

## Qualification Pack



# CCTV Installation Technician

QP Code: ELE/Q4605

Version: 2.0

NSQF Level: 4

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## Qualification Pack

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### ELE/Q4605: CCTV Installation Technician

#### Brief Job Description

The individual at work is responsible for installing the CCTV system in the customer premises. The individual understands the customer and site requirement, installs the camera and integrates the hardware for effective CCTV surveillance system functioning

#### Personal Attributes

The job requires the individual to have: ability to build interpersonal relationships, patience, listening skills and critical thinking. The individual must be willing to travel to client premises in order to install equipment at different locations.

#### Applicable National Occupational Standards (NOS)

##### Compulsory NOS:

- [1. ELE/N4609: Visit Site and Understand Customer Requirement](#)
- [2. ELE/N4610: Install the CCTV Camera](#)
- [3. ELE/N4611: Setup the CCTV Surveillance System](#)
- [4. ELE/N9905: Work effectively at the workplace](#)
- [5. ELE/N1002: Apply health and safety practices at the workplace](#)

#### Qualification Pack (QP) 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>	4
<b>Credits</b>	NA
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2004/NIL

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<b>Minimum Educational Qualification &amp; Experience</b>	8th Class (+ ITI (2 years after 8th) with 2 years of relevant Experience) OR 10th Class (with 2 years of relevant Experience OR I.T.I (after 10th) OR 12th Class ) OR Certificate (NSQF Level-3 in the domain of (Electronics / Electrical / Mechanical) with 2 years of relevant Experience)
<b>Minimum Level of Education for Training in School</b>	8th Class
<b>Pre-Requisite License or Training</b>	NA
<b>Minimum Job Entry Age</b>	18 Years
<b>Last Reviewed On</b>	27/01/2022
<b>Next Review Date</b>	02/06/2025
<b>Deactivation Date</b>	02/06/2025
<b>NSQC Approval Date</b>	27/01/2022
<b>Version</b>	2.0
<b>Reference code on NQR</b>	2022/EHW/ESSC/05114
<b>NQR Version</b>	1.0

**Remarks:**

NA

## Qualification Pack

### ELE/N4609: Visit Site and Understand Customer Requirement

#### Description

This unit is about visiting and checking the site condition where the Closed-circuit television (CCTV) camera would be installed; deciding the system setup; and interacting with customer

#### Scope

The scope covers the following :

- Interacting with customer
- Understanding customer's requirements
- Understanding the site condition
- Suggesting solutions
- Deciding the CCTV system to be installed
- Achieving productivity and quality standards

#### Elements and Performance Criteria

##### *Interacting with customer*

To be competent, the user/individual on the job must be able to:

- PC1.** greet the customer and listen to their requirements
- PC2.** understand the basic requirement of the customer
- PC3.** understand the basic layout of site where the CCTV system is to be installed from the customer
- PC4.** check with customer about time for visit, field work and confirm location
- PC5.** follow etiquette when interacting with customers as per company policy

##### *Understanding customer's requirements*

To be competent, the user/individual on the job must be able to:

- PC6.** interact with the customer to understand the purpose of CCTV installation
- PC7.** understand the system monitoring requirement including combination of viewing, recording and replay
- PC8.** understand the type of camera preferred by customer such as fixed camera, pan/tilt, zoom options, day/night camera

##### *Understanding the site condition*

To be competent, the user/individual on the job must be able to:

- PC9.** visit the site and understand the layout
- PC10.** seek customers approval for visiting the rooms in the premises
- PC11.** understand the area and other measurement specifications
- PC12.** identify the locations where the CCTV camera to be installed which could capture maximum area in the video coverage
- PC13.** decide if any mounting structure or pole is required for camera installing
- PC14.** understand the building structure for cabling purpose



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### *Suggesting solutions*

To be competent, the user/individual on the job must be able to:

- PC15.** interact with customer to inform the observation made from surveillance aspect after the site check
- PC16.** suggest the CCTV systems that could fulfill customers and site requirement
- PC17.** suggest the type of camera and recording system to be installed
- PC18.** suggest the hardware / software requirements if it has to be connected with IP network or for remote monitoring
- PC19.** suggest the hardware system that suits the customer budget and meets the functional requirement
- PC20.** assess any hesitation from customer on selection of system and provide an alternative solution

### *Deciding the CCTV system to be installed*

To be competent, the user/individual on the job must be able to:

- PC21.** confirm the number and type of camera to be installed as per the site requirement
- PC22.** take confirmation on mounting points of camera in the site
- PC23.** confirm the location of system placement (recorder and monitoring)
- PC24.** confirm the monitor or hardware requirement (TV / PC) and whether it is available
- PC25.** confirm the type of transmission to output device: IP network or Digital Video Recorder (DVR) or remote and confirm hardware requirements
- PC26.** estimate the time for installation process and inform the customer
- PC27.** inform the customer about hardware details including cost and take sign off

### *Achieving productivity and quality standards*

To be competent, the user/individual on the job must be able to:

- PC28.** ask open and close-ended questions to understand the customer requirement and expectation about the CCTV system
- PC29.** educate about different systems and equipments available to meet customer requirements
- PC30.** achieve customer satisfaction on engagement behavior such as listening to complaints or appropriate dressing
- PC31.** educate customers about the different type of CCTV systems available in the market and suggest an ideal system for the site

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** companys policies on: customer care, warranties, products
- KU2.** companys code of conduct
- KU3.** organisation culture and typical customer profile
- KU4.** companys reporting structure
- KU5.** companys documentation policy
- KU6.** companys service level agreements and policies



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- KU7.** CCTV camera installation requirement in terms of equipment, system , tools, applications appropriate for a particular site
- KU8.** preparation of field and site for camera installation
- KU9.** design criteria for CCTV camera installation
- KU10.** location criteria for CCTV camera installation
- KU11.** different types of CCTV equipments in the market, their specifications and prices
- KU12.** different types of CCTV camera and associated systems
- KU13.** different types of DVR and their purposes
- KU14.** tools and equipment to carry for installations
- KU15.** precautions to be taken while handling field calls and dealing with customers
- KU16.** relevant reference sheets, manuals and documents to carry in the field

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** how to read product and module serial numbers and interpret details such as make, date, availability
- GS2.** how to note problems on job sheet and details of work done
- GS3.** how to develop a rapport with customers
- GS4.** how to listen carefully and interpret their requirement
- GS5.** how to suggest customer on possible solutions
- GS6.** how to seek inputs at assess the problems
- GS7.** how to put the customer at ease and suggest solutions
- GS8.** how to communicate in local language
- GS9.** how to educate and inform customer about contractual issues such as warranty, cost of service and equipment replacement
- GS10.** how to educate on precautions to be taken post installations to avoid any mishaps
- GS11.** importance of personal grooming
- GS12.** significance of etiquette such as maintaining the appropriate physical distance with customer during conversation, not entering bedroom without permission
- GS13.** importance of being patient and courteous with all types of customers
- GS14.** being polite and courteous under all circumstances

