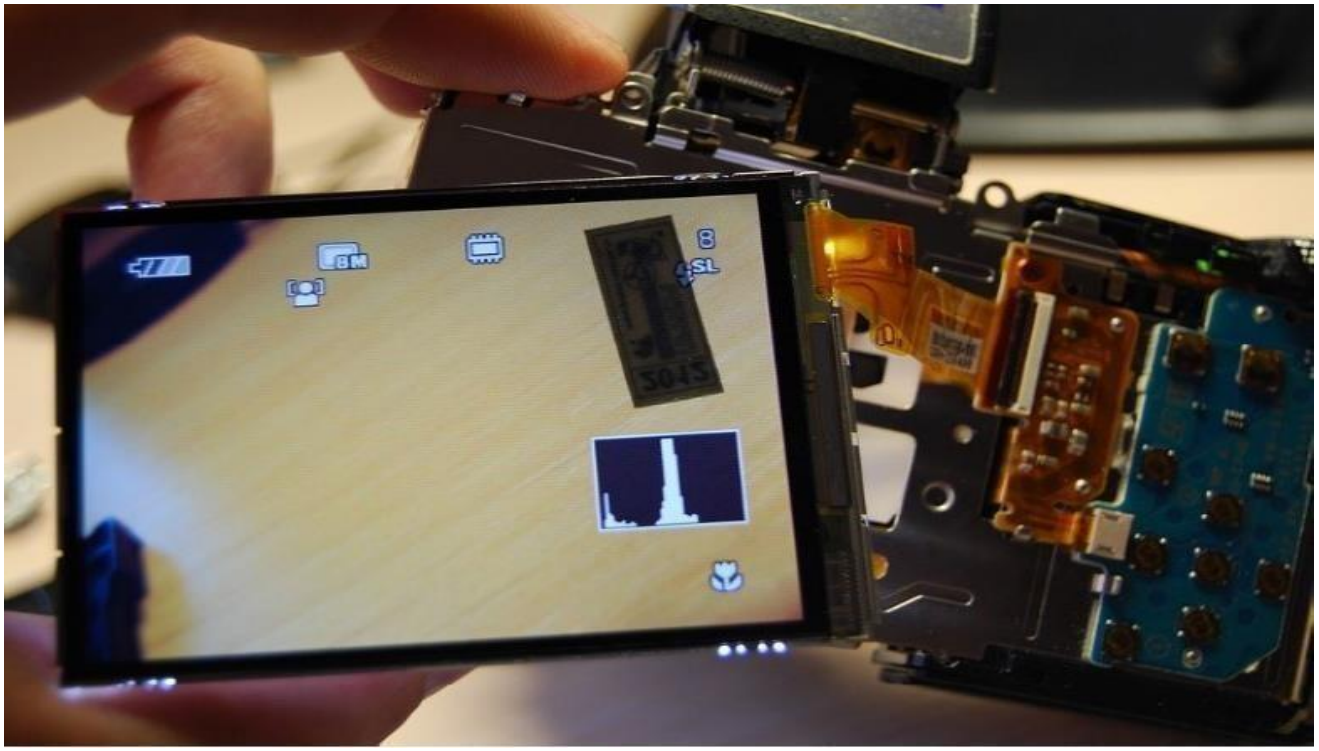

Model Curriculum

QP Name: Smartphone Assembly Technician

QP Code: ELE/Q3901

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	Assembly-C&B
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 Communication & Broadcasting
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	450 Hours
Maximum Duration of the Course	450 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:

- Demonstrate the process of assembling the smartphone.
- 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
ELE/N3092: Smartphone Pre Assembly and Setup	**90:00**	**90:00**	**00:00**	**30:00**	**210:00**
Module 1: Role of a Smartphone Assembly Technician and the smartphone assembly process.	90:00	90:00	00:00	30:00	210:00
ELE/N3903: Smartphone Component Integration & Commissioning	**60:00**	**90:00**	**00:00**	**60:00**	**210:00**
Module 2: Smartphone Component Integration & Commissioning	60:00	90:00	00:00	60:00	210:00
DGT/VSQ/N0101- Employability Skills (30 Hours)	**30:00**	**00:00**	**00:00**	**00:00**	**30:00**
Module 3: Employability Skills (30 Hours)	30:00	00:00	00:00	00:00	30:00
Total Duration	**180:00**	**180:00**	**00:00**	**90:00**	**450:00**

Module Details

Module 1: Role of a Smartphone Assembly Technician and the smartphone assembly process.

Mapped to ELE/N3902

Terminal Outcomes:

- Explain the Pre-requisites for assembly.
- Demonstrate the process of assembling parts.
- Demonstrate the process of fixing connectors.
- Demonstrate the process of performing post assembly activities.

