Model Curriculum

QP Name: Jr. Technician - Electrical and Electronics Sub-System

QP Code: ELE/Q6301

QP Version: 4.0

NSQF Level: 3

Model Curriculum Version: 4.0

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

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Training Parameters

Sector	Electronics
Sub-Sector	Industrial Automation
Occupation	Assembly and Integration
Country	India
NSQF Level	3
Aligned to NCO/ISCO/ISIC Code	NCO-2015/8212.2401
Minimum Educational Qualification andExperience	10th grade or equivalent OR 8th grade with 3 years of relevant experience OR Certificate of NSQF level 2.5 with 1.5 years of relevant experience # Relevant Experience in Industrial Automation
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	390 Hours
Maximum Duration of the Course	390 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 integrating electrical sub systems.
- Describe the process of communicating and coordinating effectively with others.
- Explain the importance of work Ethics, sustainability and safety practice.

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/N6320: Electrical Sub-System Assembly – Preparation & Electronics Component Integration	**60:00**	**90:00**	**00:00**	**60:00**	**210:00**
Module 1: Electrical Sub-System Assembly – Preparation & Electronics **Component Integration**	60:00	90:00	00:00	60:00	210:00
ELE/N6319: Electrical Sub-System Wiring, Testing & Compliance	**30:00**	**60:00**	**00:00**	**60:00**	**150:00**
Module 2: Electrical Sub-System Wiring, Testing & Compliance	30:00	60:00	00:00	60:00	150:00
DGT/VSQ/N0101-Employability Skills (30 Hours)	**30:00**	**00:00**	**00:00**	**00:00**	**30:00**
Module 5: Employability Skills (30 Hours)	30:00	00:00	00:00	00:00	30:00
Total Duration	**120:00**	**150:00**	**00:00**	**120:00**	**390:00**

Module Details

Module 1: Electrical Sub-System Assembly – Preparation & Component Integration

Mapped to ELE/N6320

Terminal Outcomes:

- Discuss the job role and responsibilities of an Jr. Technician - Electrical and Electronics Sub-System.
- Assemble electrical sub-systems accurately by following instructions.

Duration: 60:00	Duration: 90:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the roles and responsibilities of an Jr. Technician - Electrical and Electronics Sub-System. • Understand how to interpret production schedules and daily work targets. • Use digital schematics and ERP-driven component tracking to prepare workstations and integrate smart electrical components (IOT sensors, and software to monitor, control, and optimize power usage and distribution) into subsystems. • Learn to read and apply approved drawings, manuals, and job instructions. • Gain knowledge of component identification and BOM cross-verification. • Understand the importance of visual inspection in quality control. • Learn documentation procedures for reporting defective components. • Understand standard operating procedures (SOPs) for efficient sub-system assembly. • Comprehend wiring diagrams and job specifications for correct installation. • Recognize dimensional and functional checks in sub-system assembly. • Understand the role of team	• Communicate effectively with the supervisor to understand daily tasks. • Refer to technical documents to ensure component accuracy during assembly. • Collect and organize required PCBs and consumables from relevant teams. • Visually inspect PCBs and components for damage or loose connections. • Return defective boards with documented issues for timely rework. • Assemble electrical sub-systems following SOPs and wiring diagrams. • Secure components in designated positions as per layout specifications. • Perform checks to confirm dimensional and functional accuracy of sub-systems. • Coordinate material and component transfer to the final assembly area. • Report material shortages, defects, or process challenges promptly.

coordination in maintaining production flow. • Learn structured methods for reporting issues and communicating with supervisors.	
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
NA	

Module 2: Electrical Sub-System Wiring, Testing & Compliance

Mapped to ELE/N6319

Terminal Outcomes:

- Carry out efficient and error-free wiring using appropriate bundling, routing, and labeling techniques.
- Select, prepare, and interconnect wires and components using proper tools and standardized methods.
- Perform electrical testing and inspections to ensure circuit integrity and compliance with specifications.
- Document wiring activities, report issues, and maintain a safe and organized work environment as per workplace standards.

Duration: 30:00	Duration: 60:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Understand the principles of wire bundling, routing, and labeling for organized wiring. • Learn to select wires based on gauge, insulation, and load requirements. • Understand correct methods for crimping, stripping, and terminating wires. • Gain knowledge of interconnection techniques like soldering and use of terminal blocks. • Understand grounding and shielding methods to minimize electrical hazards and interference. • Interpret and verify circuit diagrams for accurate wiring. • Learn electrical testing procedures like continuity, voltage, and insulation checks. • Recognize quality control standards for terminal points and wiring integrity. • Understand proper documentation practices for faults, materials, and safety compliance. • Learn workplace safety norms including PPE usage and ESD protection.	• Perform wire bundling, routing, and labeling to ensure clean and efficient wiring. • Select and handle appropriate wires based on circuit requirements. • Use tools to crimp, strip, and terminate wires without damaging connections. • Implement standard interconnection techniques to ensure reliable connectivity. • Apply grounding and shielding techniques to prevent electrical faults. • Cross-check wired circuits with diagrams before system activation. • Use a multimeter to test continuity, voltage, and insulation levels. • Inspect terminal points for secure attachment and functional reliability. • Document wiring defects, quality issues, and material usage during assembly. • Maintain a safe, clean work area and follow all safety protocols.

Classroom Aids
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop
Tools, Equipment and Other Requirements
Electrical sub system of the final products with remote, Screw Drivers, Spanners, Drill Machine, Multi-meter, Circuit Tester, Scissors, Pliers, Pencil, Electrical tape, piano wire, Wall Mount Kit, Antenna, STB, Measuring Tape, Hammer, Crimping Tools, Cutter/ knife, Digital IC tester with manual/Batch, CRO Soldering Tool Kit, SMD Soldering Tools, Manual Guide, Trainer Kit

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 Jr. Technician - Electrical and Electronics Sub-System

Mandatory Duration: 120:00	Recommended Duration: 00:00
Location: On Site	

Terminal Outcomes

1. Explain general principles of wiring and assembly.
2. Explain the fundamentals of electricity such as Ohms law, difference between Ac and DC, series and parallel connections.
3. Assemble the electrical sub system as per the standard operating procedure.
4. Report any problems in the assembly line in time.
5. Maintain personal hygiene and professional appearance.
6. Use appropriate Personal Protective Equipment (PPE).
7. Connect electrical equipment and appliances properly when in use and turn off when not in use.

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
Diploma/ ITI/ Certified in CITS Trade	Electrical/ Electronics/ Mechanical	1	Assembling and Integration	1	Electronics	

Trainer Certification	
Domain Certification	**Platform Certification**
"**Jr. Technician - Electrical and Electronics Sub-System**", "ELE/Q6301, v3.0",Minimum accepted score is 80%	Recommended that the Trainer is certified for the **Jr. Technician - Electrical and Electronics Sub-System** "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 CITS Trade	Electrical/ Electronics/ Mechanical	2	Assembling and Integration	1	Electronics	

Assessor Certification	
Domain Certification	**Platform Certification**
"**Jr. Technician - Electrical and Electronics Sub-System**", "ELE/Q6301, v3.0",Minimum accepted score is 80%	Recommended that the Assessor is certified for the **Jr. Technician - Electrical and Electronics Sub-System** "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