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### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Interacting with customer</i>	<b>5</b>	<b>8</b>	-	-
<b>PC1.</b> greet the customer and listen to their requirements	1	1	-	-
<b>PC2.</b> understand the basic requirement of the customer	1	1	-	-
<b>PC3.</b> understand the basic layout of site where the CCTV system is to be installed from the customer	1	2	-	-
<b>PC4.</b> check with customer about time for visit, field work and confirm location	1	2	-	-
<b>PC5.</b> follow etiquette when interacting with customers as per company policy	1	2	-	-
<i>Understanding customer's requirements</i>	<b>3</b>	<b>6</b>	-	-
<b>PC6.</b> interact with the customer to understand the purpose of CCTV installation	1	2	-	-
<b>PC7.</b> understand the system monitoring requirement including combination of viewing, recording and replay	1	2	-	-
<b>PC8.</b> understand the type of camera preferred by customer such as fixed camera, pan/tilt, zoom options, day/night camera	1	2	-	-
<i>Understanding the site condition</i>	<b>6</b>	<b>12</b>	-	-
<b>PC9.</b> visit the site and understand the layout	1	2	-	-
<b>PC10.</b> seek customers approval for visiting the rooms in the premises	1	2	-	-
<b>PC11.</b> understand the area and other measurement specifications	1	2	-	-
<b>PC12.</b> identify the locations where the CCTV camera to be installed which could capture maximum area in the video coverage	1	2	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC13.</b> decide if any mounting structure or pole is required for camera installing	1	2	-	-
<b>PC14.</b> understand the building structure for cabling purpose	1	2	-	-
<i>Suggesting solutions</i>	<b>6</b>	<b>12</b>	-	-
<b>PC15.</b> interact with customer to inform the observation made from surveillance aspect after the site check	1	2	-	-
<b>PC16.</b> suggest the CCTV systems that could fulfill customers and site requirement	1	2	-	-
<b>PC17.</b> suggest the type of camera and recording system to be installed	1	2	-	-
<b>PC18.</b> suggest the hardware / software requirements if it has to be connected with IP network or for remote monitoring	1	2	-	-
<b>PC19.</b> suggest the hardware system that suits the customer budget and meets the functional requirement	1	2	-	-
<b>PC20.</b> assess any hesitation from customer on selection of system and provide an alternative solution	1	2	-	-
<i>Deciding the CCTV system to be installed</i>	<b>12</b>	<b>14</b>	-	-
<b>PC21.</b> confirm the number and type of camera to be installed as per the site requirement	2	2	-	-
<b>PC22.</b> take confirmation on mounting points of camera in the site	1	2	-	-
<b>PC23.</b> confirm the location of system placement (recorder and monitoring)	2	2	-	-
<b>PC24.</b> confirm the monitor or hardware requirement (TV / PC) and whether it is available	2	2	-	-
<b>PC25.</b> confirm the type of transmission to output device: IP network or Digital Video Recorder (DVR) or remote and confirm hardware requirements	2	2	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC26.</b> estimate the time for installation process and inform the customer	2	2	-	-
<b>PC27.</b> inform the customer about hardware details including cost and take sign off	1	2	-	-
<i>Achieving productivity and quality standards</i>	<b>8</b>	<b>8</b>	-	-
<b>PC28.</b> ask open and close-ended questions to understand the customer requirement and expectation about the CCTV system	2	2	-	-
<b>PC29.</b> educate about different systems and equipments available to meet customer requirements	2	2	-	-
<b>PC30.</b> achieve customer satisfaction on engagement behavior such as listening to complaints or appropriate dressing	2	2	-	-
<b>PC31.</b> educate customers about the different type of CCTV systems available in the market and suggest an ideal system for the site	2	2	-	-
<b>NOS Total</b>	<b>40</b>	<b>60</b>	-	-



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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ELE/N4609
<b>NOS Name</b>	Visit Site and Understand Customer Requirement
<b>Sector</b>	Electronics
<b>Sub-Sector</b>	Security Surveillance
<b>Occupation</b>	After Sales Support
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	3.0
<b>Last Reviewed Date</b>	27/01/2022
<b>Next Review Date</b>	27/01/2025
<b>NSQC Clearance Date</b>	27/01/2022

## Qualification Pack

### ELE/N4610: Install the CCTV Camera

#### Description

This unit is about installing the CCTV camera at customers premises as per customers preference and connecting the camera to the system through cables

#### Scope

The scope covers the following :

- Procure CCTV hardware
- Testing hardware before installation
- Connecting cables
- Setup up the camera
- Using tools and equipments
- Complying to industry and quality standards
- Prepare for installation

#### Elements and Performance Criteria

##### *Procuring CCTV hardware*

To be competent, the user/individual on the job must be able to:

- PC1.** procure the hardware required for CCTV system installation
- PC2.** ensure that all the hardware matches the customer requirement, agreed features and specifications
- PC3.** understand the warranty associated with the hardware product
- PC4.** understand the related documents for the hardware equipments

##### *Testing hardware before installation*

To be competent, the user/individual on the job must be able to:

- PC5.** check the hardware equipments before taking to the installation site
- PC6.** replace the hardware if there is any issue or malfunction is found while testing
- PC7.** check for critical equipment such as camera, recorder w.r.t quality and output
- PC8.** ensure all the tools, equipments, utilities are available in good to enable installing in single visit

##### *Connecting cables*

To be competent, the user/individual on the job must be able to:

- PC9.** lay the cables in the building or site to connect the camera and system
- PC10.** ensure adequate length of co-axial and other cables are available for installation
- PC11.** use BNC connectors for joining cables and crimp them
- PC12.** use power cable of specified thickness to connect CCTV system with power supply
- PC13.** connect all the cables from multiple cameras to the CCTV system area

##### *Setting up the camera*

To be competent, the user/individual on the job must be able to:

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- PC14.** mount the CCTV camera so as to cover maximum area
- PC15.** decide whether the camera requires any enclosure to protect from dust, vandalism and climatic conditions
- PC16.** use stable mounting structure and ensure that is not disturbed by wind or rain which would affect the video quality
- PC17.** decide on the height of camera installation according to the end purpose
- PC18.** set up the type of camera such as pan, tilt, zoom unit as per customer requirement
- PC19.** set camera controls
- PC20.** connect the power and video output cable to the camera

### *Using tools and equipments*

To be competent, the user/individual on the job must be able to:

- PC21.** use tools such as diagonal cutters, screwdrivers, crimp tools, knife for cabling and camera mounting
- PC22.** follow standard operating procedure of tools and equipments and avoid any hazard
- PC23.** follow the installation manual for specific hardware product
- PC24.** use recommended tools for specific equipment to avoid damage
- PC25.** follow standard safety procedures while installing
- PC26.** ensure that only quality hardware products are procured

### *Complying to industry and quality standards*

To be competent, the user/individual on the job must be able to:

- PC27.** ensure product installation and user manual is available which should be given to the customer
- PC28.** ensure that there are no cable joins, sharp bends during cabling
- PC29.** ensure weather proof (UV proof) cable are used in outdoors
- PC30.** ensure that cabling is sturdy, protected and does not disturb the ambience of building
- PC31.** ensure that cameras are protected from light while installing in outdoor
- PC32.** ensure the intended area is covered during movement in case of tilt or pan type of camera
- PC33.** assess power requirement of camera and use required power supply and cable
- PC34.** educate customer on use of cameras for desired monitoring and warranty period and annual maintenance requirement
- PC35.** ensure zero-material damage while handling the equipment during installation process
- PC36.** install target number of CCTVs as per companys policy

### *Prepare for installation*

To be competent, the user/individual on the job must be able to:

- PC37.** identify and comply with the applicable provisions of legislative and organisational requirements relevant to installing CCTV equipment and audio systems
- PC38.** obtain, review and confirm assignment instructions with relevant persons as required
- PC39.** identify and control potential and existing risks and hazards in the work area in accordance with OHS requirements and own role, competence and authority

