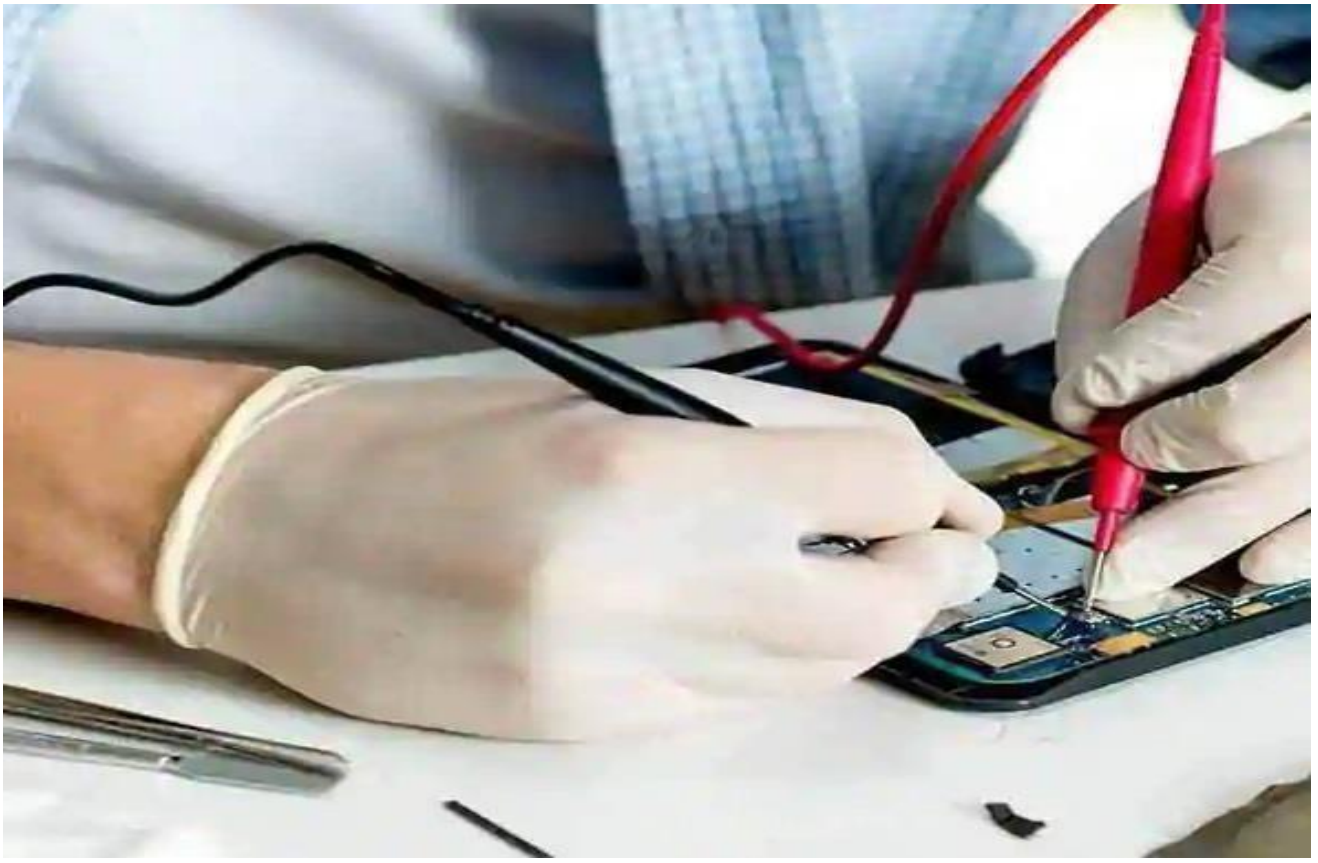

Model Curriculum

QP Name: Mobile Phone Hardware Repair Technician

QP Code: ELE/Q8104

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, New Delhi – 110020

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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	12th grade or equivalent OR 10th grade or equivalent with 3 year relevant experience OR Certificate-NSQF (Level-3 in relevant domain) with 3 Years of relevant Experience # Relevant Experience in Electronics domain
Pre-Requisite License or Training	NA
Minimum Job Entry Age	NA
Last Reviewed On	16/12/2025
Next Review Date	01/09/2028
NSQC Approval Date	16/12/2025
QP Version	4.0
Model Curriculum Creation Date	16/12/2025
Model Curriculum Valid Up to Date	01/09/2028
Model Curriculum Version	4.0
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.

