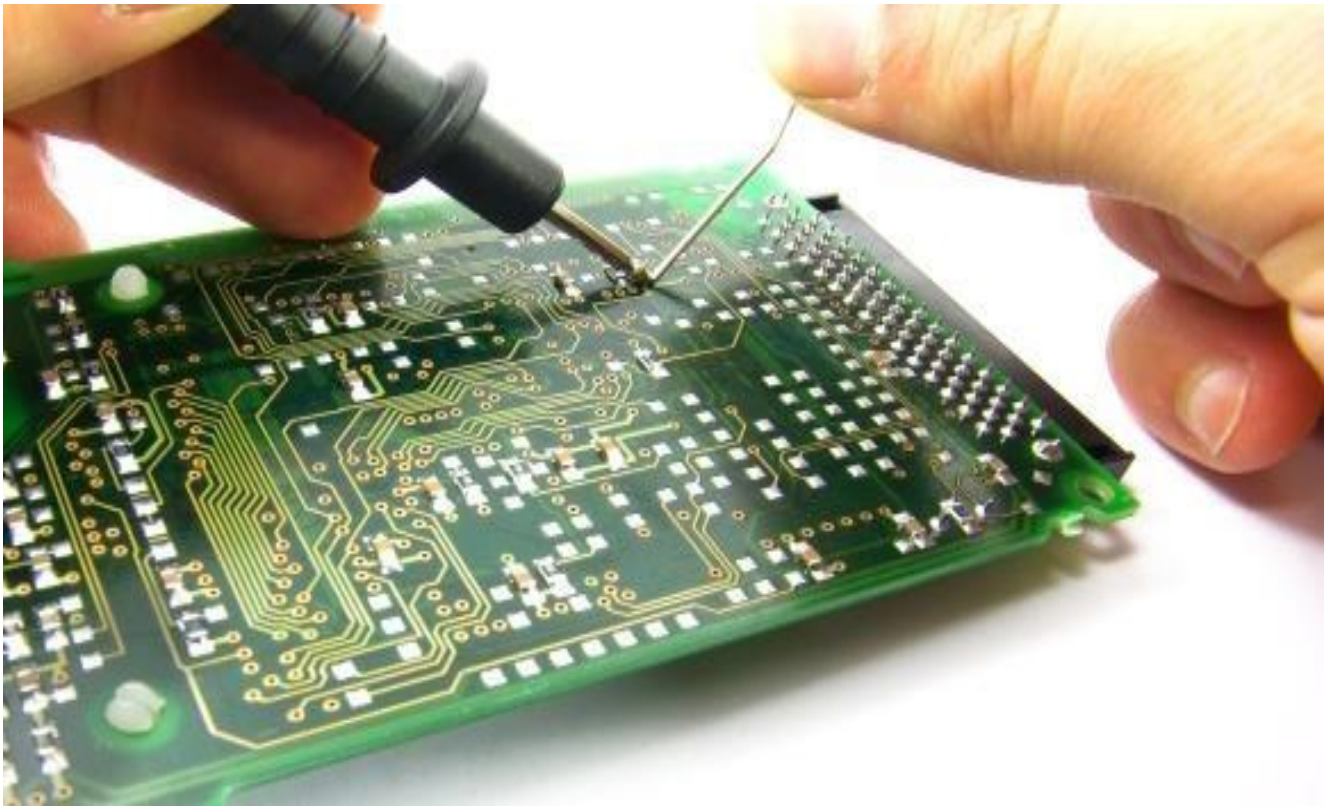

Model Curriculum

QP Name: Hand Soldering Technician – Telecom Board

QP Code: TEL/Q2500

QP Version: 3.0

NSQF Level: 3

Model Curriculum Version: 1.0

Telecom Sector Skill Council of India,
Estel House, 3rd Floor, Plot No: - 126, Sector 44
Gurugram, Haryana - 122003

