



Model Curriculum

QP Name: Mobile Phone Hardware Repair Technician

QP Code: ELE/Q8104

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,
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Table of Contents

Training Parameters	3
Program Overview.....	4
Training Outcomes	4
Compulsory Modules	4
Module Details	6
Module 1: Introduction the role of Mobile Phone Hardware Repair Technician	6
Module 2: Interact with customer and perform front end repair	7
Module 3: Repair and rectify the faults in the mobile phone	9
Module 4: Basic Health & Safety Practices	11
Module 5: Employability Skills (60 Hours).....	12
Module 6: On-the-Job Training.....	13
Annexure	14
Trainer Requirements.....	14
Assessor Requirements	15
Assessment Strategy	16
References.....	17
Glossary	17
Acronyms and Abbreviations.....	18

Training Parameters

Sector	Electronics
Sub-Sector	Communication and Broadcasting
Occupation	After Sales Service
Country	India
NSQF Level	4
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7422.2301
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	31.03.2022
Next Review Date	31.08.2025
NSQC Approval Date	31.03.2022
QP Version	3.0
Model Curriculum Creation Date	31.03.2022
Model Curriculum Valid Up to Date	31.08.2025
Model Curriculum Version	3.0
Maximum Duration of the Course	600 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.

- Diagnose the problem of the faulty mobile phone.
- Arrange tools and necessary parts to repair the mobile phone.
- Repair the hardware of the faulty mobile phone.
- Repair the software of the faulty mobile phone.
- Test the repaired mobile phone.
- Adhere to industry work practices during the repairing process.
- 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
Bridge Module	21:00	39:00	00:00	00:00	60:00
Module 1: Introduction to the role of Mobile Phone Hardware Repair Technician	21:00	39:00	00:00	00:00	60:00
ELE/N8104 - Interact with customer and perform front end repair	30:00	90:00	60:00	00:00	180:00
Module 2: Interact with customer and perform front end repair	30:00	90:00	60:00	00:00	180:00
ELE/N8107 - Repair and rectify the faults in mobile phone	90:00	90:00	90:00	00:00	270:00
Module 3: Repair and rectify the faults in mobile phone	90:00	90:00	90:00	00:00	270:00
ELE/N1002 – Apply Health and Safety Practices at the Workplace	15:00	15:00	00:00	00:00	30:00

Module 4: Basic Health and Safety Practices	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 5: Employability Skills (60 Hours)	24:00	36:00	00:00	00:00	60:00
Total Duration	180:00	270:00	150:00	00:00	600:00

Module Details

Module 1: Introduction to the role of Mobile Phone Hardware Repair Technician

Bridge module

Terminal Outcomes:

- List the role and responsibilities of a Mobile Phone Hardware Repair Technician.

Duration: 21:00	Duration: 39:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> Describe the size and scope of the electronics industry and its various sub-sectors. Discuss the various opportunities for a Mobile Phone Hardware Repair Technician in the industry. Define the basics of electronics and related concepts. Discuss the role and responsibilities of a Mobile Phone Hardware Repair Technician. Discuss organisational policies on incentives, delivery standards, personnel management and public relations (PR). 	<ul style="list-style-type: none"> Familiarization with the Mobile Repairing Familiarization with the equipment used Hands on repairing
Classroom Aids:	
Laptop, white board, marker, projector	
Tools, Equipment and Other Requirements	
NA	

Module 2: Interact with customer and perform front end repair

Mapped to ELE/N8104

Terminal Outcomes:

- Diagnose the problem of the faulty mobile phone.
- Arrange tools and necessary parts to repair the mobile phone.
- Repair the hardware and software of the faulty mobile phone.

Duration: 30:00	Duration: 90:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Describe behavioural etiquettes need to follow while interacting with customers. • Describe various types of customers. • Discuss ways to interact with customers to understand the customers purpose of visit such as repair of phone, purchase of accessories, software upload, collection of repaired phone • Discuss various customer complaints generally received. • List action to be performed, i.e., front end repair or hardware level repair is required • Discuss documentation need to be given to customers for collecting the device after repair. • Elaborate the customer relationship management policy of the mobile brand and inform customers about them, setting, standardise, sustain, shining). • Describe the application and software compatibility with the mobile phone and suggest to customers accordingly • Discuss necessary details of the warranty, terms and conditions of the replaced parts. 	<ul style="list-style-type: none"> • Show how to receive the customers and greet them as per company’s norms. • Show how to communicate with customer to make it comfortable. • Demonstrate how to offer services to customer. • Show how to inform about repair charges and warranty applicable. • Apply appropriate ways to identify customer requirements. • Show how to listen and understand the customer level complaint such as display not working, not switching on. • Apply appropriate ways to interrogate the customers to assess the cause of problem such as physical damage, uploading of any unauthorised software or application. • Apply appropriate ways to inform customers about the time taken and estimated cost for hardware level repair. • Show how to use the system to identify the warranty coverage of the mobile phone and other terms and conditions. • Show how to log into customer portal and enter the details of the customer and other details such as phone model, complaints, warranty coverage. • Demonstrate use of the interactive ERP system of the company and enter appropriate details. • Show how to prepare invoice, stock management, order placement, accessories availability, etc. • Show how to upload only licensed and brand approved applications as per customer requirement using system. • Apply appropriate ways to check the accessories and perform a demo with the

	<p>customer to ensure their functionality (chargers, SD card, etc.).</p> <ul style="list-style-type: none"> • Show how to dismantle the phone and repair/replace the parts. • Apply appropriate ways to educate customers on effective usage of mobile phone to save battery and to avoid any repeat problem. • Show how to report to superior on the work completed.
<p>Classroom Aids:</p>	
<p>Whiteboard, marker pen, computer or laptop attached to LCD projector, scanner, computer speakers</p>	
<p>Tools, Equipment and Other Requirements</p>	
<p>Diagnostics tools, CRM software, Company Manual, Complain Book, Receive Register</p>	

Module 3: Repair and rectify the faults in the mobile phone

Mapped to ELE/N8107

Terminal Outcomes:

- Dismantle and assemble the mobile phone parts as per SOP.
- Test and repair the mobile phone as per SOP.

