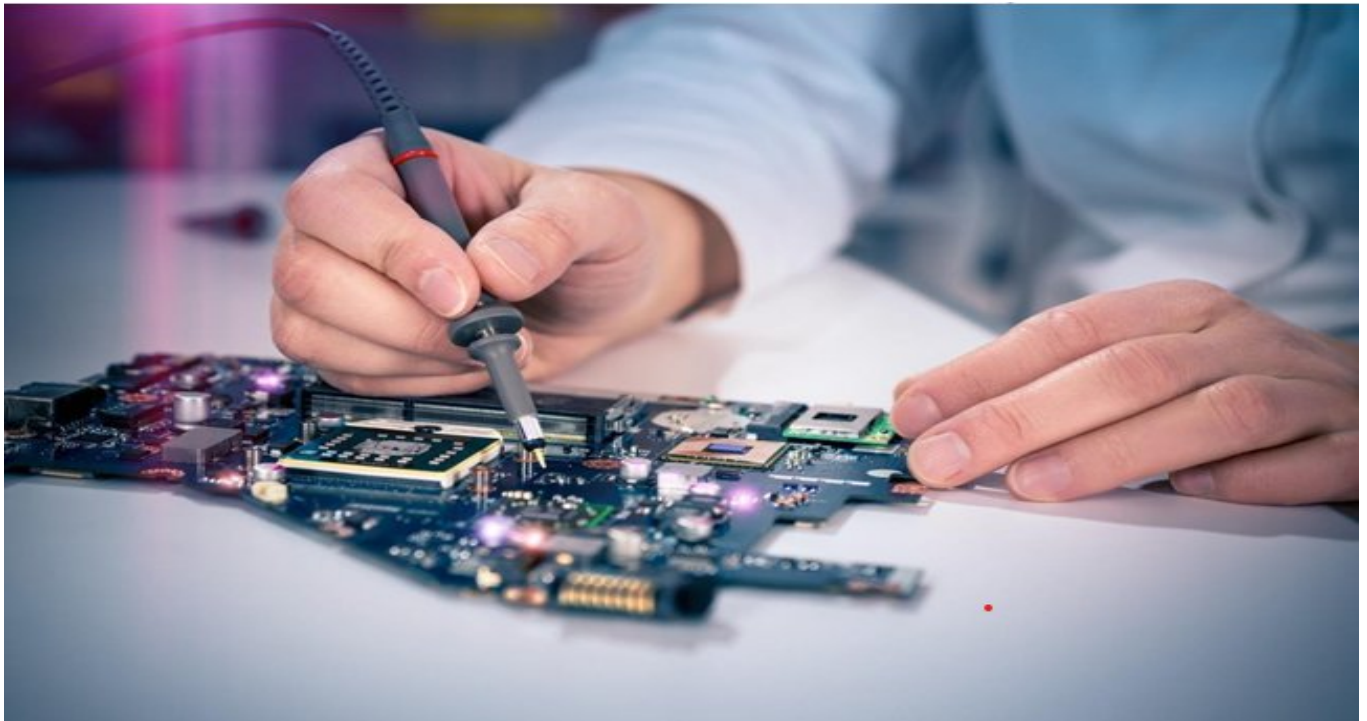




Model Curriculum

QP Name: Electronics Machine Maintenance Technician- Shop Floor

QP Code: ELE/Q2501

QP Version: 4.0

NSQF Level: 4

Model Curriculum Version: 4.0

Electronics Sector Skills Council of India || 155, 2nd Floor, ESC House, Okhla Industrial Area - Phase 3,
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Training Parameters

Sector	Electronics
Sub-Sector	Consumer Electronics & IT Hardware
Occupation	Maintenance
Country	India
NSQF Level	4
Aligned to NCO/ISCO/ISIC Code	NCO-2015/8212.0400
Minimum Educational Qualification and Experience	12th grade or equivalent OR 10th grade or equivalent with 3 years of experience OR Certificate-NSQF (Level-3 in relevant domain) with 3 Years of relevant Experience # Relevant experience in Consumer Electronics & IT Hardware
Pre-Requisite License or Training	NA
Minimum Job Entry Age	NA
Last Reviewed On	07/10/2025
Next Review Date	07/10/2028
NSQC Approval Date	07/10/2025
QP Version	4.0
Model Curriculum Creation Date	07/10/2025
Model Curriculum Valid Up to Date	07/10/2028
Model Curriculum Version	4.0
Minimum Duration of the Course	510 Hours
Maximum Duration of the Course	510 Hours

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.

- Identify the various equipment and machinery used in the maintenance process.
- Conduct maintenance of the electronics machines installed in the factory.
- Interact and coordinate with the supervisor and colleagues etc.
- Follow safe and healthy work practices.