Table of Contents

Training Parameters

Sector	Telecom
Sub-Sector	Handset
Occupation	Communication Electronics
Country	India
NSQF Level	3
Aligned to NCO/ISCO/ISIC Code	NCO-2015/3114.1404
Minimum Educational Qualification & Experience	Grade 10 pass **OR** Grade 8 pass with two years of (NTC/ NAC) after 8th **OR** Grade 8 pass and pursuing continuous schooling in regular school with No Experience required **OR** 9th Grade pass with 1-year relevant experience **OR** Previous relevant Qualification of NSQF Level 2 with 3-year relevant experience
Pre-Requisite License or Training	NA
Minimum Job Entry Age	15 Years
Last Reviewed On	24/02/2022
Next Review Date	24/02/2025
NSQC Approval Date	24/02/2022
QP Version	3.0
Model Curriculum Creation Date	24/02/2022
Model Curriculum Valid Up to Date	24/02/2025
Model Curriculum Version	1.0
Minimum Duration of the Course	450 Hours, 0 Minutes
Maximum Duration of the Course	450 Hours, 0 Minutes

Program Overview

This section summarizes the end objectives of the program along with its duration.

Training Outcomes

At the end of the program, the learner should have acquired the listed knowledge and skills.

- Illustrate working on hand soldering equipment with various level soldering techniques
- Analyse on the defected equipment with precision on telecom board
- Demonstrate cleaning and inspection of telecom boards as per the specified procedure and process
- Inspect the working area environment and assure it meets requirement for health, safety and security
- Organize work and resources as per health and safety standards
- Communicate, develop interpersonal skills and develop sensitization towards gender and person with disability

Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
Bridge Module	**20:00**	**10:00**	**00:00**	**-**	**30:00**
Module 1: Introduction to the role of HandSoldering Technician - Telecom Board	20:00	10:00	00:00	-	30:00
TEL/N2500–High density hand soldering of component on telecom boards **NOS Version No. 2.0** **NSQF Level 3**	**10:00**	**50:00**	**60:00**	-	**120:00**
Module 2: Soldering of components on Telecom Boards	10:00	50:00	60:00	-	120:00
TEL/N2501– Re-working on defected and selective soldering **NOS Version No. 2.0** **NSQF Level 3**	**20:00**	**40:00**	**30:00**	-	**90:00**
Module 3: Perform correction on defects and selective soldering	20:00	40:00	30:00	-	90:00
TEL/N2502–Cleaning and Inspection of Telecom boards **NOS Version No. 2.0** **NSQF Level 3**	**20:00**	**40:00**	**30:00**	-	**90:00**

Module 4: Perform cleaning andinspection of Telecom boards	20:00	40:00	30:00	-	90:00
(Bridge Module)– Industrial Education NOS Version No. 2.0NSQF Level 3	**30:00**	**00:00**	**00:00**	-	**30:00**
Module 5: Industrial Education	30:00	00:00	00:00	-	30:00
TEL/N9101 – Organize work and resources as per health and safety standards NOS Version No. 1.0NSQF Level 4	**10:00**	**20:00**	**00:00**	-	**30:00**
Module 6: Plan Work Effectively,Optimise Resources and Implement Safety Practices	10:00	20:00	00:00	-	30:00
TEL/N9102 – Interact Effectively with Team Members and Customers NOS Version No. 1.0NSQF Level 4	**10:00**	**20:00**	**00:00**	-	**30:00**
Module 7: Communication andinterpersonal skills	10:00	20:00	00:00	-	30:00
DGT/VSQ/N0101 Employability Skills (30 Hours)	30:00	00:00	00:00	00:00	30:00
Total Duration	**150:00**	**180:00**	**120:00**	**00:00**	**450:00**

Module Details

Module 1: Introduction to the Role of a Hand Soldering Technician

Mapped to Bridge Module

Terminal Outcomes:

- Identify the role and responsibilities of a Hand Soldering Technician.

