, storage of chemicals and Laboratory hazards.	
2.	Identification of electrotherapy modalities Cataloging of exercise tools and equipments. Draw human body and label its parts. Demonstration of planes, axis, anatomical and fundamental positions. Sketch planes, anatomical and fundamental positions.	<b><u>Introduction</u></b> Definition of Physiotherapy, terms of Physiotherapy i.c. Electrotherapy, Exercise-therapy, Massage-Therapy, Ergonomics, Rehabilitation. Definition of Electrotherapy, safety precautions in Electrotherapy. Name of modalities which are used in Physiotherapy. Definition & subdivisions of anatomy. Anatomical & fundamental Positions. The Descriptive anatomical terms.
3.-4.	Picturize skeleton system List the names, side determination and parts of all bones of upper limb and lower limb. Identification side determination and parts of bones of skull, vertebral column and thorax	<b><u>Osteology</u></b> Skeleton system. Structure, functions and classification of bone and cartilage. Name of human bones. Side determination and parts of bones of upper limb, lower limb, skull, vertebral column and thorax.
5.-6.	Presentation of joints formation by using bones. Trace diagrams of major joints of human body. Perform X-Ray practical by using X-Ray films- <ul style="list-style-type: none"> <li>• Recognize bones.</li> <li>• Identify of joints.</li> <li>• Demonstration of some normal and abnormal X-ray plates.</li> </ul>	<b><u>Orthology</u></b> Definition and classification of joints. The terms related to the movements of joints. Description of joints of upper and lower extremities with their ligaments.
7.-9.	Show muscles structure with proper labeling. Demonstration of major muscles of upper limb. Demonstration of major muscles of lower limb. Identify major muscles of abdomen trunk, thorax, neck and face with diagram.	<b><u>Myology</u></b> Macroscopic and microscopic structure of muscle. Classification of muscles. Parts of muscle. Neuromuscular junction. sliding contraction theory. Description of all major muscles with their

		origin, insertion, nerve supply and action.
10.-12.	<p>Explanation of all parts of SWD.  Testing of SWD.  Positioning of patient and placement of electrodes.  Flow chart of SWD circuit.  SWD cable methods.  Precautions.  Methods of testing.  Methods of application.  Handling and operating of UST modality with precautions.  Precaution of patient.</p>	<p><b>Deep Heating agents</b>  <b>S.W.D.:</b> meanings of Short-wave &amp; Diathermy, Effects of S.W.D. Technical datas, Descriptions of a S.W.D Instrument, Method of application, Positioning of Electrode pads During, Treatment, Dose &amp; Duration of treatment, Indications &amp; Contraindications.</p> <p><b>M.W.D-</b> Introduction.  <b>U.S.T-</b> About the Ultra sound, Difference among Ultra sound, Infra sound &amp; Audible sound, Effects of U.S.T in Human body, Technical datas, Descriptions of an U.S.T.  Instrument, Description about different types of Coupling medium, Method of application of U.S.T, Dose &amp; Duration of treatment, Indications &amp; Contraindications.</p>
13.-15.	<p>Practice on muscle stimulator for major muscle of upper limb and lower limb.  Preparation of patient  Demonstration of muscles stimulator on face. Plan precautions during treatment  Practice on placement of electrodes with using proper gel.  Create difference between TENS and IFT for pain producing conditions.  Demonstrate on placement of TENS and IFT pads for radiating and local pain respectively.  Methods of treatment.  Testing methods of all modalities.</p>	<p><b>Stimulators-</b>  <b>Faradic</b> - About the Faradic type of current, Technical datas, Description of a Faradic Stimulator &amp; Electrodes, Physiological effects, Method of application (Motor point stimulation method, Nerve conduction, method, Unipolar &amp; Bipolar Faradic Bath method etc.), Application of continuous &amp; Surged Faradic, Dose &amp; Duration of treatment, Indications &amp; Contraindications.  <b>Galvanic-</b> About the Galvanic type of current, Technical datas, Descriptions of a Galvanic Stimulator, Physiological effects, Method of application (Sensory point or Determinations stimulation method, ath method etc.), application of continuous &amp; Interrupted Galvanic, Dose &amp; duration of treatment, Indications &amp; Contraindications.  <b>T.E.N.S-</b> Meanings of 'transcutaneous', difference between transcutaneous&amp; percutaneous, Technical datas, Description of a</p>

