



# Model Curriculum

**QP Name: Assembly Supervisor**

**QP Code: ELE/Q6305**

**QP Version: 3.0**

**NSQF Level: 5**

**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

<b>Sector</b>	Electronics
<b>Sub-Sector</b>	Electronics Manufacturing System
<b>Occupation</b>	Production - EMS
<b>Country</b>	India
<b>NSQF Level</b>	5
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2015/3122.0601
<b>Minimum Educational Qualification and Experience</b>	<p>Pursuing 2nd year of Graduation (B.Sc/B.E./B.Tech) in the relevant field OR Diploma (after 10th (Electronics/Electrical)) with 1 Year of relevant experience OR 12th grade pass with 1 year NTC/ NAC with 1 Year of relevant experience OR 12th grade Pass with 2 Years of relevant experience OR Previous relevant Qualification of NSQF Level (4) with 3 Years of relevant experience OR 10th grade pass with 4 Years of relevant experience</p>
<b>Pre-Requisite License or Training</b>	NA
<b>Minimum Job Entry Age</b>	21 Years
<b>Last Reviewed On</b>	27/01/2022
<b>Next Review Date</b>	27/01/2025
<b>NSQC Approval Date</b>	27/01/2022
<b>QP Version</b>	3.0
<b>Model Curriculum Creation Date</b>	27/01/2022
<b>Model Curriculum Valid Up to Date</b>	27/01/2025
<b>Model Curriculum Version</b>	3.0
<b>Maximum Duration of the Course</b>	750 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 supervising assembly activities.
- 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 (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
<b>Bridge Module</b>	<b>21:00</b>	<b>39:00</b>	<b>00:00</b>	<b>00:00</b>	<b>60:00</b>
Module 1: Introduction and orientation to the role of an Assembly Supervisor	21:00	39:00	00:00	00:00	60:00
<b>ELE/N6305: Supervise assembly activities</b>	<b>150:00</b>	<b>240:00</b>	<b>210:00</b>	<b>00:00</b>	<b>600:00</b>
Module 2: Process of supervising assembly activities	150:00	240:00	210:00	00:00	600:00
<b>ELE/N1002 Apply health and safety practices at the workplace</b>	<b>15:00</b>	<b>15:00</b>	<b>00:00</b>	<b>00:00</b>	<b>30:00</b>
Module 3: Basic Health and Safety Practice	15:00	15:00	00:00	00:00	30:00
<b>DGT/VSQ/N0102- Employability Skills (60 Hours)</b>	<b>24:00</b>	<b>36:00</b>	<b>00:00</b>	<b>00:00</b>	<b>60:00</b>
Module 4: Employability Skills (60 Hours)	24:00	36:00	00:00	00:00	60:00
<b>Total Duration</b>	<b>210:00</b>	<b>330:00</b>	<b>210:00</b>	<b>00:00</b>	<b>750:00</b>

# Module Details

## Module 1: Introduction and orientation to the role of an Assembly Supervisor

### Bridge Module

#### Terminal Outcomes:

- Discuss the job role of an Assembly Supervisor.

<b>Duration: 21:00</b>	<b>Duration: 39:00</b>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Describe the size and scope of the electronic industry and its sub-sectors.</li> <li>• Discuss the role and responsibilities of an Assembly Supervisor.</li> <li>• Describe various employment opportunities for an Assembly Supervisor.</li> </ul>	<ul style="list-style-type: none"> <li>• Familiarization with the Assembly Line</li> <li>• To make aware about the processes used on Assembly Line</li> <li>• Familiarization with the tools used on Assembly Line</li> <li>• Familiarization with the Safety processes</li> </ul>
<b>Classroom Aids</b>	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop	
<b>Tools, Equipment and Other Requirements</b>	
NA	

## Module 2: Process of supervising assembly activities

### Mapped to ELE/N6305

#### Terminal Outcomes:

- Explain the importance of understanding production requirement.
- Explain the importance of supervise requirement of assemblers and activities of technicians.
- Describe the process of resolving reported problems.
- Explain the need of achieving productivity, quality, and safety standards as per company's norms.

