Model Curriculum

QP Name: Field Technician Computing and Peripherals

QP Code: ELE/Q4601

QP Version: 3.0

NSQF Level: 4

Model Curriculum Version: 3.0

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	4
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7422.2001
Minimum Educational Qualification and Experience	8th Grade Pass + NTC (2 years after 8th) + 2 Year NAC/relevant Experience) OR 10th Grade pass + 2 Year NTC/NAC/ relevant experience OR Certificate-NSQF (Level-3 in Maintenance Technician) with 2 Years of relevant Experience OR 12th Class and 18 Years
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	30/12/2021
Next Review Date	02/06/2025
NSQC Approval Date	30/12/2022
QP Version	3.0
Model Curriculum Creation Date	30/12/2021
Model Curriculum Valid Up to Date	02/06/2025
Model Curriculum Version	3.0
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:

- Describe the process of evaluating customer requirements and computer issues.

- Demonstrate the process of installing a desktop computer and its peripherals.

- Demonstrate the process of carrying out repair and maintenance of a desktop computer and its peripherals.

- Demonstrate the process of installing a laptop and its peripherals.

- Demonstrate the process of carrying out repair and maintenance of a laptop and its peripherals.

- 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 (Recommended)	On-the-Job Training Duration (Mandatory)	Total Duration
Bridge Module	**06:00**	**04:00**	**00:00**	**00:00**	**10:00**
Module 1: Introduction and orientation to the role of a Field Technician Computing and Peripherals	06:00	04:00	00:00	00:00	10:00
ELE/N4601 Evaluate the customer requirements and computer issues	**10:00**	**20:00**	**00:00**	**30:00**	**60:00**
Module 2: Evaluation of the customer requirements and computer issues	10:00	20:00	00:00	30:00	60:00
ELE/N3155 Install the desktop computer and its peripherals	**30:00**	**30:00**	**00:00**	**30:00**	**90:00**
Module 3: Process of installing the desktop computer and its peripherals	30:00	30:00	00:00	30:00	90:00
ELE/N4603 Carry out repair and maintenance of a	**30:00**	**30:00**	**00:00**	**30:00**	**90:00**

desktop computer and its peripherals					
Module 4: Repair and maintenance of desktop computer and its peripherals	30:00	30:00	00:00	30:00	90:00
ELE/N3153 Install laptop and its peripherals	**10:00**	**30:00**	**00:00**	**30:00**	**70:00**
Module 5: Process of installing a laptop and its peripherals	10:00	30:00	00:00	30:00	70:00
ELE/N3154 Carry out repair and maintenance of laptop and its peripherals	**10:00**	**30:00**	**00:00**	**30:00**	**70:00**
Module 6: Repair and maintenance of a laptop and its peripherals	10:00	30:00	0:00	30:00	70:00
ELE/N9905 Work effectively at the workplace	**15:00**	**15:00**	**00:00**	**00:00**	**30:00**
Module 7: Soft Skills and Work Ethics	15:00	15:00	00:00	00:00	30:00
ELE/N1002 Apply health and safety practices at the workplace	**15:00**	**15:00**	**00:00**	**00:00**	**30:00**
Module 8: Basic Health and Safety Practice	15:00	15:00	00:00	00:00	30:00
DGT/VSQ/N0102- Employability Skills (60 Hours)	**24:00**	**36:00**	**00:00**	**00:00**	**60:00**
Module 6: Employability Skills (60 Hours)	24:00	36:00	00:00	00:00	60:00
Total	**150:00**	**210:00**	**00:00**	**150:00**	**510:00**

Module Details

Module 1: Introduction and orientation to the role of a Field Technician Computing and Peripherals
Bridge Module

Terminal Outcomes:

- State the role and responsibilities of a Field Technician Computing and Peripherals.

Duration: 06:00	Duration: 04:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Describe the size and scope of the Electronic industry and its sub-sectors. - Discuss the role and responsibilities of a Field Technician Computing and Peripherals. - Describe various employment opportunities for a Field Technician Computing and Peripherals.	- Introduction with the Computer Peripherals - Introduction to the basic software
Classroom Aids	
Training kit - Trainer guide, Presentations, Whiteboard, Marker, projector, laptop	
Tools, Equipment and Other Requirements	
NA	

Module 2: Evaluation of the customer requirements and computer issues
Mapped to ELE/N6701

Terminal Outcomes:

- Describe the process of performing analysis on the computer system.
- Demonstrate the process of assessing issues with the computer system.