- 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
ELE/N8107 - Repair and rectify the faults in mobile phone NOS Version No. 3.0 NSQF Level 4	**90:00**	**120:00**	**75:00**	**00:00**	**285:00**
Module 1: Repair and rectify the faults in mobile phone	90:00	120:00	75:00	00:00	285:00
ELE/N8104 - Interact with customer and perform front end repair NOS Version No. 2.0 NSQF Level 4	**60:00**	**90:00**	**60:00**	**00:00**	**210:00**
Module 2: Interact with customer and perform front end repair	60:00	90:00	60:00	00:00	210:00
ELE/N8121 – Maintain Workplace Safety, Reporting, and Coordination NOS Version No. 1.0 NSQF Level 4	**15:00**	**15:00**	**15:00**	**00:00**	**45:00**
Module 3: Maintain Workplace Safety, Reporting, and Coordination	15:00	15:00	15:00	00:00	45:00
DGT/VSQ/N0101- Employability Skills (30 Hours) NOS Version No. 1.0 NSQF Level 4	**30:00**	**00:00**	**00:00**	**00:00**	**30:00**
Module 5: Employability Skills (60 Hours)	30:00	00:00	00:00	00:00	30:00
Total Duration	**195:00**	**225:00**	**150:00**	**00:00**	**570:00**

Module Details

Module 1: Repair and rectify the faults in the mobile phone

Mapped to ELE/N8107 &V3.0

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**:*120:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Understand the common hardware components of mobile phones (e.g., battery, display, curve display, motherboard, etc.), types of phones (feature, smartphones, foldables), and frequent hardware issues like no power, charging failure, overheating, etc. • Understand the structure and repair procedures for modern mobile phones, including **foldable designs**, **5G enabled devices (Phone)**, **under-display cameras**, and **in-screen fingerprint sensors**. • Learn the functioning and structure of **flexible OLED displays**, **wireless charging coils**, and **USB-C PD (Power Delivery) boards**. • Understand the importance of **anti-static protocols**, use of **ESD wrist straps**, **ESD aprons**, and safe workstations. • Grasp **grounding techniques** for handling **PCBs**, **flex displays**, and **chip-level components**. • Learn to use **brand-authorized diagnostic tools** like **Octoplus**, **Z3X**, **Miracle Box**, and **automated BGA rework stations**. • Understand OEM flashing and unlocking tools, and how to perform **software compatibility checks** • Gain insight into **SMD (Surface Mount Device) component** repair, **IC reballing**, **hot air gun operations**, and **BGA chip handling**. • Learn the concept of **Beyond Economic Repair (BER)** and when replacement is more viable than repair. • Know the SOPs specific to mobile brands for assembling/disassembling, ensuring **IP rating** retention, **hinge flexibility**, and **dust/water resistance** during reassembly.	• Set up an **ESD-safe workstation**, wear anti-static wristbands/aprons, and use **ESD-safe trays** for storing sensitive components. • Prepare foldable devices without damaging hinges or flexible screens using **plastic/metal openers** and brand-approved tools. • Perform accurate disassembly of modern smartphones using **screw mapping**, **connector identification**, and **OLED/flexible display removal**. • Reassemble devices with proper **sealing**, ensuring retention of **IP certification**. • Diagnose faults using **automated and semi-automated tools** like **Z3X**, **Octoplus**, and **multimeters**. • Conduct tests on **charging circuits**, **touch modules**, **wireless charging systems**, **RF**, and **audio components**. • Identify and uninstall incompatible or malicious applications. • Flash brand-authorized firmware using OEM tools ensuring **data security**, **user privacy**, and **OS compatibility**. • Remove defective components (ICs, sensors, coils) using a **hot air gun** at regulated temperatures. • Clean PCB using **flux and solder wick**, and **precisely place** new components with **tweezers under magnification**. Solder components using **digital soldering stations**, and verify the fix with **continuity checks** on a **multimeter**. • Operate **automated BGA workstations** to remove, clean, reball, and mount high-density chips. • Perform **IC reballing**, ensuring proper alignment and solder ball placement using heating plates and templates. • Handle fragile parts like **under-display**

	cameras, **foldable screens**, and **fingerprint sensors** with extra caution. • Conduct final functionality testing of repaired/replaced components to ensure performance and durability.