## Knowledge and Understanding (KU)

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The individual on the job needs to know and understand:

- KU1.** companys policies on: incentives, delivery standards, and personnel management
- KU2.** companys sales and after sales support policy
- KU3.** importance of the individuals role in the workflow
- KU4.** reporting structure
- KU5.** companys policy on products warranty and other terms and conditions
- KU6.** companys line of business and product portfolio
- KU7.** companys customer support and service policy
- KU8.** basic electronics involved in the hardware
- KU9.** basic electrical and wiring
- KU10.** carry out basic carpentry
- KU11.** carry out soldering and drilling
- KU12.** different types of electronic surveillance products and functionalities
- KU13.** functions of electrical and mechanical parts or modules
- KU14.** typical customer profile
- KU15.** elements of CCTV systems such as camera, DVR, monitor
- KU16.** companys portfolio of products and that of competitors
- KU17.** installation procedures given in the manuals
- KU18.** specification and the procedures to be followed for setting up the system
- KU19.** different type of cables used for data transmission and power transmission
- KU20.** power requirement of different CCTV related equipment
- KU21.** video recording of footage analog and digital
- KU22.** different types of camera available in the market
- KU23.** camera specifications such as focus, lens type, zoom
- KU24.** controls of different options in camera such as rotation, speed of movement in pan / tilt camera
- KU25.** voltage and power requirement for different hardware devices
- KU26.** how to operate the system and other hardware
- KU27.** safety rules, policies and procedures
- KU28.** quality standards to be followed

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** document the completed work
- GS2.** note the installation completed
- GS3.** read the standard operating procedures for different equipment
- GS4.** share work load as required
- GS5.** achieve the targets given on installations



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- GS6.** operate hardware equipment in CCTV system
- GS7.** different types of cables that are required to integrate CCTV system
- GS8.** voltage requirement and other specification on CCTV hardware
- GS9.** operate tools such as diagonal cutter, screwdrivers, crimping tools for cabling and mounting of camera
- GS10.** understand earthing systems arrangements and requirements
- GS11.** access and store tools, equipment and materials
- GS12.** use other specific devices for installation of camera
- GS13.** improve work processes
- GS14.** reduce repetition of errors
- GS15.** spot process disruptions and delays
- GS16.** report on any customer concerns to superiors without delay

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### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Procuring CCTV hardware</i>	4	4	-	-
<b>PC1.</b> procure the hardware required for CCTV system installation	1	1	-	-
<b>PC2.</b> ensure that all the hardware matches the customer requirement, agreed features and specifications	1	1	-	-
<b>PC3.</b> understand the warranty associated with the hardware product	1	1	-	-
<b>PC4.</b> understand the related documents for the hardware equipments	1	1	-	-
<i>Testing hardware before installation</i>	4	6	-	-
<b>PC5.</b> check the hardware equipments before taking to the installation site	1	1	-	-
<b>PC6.</b> replace the hardware if there is any issue or malfunction is found while testing	1	2	-	-
<b>PC7.</b> check for critical equipment such as camera, recorder w.r.t quality and output	1	1	-	-
<b>PC8.</b> ensure all the tools, equipments, utilities are available in good to enable installing in single visit	1	2	-	-
<i>Connecting cables</i>	5	7	-	-
<b>PC9.</b> lay the cables in the building or site to connect the camera and system	1	1	-	-
<b>PC10.</b> ensure adequate length of co-axial and other cables are available for installation	1	2	-	-
<b>PC11.</b> use BNC connectors for joining cables and crimp them	1	1	-	-
<b>PC12.</b> use power cable of specified thickness to connect CCTV system with power supply	1	2	-	-
<b>PC13.</b> connect all the cables from multiple cameras to the CCTV system area	1	1	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Setting up the camera</i>	<b>8</b>	<b>13</b>	-	-
<b>PC14.</b> mount the CCTV camera so as to cover maximum area	1	2	-	-
<b>PC15.</b> decide whether the camera requires any enclosure to protect from dust, vandalism and climatic conditions	2	2	-	-
<b>PC16.</b> use stable mounting structure and ensure that is not disturbed by wind or rain which would affect the video quality	1	2	-	-
<b>PC17.</b> decide on the height of camera installation according to the end purpose	1	2	-	-
<b>PC18.</b> set up the type of camera such as pan, tilt, zoom unit as per customer requirement	1	2	-	-
<b>PC19.</b> set camera controls	1	2	-	-
<b>PC20.</b> connect the power and video output cable to the camera	1	1	-	-
<i>Using tools and equipments</i>	<b>6</b>	<b>8</b>	-	-
<b>PC21.</b> use tools such as diagonal cutters, screwdrivers, crimp tools, knife for cabling and camera mounting	1	2	-	-
<b>PC22.</b> follow standard operating procedure of tools and equipments and avoid any hazard	1	1	-	-
<b>PC23.</b> follow the installation manual for specific hardware product	1	1	-	-
<b>PC24.</b> use recommended tools for specific equipment to avoid damage	1	1	-	-
<b>PC25.</b> follow standard safety procedures while installing	1	1	-	-
<b>PC26.</b> ensure that only quality hardware products are procured	1	2	-	-
<i>Complying to industry and quality standards</i>	<b>10</b>	<b>16</b>	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC27.</b> ensure product installation and user manual is available which should be given to the customer	1	2	-	-
<b>PC28.</b> ensure that there are no cable joins, sharp bends during cabling	1	1	-	-
<b>PC29.</b> ensure weather proof (UV proof) cable are used in outdoors	1	1	-	-
<b>PC30.</b> ensure that cabling is sturdy, protected and does not disturb the ambience of building	1	2	-	-
<b>PC31.</b> ensure that cameras are protected from light while installing in outdoor	1	2	-	-
<b>PC32.</b> ensure the intended area is covered during movement in case of tilt or pan type of camera	1	1	-	-
<b>PC33.</b> assess power requirement of camera and use required power supply and cable	1	1	-	-
<b>PC34.</b> educate customer on use of cameras for desired monitoring and warranty period and annual maintenance requirement	1	2	-	-
<b>PC35.</b> ensure zero-material damage while handling the equipment during installation process	1	2	-	-
<b>PC36.</b> install target number of CCTVs as per companys policy	1	2	-	-
<i>Prepare for installation</i>	<b>3</b>	<b>6</b>	-	-
<b>PC37.</b> identify and comply with the applicable provisions of legislative and organisational requirements relevant to installing CCTV equipment and audio systems	1	2	-	-
<b>PC38.</b> obtain, review and confirm assignment instructions with relevant persons as required	1	2	-	-
<b>PC39.</b> identify and control potential and existing risks and hazards in the work area in accordance with OHS requirements and own role, competence and authority	1	2	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
NOS Total	40	60	-	-



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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ELE/N4610
<b>NOS Name</b>	Install the CCTV Camera
<b>Sector</b>	Electronics
<b>Sub-Sector</b>	Security Surveillance
<b>Occupation</b>	After Sales Support
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	2.0
<b>Last Reviewed Date</b>	27/01/2022
<b>Next Review Date</b>	27/01/2025
<b>NSQC Clearance Date</b>	27/01/2022

## Qualification Pack

### ELE/N4611: Setup the CCTV Surveillance System

#### Description

This unit is about connecting the CCTV camera to the recorder and setting up the CCTV monitoring system for viewing and recording images as per customers requirement.