Duration: 10:00	Duration: 20:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- List common problems experienced with computer systems and their peripherals. - Describe the established methods to detect problems with a computer system and peripherals. - Explain basic electronics of computer systems. - Describe the functions of various electrical and mechanical parts and modules in a computer system. - Explain various precautions to be taken to protect from electrical hazards.	- Perform steps to examine a computer system to identify its repair and maintenance needs. - Demonstrate the use of relevant PPE such as an ESD wrist strap to protect from Electrostatic Discharge (ESD) and other electrical hazards.
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, Screw Driver, Cables, Network switch etc.	

Module 3: Process of installing the desktop computer and its peripherals
Mapped to ELE/N3155

Terminal Outcomes:

- Describe the process of installing a desktop computer's hardware, software and peripherals.
- Demonstrate the process of installing a desktop computer's hardware, software and peripherals.
- Demonstrate the process of testing the desktop computer and its peripherals.

Duration: 30:00	Duration: 30:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Describe the functions of different types of computer components such as Central Processing Unit (CPU), motherboard, power unit, Random Access Memory (RAM), hard disk, etc. - Describe the process of assembling various desktop computer hardware to prepare a desktop computer set. - Describe the process of installing different types of computer Operating Systems (OS). - Describe the process of installing a variety of desktop computer peripherals. - Describe the process of testing the desktop computer and peripherals for the correct functioning after the installation. - Explain the importance of educating the customer regarding the use of computer systems, peripherals and common troubleshooting steps.	- Demonstrate the use of relevant tools and equipment for the installation of a computer system and its peripherals. - Demonstrate the process of assembling various desktop computer hardware. - Demonstrate the process of installing different types of computer OS and software. - Show how to install desktop computer peripherals. - Demonstrate the process of testing a desktop computer and its peripherals for the correct functioning. - Show how to carry out troubleshooting for the common issues identified after installation. - Demonstrate the correct use of a desktop computer, its peripherals and relevant computer software.
Classroom Aids	
Training kit (Trainer guide, Presentations). Whiteboard, Marker, projector, laptop	
Tools, Equipment and Other Requirements	
Machine tools for servicing the computer, Printed Circuit Board (PCB) assembly, glue, magnifying glass, tester, adhesive and soldering equipment.	

Module 4: Repair and maintenance of desktop computer and its peripherals
Mapped to ELE/N4603

Terminal Outcomes:

- Describe the process of identifying various issues with a desktop computer and its peripherals.
- Demonstrate the process of carrying out repair and maintenance of a desktop computer and its peripherals.

Duration: 30:00	Duration: 30:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Explain the basics of electricity such as Alternate Current (AC) and Direct Current (DC). - List various types of computer hardware and relevant components such as a resistor, capacitor, coil, transistor, etc. - List various desktop computer repair and maintenance tools and equipment. - Identify different types of hardware and software issues encountered with a desktop computer and its peripherals. - Describe the method of carrying out Printed Circuit Board (PCB) cool and hot testing. - Describe the process of disassembling and reassembling various desktop computer components and peripherals. - Explain the importance of carrying out repair and maintenance activities within the Turnaround Time (TAT) given to the customer. - Describe the process of preparing the invoice and processing the payment. - Explain the importance of taking customer feedback to improve the quality of service.	- Demonstrate the use of appropriate tools and equipment such as a multimeter to identify issues with different types of circuits such as volt-in circuit, Voltage Regulator Module (VRM) circuit, Random Access Memory (RAM) supply circuit, etc. - Demonstrate the process of disassembling a desktop computer and its peripherals to carry out repair and maintenance. - Demonstrate the process of carrying out repair and maintenance of a desktop computer and its peripherals. - Demonstrate the process of reassembling a desktop computer and its peripherals after carrying out repair and maintenance. - Show how to test a desktop computer and its peripherals for the correct functioning after repair and maintenance. - Prepare a sample work-report and relevant documents as per the organisational policy. - Prepare a sample invoice applying the relevant warranty benefits as per the applicable warranty coverage.
Classroom Aids	
Training kit (Trainer guide, Presentations)	
Tools, Equipment and Other Requirements	
Computers, Laser Printers, Ink Jet Printers, Dot Matrix Printers, Scanners, Soldering irons 8. Multimeters, Screw Driver, Cables, Network switch	

Module 5: Process of installing a laptop and its peripherals
Mapped to ELE/N3153

Terminal Outcomes:

- Describe the process of installing a laptop and its peripherals.
- Demonstrate the process of installing and testing a laptop and its peripherals.

