Model Curriculum

QP Name: IT Hardware Maintenance Executive

QP Code: ELE/Q4607

QP Version: 4.0

NSQF Level: 5

Model Curriculum Version: 4.0

Electronics Sector Skills Council of India || 155, 2nd Floor, ESC House, Okhla Industrial Area - Phase 3, New Delhi – 110020

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Training Parameters

Sector	Electronics
Sub-Sector	Consumer Electronics & IT Hardware
Occupation	After Sales Service
Country	India
NSQF Level	5
Aligned to NCO/ISCO/ISIC Code	NCO-2015/3512.0501
Minimum Educational Qualification and Experience	Completed 2nd year of UG (UG Diploma) (Physics/Electronics/ Electrical/Mechanical/Computer Science) with 1.5 years of Relevant Experience OR Completed 3 year diploma after 10th (Electronics/Electrical/ Mechanical/Computer Science) with 3 Years of Relevant Experience OR Previous relevant Qualification of NSQF Level (4.5) with 1.5 years of Relevant #Relevant Exp in Consumer Electronics & IT hardware
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	01.05.2025
Next Review Date	30.04.2028
NSQC Approval Date	08.05.2025
QP Version	4.0
Model Curriculum Creation Date	01.05.2025
Model Curriculum Valid Up to Date	30.04.2028
Model Curriculum Version	4.0
Minimum Duration of the Course	570 Hours
Maximum Duration of the Course	570 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:

- Describe the process of managing customer IT hardware at facility.

- Describe the process of managing customer system remotely.

- Explain the importance of following inclusive practices for all genders and PwD at work.

- Demonstrate various practices to be followed to maintain health and safety at work.

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/N3190: Manage on-premises IT hardware for customers	**96:00**	**114:00**	**60:00**	**00:00**	**270:00**
Module 1: Process of managing customer IT hardware at facility	96:00	114:00	60:00	00:00	270:00
ELE/N3191: Remotely manage and support customer IT systems	**60:00**	**90:00**	**90:00**	**00:00**	**240:00**
Module 2: process of managing customer system remotely	60:00	90:00	90:00	00:00	240:00
DGT/VSQ/N0102: Employability Skills (60 Hours)	**24:00**	**36:00**	**00:00**	**00:00**	**60:00**
Module 3: Employability Skills (60 Hours)	24:00	36:00	00:00	00:00	60:00
Total Duration	**180:00**	**240:00**	**150:00**	**00:00**	**570:00**

Module Details

Module 1: Process of managing customer IT hardware at facility
Mapped to ELE/N3190

Terminal Outcomes:

- Demonstrate the process of maintaining IT hardware and related software system.

- Explain the importance of managing assets and warranty issues.

- Demonstrate the process of monitoring IT hardware system.

- Demonstrate the process of maintaining records of schedules.

- Explain the importance of interacting with customer and superior.

Duration: 96:00	Duration: 114:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
- Explain company's policies on: customer care, annual maintenance contracts, warranty. - Explain different types of IT hardware and their module wise constitution. - Describe the process of dismantling and assembling of hardware equipment. - Explain vendor and incident management, including valid contract and deliverables. - List different EUC, server, storage, networking, communication products. - Explain company's documentation policy, including vendor's and customer's service level agreement (SLA). - State various changes in technology of products and redundancy. - Explain asset tracking and records maintenance.	- Demonstrate how to troubleshoot software related problems and if needed, install standard and prescribed software on the system. - Show how to identify and replace faulty module in the IT hardware system. - Prepare sample records of date of purchase and warranty as well as any annual maintenance schedule. - Show how to update records of assets not in use or issued to customers employees or returned. - Demonstrate the process of monitoring servers, storage and networks for smooth work flow. - Show how to maintain assets by keeping track of the appropriate temperature and dust environment. - Show how to update records of daily activity including scheduled/unscheduled maintenance, warranty, software

● Explain various software such as Linux, MS Exchange, Auto CAD. ● Explain preloaded and new software as well as version update. ● List various tools used for monitoring and assessing system health. ● Explain organization's culture and typical customer profile. ● State various IPR restrictions imposed by the customer.	updates and expiry dates.

Classroom Aids

Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop

Tools, Equipment and Other Requirements

Computers, laptops, laser printers, Ink Jet printers, Dot Matrix printers, Networking devices such as router, splitter , HDD (500 gb and 1 TB), RAM (2gb and 4 gb), SSD, Processor (i3 and i5),Windows OS, Computer system with faulty sound card, Flat/Phillips screwdrivers, Screws, Sound card, Drive cables (IDE or SCSI), Audio cable to attach CD-ROM drive to sound card, Installation disk for the new sound card, Service manual, Print rollers, denatured alcohol or soft toothbrush, printing papers, cartridge, printer ribbon, Networking devices, Internet connection, Windows maintenance tools and software such as Task scheduler, Screw driver set, Repair toolkit, POST card, Internet connection, motherboard, CMOS battery, Phillips and flat blade screwdrivers (small and medium size), 3-claw part, grabber, chip inserter and chip extractor, TORX head screwdriver, 1/4" and 3/16" nut driver, container to hold small parts and screws, Bootable disk with FDISK.EXE and FORMAT.COM copied onto disk, Disk Manager, ESD wrist band Computer system

Module 2: Process of managing customer system remotely
Mapped to ELE/N3191

Terminal Outcomes:

- Describe the process of monitoring systems remotely.