<b>Duration: 150:00</b>	<b>Duration: 240:00</b>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Describe various methods to plan and schedule production processes for the week/month.</li> <li>• Describe work processes and assembly procedure for different products as developed by the engineering team.</li> <li>• Explain the importance of having a contingency plan to meet deadlines.</li> <li>• Explain the importance of making contingency plans for process disruptions.</li> <li>• Explain the need of delegating work effectively amongst technicians.</li> <li>• Explain various drawings, pictures, job instructions, and work manuals used in production process.</li> <li>• List various consumables used for the assembly.</li> <li>• Describe the procedure to coordinate with stores for the tools, equipment and consumables require for technicians.</li> <li>• Describe various methods to prepare job card.</li> <li>• Describe the procedure to explain assembly process to the technicians.</li> <li>• List various skills required for assembly process by the technicians and how to verify them.</li> <li>• Describe the procedure to perform spot check of the production at the</li> </ul>	<ul style="list-style-type: none"> <li>• Prepare sample contingency plan for the process disruptions.</li> <li>• Demonstrate the process of carrying out repair and maintenance of tools and equipment.</li> <li>• Show how to report unresolved problems and issues to the superior.</li> <li>• Prepare sample records related to the work carried out.</li> </ul>

<p>different stages.</p> <ul style="list-style-type: none"> <li>• Explain company's policies on health, safety, delivery standards and personnel management.</li> <li>• Explain how to highlight fault in the assembly process.</li> <li>• Describe various methods to resolve faults in assembly process.</li> <li>• Describe reporting and documentation processes.</li> <li>• Explain the importance of following health and safety norms while carrying out mechanical assembly operations.</li> <li>• State various safety norms that need to be followed in handling electronic components.</li> </ul>	
<p><b>Classroom Aids</b></p>	
<p>Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop</p>	
<p><b>Tools, Equipment and Other Requirements</b></p>	

## Module 3: Basic Health and Safety Practice

### Mapped to ELE/N1002

#### Terminal Outcomes:

- Apply health and safety practices at the workplace.

<b>Duration: 15:00</b>	<b>Duration: 15:00</b>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Discuss job-site hazards, risks and accidents.</li> <li>• Explain the organizational safety procedures for maintaining electrical safety, handling tools and hazardous materials.</li> <li>• Elaborate on electronic waste disposal procedures.</li> <li>• Describe the process of disposal of hazardous waste</li> <li>• List the name and location of concerned people, documents and equipment for maintaining health and safety in the workplace.</li> <li>• Describe how to interpret warning signs while accessing sensitive work areas.</li> <li>• Explain the importance of good housekeeping.</li> <li>• Describe the importance of maintaining appropriate postures while lifting heavy objects.</li> <li>• List the types of fire and fire extinguishers.</li> <li>• Explain the importance of efficient utilisation of water, electricity and other resources.</li> <li>• List the common sources of pollution and ways to minimize it.</li> <li>• Describe the concept of waste management and methods of disposing hazardous waste.</li> <li>• Explain various warning and safety signs.</li> <li>• Describe different ways of preventing accidents at the workplace.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate the use of protective equipment suitable as per tasks and work conditions.</li> <li>• Prepare a report to inform the relevant authorities about any abnormal situation/behaviour of any equipment/system.</li> <li>• Administer first aid in case of a minor accident.</li> <li>• Demonstrate the steps to free a person from electrocution safely.</li> <li>• Administer Cardiopulmonary Resuscitation (CPR).</li> <li>• Demonstrate the application of defined emergency procedures such as raising alarm, safe/efficient, evacuation, moving injured people, etc.</li> <li>• Prepare a sample incident report.</li> <li>• Use a fire extinguisher in case of a fire incident.</li> <li>• Demonstrate the correct method of lifting and handling heavy objects.</li> </ul>



<b>Classroom Aids</b>
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop
<b>Tools, Equipment and Other Requirements</b>
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 (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.