Duration: 10:00	Duration: 30:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- List various components of a laptop. - Describe the process of setting up a laptop for use. - Describe the process of docking a laptop. - List different types of laptop peripherals. - Describe the functions and process of installing various peripherals compatible with a laptop.	- Demonstrate the process of installing the battery in a laptop and setting it up for use. - Demonstrate the process of installing a compatible Operating System (OS) and other software/ applications on a laptop. - Demonstrate the process of installing various compatible peripherals for use with a laptop. - Demonstrate the process of testing the laptop and peripherals for correct functioning after the installation is complete. - Show how to perform troubleshooting for common issues encountered with the laptop during the installation process.
Classroom Aids	
Training kit (Trainer guide, Presentations)	
Tools, Equipment and Other Requirements	
Machine tools for servicing the computer, organizational documents, PCB assembly, glue, magnifying glass, tester, adhesive and soldering equipment.	

Module 6: Repair and maintenance of a laptop and its peripherals
Mapped to ELE/N3154

Terminal Outcomes:

- Describe the process of identifying problems with a laptop and its peripherals.
- Demonstrate the process of carrying out repair and maintenance of a laptop and its peripherals.

Duration: 10:00	Duration: 30:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- List various types of electrical and mechanical modules used in a computer. - List various tools, equipment, and spare parts required for the repair and maintenance of a laptop and its peripherals. - Explain the importance of using manufacturer-approved tools, equipment and spare parts for repair and maintenance. - Explain the common issues encountered with the internal components of a laptop such as a resistor, capacitor, electromagnetic coils, transistor, etc. - Elaborate on various repair and maintenance needs of different types of laptop hardware and peripherals. - Describe the standard procedure for disassembling and reassembling different types of laptops and relevant peripherals.	- Demonstrate the process of creating a data back-up to prevent the loss of data during the repair and maintenance process. - Show how to conduct the necessary tests on a laptop to identify various software and hardware related issues. - Show how to identify issues with various modules such as High-Definition Multimedia Interface (HDMI), Local Area Network (LAN), Read-Only Memory (ROM), etc. - Demonstrate the process of disassembling and reassembling the laptop as per the manufacturer's instructions. - Show how to carry out repair and maintenance of a laptop and its peripherals. - Prepare a sample work-report and relevant documents with respect to the repair and maintenance activities.
Classroom Aids	
Training kit (Trainer guide, Presentations)	
Tools, Equipment and Other Requirements	
Laptop, Laser Printers, Ink Jet Printers, Dot Matrix Printers, Scanners, Soldering irons 8. Multimeters, Screw Driver, Cables, Network switch	

Module 7: Soft Skills and Work Ethics
Mapped to ELE/N9905

Terminal Outcomes:

- Work effectively at the workplace.
- Demonstrate practices related to gender and PwD sensitization

Duration: 15:00	Duration: 15:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- State the importance of work ethics and workplace etiquette - State the importance of effective communication and interpersonal skills. - Explain ways to maintain discipline at the workplace. - Discuss the common reasons for interpersonal conflict and ways of managing them effectively. - Discuss the importance of following workplace etiquette during customer interactions and site visits. - Explain the importance of being punctual. - Discuss the importance of following organisational guidelines for dress code, time schedules, language usage and other behavioural aspects. - Explain the importance of working as per the workflow of the organisation to receive instructions and report problems. - Explain the importance of conveying information/instructions as per defined protocols to the authorised persons/team members. - Explain the common workplace guidelines and legal requirements on non-disclosure and confidentiality of business-sensitive information. - Describe the process of reporting grievances and unethical conduct such as data breach, sexual harassment at the workplace, etc. - Explain the concept and importance of gender sensitivity and equality. - Discuss ways to create sensitivity for	- Develop a sample plan to achieve organisational goals and targets. - Create a sample feedback form to obtain feedback from customers, colleagues etc. - Roleplay a situation on how to interact with customers on phone and in person. - Roleplay to demonstrate the use of professional language and behaviour that is respectful of PwD and all genders. - Apply organisational protocol on data confidentiality and sharing only with the authorised personnel.

different genders and Persons with Disabilities (PwD). • Discuss ways of dealing with heightened emotions of self and others.	