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, 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 2: Interact with customer and perform front end repair

Mapped to ELE/N8104 &V2.0

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: *60:00*	**Duration**: *90:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Learn professional customer greeting norms, behavioral etiquettes, and importance of communicating in the customer's preferred language. • Know how to assess the customer's purpose of visit, interrogate for deeper understanding of hardware/software complaints, and differentiate between accessory faults and hardware issues. • Understand documentation requirements like service IDs, invoices, warranty validation, service history, CRM policies, and ERP-based stock and repair tracking. • Learn about licensed applications, data privacy policies, and compatibility of apps with various mobile OS/versions.	• Identify and verify common hardware faults and differentiate between basic accessory issues and hardware-level damage using diagnostic tools. • customers, communicate effectively, assess customer needs, explain charges and repair time transparently, and issue service documentation (job sheets, service IDs). • Demonstrate how to offer services to customer. • Perform basic repairs like battery replacement, cleaning internal components, replacing accessories, and ensuring functionality through proper testing. • Upload approved apps, check compatibility, and test accessories like chargers or SD cards in presence of the customer. • Report work completion to supervisors, document in ERP, escalate unrepairable devices, and meet repair targets and quality benchmarks. • Use ESD-safe tools to open mobile devices without damage, handle internal components carefully, and ensure safe work practices following fire/electrical safety norms.

Classroom Aids:
Whiteboard, marker pen, computer or laptop attached to LCD projector, scanner, computer speakers
Tools, Equipment and Other Requirements
Diagnostics tools, CRM software, Company Manual, Complain Book, Receive Register

Module 3: Maintain Workplace Safety, Reporting, and Coordination

Mapped to ELE/N8121 &V1.0

Terminal Outcomes:

- Apply health and safety practices at the workplace.

Duration: *15:00*	**Duration**: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Understand how to identify and select appropriate tools and reference manuals for specific repair tasks. • Learn preventive measures to avoid accidents when handling hazardous tools like heat guns, blades, and sharp instruments. • Know the importance of using the correct tool for each rework activity (e.g., microscope for SMD soldering, tweezers for IC placement). • Understand SOPs related to tool handling to prevent material defects and ensure process consistency. • Learn how to seek technical guidance from engineers for unresolved faults or potential board-level damage. • Understand the protocol for escalating cases deemed Beyond Economic Repair (BER) and how to coordinate for quality checks. • Understand the necessity of accurate workload reporting, task completion records, and data entry in ERP systems. • Comprehend service center targets related to quantity, quality (SLA compliance), and timely delivery (TAT). • Gain knowledge about using Personal Protective Equipment (PPE), maintaining a hazard-free workstation, and following safety guidelines.	• Demonstrate the correct selection and use of tools and manuals during fault identification and repairs. • Practically apply safety measures while using sharp or heat-producing tools to prevent injury or damage. • Use microscopes, tweezers, and other precision tools effectively for tasks like SMD soldering and IC placement. • Follow proper handling procedures to ensure no damage occurs to components or boards during repair. • Seek and implement technical guidance when faults are beyond immediate resolution or risk further damage. • Coordinate with superiors for BER approvals, tool usage updates, and quality inspections. • Report repair status and log completed tasks into ERP or other digital systems for tracking and audit. • Complete daily/weekly repair quotas as per OEM/service center guidelines and maintain quality benchmarks. • Ensure repaired units are delivered within TAT, fully functional, and acknowledged by the customer.
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 4: Employability Skills (30 Hours)

Mapped to DGT/VSQ/N0101 &V1.0

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 5: 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

Annexur

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 4.0". 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 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	Mobile phone repairing	2	Assessor	

Assessor Certification	
Domain Certification	**Platform Certification**
"**Mobile Phone Hardware Repair Technician**, ELE/Q8104, version 4.0". 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%

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