Duration: ***20:00***	**Duration**: ***10:00***
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the size and scope of the Telecom industry and its various sub-sectors. • Discuss the various opportunities for Hand Soldering Technician in the Telecom industry. • List the role and responsibilities of Hand Soldering Technician. • Define basic electronics like active and passive components including resistors, capacitors, inductors and colour coding of capacitors and resistors. • Discuss the importance of seeking help from experts during any stage of main activity to avoid any escalation. • Compare different kinds of diodes – switch and rectifier, transistors – amplifier and switch and logic gates • Outline the functions of electronic circuits (transmitters, receivers, switches, power supplies, amplifiers, multiplexers, couplers, registers, memory and all RF circuits) in different telecom equipment	
Classroom Aids:	
Laptop, white board, marker, projector	
Tools, Equipment and Other Requirements	
Documents of standard operating procedures, code of conduct, checklists, installation and troubleshooting tools/equipment's, status report	

Module 2: High density hand soldering of component on telecom boards
Mapped to TEL/N2500

Terminal Outcomes:

- Understand CAD Specifications
- Examine impact of temperature and climate conditions on high density soldering

Duration: *10:00*	**Duration**: *50:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the basics of CAD specification • Set the correct orientation of components on telecom boards. • Examine the impact of temperature and humidity on high-density soldering. • Impact of contamination of PCBs, components and soldering material • Select correct solder bit, soldering wire and correct flux and check component leads and boards for any contamination.	• Develop board and material/components for soldering on telecom boards • Examine the impact of temperature and humidity on high-density soldering. • Handle different kinds of electronic parts or components and connectors and their specifications. • Follow IPC standards for soldering activity
Classroom Aids:	
Laptop, white board, marker, projector	
Tools, Equipment and Other Requirements	
BGA chip, de-soldering and soldering station, hot air gun, microscope, zinc and copper wire fume extractor, flux, Sponge, brass wool, ESO brush, Isopropyl Alcohol (IPA), lint-free cloth, automatic screwing machine, Hand Tools – (Precision screwdrivers, solder, flux, jumper wires, cutter, tweezer, wire strippers etc.) Personal Protection Equipment: safety glasses, head protection, warning signs and tapes	

Module 3: Re-working on defected and selective soldering

Mapped to **TEL/N2501**

Terminal Outcomes:

- Verification of completed board against specifications
- Selective soldering and rework

Duration: *20:00*	**Duration**: *40:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Examine the board against the specification i.e., CAD and BOM (Bill of Material) before soldering. • Map the board components with CAD specification for accurate placement and orientation. • Identify the fault in the existing board (i.e., solder shot, pin holes/blow holes, spikes, peaks, gold plated columns and dry solder) and rectify it with the use of proper tools and equipment. • Examine the re-use or replacement of component. • Elaborate the importance of ESD and hygiene.	• Demonstrate techniques use proper soldering. • Perform reading/verifying components under microscope to check correct placement and connectivity (no bend pins/legs etc.) • How to identify and analyse defects • Demonstrate how to use the correct tools and materials for rework/resoldering
Classroom Aids:	
Laptop, white board, marker, projector	
Tools, Equipment and Other Requirements	
BGA chip, de-soldering and soldering station, hot air gun, microscope, zinc and copper wire fume extractor, flux, Sponge, brass wool, ESO brush, Isopropyl Alcohol (IPA), lint-free cloth, automatic screwing machine, Hand Tools – (Precision screwdrivers, solder, flux, jumper wires, cutter, tweezer, wire strippers etc.) Personal Protection Equipment: safety glasses, head protection, warning signs and tapes	

Module 4: Cleaning and Inspection of Telecom boards
Mapped to TEL/N2502

Terminal Outcomes:

- Cleaning of telecom boards
- Inspection – quality checks and assurance

Duration: *20:00*	**Duration**: *40:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Ensure safe and proper storage of cleaned PCBs • Operate vapour de-greaser (boil, rinse, vaporize and dry) to clean the boards • Examine PCB for any missing components, wrongly placed components • Verify the soldering workmanship and defects • Verify the completeness of requirement specifications and documentation • Inspect all available infrastructure and test equipment • Handle complaint and escalation process • Explain functioning of test equipment. • Assure for proper jigs and settings	• Clean PCB from flux residues, white patches/powder using specified – solvent/ agent • Demonstrate use of cleaning chemicals/ solvents for PCBs • Examine PCB for any missing components, wrongly placed components • Illustrate process of cleaning • Demonstrate to use vapour de freezer equipment for PCB cleaning • Perform IPC standards of soldering • Inspect all available infrastructure and test equipment
Classroom Aids:	
White board/ black board marker / chalk, duster, computer or Laptop attached to LCD projector	
Tools, Equipment and Other Requirements	
Board Cleaning solvents/solutions, De-Greasers, PCB Storage system (ESD Compliant) Personal Protection Equipment: safety glasses, head protection, rubber gloves, safety footwear, warning signs and tapes, fire extinguisher and first aid kit	