		T.E.N.S., Physiological effects ( among with pain gate Theory), Method of application (Trigger point stimulation method, Acupuncture point stimulation method etc.), Placements of T.E.N.S electrodes, Application of continuous, surged mode. Dose & Duration of treatment, Indications & contraindications. <b>I.F.T-</b> Introduction, application, Indications & Contraindications.
16.-17.	Plan precautions while giving treatment to patient. Assessment of the affected part before applying wax bath. Perform Techniques of wax bath for instance with brush, bowl etc. Application of wax bath with precautions and proper layering and thickness, removal of wax.	<b>Wax bath:</b> Description of a wax bath unit, composition and method of preparation of wax bath, physiological effects, techniques of application, indications and contra indications.
18.-19.	Idea of reflexes and their examination. Demonstration and A.V. display. Display charts of Nervous system Representation of neuron, brain, spinal cord, reflex arc, plexus. Pain assessment	<b>Neurology</b> Parts of nervous system. Structure and function of Nervous, types of cells. Structure and function of Brain and spinal cord. Reflex Arc, blood-brain barrier. Structure of a nerve, Cranial nerves (names and functions) and spinal nerves (Introduction). Nerve plexus of the body with their distributions (cervical plexus, brachial plexus, lumbosacral plexus). About the nervefibres(motor and sensory). Blood serculation of brain and spinal cord.
20.-21.	Show positioning of patient and therapist. Perform Practical of different exercises. Rules and directions of exercises. Demonstrate exercise to increase ROM by using continuous passive movement equipments. Presentation of passive movements	<b>EXERCISE THERAPY AND YOGA</b> <b>Fundamental of exercise:</b> Definition of therapeutic exercise. Benefits of exercise. Classification of exercise- active, passive, resistive, isometric, functional, stretching, isokinetic, closed-chain, open-chain etc.
<b>VIDEO DEMONSTRATION FOR ALL TOPICES COVERED IN BASIC TRAINING</b>		
22.-23.	<b>Project/Hospital Visit</b>	
24.	<b>Revision</b>	
25.	<b>Examination</b>	

## **7.1.2 EMPLOYABILITY 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 12<sup>th</sup> /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)
	<b>English Literacy</b>	<b>15</b>
<b>1</b>	<b>Pronunciation :</b> Accentuation (mode of pronunciation) on simple words, Diction (use of word and speech)	
<b>2</b>	<b>Functional Grammar</b> Transformation of sentences, Voice change, Change of tense, Spellings.	
<b>3</b>	<b>Reading</b> Reading and understanding simple sentences about self, work and environment	
<b>4</b>	<b>Writing</b> Construction of simple sentences Writing simple English	
<b>5</b>	<b>Speaking / Spoken English</b> 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.	
	<b>I.T. Literacy</b>	<b>15</b>
<b>1</b>	<b>Basics of Computer</b> Introduction, Computer and its applications, Hardware and peripherals, Switching on-Starting and shutting down of computer.	
<b>2</b>	<b>Computer Operating System</b> 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.	
<b>3</b>	<b>Word processing and Worksheet</b> 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	
<b>4.</b>	<b>Computer Networking and INTERNET</b> 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.	
	<b>Communication Skill</b>	<b>25</b>
<b>1</b>	<b>Introduction to Communication Skills</b> 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	
<b>2</b>	<b>Listening Skills</b> Listening-hearing and listening, effective listening, barriers to effective listening guidelines for effective listening. Triple- A Listening - Attitude, Attention & Adjustment. Active Listening Skills.	
<b>3</b>	<b>Motivational Training</b> 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	
<b>4</b>	<b>Facing Interviews</b> Manners, Etiquettes, Dress code for an interview Do's & Don'ts for an interview	

