



Model Curriculum

QP Name: CCTV Installation Technician

QP Code: ELE/Q4605

QP Version: 3.0

NSQF Level: 4

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

Sector	Electronics
Sub-Sector	Security Surveillance
Occupation	After Sales Support
Country	India
NSQF Level	4
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7411.0102
Minimum Educational Qualification and Experience	8th Grade Pass + NTC (2 years after 8th) + 2 Year NAC/relevant Experience) OR 10th Grade pass + 2 Year NTC/NAC/ relevant experience OR Certificate-NSQF (Level-3 in Maintenance Technician) with 2 Years of relevant Experience OR 12th Class and 18 Years
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	27/01/2022
Next Review Date	27/01/2025
NSQC Approval Date	27/01/2022
QP Version	3.0
Model Curriculum Creation Date	27/01/2022
Model Curriculum Valid Up to Date	27/01/2025
Model Curriculum Version	3.0
Maximum Duration of the Course	600 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 (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
Bridge Module	06:00	04:00	00:00	00:00	10:00
Module 1: Introduction and orientation to the role of a CCTV Installation Technician	06:00	04:00	00:00	00:00	10:00
ELE/N4609: Visit Site and Understand Customer Requirement	30:00	60:00	50:00	00:00	140:00
Module 2: Visiting site and understand the customer requirements	30:00	60:00	50:00	00:00	140:00
ELE/N4610: Install the CCTV Camera	30:00	60:00	50:00	00:00	140:00
Module 3: Process of installing the CCTV Camera	30:00	60:00	50:00	00:00	140:00

ELE/N4611: Setup the CCTV Surveillance System	60:00	80:00	50:00	00:00	190:00
Module 4: Process of setting up the CCTV surveillance system	60:00	80:00	50:00	00:00	190:00
ELE/N9905 Work effectively at the workplace	15:00	15:00	00:00	00:00	30:00
Module 5: Soft Skills and Work Ethics	15:00	15:00	00:00	00:00	30:00
ELE/N1002 Apply health and safety practices at the workplace	15:00	15:00	00:00	00:00	30:00
Module 6: Basic Health and Safety Practice	15:00	15:00	00:00	00:00	30:00
DGT/VSQ/N0102- Employability Skills (60 Hours)	24:00	36:00	00:00	00:00	60:00
Module 7: Employability Skills (60 Hours)	24:00	36:00	00:00	00:00	60:00
Total Duration	180:00	270:00	150:00	00:00	600:00

Module Details

Module 1: Introduction and orientation to the role of a CCTV Installation Technician

Bridge Module

Terminal Outcomes:

- Discuss the job role of a CCTV Installation Technician.

Duration: 06:00	Duration: 04:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Describe the size and scope of the electronics industry and its sub-sectors. • Discuss the role and responsibilities of a CCTV Installation Technician. • Describe various employment opportunities for a CCTV Installation Technician. 	<ul style="list-style-type: none"> • Introduction to the components of CCTV Camera
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
NA	

Module 2: Visiting site and understand the customer requirements

Mapped to ELE/N4609

Terminal Outcomes:

- Explain the importance of interacting with customer.
- Explain the importance of understanding the site condition and customer's requirements.
- Describe the process of suggesting solutions.
- Explain the importance of deciding the CCTV system to be installed.
- Explain the importance of achieving productivity and quality standards.

Duration: 30:00	Duration: 60:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Discuss company's policies on: customer care, warranties, products. • Discuss company's code of conduct, organisation culture and typical customer profile • Discuss company's reporting structure and documentation policy. • Discuss company's service level agreements and policies. • List CCTV camera installation requirement in terms of equipment, system, tools, applications appropriate for a particular site. • Describe the process of preparation of field and site for camera installation. • State the design and location criteria for CCTV camera installation. • State different types of CCTV equipment in the market, their specifications and prices. • Explain different types of CCTV camera and associated systems. • Explain different types of DVR and their purposes. • List tools and equipment used to carry for installations. • List the precautions to be taken while handling field calls and dealing with customers. • List the relevant reference sheets, 	<ul style="list-style-type: none"> • Roleplay how to greet the customer and listen to their requirements. • Roleplay how to ask open and close-ended questions to understand the customer requirement and expectation about the CCTV system.

manuals and documents to carry in the field.	
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	

Module 3: 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.

Duration: 30:00	Duration: 60:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Explain basic electronics involved in the hardware. • Describe the process of carrying out basic carpentry, soldering and drilling • Explain different types of electronic surveillance products and functionalities. • Explain the functions of electrical and mechanical parts or modules. • Elaborate various elements of CCTV systems such as camera, DVR, monitor. • Discuss Company’s portfolio of products and that of competitors • Describe installation procedures given in the manuals • State various specification and the procedures to be followed for setting up the system • List different type of cables used for data transmission and power transmission. • State the power requirement of different CCTV related equipment. • Explain video recording of footage analog and digital. • List different types of cameras available in the market. • State camera specifications such as focus, lens type, zoom. • Explain the controls of different 	<ul style="list-style-type: none"> • Demonstrate how to check the hardware equipment before taking to the installation site. • Show how to lay the cables in the building or site to connect the camera and system. • Show how to use BNC connectors for joining cables and crimp them. • Show how to use power cable of specified thickness to connect CCTV system with power supply. • Demonstrate the process of connecting all the cables from multiple cameras to the CCTV system area. • Demonstrate the process of setting up the type of camera such as pan, tilt, zoom unit as per customer requirement. • Show how to set camera controls. • Show how to connect the power and video output cable to the camera. • Demonstrate the use of tools such as diagonal cutters, screwdrivers, crimp tools, knife for cabling and camera mounting. • Show how to operate the system and other hardware.