Module 5: Industrial Education

Mapped to Bridge Module

Terminal Outcomes:

- Build proper relationship with colleagues
- Prepare different log sheet

Duration: *30:00*	**Duration**: *00:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Communicate with colleagues, peers and supervisor and stake holders • Follow liaising and coordination skills. • Listen effectively and orally communicate information accurately. • Identify Quality Check (QC) tools. • Follow maintenance procedures and management. • Take part in routine, preventive predictive, break down maintenance and basic store management. • Summarize industrial act, company standards. • Maintain ERP and Log sheet/Logbook. • Compile the importance of standard operating procedure.	
Classroom Aids:	
White board/ black board marker / chalk, duster, computer or Laptop attached to LCD projector	
Tools, Equipment and Other Requirements	
EPR, Log sheet, Logbook, etc Personal Protection Equipment: safety glasses, head protection, rubber gloves, safety footwear, warning signs and tapes, fire extinguisher and first aid kit	

Module 6: Plan Work Effectively, Optimise Resources and Implement Safety Practices
Mapped to TEL/N9101

Terminal Outcomes:

- Plan work effectively, implement safety practices and optimise use of resources

Duration: *10:00*	**Duration**: *20:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss the importance of following the standard operating procedures of the company w.r.t. privacy, confidentiality and security • Explain how to develop skills and expertise in the job role • List the key performance indicators for the new tasks • Discuss correct way to show emotions at workplace • Identify the issues with and handle them • Describe the importance of timely completion of tasks • Explain the importance of escalation matrix • Explain the importance of providing and receiving feedback constructively • Identify different types of hazards such as illnesses, accidents, fires, etc. • List the causes of risks and potential hazards in a work area and the ways to prevent them • List the steps to report accident and health related issues as per SOP • Explain the importance of maintaining proper posture at work, especially when handling heavy and hazardous materials • Analyse ways to optimise usage of resources • Discuss how to optimise the use of electrical equipment and appliances to ensure that they conform to safety and resource conservation norms • List the importance, cause and effect of greening of jobs • Explain the concept of waste management • List the methods of waste disposal • Identify the different categories of waste for the purpose of segregation	• Demonstrate techniques to save on cost and time • Demonstrate routine cleaning of tools, equipment and machines to ensure team follows the same practices • Use resources such as water judiciously • Perform basic steps to check for malfunctions in equipment and report as per SOP • Report any breaches in safety and security to the concerned person • Illustrate ways to keep work area clean such as mopping spills and leaks, cleaning grease stains, etc. • Perform basic steps to check for spills and leaks and plug the same • Demonstrate segregation of different types of hazardous waste • Illustrate steps to minimise waste • Illustrate proper waste disposal procedures and how to dispose-off hazardous waste • Illustrate ways to find exact cause of a problem and validate the same in case done by a team member

• Differentiate between recyclable and non-recyclable waste • List electronic waste disposal procedures • List the common sources of pollution and the ways to minimize it	
Classroom Aids:	
White board/ black board marker / chalk, duster, computer or laptop attached to LCD projector	
Tools, Equipment and Other Requirements	
Personal Protection Equipment: safety glasses, head protection, rubber gloves, safety footwear, warning signs and tapes, fire extinguisher and first aid kit	

Module 7: Communication and Interpersonal Skills
Mapped to TEL/N9102

Terminal Outcomes:

- Develop communication skills, interpersonal skills and sensitization towards gender and persons with disability