Classroom Aids

Training kit (Trainer guide, Presentations)

Tools, Equipment and Other Requirements

Workplace records and documents.

Module 8: Basic Health and Safety Practice
Mapped to ELE/N1002

Terminal Outcomes:

- Apply health and safety practices at the workplace.

Duration: 15:00	Duration: 15:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Discuss job-site hazards, risks and accidents. - Explain the organizational safety procedures for maintaining electrical safety, handling tools and hazardous materials. - Elaborate the electronic waste disposal procedures. - Describe the process of disposal of hazardous waste - List the name and location of concerned people, documents and equipment for maintaining health and safety in the workplace. - Describe how to interpret warning signs while accessing sensitive work areas. - Explain the importance of good housekeeping. - Describe the importance of maintaining appropriate postures while lifting heavy objects. - List the types of fire and fire extinguishers. - Explain the importance of efficient utilisation of water, electricity and other resources. - List the common sources of pollution and ways to minimize it. - Describe the concept of waste management and methods of disposing hazardous waste. - Explain various warning and safety signs. - Describe different ways of preventing accidents at the workplace.	- Demonstrate the use of protective equipment suitable as per tasks and work conditions. - Report any abnormal situation/behaviour of any equipment/system to the relevant authorities. - Administer first aid in case of a minor accident. - Demonstrate the steps to free a person from electrocution safely. - Administer Cardiopulmonary Resuscitation (CPR). - Demonstrate the application of defined emergency procedures such as raising alarm, safe/efficient, evacuation, moving injured people, etc. - Prepare a sample incident report. - Use a fire extinguisher in case of a fire incident. - Demonstrate the correct method of lifting and handling heavy objects.
Classroom Aids	
Training kit (Trainer guide, Presentations)	
Tools, Equipment and Other Requirements	
Personal Protection Equipment: safety glasses, head protection, rubber gloves, safety footwear, warning signs and tapes, fire extinguisher, first aid kit, fire extinguishers and warning signs.	

Module 9: 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 10: On-the-Job Training
Mapped to Field Technician Computing and Peripherals

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

Terminal Outcomes

1. Explain the functions of a computer and its peripherals.
2. List the preliminary tasks involved in the repair and maintenance of a computer and its peripherals.
3. Demonstrate how to perform preliminary checks on a computer and its peripherals.
4. Perform steps to inspect the computer and its peripherals to identify defective modules/ components.
5. Perform repair and maintenance activities as per the Service Level Agreement (SLA).
6. Perform steps to test the functioning of computers and its peripherals after repair.
7. Communicate product and service-related information to the customer.
8. Employ appropriate practices to interact and coordinate with supervisor and colleagues.
9. Perform assigned work within the turnaround time and as per the defined quality standards.
10. Demonstrate how to maintain a healthy, safe and secure working environment.

Annexure

Trainer Requirements

Trainer Prerequisites					
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
ITI/Diploma/ Certified in relevant CITS Trade	Electronics /Electrical/Mec hanical	1	Computer & Peripherals Installation Technician	1	Electronics	

Trainer Certification	
Domain Certification	Platform Certification
"**Field Technician Computing and Peripherals**", "ELE/Q4601, v3.0", Minimum accepted score is 80%	"Trainer", "MEP/Q2601" with a minimum score of 80%

Assessor Requirements

Assessor Prerequisites					
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training/Assessment Experience**		**Remarks**
		Years	*Specialization*	*Years*	*Specialization*	
ITI/Diploma/ Certified in relevant CITS Trade	Electronics /Electrical/ Mechanical	2	Computer & Peripherals Installation Technician	1 year	Electronics	

Assessor Certification	
Domain Certification	**Platform Certification**
"**Field Technician Computing and Peripherals**", "ELE/Q4601, v3.0", Minimum accepted score is 80%	"Assessor", "MEP/Q2701" with a 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

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	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
DC	Direct Current
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