<p>options in camera such as rotation, speed of movement in pan / tilt camera.</p> <ul style="list-style-type: none"> • State the voltage and power requirement for different hardware devices. • Explain safety rules, policies and procedures. • List various quality standards to be followed. 	
<p>Classroom Aids</p>	
<p>Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop</p>	
<p>Tools, Equipment and Other Requirements</p>	

Module 4: 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: 60:00	Duration: 80:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Explain different types of electronic surveillance products and functionalities. • Explain the functions of electrical and mechanical parts/ modules. • State the specification and the procedures to be followed for setting up the system. • Explain different type of cables used for data transmission and power transmission. • State the power requirement of different CCTV related equipment. • State the voltage and power requirement for different hardware devices. • State the parameters and specification for different types of system integration. • Discuss IP technology and networking principles. • Explain basics of networking. • Explain video recording technologies • Describe the procedures for reporting malfunctioning or faulty tools and equipment. • State the requirements for working at height and in a confined space. • Explain the risks and hazards 	<ul style="list-style-type: none"> • Demonstrate how to connect all the cameras installed to the DVR. • Demonstrate how to connect the monitor (TV / PC) with the video output connection in the DVR. • Show how to connect speakers and camera optional controls (tilt / pan / zoom) to DVR. • Demonstrate the use DVR link option to connect with other DVR in the network. • Show how to connect the DVR to router, if required, to enable remote monitoring. • Demonstrate the process of connect the power supply of DVR, monitor, speakers to set up the system. • Demonstrate the process of installing the appropriate software for IP network or remote monitoring. • Show how to connect all equipment and switch on to start the video capture. • Demonstrate how to inspect and check the installed CCTV equipment and audio system to confirm operational effectiveness. • Show how to document any malfunctions, faults, wear or damage to tools or equipment, if any, and report for repair or replacement in

<p>associated with installation procedures</p> <ul style="list-style-type: none"> Describe waste disposal procedures 	<p>accordance with organisational procedures.</p> <ul style="list-style-type: none"> 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.
<p>Classroom Aids</p>	
<p>Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop</p>	
<p>Tools, Equipment and Other Requirements</p>	
<p>Camera, DVR, Cables, Adapter, Display Device, Screw driver set, Customer Application Form, Feedback Form</p>	

Module 5: Soft Skills and Work Ethics

Mapped to ELE/N9905

Terminal Outcomes:

- Work effectively at the workplace.
- Implement the practices related to gender and PwD sensitization.

Duration: 15:00	Duration: 15:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • State the importance of work ethics and workplace etiquette • State the importance of effective communication and interpersonal skills. • Explain ways to maintain discipline at the workplace. • Discuss the common reasons for interpersonal conflict and ways of managing them effectively. • Discuss the importance of following organisational guidelines for dress code, time schedules, language usage and other behavioural aspects. • Explain the importance of working as per the workflow of the organisation to receive instructions and report problems. • Explain the importance of conveying information/instructions as per defined protocols to the authorised persons/team members. • Explain the common workplace guidelines and legal requirements on non-disclosure and confidentiality of business-sensitive information. • Describe the process of reporting grievances and unethical conduct such as data breaches, sexual harassment at the workplace, etc. • Explain the concept and importance of gender sensitivity and equality. • Discuss ways to create sensitivity for different genders and Persons with Disabilities (PwD). 	<ul style="list-style-type: none"> • Develop a sample plan to achieve organisational goals and targets. • Create a sample feedback form to obtain feedback from customers, colleagues etc. • Roleplay to demonstrate the use of professional language and behaviour that is respectful of PwD and all genders. • Apply organisational protocol on data confidentiality and sharing only with the authorised personnel.

<ul style="list-style-type: none">• Discuss ways of dealing with heightened emotions of self and others.	
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Sample Of Escalation Matrix, Organization Structure.	

Module 6: Basic Health and Safety Practice

Mapped to ELE/N1002

Terminal Outcomes:

- Apply health and safety practices at the workplace.

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

Classroom Aids
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop
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 7: 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.

Duration: 24:00	Duration: 36:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • List different learning and employability related GOI and private portals and their usage • Show how to practice different environmentally sustainable practices. • Exhibit 21st century skills like Self-Awareness, Behavior Skills, time management, etc. • Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone • Demonstrate how to communicate in a well-mannered way with others. • Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette • Utilize virtual collaboration tools to work effectively • Demonstrate how to maintain hygiene and dressing appropriately. • Perform a mock interview
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 8: On-the-Job Training

Mapped to CCTV Installation Technician

Mandatory Duration: 150:00	Recommended Duration: 00:00
Location: On Site	
<p>Terminal Outcomes</p> <ol style="list-style-type: none"> 1. Explain different types of DVR and their purposes. 2. Explain different types of electronic surveillance products and functionalities. 3. Ask open and close-ended questions to understand the customer requirement and expectation about the CCTV system. 4. Set up the type of camera such as pan, tilt, zoom unit as per customer requirement. 5. Install the appropriate software for IP network or remote monitoring. 6. Connect all the cameras installed to the DVR. 7. Perform demo of CCTV system operation with the customer. 8. Use professional language and behaviour that is respectful of PwD and all genders. 9. Administer first aid in case of a minor accident. 10. Use a fire extinguisher in case of a fire incident. 	

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
“CCTV Installation Technician”, “ELE/Q4605, v3.0”, Minimum accepted score is 80%	Recommended that the Trainer is certified for the CCTV Installation 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/ Electrical/ Mechanical	2	CCTV Installation	1 year preferably	Electronics	

Assessor Certification	
Domain Certification	Platform Certification
<p>“CCTV Installation Technician”, “ELE/Q4605, v3.0”, Minimum accepted score is 80%</p>	<p>Recommended that the Assessor is certified for the CCTV Installation Technician “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
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