5	<b>Behavioral Skills</b> <b>Organizational Behavior</b> Problem Solving Confidence Building Attitude Decision making Case study/Exercise	
	<b>Entrepreneurship skill</b>	<b>15</b>
1	<b>Concept of Entrepreneurship</b> <b>Entrepreneurship-</b> 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	<b>Project Preparation &amp; Marketing analysis</b> 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	<b>Institutions Support</b> 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	<b>Investment Procurement</b> Project formation, Feasibility, Legal formalities i.e., Shop Act, Estimation & Costing, Investment procedure - Loan procurement - Banking Processes.	
	<b>Productivity</b>	<b>10</b>
1	<b>Productivity</b> Definition, Necessity, Meaning of GDP.	
2	<b>Affecting Factors</b> Skills, Working Aids, Automation, Environment, Motivation How improves or slows down.	
3	<b>Comparison with developed countries</b> 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	<b>Personal Finance Management</b> Banking processes, Handling ATM, KYC registration, safe cash handling, Personal risk and Insurance.	
	<b>Occupational Safety, Health &amp; Environment Education</b>	<b>15</b>

1	<b>Safety &amp; Health</b> Introduction to Occupational Safety and Health importance of safety and health at workplace.	
2	<b>Occupational Hazards</b> Basic Hazards, Chemical Hazards, Vibro-acoustic Hazards, Mechanical Hazards, Electrical Hazards, Thermal Hazards. Occupational health, Occupational hygienic, Occupational Diseases/ Disorders & its prevention.	
3	<b>Accident &amp; safety</b> Basic principles for protective equipment. Accident Prevention techniques - control of accidents and safety measures.	
4	<b>First Aid</b> Care of injured & Sick at the workplaces, First-Aid & Transportation of sick person	
5	<b>Basic Provisions</b> Idea of basic provision of safety, health, welfare under legislation of India.	
6	<b>Ecosystem</b> Introduction to Environment. Relationship between Society and Environment, Ecosystem and Factors causing imbalance.	
7	<b>Pollution</b> Pollution and pollutants including liquid, gaseous, solid and hazardous waste.	
8	<b>Energy Conservation</b> Conservation of Energy, re-use and recycle.	
9	<b>Global warming</b> Global warming, climate change and Ozone layer depletion.	
10	<b>Ground Water</b> Hydrological cycle, ground and surface water, Conservation and Harvesting of water	
11	<b>Environment</b> Right attitude towards environment, Maintenance of in -house environment	
	<b>Labour Welfare Legislation</b>	<b>5</b>
1	<b>Welfare Acts</b> 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.	
	<b>Quality Tools</b>	<b>10</b>
1	<b>Quality Consciousness :</b> Meaning of quality, Quality Characteristic	
2	<b>Quality Circles :</b> 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	<b>Quality Management System :</b> Idea of ISO 9000 and BIS systems and its importance in maintaining qualities.	
4	<b>House Keeping :</b> Purpose of Housekeeping, Practice of good Housekeeping.	
5	<b>Quality Tools</b> 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** : **Medical Laboratory Technician (Physiotherapy)**
- 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 Physiotherapy OR  
ii) DNB Physiotherapy OR  
iii) BSC MLT Trained Staff 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
2. Record keeping and documentation