<b>Duration: 24:00</b>	<b>Duration: 36:00</b>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Explain constitutional values, civic rights, responsibility towards society to become a responsible citizen</li> <li>• Discuss 21<sup>st</sup> century skills</li> <li>• Explain use of basic English phrases and sentences.</li> <li>• Demonstrate how to communicate in a well-behaved manner</li> <li>• Demonstrate how to work with others</li> <li>• Demonstrate how to operate digital devices</li> <li>• Discuss the significance of Internet and Computer/ Laptops</li> <li>• Discuss the need for identifying business opportunities</li> <li>• Discuss about types of customers.</li> <li>• Discuss on creation of biodata</li> <li>• Discuss about apprenticeship and opportunities related to it.</li> </ul>	<ul style="list-style-type: none"> <li>• List different learning and employability related GOI and private portals and their usage</li> <li>• Show how to practice different environmentally sustainable practices.</li> <li>• Exhibit 21st century skills like Self-Awareness, Behavior Skills, time management, etc.</li> <li>• Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone</li> <li>• Demonstrate how to communicate in a well-mannered way with others.</li> <li>• Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette</li> <li>• Utilize virtual collaboration tools to work effectively</li> <li>• Demonstrate how to maintain hygiene and dressing appropriately.</li> <li>• Perform a mock interview</li> </ul>
<b>Classroom Aids</b>	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
<b>Tools, Equipment and Other Requirements</b>	
Computer, UPS, Scanner, Computer Tables, LCD Projector, Computer Chairs, White Board	
OR	
Computer Lab	

## Module 5: On-the-Job Training

### Mapped to Assembly Supervisor

<b>Mandatory Duration: 210:00</b>	<b>Recommended Duration: 00:00</b>
<b>Location: On Site</b>	
<p><b>Terminal Outcomes</b></p> <ol style="list-style-type: none"> <li>1. Explain various drawings, pictures, job instructions, and work manuals used in production process.</li> <li>2. Explain various methods to prepare job card.</li> <li>3. Prepare contingency plan for the process disruptions.</li> <li>4. Prepare records related to the work carried out.</li> <li>5. Use professional language and behaviour that is respectful of PwD and all genders.</li> <li>6. Administer first aid in case of a minor accident.</li> <li>7. Use fire extinguisher in case of a fire incident.</li> </ol>	

# Annexure

## Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
Diploma / ITI/ Degree/ Certified in relevant CITS Trade	Electrical/ Electronics/ Mechanical	2	Assembly - EMS	1	EMS	

Trainer Certification	
Domain Certification	Platform Certification
<p>“Assembly Supervisor”, “ELE/Q6305, v3.0”, Minimum accepted score is 80%</p>	<p>Recommended that the Trainer is certified for the <b>Assembly Supervisor</b> “Trainer (VET and Skills)”, mapped to the Qualification Pack: “MEP/Q2601, V2.0”, with minimum score of 80%</p>

## Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training/Assessment Experience		Remarks
		Years	Specialization	Years	Specialization	
Diploma / ITI/ Degree/ Certified in relevant CITS Trade	Electrical/ Electronics/ Mechanical	3	Assembly - EMS	1	EMS	

Assessor Certification	
Domain Certification	Platform Certification
<p>“<b>Assembly Supervisor</b>”, “ELE/Q6305, v3.0”, Minimum accepted score is 80%</p>	<p>Recommended that the Assessor is certified for the <b>Assembly Supervisor</b> “Assessor (VET and Skills)”, mapped to the Qualification Pack: “MEP/Q2701, V2.0”, with minimum score of 80%</p>

## 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
<b>Declarative knowledge</b>	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.
<b>Key Learning</b>	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).
<b>OJT (M)</b>	On-the-job training (Mandatory); trainees are mandated to complete specified hours of training on site
<b>OJT (R)</b>	On-the-job training (Recommended); trainees are recommended the specified hours of training on site
<b>Procedural Knowledge</b>	Procedural knowledge addresses how to do something, or how to perform a
<b>Training Outcome</b>	Training outcome is a statement of what a learner will know, understand and be able to do <b>upon the completion of the training.</b>
<b>Terminal Outcome</b>	Terminal outcome is a statement of what a learner will know, understand and be able to do <b>upon the completion of a module.</b> 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