Duration: *10:00*	**Duration**: *20:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the roles and responsibilities and understand organisation's policies • Discuss the organisational guidelines for dress code, time schedules, language and other soft skill aspects • Discuss the importance of reporting unforeseen disruptions or delays • Explain how to give and receive feedback in a constructive way • List the different methods of communication • Explain the importance of effective communication and interpersonal skills • Discuss how to listen attentively and respond appropriately • Describe the common reasons for interpersonal conflicts and ways of managing them effectively • List the different types of information needed by colleagues and their importance • Discuss the importance of implementing standards, guidelines and practices pertaining to gender sensitivity, including work ethics and workplace etiquette • Discuss about the different types of disabilities along with their respective issues • Explain work ethics, workplace etiquette as well as standards and guidelines for all genders and PwD • List health and safety requirements for persons with disability • Describe the rights, duties and benefits available at workplace for persons with disability • Explain the process of recruiting people with disability for a specific job	• Demonstrate how to interact with superiors in terms of escalating problems, reporting work completion and receiving feedback • Apply team building skills to assist colleagues in maximising effectiveness and efficiency of carrying out tasks • Demonstrate appropriate communication skills and etiquette while interacting with others • Resolve conflicts with colleagues and adhere to commitment • Demonstrate ideal workplace ethics while interacting with colleagues with respect to sharing information, co-ordinating work and showing respect • Follow organisation's policy for working with team members • Illustrate importance of team goals over individual goals • Use inclusive language irrespective of the gender/ disability of the person • Demonstrate appropriate behaviour towards all genders and differently abled people

• Discuss the specific ways to help persons with disability overcome the challenges	
Classroom Aids:	
White board/ black board marker / chalk, duster, computer or laptop attached to LCD projector	
Tools, Equipment and Other Requirements	
Sample of escalation matrix, organisation structure.	

Module 8: On-the-Job Training

Mapped to Hand Soldering Technician - Telecom Board

Mandatory Duration: 120:00	**Recommended Duration**: *00:00*
Location: On-Site	
Terminal Outcomes 1. Demonstrate the process and procedures for drawing stores, drawings, specifications and their safe keeping 2. Identify and analyse defects in soldering. 3. Demonstrate the use of correct tools and materials for rework/resoldering. 4. Verify components under microscope to check correct placement and connectivity (no bend pins/legs etc.). 5. Re-work on telecom boards including re-soldering. 6. Identify and gather all rework components and material. 7. Identify soldering defects and non-compliances. 8. Verify post rework/ re-soldering. 9. Demonstrate use of cleaning chemicals/solvents for PCBs. 10. Demonstrate use of vapour de-freezer equipment for PCB cleaning. 11. Perform Quality Assurance (QA)/Quality Check (QC) parameters relating to the manual soldering. 12. Troubleshoot and fix the faults. 13. Prepare compliance report.	

Module 9: DGT/VSQ/N0101 Employability Skills (30 hours)

Mapped to Hand Soldering Technician - Telecom Board

Mandatory Duration: *30:00*			
Location: On-Site			
S.No.	**Module Name**	**Key Learning Outcomes**	**Duration (hours)**
1.	Introduction to Employability Skills	• Discuss the importance of Employability Skills in meeting the job requirements.	1
2.	Constitutional values - Citizenship	• Explain constitutional values, civic rights, duties, citizenship, responsibility towards society etc. thatare required to be followed to become a responsible citizen. • Show how to practice different environmentally sustainable practices.	1
3.	Becoming a Professional in the 21st Century	• Discuss 21st century skills. • Display positive attitude, self -motivation, problem solving, time management skills and continuous learning mindset in different situations.	1
4.	Basic English Skills	• Use appropriate basic English sentences/phrases while speaking.	2
5.	Communication Skills	• Demonstrate how to communicate in a well -mannered way with others. • Demonstrate working with others in a team.	4
6.	Diversity & Inclusion	• Show how to conduct oneself appropriately with all genders and PwD. • Discuss the significance of reporting sexual harassment issues in time.	1
7.	Financial and Legal Literacy	• Discuss the significance of using financial products and services safely and securely. • Explain the importance of managing expenses, income, and savings. • Explain the significance of approaching the concerned authorities in time for any exploitation as per legal rights and laws.	4
8.	Essential Digital Skills	• Show how to operate digital devices and use the associated applications and features, safely and securely. • Discuss the significance of using internet for browsing, accessing social media platforms, safely and securely.	3
9.	Entrepreneurship	• Discuss the need for identifying opportunities for potential business, sources for arranging money and potential legal and financial challenges.	7
10.	Customer Service	• Differentiate between types of customers. • Explain the significance of identifying customer needs and addressing them. • Discuss the significance of maintaining hygiene and dressing appropriately.	4
11	Getting ready for apprenticeship & Jobs	• Create a biodata. • Use various sources to search and apply for jobs. • Discuss the significance of dressing up neatly and maintaining hygiene for an interview. • Discuss how to search and register for apprenticeship opportunities.	2