#### Scope

The scope covers the following :

- Installing CCTV and audio systems
- Connecting CCTV camera and DVR with the system
- Setting up CCTV system
- Complete installation
- Check functioning of CCTV system
- Interact with customer
- Report to superior
- Achieving productivity and quality standards

#### Elements and Performance Criteria

##### *Installing CCTV and audio systems*

To be competent, the user/individual on the job must be able to:

- PC1.** select and use the personal protection equipment in accordance with Occupational Health and Safety (OHS ) requirements
- PC2.** accurately position the CCTV equipment and audio system in accordance with installation specifications and assignment instructions
- PC3.** securely fix the CCTV equipment and audio system and connect to cabling using appropriate methods and procedures
- PC4.** ensure that CCTV equipment and audio system is installed without damage or distortion to the surrounding environment or services
- PC5.** ensure that safe workplace practices are applied throughout installation process in accordance with OHS requirements.
- PC6.** identify changing circumstances and factors affecting the achievement of assignment instructions
- PC7.** get the recommendations for changes to installation plans, if any, approved by relevant persons

##### *Connecting CCTV camera and DVR with the system*

To be competent, the user/individual on the job must be able to:

- PC8.** connect all the cameras installed to the DVR
- PC9.** ensure that all cameras are connected to the DVR and the wiring is appropriate
- PC10.** connect the monitor (TV / PC) with the video output connection in the DVR
- PC11.** connect speakers, if required, for audio output to DVR
- PC12.** connect the camera optional controls (tilt / pan / zoom) to DVR

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**PC13.** use DVR link option to connect with other DVR in the network

**PC14.** connect the DVR to router, if required, to enable remote monitoring

### *Setting up CCTV system*

To be competent, the user/individual on the job must be able to:

**PC15.** connect the power supply of DVR, monitor, speakers to set up the system

**PC16.** install the appropriate software for IP network or remote monitoring

**PC17.** enter the appropriate IP address to receive the video signals through IP network / internet

**PC18.** connect all equipments and switch on to start the video capture

### *Complete installation*

To be competent, the user/individual on the job must be able to:

**PC19.** inspect and check the installed CCTV equipment and audio system to confirm operational effectiveness

**PC20.** conduct checks to confirm that all terminations are electrically and mechanically sound

**PC21.** restore the work area to original condition, dispose of waste and clean and store tools and equipment in accordance with organisational requirements

**PC22.** document any malfunctions, faults, wear or damage to tools or equipment, if any, and report for repair or replacement in accordance with organisational procedures

**PC23.** notify about completion of work to the customer in accordance with organisational procedures

### *Checking functioning of CCTV system*

To be competent, the user/individual on the job must be able to:

**PC24.** perform a demo of CCTV system operation with the customer

**PC25.** ensure that all the controls in the system are properly working

**PC26.** ensure that pan, tilt, zoom options of the camera are working

**PC27.** monitor and switch to multiple camera installed and connected in the system

**PC28.** perform viewing, recording and replaying the video captured in the system as per customer requirement

**PC29.** take corrective action and fix the issues such as no video, lack of clarity in the system when found

**PC30.** perform remote monitoring and controls associated if it is opted by customer

### *Interacting with customer*

To be competent, the user/individual on the job must be able to:

**PC31.** inform customer on adequate information about hardware device or software

**PC32.** instruct customer on use of and procedures to be followed for operating the system or hardware

### *Reporting to superior*

To be competent, the user/individual on the job must be able to:

**PC33.** receive the work order from the superior

**PC34.** report on the work load and completion status

**PC35.** escalate the problems that cannot be resolved at field level with reason

**PC36.** submit the feedback form on customer satisfaction level with respect to the installation

**PC37.** accurately report work status through proper documentation as per companys standards

## Qualification Pack

### *Achieving productivity and quality standards*

To be competent, the user/individual on the job must be able to:

- PC38.** ensure that there is no problem after installing the CCTV system and the output video is per customers expectation
- PC39.** confirm acceptance on installing any hardware or software in the system
- PC40.** inform customer about warranty and other terms and conditions on the hardware equipment
- PC41.** provide relevant documents to customers on completion of installation
- PC42.** achieve 100% satisfaction with customer on installation service
- PC43.** achieve 100% on time completion of field installation with reference to agreed target and time or reasons for not meeting target

### **Knowledge and Understanding (KU)**

The individual on the job needs to know and understand:

- KU1.** companys policies on: incentives, delivery standards, and personnel management
- KU2.** companys sales and after sales support policy
- KU3.** importance of the individuals role in the workflow
- KU4.** reporting structure
- KU5.** companys policy on products warranty and other terms and conditions
- KU6.** companys line of business and product portfolio
- KU7.** different types of electronic surveillance products and functionalities
- KU8.** functions of electrical and mechanical parts/ modules
- KU9.** specification and the procedures to be followed for setting up the system
- KU10.** different type of cables used for data transmission and power transmission
- KU11.** power requirement of different CCTV related equipment
- KU12.** video recording of footage analog and digital
- KU13.** different types of camera available in the market
- KU14.** camera specifications such as focus, lens type, zoom
- KU15.** controls of different options in camera such as rotation, speed of movement in pan / tilt camera
- KU16.** voltage and power requirement for different hardware devices
- KU17.** integration of hardware to setup the system
- KU18.** parameters and specification for different types of system integration
- KU19.** accessing image from remote locations
- KU20.** CCTV monitoring and control over IP network / Internet
- KU21.** IP technology and networking principles
- KU22.** basics of networking
- KU23.** video recording technologies
- KU24.** controls in digital video recorder and their usage
- KU25.** how to operate the system and other hardware

## Qualification Pack

- KU26.** procedures for reporting malfunctioning or faulty tools and equipment
- KU27.** requirements for working at height and in a confined space
- KU28.** risks and hazards associated with installation procedures
- KU29.** waste disposal procedures
- KU30.** safety rules, policies and procedures
- KU31.** quality standards to be followed

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** read job sheet and/or complaints registered at customer care
- GS2.** document the completed work
- GS3.** note customer complaints and solution provided
- GS4.** note customer complaints and solution provided
- GS5.** share work load as required
- GS6.** achieve the target
- GS7.** operate computer and laptop
- GS8.** operate CCTV related hardware equipments , their controls and specifications
- GS9.** complete operational controls in Digital Video Recorder (DVR)
- GS10.** networking and software involved set up CCTV system in a network
- GS11.** configure different settings and installations of hardware and software as per customer requirement
- GS12.** operate tools such as diagonal cutter, screwdrivers, crimping tools for cabling and mounting of camera
- GS13.** use other specific devices for installation of camera
- GS14.** use tools for integrating the systems
- GS15.** improve work processes
- GS16.** use personal protection equipment and clothing
- GS17.** test and confirm operational effectiveness of CCTV equipment and audio system
- GS18.** restore work area to pre-installation condition
- GS19.** work at heights and in confined spaces
- GS20.** reduce errors on field and repeat trips
- GS21.** spot process disruptions and delays
- GS22.** report on any issues raised by customers to superiors without delay



## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Installing CCTV and audio systems</i>	<b>7</b>	<b>10</b>	-	-
<b>PC1.</b> select and use the personal protection equipment in accordance with Occupational Health and Safety (OHS ) requirements	1	1	-	-
<b>PC2.</b> accurately position the CCTV equipment and audio system in accordance with installation specifications and assignment instructions	1	2	-	-
<b>PC3.</b> securely fix the CCTV equipment and audio system and connect to cabling using appropriate methods and procedures	1	2	-	-
<b>PC4.</b> ensure that CCTV equipment and audio system is installed without damage or distortion to the surrounding environment or services	1	1	-	-
<b>PC5.</b> ensure that safe workplace practices are applied throughout installation process in accordance with OHS requirements.	1	2	-	-
<b>PC6.</b> identify changing circumstances and factors affecting the achievement of assignment instructions	1	1	-	-
<b>PC7.</b> get the recommendations for changes to installation plans, if any, approved by relevant persons	1	1	-	-
<i>Connecting CCTV camera and DVR with the system</i>	<b>6</b>	<b>8</b>	-	-
<b>PC8.</b> connect all the cameras installed to the DVR	-	1	-	-
<b>PC9.</b> ensure that all cameras are connected to the DVR and the wiring is appropriate	1	2	-	-
<b>PC10.</b> connect the monitor (TV / PC) with the video output connection in the DVR	1	1	-	-
<b>PC11.</b> connect speakers, if required, for audio output to DVR	1	1	-	-
<b>PC12.</b> connect the camera optional controls (tilt / pan / zoom) to DVR	1	1	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC13.</b> use DVR link option to connect with other DVR in the network	1	1	-	-
<b>PC14.</b> connect the DVR to router, if required, to enable remote monitoring	1	1	-	-
<i>Setting up CCTV system</i>	<b>4</b>	<b>6</b>	-	-
<b>PC15.</b> connect the power supply of DVR, monitor, speakers to set up the system	1	1	-	-
<b>PC16.</b> install the appropriate software for IP network or remote monitoring	1	2	-	-
<b>PC17.</b> enter the appropriate IP address to receive the video signals through IP network / internet	1	2	-	-
<b>PC18.</b> connect all equipments and switch on to start the video capture	1	1	-	-
<i>Complete installation</i>	<b>5</b>	<b>8</b>	-	-
<b>PC19.</b> inspect and check the installed CCTV equipment and audio system to confirm operational effectiveness	1	1	-	-
<b>PC20.</b> conduct checks to confirm that all terminations are electrically and mechanically sound	1	1	-	-
<b>PC21.</b> restore the work area to original condition, dispose of waste and clean and store tools and equipment in accordance with organisational requirements	1	2	-	-
<b>PC22.</b> document any malfunctions, faults, wear or damage to tools or equipment, if any, and report for repair or replacement in accordance with organisational procedures	1	2	-	-
<b>PC23.</b> notify about completion of work to the customer in accordance with organisational procedures	1	2	-	-
<i>Checking functioning of CCTV system</i>	<b>7</b>	<b>10</b>	-	-
<b>PC24.</b> perform a demo of CCTV system operation with the customer	1	1	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC25.</b> ensure that all the controls in the system are properly working	1	1	-	-
<b>PC26.</b> ensure that pan, tilt, zoom options of the camera are working	1	1	-	-
<b>PC27.</b> monitor and switch to multiple camera installed and connected in the system	1	2	-	-
<b>PC28.</b> perform viewing, recording and replaying the video captured in the system as per customer requirement	1	2	-	-
<b>PC29.</b> take corrective action and fix the issues such as no video, lack of clarity in the system when found	1	2	-	-
<b>PC30.</b> perform remote monitoring and controls associated if it is opted by customer	1	1	-	-
<i>Interacting with customer</i>	<b>2</b>	<b>4</b>	-	-
<b>PC31.</b> inform customer on adequate information about hardware device or software	1	2	-	-
<b>PC32.</b> instruct customer on use of and procedures to be followed for operating the system or hardware	1	2	-	-
<i>Reporting to superior</i>	<b>3</b>	<b>8</b>	-	-
<b>PC33.</b> receive the work order from the superior	-	1	-	-
<b>PC34.</b> report on the work load and completion status	-	1	-	-
<b>PC35.</b> escalate the problems that cannot be resolved at field level with reason	1	2	-	-
<b>PC36.</b> submit the feedback form on customer satisfaction level with respect to the installation	1	2	-	-
<b>PC37.</b> accurately report work status through proper documentation as per companys standards	1	2	-	-
<i>Achieving productivity and quality standards</i>	<b>6</b>	<b>6</b>	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC38.</b> ensure that there is no problem after installing the CCTV system and the output video is per customers expectation	1	1	-	-
<b>PC39.</b> confirm acceptance on installing any hardware or software in the system	1	1	-	-
<b>PC40.</b> inform customer about warranty and other terms and conditions on the hardware equipment	1	1	-	-
<b>PC41.</b> provide relevant documents to customers on completion of installation	1	1	-	-
<b>PC42.</b> achieve 100% satisfaction with customer on installation service	1	1	-	-
<b>PC43.</b> achieve 100% on time completion of field installation with reference to agreed target and time or reasons for not meeting target	1	1	-	-
<b>NOS Total</b>	<b>40</b>	<b>60</b>	-	-



## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ELE/N4611
<b>NOS Name</b>	Setup the CCTV Surveillance System
<b>Sector</b>	Electronics
<b>Sub-Sector</b>	Security Surveillance
<b>Occupation</b>	After Sales Service
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	2.0
<b>Last Reviewed Date</b>	27/01/2022
<b>Next Review Date</b>	27/01/2025
<b>NSQC Clearance Date</b>	27/01/2022

## Qualification Pack

### ELE/N9905: Work effectively at the workplace

#### Description

This unit is about the communicating and managing work effectively at the workplace as well as taking measures to enhance own competence and working in a disciplined and ethical manner.

#### Scope

The scope covers the following :

- Communicate effectively at the workplace
- Work effectively
- Maintain and enhance professional competence
- Work in a disciplined and ethical manner
- Uphold social diversity at the workplace

#### Elements and Performance Criteria

##### *Communicate effectively at the workplace*

To be competent, the user/individual on the job must be able to:

- PC1.** exchange information and instruction with colleagues, and seek clarifications and feedback as necessary
- PC2.** assist colleagues where required
- PC3.** follow business communication etiquette in all interactions and communicative formats (online, digital, and in-person)
- PC4.** document and share all relevant information with stakeholders in agreed formats and as per agreed timelines

##### *Work effectively*

To be competent, the user/individual on the job must be able to:

- PC5.** identify and obtain clarity regarding organisational, team and own goals and targets
- PC6.** prioritise and plan work in order to achieve goals and targets
- PC7.** monitor own and team performance as per agreed plan
- PC8.** complete duties accurately, systematically and within required timeframes
- PC9.** express emotions appropriately at the workplace and manage own response to heightened emotions
- PC10.** maintain orderliness and cleanliness in the work area

##### *Maintain and enhance professional competence*

To be competent, the user/individual on the job must be able to:

- PC11.** identify own strengths and weaknesses in relation to goals and targets
- PC12.** adapt self, service, or product to meet success criteria
- PC13.** seek and select opportunities for continuous professional development
- PC14.** formulate a professional development plan to enhance capabilities

## Qualification Pack

- PC15.** build or contribute to the organizational knowledge base of cases, clients, issues, solutions, and innovations
- PC16.** examine developments and trends in field of work and their potential impact on work
- PC17.** take feedback from peers, supervisors and clients to improve own performance and practices

### *Work in a disciplined and ethical manner*

To be competent, the user/individual on the job must be able to:

- PC18.** perform tasks as per workplace standards, organisational policies and legislative requirements
- PC19.** display appropriate professional appearance at the workplace and adhere to the organisational dress code
- PC20.** demonstrate responsible and disciplined behaviour at the workplace such as punctuality; completing tasks as per given time and standards; demonstrating professional behaviour at all times, adopting environment- friendly practices, etc.
- PC21.** identify the cause of conflict and options for resolution with peers or escalate grievances and problems to appropriate authority as per procedure for conflict resolution
- PC22.** protect the rights of the client and organisation when delivering services
- PC23.** ensure services are delivered equally to all clients regardless of personal and cultural beliefs
- PC24.** operate within an agreed ethical code of practice and report unethical conduct to the appropriate authorities
- PC25.** follow organisational guidelines and legal requirements on disclosure and confidentiality

### *Uphold social diversity at the workplace*

To be competent, the user/individual on the job must be able to:

- PC26.** recognize and evaluate biased practices against underrepresented groups like women and persons with disabilities, in workplace systems and processes
- PC27.** identify and report discrimination and harassment based on gender, disability, or cultural difference at the workplace
- PC28.** use inclusive or neutral language and gestures in all interactions
- PC29.** respect the personal and professional space of others
- PC30.** access grievance redressal mechanisms as per legislations

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** organisation's policies on dress code, workplace timings, workplace behaviour, performance management, incentives, delivery standards, information security, etc.
- KU2.** organizational hierarchy and escalation matrix
- KU3.** importance of the individual's role in the workflow
- KU4.** organisational norms on health, safety and sustainability
- KU5.** work area inspection procedures and practices
- KU6.** professional etiquette and grooming

## Qualification Pack

- KU7.** communication etiquette across communicative mediums (online, digital, and in-person) including strategies/methods for sharing information, documentation, and providing and receiving feedback
- KU8.** importance of self-evaluations and developing a continuous learning and professional development plan
- KU9.** developments and trends impacting professional practice
- KU10.** importance of taking and using feedback from colleagues and clients to identify and introduce improvements in work performance
- KU11.** professional ethics and workplace norms on reporting and/or penalizing unethical behaviour and practices.
- KU12.** guidelines and legal requirements on disclosure, confidentiality, and conflicts of interest
- KU13.** strategies for collaboration with colleagues and clients.
- KU14.** professional responses and strategies against inappropriate language or behaviour toward self and others
- KU15.** Implicit bias (based on gender, disability, class, caste, colour, race, culture, religion, etc.) and its consequences in the workplace
- KU16.** organizational guidelines, prevalent legislations and accessibility norms and processes to support PwDs at the workplace
- KU17.** strategies for time, effort and resource allocation towards the goals.
- KU18.** basic concepts of work productivity including waste reduction, efficient material usage and optimization of time

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** complete documentation and forms such as work orders, invoices maintenance records activity logs, attendance sheets as per organizational format in English and/or local language
- GS2.** write basic accident or incident report accurately in an appropriate format
- GS3.** read warnings, instructions and other text material on product labels, components, etc. and relevant signages, warnings, labels or descriptions on equipment, etc. while carrying out work activities
- GS4.** convey and share technical information clearly using appropriate language
- GS5.** clarify task-related information
- GS6.** liaise with authorities and supervisors as per organizational protocol
- GS7.** listen, speak, and write in an inclusive, respectful manner in line with organizational protocol
- GS8.** seek clarification from immediate supervisor or responsible authority or exercise most appropriate solutions to safety breaches at work
- GS9.** report to the supervisor and when to deal with a colleague depending on the type of concern
- GS10.** deliver product to next work process on time
- GS11.** improve work process and report potential areas of delays and disruptions
- GS12.** communicate problems appropriately to others
- GS13.** identify symptoms of the fault to the cause of the problem and resolve, otherwise seek assistance and support from other sources to solve the problem





## Qualification Pack

- GS14.** anticipate and avoid hazards that may occur during repairs because of tools, materials used or repair processes
- GS15.** complete tasks efficiently and accurately within stipulated time
- GS16.** appreciate and respect social diversity in all professional settings
- GS17.** develop awareness and accountability for perspectives on gender, disabilities, and socio-cultural issues leading to discrimination, bias, or harassment at the workplace
- GS18.** maintain positive and effective relationships with colleagues and customers

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Communicate effectively at the workplace</i>	<b>5</b>	<b>13</b>	-	-
<b>PC1.</b> exchange information and instruction with colleagues, and seek clarifications and feedback as necessary	1	3	-	-
<b>PC2.</b> assist colleagues where required	1	3	-	-
<b>PC3.</b> follow business communication etiquette in all interactions and communicative formats (online, digital, and in-person)	1	4	-	-
<b>PC4.</b> document and share all relevant information with stakeholders in agreed formats and as per agreed timelines	2	3	-	-
<i>Work effectively</i>	<b>6</b>	<b>13</b>	-	-
<b>PC5.</b> identify and obtain clarity regarding organisational, team and own goals and targets	1	2	-	-
<b>PC6.</b> prioritise and plan work in order to achieve goals and targets	1	2	-	-
<b>PC7.</b> monitor own and team performance as per agreed plan	1	2	-	-
<b>PC8.</b> complete duties accurately, systematically and within required timeframes	1	2	-	-
<b>PC9.</b> express emotions appropriately at the workplace and manage own response to heightened emotions	1	2	-	-
<b>PC10.</b> maintain orderliness and cleanliness in the work area	1	3	-	-
<i>Maintain and enhance professional competence</i>	<b>8</b>	<b>7</b>	-	-
<b>PC11.</b> identify own strengths and weaknesses in relation to goals and targets	1	1	-	-
<b>PC12.</b> adapt self, service, or product to meet success criteria	1	1	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC13.</b> seek and select opportunities for continuous professional development	1	1	-	-
<b>PC14.</b> formulate a professional development plan to enhance capabilities	2	1	-	-
<b>PC15.</b> build or contribute to the organizational knowledge base of cases, clients, issues, solutions, and innovations	1	1	-	-
<b>PC16.</b> examine developments and trends in field of work and their potential impact on work	1	1	-	-
<b>PC17.</b> take feedback from peers, supervisors and clients to improve own performance and practices	1	1	-	-
<i>Work in a disciplined and ethical manner</i>	<b>11</b>	<b>16</b>	-	-
<b>PC18.</b> perform tasks as per workplace standards, organisational policies and legislative requirements	2	2	-	-
<b>PC19.</b> display appropriate professional appearance at the workplace and adhere to the organisational dress code	1	2	-	-
<b>PC20.</b> demonstrate responsible and disciplined behaviour at the workplace such as punctuality; completing tasks as per given time and standards; demonstrating professional behaviour at all times, adopting environment- friendly practices, etc.	1	2	-	-
<b>PC21.</b> identify the cause of conflict and options for resolution with peers or escalate grievances and problems to appropriate authority as per procedure for conflict resolution	2	2	-	-
<b>PC22.</b> protect the rights of the client and organisation when delivering services	1	2	-	-
<b>PC23.</b> ensure services are delivered equally to all clients regardless of personal and cultural beliefs	1	2	-	-
<b>PC24.</b> operate within an agreed ethical code of practice and report unethical conduct to the appropriate authorities	2	2	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC25.</b> follow organisational guidelines and legal requirements on disclosure and confidentiality	1	2	-	-
<i>Uphold social diversity at the workplace</i>	<b>10</b>	<b>11</b>	-	-
<b>PC26.</b> recognize and evaluate biased practices against underrepresented groups like women and persons with disabilities, in workplace systems and processes	2	2	-	-
<b>PC27.</b> identify and report discrimination and harassment based on gender, disability, or cultural difference at the workplace	2	2	-	-
<b>PC28.</b> use inclusive or neutral language and gestures in all interactions	2	2	-	-
<b>PC29.</b> respect the personal and professional space of others	2	2	-	-
<b>PC30.</b> access grievance redressal mechanisms as per legislations	2	3	-	-
<b>NOS Total</b>	<b>40</b>	<b>60</b>	-	-



## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ELE/N9905
<b>NOS Name</b>	Work effectively at the workplace
<b>Sector</b>	Electronics
<b>Sub-Sector</b>	Generic
<b>Occupation</b>	Generic - Organizational Behaviour
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	2.0
<b>Last Reviewed Date</b>	24/02/2022
<b>Next Review Date</b>	30/12/2026
<b>NSQF Clearance Date</b>	30/12/2021

## Qualification Pack

### ELE/N1002: Apply health and safety practices at the workplace

#### Description

This OS unit is about knowledge and practices relating to health, safety and security that candidates need to use in the workplace.

