



# Model Curriculum

**QP Name: Assistant Technician - CCTV**

**QP Code: ELE/Q3122**

**QP Version: 1.0**

**NSQF Level: 3**

**Model Curriculum Version: 1.0**

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>	Security Surveillance
<b>Occupation</b>	After Sales Support
<b>Country</b>	India
<b>NSQF Level</b>	3
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2004/NIL
<b>Minimum Educational Qualification and Experience</b>	10th Grade Pass OR 8th Grade Pass + NTC (2 years after 8th) OR 8th Grade Pass + 2 years relevant experience and 18 Years
<b>Pre-Requisite License or Training</b>	NA
<b>Minimum Job Entry Age</b>	18 Years
<b>Last Reviewed On</b>	15.02.2023
<b>Next Review Date</b>	15.08.2023
<b>NSQC Approval Date</b>	15.02.2023
<b>QP Version</b>	1.0
<b>Model Curriculum Creation Date</b>	15.02.2023
<b>Model Curriculum Valid Up to Date</b>	15.08.2023
<b>Model Curriculum Version</b>	1.0
<b>Maximum Duration of the Course</b>	210 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:

- Explain the importance of visiting site and understand the customer requirements.
- Demonstrate the process of installing the CCTV Camera.
- Demonstrate the process of setting up the CCTV surveillance system.
- 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
<b>ELE/N4610: Install the CCTV Camera</b>	<b>15:00</b>	<b>45:00</b>	<b>00:00</b>	<b>00:00</b>	<b>60:00</b>
Module 1: Process of installing the CCTV Camera	15:00	45:00	00:00	00:00	60:00
<b>ELE/N4611: Setup the CCTV Surveillance System</b>	<b>15:00</b>	<b>45:00</b>	<b>00:00</b>	<b>00:00</b>	<b>60:00</b>
Module 2: Process of setting up the CCTV surveillance system	15:00	45:00	00:00	00:00	60:00
<b>DGT/VSQ/N0103- Employability Skills (90 Hours)</b>	<b>36:00</b>	<b>54:00</b>	<b>00:00</b>	<b>00:00</b>	<b>90:00</b>
Module 7: Employability Skills (90 Hours)	36:00	54:00	00:00	00:00	90:00
<b>Total Duration</b>	<b>66:00</b>	<b>144:00</b>	<b>00:00</b>	<b>00:00</b>	<b>210:00</b>

# Module Details

## Module 1: Process of installing the CCTV Camera

*Mapped to ELE/N4610*

### Terminal Outcomes:

- Explain the process of procuring CCTV hardware.
- Describe the process of testing hardware before installation and connecting cables.
- Describe the process of setting up the camera using tools and equipment.
- Explain the importance of complying to industry and quality standards.
- Explain ways to prepare for installation.

<b>Duration: 15:00</b>	<b>Duration: 45:00</b>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Explain basic electronics involved in the hardware.</li> <li>• Describe the process of carrying out basic carpentry, soldering and drilling</li> <li>• Explain different types of electronic surveillance products and functionalities.</li> <li>• Explain the functions of electrical and mechanical parts or modules.</li> <li>• Elaborate various elements of CCTV systems such as camera, DVR, monitor.</li> <li>• Discuss Company’s portfolio of products and that of competitors</li> <li>• Describe installation procedures given in the manuals</li> <li>• State various specification and the procedures to be followed for setting up the system</li> <li>• List different type of cables used for data transmission and power transmission.</li> <li>• State the power requirement of different CCTV related equipment.</li> <li>• Explain video recording of footage analog and digital.</li> <li>• List different types of cameras available in the market.</li> <li>• State camera specifications such as</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate how to check the hardware equipment before taking to the installation site.</li> <li>• Show how to lay the cables in the building or site to connect the camera and system.</li> <li>• Show how to use BNC connectors for joining cables and crimp them.</li> <li>• Show how to use power cable of specified thickness to connect CCTV system with power supply.</li> <li>• Demonstrate the process of connecting all the cables from multiple cameras to the CCTV system area.</li> <li>• Demonstrate the process of setting up the type of camera such as pan, tilt, zoom unit as per customer requirement.</li> <li>• Show how to set camera controls.</li> <li>• Show how to connect the power and video output cable to the camera.</li> <li>• Demonstrate the use of tools such as diagonal cutters, screwdrivers, crimp tools, knife for cabling and camera mounting.</li> <li>• Show how to operate the system and other hardware.</li> </ul>