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
ELE/N7911 - Equipment Maintenance Planning & Preparation	90:00	120:00	60:00	00:00	270:00
Module 1: Equipment Maintenance Planning & Preparation	90:00	120:00	60:00	00:00	270:00
ELE/N7910 - Execution of Maintenance Activities & Quality Assurance	60:00	90:00	60:00	00:00	210:00
Module 2: Execution of Maintenance Activities & Quality Assurance	60:00	90:00	60:00	00:00	210:00
DGT/VSQ/N0101- Employability Skills (30 Hours)	30:00	00:00	00:00	00:00	30:00
Module 4: Employability Skills (30 Hours)	30:00	00:00	00:00	00:00	30:00
Total Duration	180:00	210:00	120:00	00:00	510:00

Module Details

Module 1: Equipment Maintenance Planning & Preparation

Mapped to ELE/N7911

Terminal Outcomes:

- Introduction to the role and responsibilities of an Electronics Machine Maintenance Technician- Shop Floor.
- Interpret equipment manuals and process documentation to plan and document accurate maintenance cycles.

Duration: 60:00	Duration: 120:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
• Describe the roles and responsibilities of an Electronics Machine Maintenance Technician- Shop Floor. • Understand the purpose and structure of equipment and machine manuals. • Learn how to interpret operational guidelines and maintenance requirements from manuals. • Understand how to develop maintenance cycles and record schedules accurately. • Analyze process cycles to verify equipment compliance with operational parameters. • Comprehend the importance of accurate and updated technical documentation. • Learn principles of preventive and predictive maintenance for enhanced equipment performance. • Understand maintenance planning and scheduling in relation to production demands. • Review predictive maintenance software, sensors, and digital maintenance schedules to monitor and carry out preventive tasks efficiently. • Gain knowledge of inventory planning for maintenance parts and consumables. • Learn the standard procedures for reviewing and verifying preventive maintenance schedules. • Understand coordination and communication practices for maintenance management.	• Read and interpret machine manuals to follow operational and maintenance guidelines. • Document and track maintenance cycles for individual equipment. • Verify technical drawings and documents reflect current equipment conditions. • Collaborate with production teams to align maintenance with process schedules. • Plan and schedule maintenance tasks to avoid disruptions in operations. • Prepare and use toolkits and replacement parts as per maintenance requirements. • Conduct preventive maintenance tasks according to planned schedules. • Check inventory levels and inspect the quality of received equipment parts. • Ensure the availability of consumables and tools before performing maintenance. • Confirm completion of operator routine checklists before initiating maintenance.
Classroom Aids:	
Laptop, white board, marker, projector	
Tools, Equipment and Other Requirements	
NA	

Module 2: Execution of Maintenance Activities & Quality Assurance

Mapped to ELE/N7910

Terminal Outcomes:

- Identify tools and equipment required for preventive maintenance.
- Perform maintenance of electronic machines installed.

Duration: 60:00	Duration: 90:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
• Define maintenance. • Classify various types of maintenance. • Discuss the information derived from the instruction sheet/ job card, maintenance log book/ card/ sheet and instructions from supervisor. • Recall the information mentioned in the maintenance schedule and checklist regarding the maintenance work. • List tools, equipment, accessories, consumables and spare parts required during the maintenance work. • Describe the organisational process of collecting and arranging consumables, spare parts, tools etc. from the store. • List the steps to be performed for dismantling the equipment for inspection, cleaning, repairing or replacing the consumables, spare parts and faulty components as per SOP. • Explain the process of checking the internal conditions of the equipment with the specified quality standards. • Discuss breakdown maintenance process. • Explain methods of inspecting the charge leakage, short circuit in parts, breakage of wires and clamps, unusual contact of electrical wires with moving parts, erratic/problematic etc. in the equipment. • Discuss the necessary precautions to avoid any hazard and accident during maintenance activities. • List the steps to be performed for assembling back the equipment as per SOP. • Summarise the documents, records and information to be maintained related to the maintenance and repairing done. • Explain the process of evaluating the equipment specified parameters for no	• Read the instruction sheet/ job card, maintenance log book/ card/ sheet, specifications, manufacturers' manuals, maintenance manual, checklist etc. for identifying the information about the equipment used for service and repairing. • Read the maintenance schedule and equipment layout for planning of the schedule for maintenance activities. • Demonstrate the standard operating procedures for using tools and equipment required during job. • Read the maintenance checklist and discuss it with the superior for confirming the maintenance tasks. • Demonstrate how to check the basic health and condition of electronics equipment installed as per maintenance checklist. • Demonstrate organizational specified procedure of dismantling and repairing/ replacing the consumables, spare parts and faulty components as per SOP. • Employ appropriate ways of checking the internal conditions of wiring, motherboards etc. to test the working status and expected conditions of equipment. • Show how to conduct breakdown maintenance and inspect the charge leakage, short circuit in parts, breakage of wires and clamps, unusual contact of electrical wires with moving parts etc. in the equipment. • Apply appropriate ways to improve, debug and optimize set ups and change over. • Perform the steps of cleaning, repairing or replacing the electrical and electronic system of the equipment. • Show how to dispose waste as per organisational guidelines.