#### Scope

The scope covers the following :

- Deal with workplace hazards
- Apply fire safety practices
- Follow emergencies, rescue and first-aid procedures
- Effective waste management/recycling practices

#### Elements and Performance Criteria

##### *Deal with workplace hazards*

To be competent, the user/individual on the job must be able to:

- PC1.** identify job-site hazards and possible causes of accident in the workplace
- PC2.** perform work complying to organizational safe working practices and observing hazard signs displayed on containers, equipment and in various work areas such as inside buildings, in open areas and public spaces, etc.
- PC3.** use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards
- PC4.** follow standard safety procedures while handling tool/ ,equipment, hazardous substances and while working in hazardous environments
- PC5.** dispose electronic waste (such as toxins; metals such as lead, cadmium, barium; flame retardant plastics, welding slag etc.) as per industry approved techniques
- PC6.** avoid damage of components due to negligence in electrostatic discharge (ESD) procedures
- PC7.** locate general health and safety equipment in the workplace such as fire extinguishers; first aid equipment; safety instruments, clothing and installations (fire exits, exhaust fans)
- PC8.** maintain appropriate posture while handling heavy objects
- PC9.** apply good housekeeping practices at all times

##### *Apply fire safety practices*

To be competent, the user/individual on the job must be able to:

- PC10.** take preventive measures to prevent fire hazards
- PC11.**
  - use appropriate fire extinguishers for different types of fires
  - Types of fires: Class A: e.g. ordinary solid combustibles, such as wood, paper, cloth, plastic, charcoal, etc.; Class B: flammable liquids and gases, such as gasoline, propane, diesel fuel, tar, cooking oil, and similar substances; Class C: e.g. electrical equipment such as appliances, wiring, breaker panels, etc. (These categories of fires become Class A, B, and D fires when the electrical equipment that initiated the fire is no l
- PC12.** exhibit rescue and first-aid techniques in case of fire or electrocution

## Qualification Pack

### *Follow emergencies, rescue and first-aid procedures*

To be competent, the user/individual on the job must be able to:

- PC13.** administer appropriate first aid to victims in case of bleeding, burns, choking, electric shock, poisoning etc.
- PC14.** administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock,
- PC15.** participate regularly in emergency procedures such as raising alarm, safe/efficient, evacuation, correct means of taking shelter and escaping, correct assembly point, roll call, correct return to work
- PC16.** use correct method to move injured people and others during an emergency

### *Effective waste management/recycling practices*

To be competent, the user/individual on the job must be able to:

- PC17.** identify recyclable and non-recyclable, and hazardous waste generated
- PC18.** segregate waste into different categories
- PC19.** ensure disposal of non-recyclable waste appropriately
- PC20.** deposit non-recyclable and reusable material at identified location
- PC21.** follow processes specified for disposal of hazardous waste

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** importance of working in clean and safe work environment following safety practices and procedures
- KU2.** health and safety roles and responsibilities of relevant personnel within and outside the organisation
- KU3.** key internal and external sources of health and safety information
- KU4.** basic knowledge of electronic devices and related health risks
- KU5.** meaning of hazards and risks
- KU6.** various types of health and safety hazards commonly present in the work environment such as physical hazards, electrical hazards, chemical hazards, fire hazards, equipment related hazards, health hazards, etc.
- KU7.** methods of accident prevention
- KU8.** importance of using protective clothing/equipment while working
- KU9.** general principles for identifying and controlling health and safety risks
- KU10.** main hazards and preventive as well as control measures while working with different types of equipment
- KU11.** importance of carrying out electrical and non-electrical isolation to prevent hazards from loss of machine/system/process control
- KU12.** main hazards and preventive as well as control measures when working with electrical systems or using electrical equipment
- KU13.** forms and classifications of hazardous substances
- KU14.** safe working practices while working at various hazardous sites
- KU15.** prevention and control measures to reduce risks from exposure to hazardous substances

## Qualification Pack

- KU16.** health effects associated with exposure to noise and vibration and the appropriate control measures
- KU17.** precautionary activities to prevent the fire accident
- KU18.** various causes of fire such as heating of metal, spontaneous ignition, sparking, electrical eating, loose fires (smoking, welding, etc.) chemical fires etc.
- KU19.** techniques of using the different fire extinguishers
- KU20.** different methods and material to extinguish fires
- KU21.** different materials used for extinguishing fire such as sand, water, foam, CO<sub>2</sub>, dry powder
- KU22.** rescue techniques used during a fire hazard
- KU23.** various types of safety signs and their meaning
- KU24.** basic first aid treatment relevant to the common work place injuries e.g. shock, electrical shock, bleeding, breaks to bones, minor burns, resuscitation, poisoning, eye injuries
- KU25.** contents of written accident report
- KU26.** potential injuries and ill health associated with incorrect handling of tools and equipment
- KU27.** safe lifting and carrying practices
- KU28.** potential impact to a person who is moved incorrectly
- KU29.** personal safety, health and dignity issues relating to the movement of a person by others
- KU30.** ESD measures and 5S
- KU31.** efficient utilization and management of material and water
- KU32.** ways to recognize common electrical problems and practices of conserving electricity
- KU33.** usage of different colours of dustbins, categorization of waste into dry, wet, recyclable, nonrecyclable and items of single-use plastics
- KU34.** organization's procedure for minimizing waste
- KU35.** waste management and methods of waste disposal
- KU36.** common sources of pollution and ways to minimize it
- KU37.** names, contact information and location of people responsible for health and safety in the workplace
- KU38.** location of documents and equipment for health and safety compliance/practices in the workplace
- KU39.** safety notices, signs and instructions at workplace

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** interpret general health and safety guidelines labels, charts, signages
- GS2.** read operation manuals
- GS3.** write health and safety compliance report
- GS4.** write an accident/incident report in local language or English
- GS5.** provide an emergency or safety incident brief to seniors or relevant authorities in a calm, clear and to-the-point manner
- GS6.** communicate general health and safety guidelines to colleagues/co-workers





## Qualification Pack

- GS7.** communicate appropriately with co-workers in order to clarify instructions and other issues
- GS8.** act in case of any potential hazards observed in the work place
- GS9.** plan and organize their own work schedule, work area, tools, equipment in compliance with organizational policies for health, safety and security
- GS10.** take adequate measures to ensure the safety of clients and visitors at the workplace
- GS11.** identify immediate or temporary solutions to resolve delays
- GS12.** evaluate the work area for health and safety risks or hazards
- GS13.** use cause and effect relations to anticipate potential issues, problems and their solution in the work area related to safety
- GS14.** recognise emergency and potential emergency situations
- GS15.** protect self and others from a health and safety risk or hazard
- GS16.** communicate and collaborate to incorporate sustainable practices (greening) in workplace processes
- GS17.** record data on waste disposal at workplace