Duration: 90:00	Duration: 90:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the role and responsibilities of a Smartphone Assembly Technician; explain the scope of the smartphone manufacturing industry, key components involved (such as display, battery, motherboard, camera, connectors), and career opportunities in electronics manufacturing and service sectors. • Understand the basic architecture and components of a smartphone (e.g., motherboard, display, battery, camera, sensors). • Identify the function of each key component within the smartphone system. • Explain the standard smartphone assembly process flow from sub-assembly to final product. • Understand the importance of electrostatic discharge (ESD) precautions and cleanroom protocols during assembly. • Learn to interpret assembly instructions, technical manuals, and process checklists. • Recognize the different types of fasteners, connectors, adhesives, and tools used in smartphone assembly. • Understand quality control parameters and checkpoints at each stage of the assembly process. • Describe common defects and rework scenarios associated with smartphone assembly. • Understand relevant safety standards, ergonomics, and best practices in	• Set up and maintain a clean and ESD-safe workstation suitable for smartphone assembly. • Handle and prepare smartphone components (e.g., PCB, battery, display units) using appropriate tools and techniques. • Assemble key modules such as display, battery, camera, speakers, and connectors onto the mainboard. • Use manual and semi-automated tools for fastening, bonding, and aligning components. • Perform cable routing, connector insertion, and module alignment as per standard procedures. • Conduct basic functionality tests during assembly (e.g., power-on checks, screen, touch, and button testing). • Identify and rectify common assembly defects such as misalignment, improper fastening, or loose connectors. • Apply safety and ESD precautions consistently during the assembly process. • Follow SOPs, assembly guidelines, and process quality checklists for consistency and compliance. • Record completed assembly work, batch numbers, and quality data accurately for traceability.

electronics manufacturing environments. • Learn about industry standards for traceability, labeling, and documentation in production. • Use automated assembly lines and precision tools for component placement (such as screens, batteries, and processors).	
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Smartphones, Solder Paste Printing Machine, Pick & Place Machine, Reflow Soldering Machine, AOI Solder Paste, Magnifying Glass, Insulation Tape, Screw Driver, Automatic screwing machine, compression machine, LCD, soldering tools, Common hand tools such as screw driver, plier, wire cutter and so on, Smartphone components such as LCD, front shell, TP, receiver, sensor sleeve, camera, vibrator, Speaker, connectors, RF cable, antenna, middle cover, battery, back cover, lens	

Module 2: Smartphone Component Integration & Commissioning

Mapped to ELE/N3903

Terminal Outcomes:

- Integrate smartphone components as per design specifications and functional requirements.
- Perform commissioning tests to ensure proper functionality and system readiness of the integrated smartphone.

Duration: 60:00	Duration: 90:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Understand the complete smartphone architecture and how various subsystems interact (e.g., motherboard, battery, display, RF module, sensors). • Identify the function and interdependence of integrated components (e.g., antenna, camera, fingerprint sensor, speaker, vibration motor). • Explain standard procedures and sequences used in smartphone component integration. • Learn the technical specifications and alignment requirements for critical modules (e.g., camera module alignment, button positioning). • Understand signal integrity, EMI/EMC considerations, and thermal management during integration. • Describe firmware installation, software flashing, and initial testing steps during finalization. • Recognize the importance of waterproofing, sealing, and final casing alignment. • Understand documentation, tracking (e.g., serial numbers, barcodes), and traceability requirements in final assembly. • Identify common integration-related faults and final testing criteria. • Learn industry best practices for minimizing errors and ensuring durability and compliance. • Integrate components, and vision inspection systems to ensure proper connectivity of parts like camera modules, motherboards, and sensors.	• Assemble and align final smartphone components such as outer casing, buttons, camera lens, and connectors. • Integrate subsystems including display, touch screen, speaker, battery, and antennas with precision. • Apply adhesives, seals, and gaskets for waterproofing and dust resistance as per standard guidelines. • Perform software flashing, firmware updates, and basic system configuration during finalization. • Conduct functional testing of integrated modules (e.g., touchscreen, camera, speaker, charging port). • Identify integration issues such as loose connections, alignment errors, or unresponsive components. • Use torque tools, microscopes, or alignment jigs for precision fitting and securing. • Perform cosmetic checks, cleaning, and labeling of the final product. • Document completed integration steps and update tracking systems (e.g., product ID, batch number). • Follow safety, ESD, and cleanroom protocols throughout the integration and finalization process.

Classroom Aids
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop
Tools, Equipment and Other Requirements
Sample Of Escalation Matrix, Organization Structure.

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 Smartphone Assembly Technician

Mandatory Duration: 90:00	**Recommended Duration: 00:00**
Location: On Site	

Terminal Outcomes

1. Document and share all relevant information with stakeholders in agreed formats.
2. Performing tasks as per workplace standards, organizational policies and legislative requirements.
3. Evaluate biased practices against underrepresented groups like women and persons with disabilities, in workplace systems and processes.
4. Strategies for collaboration with colleagues and clients
5. Communicating effectively at the workplace.
6. 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/ ITI/ Certified in relevant CITS course	Electronics/ Mechanical / Electrical	1	Smartphone Assembly	1 year preferably	Electronics	

Trainer Certification	
Domain Certification	**Platform Certification**
"**Smartphone Assembly Technician**", "ELE/Q3901, v4.0", Minimum accepted score is 80%	Recommended that the Trainer is certified for the **Smartphone Assembly 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 course	Electronics/ Mechanical / Electrical	2	Smartphone Assembly	1 year preferably	Electronics	

Assessor Certification	
Domain Certification	**Platform Certification**
"**Smartphone Assembly Technician**", "ELE/Q3901, v4.0", Minimum accepted score is 80%	Recommended that the Assessor is certified for the **Smartphone Assembly 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
    - 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
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