- Describe the process of managing errors and problems.

- Explain the importance and need of interacting with customers, vendors and superiors.

Duration: 60:00	Duration: 90:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Explain different types of IT hardware and their remote monitoring tools. - Explain different EUC, server, storage, networking and communication products. - Explain electronics and electro-mechanical modules and their functions. - Explain preloaded and new software as well as version update. - State the changes in technology of products and redundancy. - List various statistical tools for monitoring and reporting. - Explain company's documentation policy and reporting structure. - Explain asset tracking and records maintenance. - Explain company's policies on customer care, annual maintenance contracts, warranty. - Explain vendor and incident management. - Explain company's code of conduct and delivery standards.	- Demonstrate the use of monitoring tools to keep watch on critical hardware either 24x7 or as per contract. - Demonstrate how to monitor EUC, server and storage administration, network operations and online systems. - Show how to link the monitoring system to regional hub. - Show how to configure systems manually or automatically. - Demonstrate the use of statistical tools to develop intelligence and spot potential areas of disruptions. - Show how to record downtime details. - Prepare sample action plan and share with customer and/or vendor.
Classroom Aids	

Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop
Tools, Equipment and Other Requirements
Computer system, remote monitoring software such as Argus, Nagios, HP Site Scope, Activity Monitor, Windows Performance Monitor, Teamviewer, Remote monitoring tools such as Hardware Sensors Monitor, HW Monitor, Open Hardware Monitor

Module 3: Employability Skills (60 Hours)
Mapped to DGT/VSQ/N0102

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: *24:00*	Duration: *36:00*
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.	- List different learning and employability related GOI and private portals and their usage - Show how to practice different environmentally sustainable practices. - Exhibit 21st century skills like Self-Awareness, Behavior Skills, time management, etc. - Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone - Demonstrate how to communicate in a well -mannered way with others. - Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette - Utilize virtual collaboration tools to work effectively - Demonstrate how to maintain hygiene and dressing appropriately. - Perform a mock interview
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 IT Hardware Maintenance Executive

Mandatory Duration: 150:00	Recommended Duration: 00:00
Location: On Site	

Terminal Outcomes:

1. Troubleshoot software related problems and if needed, install standard and prescribed software on the system.

2. Identify and replace faulty module in the IT hardware system.

3. Monitoring servers, storage and networks for smooth work flow.

4. Update records of daily activity including scheduled/unscheduled maintenance, warranty, software updates and expiry dates.

5. Monitor EUC, server and storage administration, network operations and online systems.

6. Link the monitoring system to regional hub.

7. Configure systems manually or automatically.

8. Communicating effectively at the workplace.

9. Applying health and safety practices at the workplace.

Annexure

Trainer Requirements

Trainer Prerequisites					
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
Diploma/ Degree/ ITI/ Certified in relevant CITS Trade	(Electrical/Electronics / Mechanical)	2	Engineering – Customer Support	1	Electronics	

Trainer Certification	
Domain Certification	Platform Certification
"**IT Hardware Maintenance Executive**", "ELE/Q4607, v4.0", Minimum accepted score is 80%	Recommended that the Trainer is certified for the **IT Hardware Maintenance Executive** "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/ Degree/ ITI/ Certified in relevant CITS Trade	(Electrical/Electronics / Mechanical)	3	Engineering – Customer Support	1	Electronics	

Assessor Certification	
Domain Certification	**Platform Certification**
"**IT Hardware Maintenance Executive**", "ELE/Q4607, v4.0", Minimum accepted score is 80%	Recommended that the Assessor is certified for the **IT Hardware Maintenance Executive** "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

   - The assessment agency deploys the ToA certified Assessor for executing the assessment

   - SSC monitors the assessment process & records

2. Testing Environment

   To ensure a conducive environment for conducting a test, the trainer will:

   - 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 10 a.m. and 5 p.m. respectively

   - Ensure there are 2 Assessors if the batch size is more than 30.

   - 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

   - The assessor must be ToA certified and the trainer must be ToT Certified

   - The 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:

   To verify the details submitted by the training centre, the assessor will undertake:

   - A surprise visit to the assessment location

   - A random audit of the batch

   - A random audit of any candidate

6. Method for assessment documentation, archiving, and access

   To protect the assessment papers and information, the assessor will ensure:

   - 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 on the Hard drive

References

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	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
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
ISO	International Organization for Standardization
NCO	National Occupational Standards
NOS	National Skills Qualification Committee
NSQF	National Skills Qualification Framework
OJT	On-the-Job Training
OMR	Optical Mark Recognition
PC	Performance Criteria
PwD	Persons with Disabilities
QP	Qualification Pack
SDMS	Skill Development & Management System
SIP	Skill India Portal
SME	Small and Medium Enterprises
SOP	Standard Operating Procedure
SSC	Sector Skill Council
TC	Trainer Certificate
ToA	Training of Assessors
ToT	Training of Trainers
TP	Training Provider