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Deal with workplace hazards</i>	<b>20</b>	<b>31</b>	-	-
<b>PC1.</b> identify job-site hazards and possible causes of accident in the workplace	2	3	-	-
<b>PC2.</b> perform work complying to organizational safe working practices and observing hazard signs displayed on containers, equipment and in various work areas such as inside buildings, in open areas and public spaces, etc.	3	4	-	-
<b>PC3.</b> use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards	3	4	-	-
<b>PC4.</b> follow standard safety procedures while handling tool/ ,equipment, hazardous substances and while working in hazardous environments	3	4	-	-
<b>PC5.</b> dispose electronic waste (such as toxins; metals such as lead, cadmium, barium; flame retardant plastics, welding slag etc.) as per industry approved techniques	2	4	-	-
<b>PC6.</b> avoid damage of components due to negligence in electrostatic discharge (ESD) procedures	2	3	-	-
<b>PC7.</b> locate general health and safety equipment in the workplace such as fire extinguishers; first aid equipment; safety instruments, clothing and installations (fire exits, exhaust fans)	2	3	-	-
<b>PC8.</b> maintain appropriate posture while handling heavy objects	1	3	-	-
<b>PC9.</b> apply good housekeeping practices at all times	2	3	-	-
<i>Apply fire safety practices</i>	<b>4</b>	<b>9</b>	-	-
<b>PC10.</b> take preventive measures to prevent fire hazards	2	3	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<p><b>PC11.</b></p> <ul style="list-style-type: none"> <li>• use appropriate fire extinguishers for different types of fires</li> <li>• Types of fires: Class A: e.g. ordinary solid combustibles, such as wood, paper, cloth, plastic, charcoal, etc.; Class B: flammable liquids and gases, such as gasoline, propane, diesel fuel, tar, cooking oil, and similar substances; Class C: e.g. electrical equipment such as appliances, wiring, breaker panels, etc. (These categories of fires become Class A, B, and D fires when the electrical equipment that initiated the fire is no l</li> </ul>	1	3	-	-
<p><b>PC12.</b> exhibit rescue and first-aid techniques in case of fire or electrocution</p>	1	3	-	-
<p><i>Follow emergencies, rescue and first-aid procedures</i></p>	<b>6</b>	<b>13</b>	-	-
<p><b>PC13.</b> administer appropriate first aid to victims in case of bleeding, burns, choking, electric shock, poisoning etc.</p>	1	3	-	-
<p><b>PC14.</b> administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock,</p>	1	2	-	-
<p><b>PC15.</b> participate regularly in emergency procedures such as raising alarm, safe/efficient, evacuation, correct means of taking shelter and escaping, correct assembly point, roll call, correct return to work</p>	2	4	-	-
<p><b>PC16.</b> use correct method to move injured people and others during an emergency</p>	2	4	-	-
<p><i>Effective waste management/recycling practices</i></p>	<b>5</b>	<b>12</b>	-	-
<p><b>PC17.</b> identify recyclable and non-recyclable, and hazardous waste generated</p>	1	3	-	-
<p><b>PC18.</b> segregate waste into different categories</p>	1	2	-	-
<p><b>PC19.</b> ensure disposal of non-recyclable waste appropriately</p>	1	2	-	-
<p><b>PC20.</b> deposit non-recyclable and reusable material at identified location</p>	1	3	-	-



## Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC21. follow processes specified for disposal of hazardous waste	1	2	-	-
<b>NOS Total</b>	<b>35</b>	<b>65</b>	-	-

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ELE/N1002
<b>NOS Name</b>	Apply health and safety practices at the workplace
<b>Sector</b>	Electronics
<b>Sub-Sector</b>	Generic
<b>Occupation</b>	Generic - Health Safety
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	3.0
<b>Last Reviewed Date</b>	24/02/2022
<b>Next Review Date</b>	30/12/2026
<b>NSQC Clearance Date</b>	30/12/2021

## Assessment Guidelines and Assessment Weightage

### Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training centre (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training centre based on this criterion.
6. To pass the Qualification Pack, every trainee should score a minimum of 70% of aggregate marks to successfully clear the assessment.
7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

## Qualification Pack

### Minimum Aggregate Passing % at QP Level : 70

(**Please note:** Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

### Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
ELE/N4609.Visit Site and Understand Customer Requirement	40	60	-	-	100	30
ELE/N4610.Install the CCTV Camera	40	60	-	-	100	25
ELE/N4611.Setup the CCTV Surveillance System	40	60	-	-	100	25
ELE/N9905.Work effectively at the workplace	40	60	-	-	100	10
ELE/N1002.Apply health and safety practices at the workplace	35	65	-	-	100	10
<b>Total</b>	<b>195</b>	<b>305</b>	<b>-</b>	<b>-</b>	<b>500</b>	<b>100</b>



## Qualification Pack

### Acronyms

<b>NOS</b>	National Occupational Standard(s)
<b>NSQF</b>	National Skills Qualifications Framework
<b>QP</b>	Qualifications Pack
<b>TVET</b>	Technical and Vocational Education and Training
<b>NOS</b>	National Occupational Standard(s)
<b>NSQF</b>	National Skills Qualifications Framework
<b>QP</b>	Qualifications Pack
<b>TVET</b>	Technical and Vocational Education and Training
<b>IPR</b>	Intellectual Property Rights

## Qualification Pack

### Glossary

<b>Sector</b>	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
<b>Sub-sector</b>	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
<b>Occupation</b>	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
<b>Job role</b>	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
<b>Occupational Standards (OS)</b>	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
<b>Performance Criteria (PC)</b>	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
<b>National Occupational Standards (NOS)</b>	NOS are occupational standards which apply uniquely in the Indian context.
<b>Qualifications Pack (QP)</b>	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
<b>Unit Code</b>	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
<b>Unit Title</b>	Unit title gives a clear overall statement about what the incumbent should be able to do.
<b>Description</b>	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
<b>Scope</b>	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.



## Qualification Pack

<b>Knowledge and Understanding (KU)</b>	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.
<b>Organisational Context</b>	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
<b>Technical Knowledge</b>	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
<b>Core Skills/ Generic Skills (GS)</b>	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
<b>Electives</b>	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
<b>Options</b>	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.
<b>Sector</b>	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
<b>Sub-sector</b>	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
<b>Occupation</b>	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
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<b>Occupational Standards (OS)</b>	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
<b>Performance Criteria (PC)</b>	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.

## Qualification Pack

<b>National Occupational Standard</b>	NOS are occupational standards which apply uniquely in the Indian context.
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<b>Unit Code</b>	Unit code is a unique identifier for an Occupational Standard, which is denoted by an N
<b>Unit Title</b>	Unit title gives a clear overall statement about what the incumbent should be able to do.
<b>Description</b>	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
<b>Scope</b>	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.
<b>Knowledge and Understanding (K)</b>	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.
<b>Organisational Context</b>	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
<b>Technical Knowledge</b>	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
<b>Core Skills/ Generic Skills (G)</b>	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today world. These skills are typically needed in any work environment in today world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
<b>Electives</b>	Electives are NOS/set of NOS that are identified by the sector as contribute to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
<b>Options</b>	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.