Duration: 90:00	Duration:90:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Describe the standard procedure as documented by the Mobile Phone brand for each model • Discuss precautions need to take before starting work. • List tools, equipment and spare parts required for mobile phone repairing work. • List various parts of a mobile phone. • Illustrate the mobile phone structure. • List the steps to be performed for dismantling and assembling the various parts of a mobile phone. • Discuss various customer level complaints and issues generally occurred in a mobile phone. • Explain standard diagnostic procedure as documented by the Mobile Phone brand for each model. • List the steps to be performed for uninstalling and installing the applications and software in mobile phone. • Discuss various ways for repairing or replacing the faulty components in mobile phone. • Discuss the importance of seeking technical assistance from engineer on faults that cannot be fixed • Discuss documents needed to be prepared related to repairing work. 	<ul style="list-style-type: none"> • Demonstrate standard operating procedure while handling hardware modules such as handling KLOB with ESD standards. • Demonstrate use of recommended tools for specific operation suggested by the brand. • Apply appropriate ways to maintain zero-material defect during material handling by following standard operating procedure. • Demonstrate procedure of dismantling and assembling the parts of a mobile phone by using recommended tools and equipment. • Demonstrate use of hot air gun and other devices to remove the LCD screen from the panel. • Apply appropriate ways to identify issues in the Mobile Phone. • Demonstrate use of self-diagnostic tools (similar to power on self test (POST) card) to diagnose the functionality of different parts of the device. • Apply appropriate ways to check the recently installed application or software and verify the compatibility of the software with the Mobile Phone • Show how to uninstall the applications that is not compatible or creating issues and install the licensed and authorized software's to resolve issues in the mobile phone. • Show how to estimate the cost of repair and verify if it is within Beyond Economic Repair (BER). • Show how to heat the singled out component using hot air gun to melt the solder joints and remove from KLOB.

	<ul style="list-style-type: none"> • Apply appropriate ways to clean the board by melting the old solder and removing. • Show how to repair Or replace the various components of mobile phone as per SOP/manufacturer manual. • Show how to operate automated BGA (ball grid array) work station to precisely remove the chip from the board and repair them. • Perform reballing function by dismantling, heating the chip to be removed from the board, remove the solder remains, put new solder balls, place the chip and solder them with the KLOB • Apply appropriate ways to check for functioning of the hardware after repairing • Apply appropriate ways to replace expensive or delicate components such as LCD. • Dramatise a situation on how to coordinate with superior for performing quality check on the repaired module.
Classroom Aids:	
Whiteboard, marker pen, computer or laptop attached to LCD projector, scanner, computer speakers	
Tools, Equipment and Other Requirements	
SMD work station, soldering iron 10WT., micro soldering iron with temp control, BGA kit, PPD paste, solder wire, PCB holder, jumper wire, ultrasonic PCB cleaner, multi screw drive set, T-4,T-5 screw driver set, mobile opener, anti static mat, magnifying lamp, battery booster, multi charger, computer with flashing unit, flashing cables, mobile PCB of different models	

Module 4: Basic Health and Safety Practices

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
<ul style="list-style-type: none"> • Discuss job-site hazards, risks and accidents. • Explain the organizational safety procedures for maintaining electrical safety, handling tools and hazardous materials. • Elaborate 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 	<ul style="list-style-type: none"> • Demonstrate the use of protective equipment suitable as per tasks and work conditions. • Prepare a report to inform the relevant authorities about any abnormal situation/behaviour of any equipment/system. • 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), White board, Marker, projector, laptop, flipchart.	
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 5: 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
<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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 6: On-the-Job Training

Mapped to Mobile Phone Hardware Repair Technician

Mandatory Duration: 150:00

Recommended Duration: 00:00

Location: On Site

Terminal Outcomes

1. Explain the fundamental concepts of electronics and electronics components
2. Diagnose the problem of the faulty mobile phone.
3. Arrange tools and necessary parts to repair the mobile phone.
4. Repair the hardware and software of the faulty mobile phone.
5. Make adjustments such as white balance adjustment, audio video tests, etc.
6. Dismantle and assemble the mobile phone parts.
7. Test and repair the mobile phone.
8. Interact and coordinate with supervisor and colleagues
9. Work as per the given timeline and quality standards
10. 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	Mobile phone repairing	1	Trainer	

Trainer Certification	
Domain Certification	Platform Certification
“Mobile Phone Hardware Repair Technician, ELE/Q8104, version 3.0”. Minimum accepted score is 80%.	Recommended that the Trainer is certified for the Mobile Phone Hardware Repair Technician “Trainer (VET and Skills)” , mapped to the Qualification Pack: “MEP/Q2601, V2.0”, with minimum score of 80%

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	Mobile phone repairing	2	Assessor	

Assessor Certification	
Domain Certification	Platform Certification
“Mobile Phone Hardware Repair Technician, ELE/Q8104, version 3.0”. Minimum accepted score is 80%.	Recommended that the Assessor is certified for the Mobile Phone Hardware Repair Technician “Assessor (VET and Skills)” , mapped to the Qualification Pack: “MEP/Q2701, V2.0”, with minimum score of 80%

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

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