LIST OF TOOLS & EQUIPMENT FOR EMPLOYABILITY SKILLS		
S 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 (Licensed) (all software should either be latest version or one/two version below)	As required
2.	UPS	As required
3.	Scanner cum Printer	As required
4.	Computer Tables	As required
5.	Computer Chairs	As required
6.	LCD Projector	As required
7.	White Board 1200mm x 900mm	As required
Note: Above Tools &Equipment not required, if Computer LAB is available in the institute.		

Annexure

Trainer Requirements (Hand Soldering Technician - Telecom Board)

Trainer Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
Graduate	Science/Electronics/ Telecom/IT and other relevant fields	1	Handset Manufacturing	0	NA	Eligible for ToT Program
Diploma after 10th	Electronics/Telecom /IT and other relevant fields	4	Handset Manufacturing	0	NA	Eligible for ToT Program

Trainer Certification	
Domain Certification	**Platform Certification**
Certified in Job Role: "**Hand Soldering Technician Telecom Board** Level 3" "**TEL/Q2500, v3.0**", Minimum accepted score is **80%**	Certified in Job Role: "**Trainer (VET and Skills)**", "**MEP/Q2601 v2.0**", Minimum accepted score is**80%**

Assessor Requirements (Hand Soldering Technician - Telecom Board)

Assessor Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
Graduate	Science/Electronics/ Telecom/IT and other relevant fields	1	Handset Manufacturing	0	NA	Eligible for ToA Program
Diploma after 10th	Electronics/Telecom/ IT and other relevant fields	4	Handset Manufacturing	0	NA	Eligible for ToA Program

Assessor Certification	
Domain Certification	**Platform Certification**
Certified in Job Role: "**Hand Soldering Technician Telecom Board** Level 3" "**TEL/Q2500, v3.0**", Minimum accepted score is **80%**	Certified in Job Role: "**Assessor (VET and Skills)**", "**MEP/Q2701 v2.0**", Minimum accepted score is**80%**

Trainer Requirements (Employability Skills 30 hours)

Trainer Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
Graduate/CITS	Any discipline			2	Teaching experience	Prospective ES trainer should: • have good communication skills • be well versed in English • have digital skills • have attention to detail • be adaptable • have willingness to learn
Current ITI trainers	Employability Skills Training (3 days full-time course done between 2019-2022)					
Certified current EEE trainers (155 hours)	from Management SSC (MEPSC)					
Certified Trainer	Qualification Pack: Trainer (MEP/Q0102)					

Trainer Certification	
Domain Certification	**Platform Certification**
Certified in 30-hour Employability NOS (2022), with a minimum score of **80%** **OR** Certified in 120- OR 90- OR 60-hour Employability NOS (2022), with a minimum score of **80%**	NA

Master Trainer Requirements (Employability Skills 30 hours)

Master Trainer Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
Graduate/CITS	Any discipline			3	Employability Skills curriculum training experience with an interest to train as well as orient other peer trainers	Prospective ES Master trainer should: • have good communication skills • be well versed in English • have basic digital skills • have attention to detail • be adaptable • have willingness to learn • be able to grasp concepts fast and is creative with teaching practices and likes sharing back their learning with others
Certified Master Trainer	Qualification Pack: Master Trainer (MEP/Q2602			3	EEE training of Management SSC (MEPSC) (155 hours)	

Master Trainer Certification	
Domain Certification	**Platform Certification**
Certified in 30-hour Employability NOS (2022), with a minimum score of **90%.** **OR** Certified in 120- OR 90- OR 60-hour Employability NOS (2022), with a minimum score of **90%**	NA