<p>focus, lens type, zoom. Explain the controls of different options in camera such as rotation, speed of movement in pan / tilt camera.</p> <ul style="list-style-type: none"> <li>• State the voltage and power requirement for different hardware devices.</li> <li>• Explain safety rules, policies and procedures.</li> <li>• List various quality standards to be followed.</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>	
<p>Camera, DVR, Cables, Adapter, Display Device, Screw driver set, Customer Application Form, Feedback Form</p>	

## Module 2: Process of setting up the CCTV surveillance system

### Mapped to ELE/N4611

#### Terminal Outcomes:

- Describe the process of installing CCTV and audio systems.
- Describe the process of connecting CCTV camera and DVR with the system.
- Describe the process of setting up CCTV system and completing installation.
- Explain the process of checking functioning of CCTV system.
- Explain the process of interacting with customer.
- Elucidate the process of reporting to superior and achieving productivity and quality standards.

Duration: 15:00	Duration: 45:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> <li>• Explain different types of electronic surveillance products and functionalities.</li> <li>• Explain the functions of electrical and mechanical parts/ modules.</li> <li>• State the specification and the procedures to be followed for setting up the system.</li> <li>• Explain different type of cables used for data transmission and power transmission.</li> <li>• State the power requirement of different CCTV related equipment.</li> <li>• State the voltage and power requirement for different hardware devices.</li> <li>• State the parameters and specification for different types of system integration.</li> <li>• Discuss IP technology and networking principles.</li> <li>• Explain basics of networking.</li> <li>• Explain video recording technologies</li> <li>• Describe the procedures for reporting malfunctioning or faulty tools and equipment.</li> <li>• State the requirements for working at height and in a confined space. Explain the risks and hazards associated with installation</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate how to connect all the cameras installed to the DVR.</li> <li>• Demonstrate how to connect the monitor (TV / PC) with the video output connection in the DVR.</li> <li>• Show how to connect speakers and camera optional controls (tilt / pan / zoom) to DVR.</li> <li>• Demonstrate the use DVR link option to connect with other DVR in the network.</li> <li>• Show how to connect the DVR to router, if required, to enable remote monitoring.</li> <li>• Demonstrate the process of connect the power supply of DVR, monitor, speakers to set up the system.</li> <li>• Demonstrate the process of installing the appropriate software for IP network or remote monitoring.</li> <li>• Show how to connect all equipment and switch on to start the video capture.</li> <li>• Demonstrate how to inspect and check the installed CCTV equipment and audio system to confirm operational effectiveness.</li> <li>• Show how to document any malfunctions, faults, wear or damage to tools or equipment, if any, and report for repair or replacement in</li> </ul>

<p>procedures</p> <ul style="list-style-type: none"> <li>Describe waste disposal procedures</li> </ul>	<p>accordance with organisational procedures.</p> <ul style="list-style-type: none"> <li>Demonstrate how to perform a demo of CCTV system operation with the customer. Demonstrate how to perform viewing, recording and replaying the video captured in the system as per customer requirement.</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>	
<p>Camera, DVR, Cables, Adapter, Display Device, Screw driver set, Customer Application Form, Feedback Form</p>	



## Module 3: Employability Skills (90 Hours) Mapped to DGT/VSQ/N0103

### 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: 36:00	Duration: 54:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<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 4: On-the-Job Training

### Mapped to Assistant Technician - CCTV

<b>Mandatory Duration: 00:00</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 different types of DVR and their purposes.</li> <li>2. Explain different types of electronic surveillance products and functionalities.</li> <li>3. Ask open and close-ended questions to understand the customer requirement and expectation about the CCTV system.</li> <li>4. Set up the type of camera such as pan, tilt, zoom unit as per customer requirement.</li> <li>5. Install the appropriate software for IP network or remote monitoring.</li> <li>6. Connect all the cameras installed to the DVR.</li> <li>7. Perform demo of CCTV system operation with the customer.</li> <li>8. Use professional language and behaviour that is respectful of PwD and all genders.</li> <li>9. Administer first aid in case of a minor accident.</li> <li>10. Use a 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/ Certified in relevant CITS course	Electronics/ Electrical	1	CCTV Installation	1 year preferably	Electronics	

Trainer Certification	
Domain Certification	Platform Certification
“Assistant Technician - CCTV”, “ELE/Q3122, v1.0”, Minimum accepted score is 80%	“Trainer”, “MEP/Q2601” with a 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/ Electrical	2	CCTV Installation	1 year preferably	Electronics	

Assessor Certification	
Domain Certification	Platform Certification
“Assistant Technician - CCTV”, “ELE/Q3122, v1.0”, Minimum accepted score is 80%	“Trainer”, “MEP/Q2601” with a 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
<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