<b>DURATION: 12MONTHS (52WEEKS)</b>	
<b>SL NO</b>	<b>LIST OF PRACTICAL SKILLS TO BE COVERED DURING ON JOB TRAINING</b>
1.	<p>Exhaustive work at clinics to practice</p> <ul style="list-style-type: none"> <li>i) Short wave Diathermy</li> <li>ii) Ultrasound therapy</li> <li>iii) Transcutaneous Electronic Nerve Simulator (TENS)</li> <li>iv) Electric Muscle Nerve stimulator</li> <li>v) Diagnostic Stimulator</li> <li>vi) Wax bath</li> <li>vii) Infrared lamp etc.</li> <li>viii) Traction table, weight machine</li> <li>ix) Quadriceps Chair</li> <li>x) IFT (Interferential Therapy)</li> <li>xi) Hydro collator Pack</li> <li>xii) Weight cuffs</li> <li>xiii) Apparatus for various exercise- Shoulder wheel, shoulder pulley, Swiss ball, wall ladder, Pronator- supinator exercises.</li> </ul> <p>Video demonstration for all the practical skill to be shown</p>

## 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 above 75%- 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  
(SUMMATIVEASSESSMENT)**

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

## **9. FURTHER LEARNING PATHWAYS**

1. DIPLOMA/GRADUATION IN MLT
2. ADVANCE COURCES IN MEDICAL FIELD

### **Employment opportunities:**

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

1. Hospitals
2. Physiotherapy Lab
3. Diagnostic Centres
4. Forensic Lab

**TOOLS & EQUIPMENT FOR BASIC TRAINING****INFRASTRUCTURE FOR PROFESSIONAL SKILL & PROFESSIONAL KNOWLEDGE****TRADE: MEDICAL LABORATORY TECHNICIAN (PHYSIOTHERAPY)****LIST OF TOOLS & EQUIPMENTS FOR 20 APPRENTICES**

<b>LIST OF TOOLS &amp; EQUIPMENTS</b>			
<b>PHYSIOTHERAPY TECHNICIAN</b>			
<b>Sl. No.</b>	<b>Name of the Tools and Equipments</b>	<b>Specification</b>	<b>Quantity</b>
<b>TRAINEES TOOL KIT ( For each additional unit trainees tool kit sl. 1-12 is required additionally)</b>			
1.	Diagram of – (i) Human Organs (ii) Exercises charts		1 set
2.	Wax bath		1 no.
3.	I. R. Radiator		1 no.
4.	Short wave Diathermy unit		1 no..
5.	Electric Muscle nerve Stimulator		1 no.
6.	Battery 6 V & 12V		2 nos.
7.	Battery Eliminator 6 V, 9 V, 12 V		2 nos.
8.	Traction set up including Pulley, Weight Table unit		1 set.
9.	Apparatus for various exercises- Shoulder Wheel, Shoulder pulley, Finger exerciser, Swiss ball		1 Set Assorted
10.	Durra mats		10 nos.
11.	Table		1 no.
12.	Chair with Desk		16 nos.
13.	Cup Board		2 nos.
14.	IFT (Interferential Therapy)		1no.
15.	TENS (Trans Electric Nerve Stimulator)		1 no.
16.	Ultrasonic machine		1 no.
17.	Weight cuffs		1 set
18.	Hydro collator Pack		1 set
19.	Quadriceps Chair		1 no.
20.	DVD/VCD for practical with simulation		As required

<b>TOOLS &amp;EQUIPMENTS FOR EMPLOYABILITY SKILLS</b>		
Sl. No.	Name of the Equipment	Quantity
1	Computer (PC) with latest configurations and Internet connection with standard operating system and standard word processor and worksheet software.	10 nos.
2	UPS - 500Va	10 nos.
3	Scanner cum Printer	1 no.
4	Computer Tables	10 nos.
5	Computer Chairs	20 nos.
6	LCD Projector	1 no.
7	White Board 1200mm x 900mm	1 no.

Note: Above Tools &Equipments not required, if Computer LAB is available in the institute.

**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.**

**INFRASTRUCTURE FOR ON-JOB TRAINING**

**TRADE: MEDICAL LABORATORY TECHNICIAN (PHYSIOTHERAPY)**

**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.

**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.