abnormalities at full power/speed/flow.	
	• Demonstrate organizational specified procedure of assembling back the equipment and preparing it for trials as per SOP. • Employ appropriate ways for conducting trials and running the equipment at full power/speed/flow for checking any abnormalities in its functioning. • Show how to change the maintenance due/status sticker on the equipment. • Show how to fill the daily, weekly and monthly maintenance/defect sheets as per organisational procedures. • Prepare a report for the superiors about the maintenance activity done. • Employ appropriate practices to clean and store the tools, equipment and process auxiliaries safely.
Classroom Aids: Whiteboard, marker pen, computer or laptop attached to LCD projector, scanner, computer speakers Tools, Equipment and Other Requirements • PPTs of wiring diagrams and mechanical drawings • Hand Tools: Hammer ball peen, screw driver set, files, torque, wrenches, drills, taps. • Measuring equipment: Vernier calliper, micrometer, feeler gauges, steel ruler, measuring tape, multimeter. • Electrical testing equipment: volt meter, ammeters ohm meter, battery testing equipment, neon light and oscilloscope • Wire stripper, crimping tool, soldering gun. • Electronic components: resistor, capacitor, diode, IC, cables, fasteners, connectors. • Controls, sensors, fuses, Programable Logic Controller (PLC) • PPE: Gloves, safety shoes, goggles, ear plugs, safety helmet	

Module 3: Employability Skills (30 Hours)

Mapped to DGT/VSQ/N0101

Terminal Outcomes:

- Discuss about Employability Skills in meeting the job requirements
- Describe opportunities as an entrepreneur.
- Describe ways of preparing for apprenticeship & Jobs appropriately.

Duration: 30:00	Duration: 00:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
• Explain constitutional values, civic rights, responsibility towards society to become a responsible citizen • Discuss 21st century skills • Explain use of basic English phrases and sentences. • Demonstrate how to communicate in a well-behaved manner • Demonstrate how to work with others • Demonstrate how to operate digital devices • Discuss the significance of Internet and Computer/ Laptops • Discuss the need for identifying business opportunities • Discuss about types of customers. • Discuss on creation of biodata • Discuss about apprenticeship and opportunities related to it.	•
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Computer, UPS, Scanner, Computer Tables, LCD Projector, Computer Chairs, White Board OR Computer Lab	

Module 4: On-the-Job Training

Mapped to Electronics Machine Maintenance Technician- Shop Floor

Mandatory Duration: 120:00	Recommended Duration: 00:00
Location: On Site	
Terminal Outcomes 1. Explain the fundamental concepts of electronics and electronics components 2. Identify tools and equipment required for preventive maintenance. 3. Perform maintenance of electronic machines installed 4. Check the electronics equipment installed as per maintenance checklist. 5. Repair/ replace the consumables, spare parts and faulty components as per SOP. 6. Conduct breakdown maintenance and inspect the equipment. 7. Interact and coordinate with supervisor and colleagues 8. Work as per the given timeline and quality standards Maintain a safe, healthy and secure work environment	

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
Diploma/ ITI/ Certified in relevant CITS Trade	Electronics	2	Maintenance	1	Trainer	

Trainer Certification	
Domain Certification	Platform Certification
"Electronics Machine Maintenance Technician- Shop Floor, ELE/Q2501, version 3.0". Minimum accepted score is 80%.	Recommended that the Trainer is certified for the Electronics Machine Maintenance Technician-Shop Floor, "Trainer (VET and Skills)", mapped to the Qualification Pack: "MEP/Q2601, V2.0", with minimum score of 80%

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training/Assessment Experience		Remarks
		Years	Specialization	Years	Specialization	
Diploma/ ITI/ Certified in relevant CITS Trade	Electronics	3	Maintenance	2	Assessor	

Assessor Certification	
Domain Certification	Platform Certification
"Electronics Machine Maintenance Technician- Shop Floor ELE/Q2501, version 3.0". Minimum accepted score is 80%.	Recommended that the Assessor is certified for the Electronics Machine Maintenance Technician- Shop Floor, "Assessor (VET and Skills)", mapped to the Qualification Pack: "MEP/Q2701, V2.0", with minimum score of 80%

Assessment Strategy

1. Assessment System Overview:
 - Batches assigned to the assessment agencies for conducting the assessment on SDMS/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
 - Centre 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

References

Glossary

Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.

Knowledge and Understanding (KU)	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.
Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/ Generic Skills (GS)	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
Electives	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
Options	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.

Acronyms and Abbreviations

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training
IPR	Intellectual Property Rights