Assessment Strategy

1. Assessment System Overview:
    - Batches assigned to the assessment agencies for conducting the assessment on SDSM/SIP or email
    - Assessment agencies send the assessment confirmation to VTP/TC looping SSC
    - Assessment agency deploys the ToA certified Assessor for executing the assessment
    - SSC monitors the assessment process & records

2. Testing Environment:
    - Confirm that the centre is available at the same address as mentioned on SDMS or SIP
    - Check the duration of the training.
    - Check the Assessment Start and End time to be as 10 a.m. and 5 p.m.
    - If the batch size is more than 30, then there should be 2 Assessors.
    - Check that the allotted time to the candidates to complete Theory & Practical Assessment is correct.
    - Check the mode of assessment—Online (TAB/Computer) or Offline (OMR/PP).
    - Confirm the number of TABs on the ground are correct to execute the Assessment smoothly.
    - Check the availability of the Lab Equipment for the particular Job Role.

3. Assessment Quality Assurance levels / Framework:
    - Question papers created by the Subject Matter Experts (SME)
    - Question papers created by the SME verified by the other subject Matter Experts
    - Questions are mapped with NOS and PC
    - Question papers are prepared considering that level 1 to 3 are for the unskilled & semi-skilled individuals, and level 4 and above are for the skilled, supervisor & higher management
    - Assessor must be ToA certified & trainer must be ToT Certified
    - Assessment agency must follow the assessment guidelines to conduct the assessment

4. Types of evidence or evidence-gathering protocol:
    - Time-stamped & geotagged reporting of the assessor from assessment location
    - Center photographs with signboards and scheme specific branding
    - Biometric or manual attendance sheet (stamped by TP) of the trainees during the training period
    - Time-stamped & geotagged assessment (Theory + Viva + Practical) photographs & videos

5. Method of verification or validation:
    - Surprise visit to the assessment location
    - Random audit of the batch
    - Random audit of any candidate

6. Method for assessment documentation, archiving, and access
    - Hard copies of the documents are stored
    - Soft copies of the documents & photographs of the assessment are uploaded / accessed from Cloud Storage
    - Soft copies of the documents & photographs of the assessment are stored in the Hard Drives

Assessment Strategy (Employability Skills 30 hours)

The trainee will be tested for the acquired skill, knowledge and attitude through formative/summative assessment at the end of the course and as this NOS and MC is adopted across sectors and qualifications, therespective AB can conduct the assessments as per their requirements.

References

Glossary

Term	Description
Declarative Knowledge	Declarative knowledge refers to facts, concepts and principles that need to be known and/or understood in order to accomplish a task or to solve a problem.
Key Learning Outcome	Key learning outcome is the statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training outcome is specified in terms of knowledge, understanding (theory) and skills (practical application).
OJT (M)	On-the-job training (Mandatory); trainees are mandated to complete specified hours of training on site
OJT (R)	On-the-job training (Recommended); trainees are recommended the specified hours of training on site
Procedural Knowledge	Procedural knowledge addresses how to do something, or how to perform a task. It is the ability to work, or produce a tangible work output by applying cognitive, affective or psychomotor skills.
Training Outcome	Training outcome is a statement of what a learner will know, understand and be able to do **upon the completion of the training**.
Terminal Outcome	Terminal outcome is a statement of what a learner will know, understand and be able to do **upon the completion of a module.** A set of terminal outcomes help to achieve the training outcome.

Acronyms and Abbreviations

Term	Description
QP	Qualification Pack
NSQF	National Skills Qualification Framework
NSQC	National Skills Qualification Committee
NOS	National Occupational Standards
SOP	Standard Operating Procedures
CRM	Customer Relationship Management
CAD	Computer Aided Design
BOM	Bill of Material
PCB	Printed Circuit Board
ICs	Integrated Circuits
WI	Work Instruction
WO	Work Order
QA	Quality Assurance
QC	Quality Control
SHE	Safety, Health & Environment
PwD	Persons with Disabilities
OHS	Occupational Health & Safety
EMI	Electromagnetic Induction
EMC	Electromagnetic Compatibility
IPC	Institute of Printed Circuits
ES	Employability Skills