Contents

What are Occupational Standards(OS)?

➢ OS describe what individuals need to do, know and understand in order to carry out a particular job role or function

➢ OS are performance standards that individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding

Introduction

Qualifications Pack-CCTV Installation technician

SECTOR: ELECTRONICS

SUB-SECTOR: IT Hardware

OCCUPATION: After Sales Support

REFERENCE ID: ELE/Q4605

ALIGNED TO: NCO-2004/ NIL

CCTV Installation Technician: Also called 'CCTV Installer', the CCTV installation Technician provides after sale support services to customers, typically, at their premises.

Brief Job Description: The individual at work is responsible for installing the CCTV system in the customer premises. The individual understand 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.

<table>
<tr><td rowspan="7">Job Details</td></tr>
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Qualifications Pack Code	ELE/Q4605		
Job Role	**CCTV Installation Technician**		
Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	**TBD**	**Version number**	**1.0**
Sector	**Electronics**	**Drafted on**	**18/01/14**
Sub-sector	**IT Hardware**	**Last reviewed on**	**24/03/15**
Occupation	**After Sales Support**	**Next review date**	**24/04/16**

Job Role	**CCTV Installation Technician** **Also called 'CCTV Installer'**
Role Description	Understanding the customer's requirements, installing the camera and CCTV hardware equipment and configuring the system for surveillance function
NVEQF/NVQF level **Minimum Educational Qualifications** **Maximum Educational Qualifications**	4 ITI Diploma
Training	Not Applicable
Experience	Minimum 6 months as helper
Applicable National Occupational Standards (NOS)	**Compulsory:** 1. ELE/N4609 Visit site and understand customer's requirement 2. ELE/N4610 Install CCTV camera 3. ELE/N4611 Setup CCTV surveillance system 4. ELE/N9909 Coordinate with colleagues and co-workers **Optional:** Not applicable
Performance Criteria	As described in the relevant OS units

National Occupational Standard
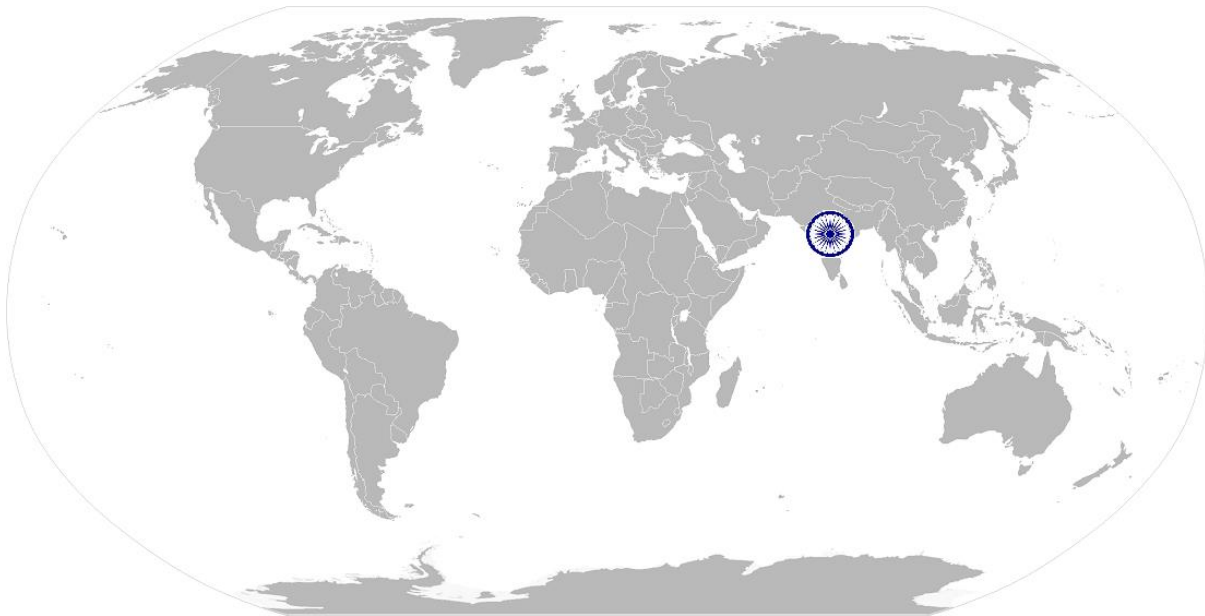
Overview

This unit is about visiting the customer's premises and checking the site conditions where the CCTV camera would be installed and deciding the system setup as per the site requirement. It also involves interacting with customer and understanding their requirement.

ELE/N4609   **Visit Site and Understand Customer Requirement**

Unit Code	ELE/N4609
Unit Title (Task)	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	This unit/ task covers the following: • Interact with the customer • Understand their requirements • Visit the site • Understand the site condition and requirement • Suggest possible solutions • Decide on the CCTV system to be installed • Achieve productivity and quality standards

Performance Criteria(PC) w.r.t. the Scope	
Element	**Performance Criteria**
Interacting with customer	To be competent, the user/ individual 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 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 must be able to: PC6. interact with the customers 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 must be able to: PC9. visit the site and understand the layout PC10. seek customer's 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
Suggesting solutions	To be competent, the user/ individual 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 fulfil customer's and site requirement PC17. suggest the type of camera and recording system to be installed

ELE/N4609   **Visit the Site and Understand the Customer Requirement**

	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 suit the customer budget and meet 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 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 their sign off
Acchieving productivity and quality standards	To be competent, the user/ individual 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 behaviour 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 (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	The individual on the job needs understand: KA1. company's policies on: customer care, warranties, products KA2. company's code of conduct KA3. organisation culture and typical customer profile KA4. company's reporting structure KA5. company's documentation policy KA6. company's service level agreements and policies
B. Technical Knowledge	The individual on the job needs to know and understand: KB1. CCTV camera installation requirement in terms of equipment, system , tools, applications appropriate for a particular site KB2. preparation of field and site for camera installation KB3. design criteria for CCTV camera installation KB4. location criteria for CCTV camera installation KB5. different types of CCTV equipments in the market, their specifications and prices KB6. different types of CCTV camera and associated systems KB7. different types of DVR and their purposes

ELE/N4609   **Visit the Site and Understand the Customer Requirement**

	KB8. tools and equipment to carry for installations
	KB9. precautions to be taken while handling field calls and dealing with customers
	KB10. relevant reference sheets, manuals and documents to carry in the field

Skills (S)	
A. Core Skills/ **Generic Skills**	**Reading and writing skills**
	The individual on the job needs to know and understand:
	SA1. how to read product and module serial numbers and interpret details such as make, date, availability
	SA2. how to note problems on job sheet and details of work done
B. Professional Skills	**Interpersonal skills**
	The individual on the job needs to know and understand:
	SB1. how to develop a rapport with customers
	SB2. how to listen carefully and interpret their requirement
	SB3. how to suggest customer on possible solutions
	Communication skills
	The individual on the job needs to know and understand:
	SB4. how to seek inputs at assess the problems
	SB5. how to put the customer at ease and suggest solutions
	SB6. how to communicate in local language
	SB7. how to educate and inform customer about contractual issues such as warranty, cost of service and equipment replacement
	SB8. how to educate on precautions to be taken post installations to avoid any mishaps
	Behavioural skills
	The individual on the job needs to know and understand:
	SB9. importance of personal grooming
	SB10. significance of etiquette such as maintaining the appropriate physical distance with customer during conversation, not entering bedroom without permission
	SB11. importance of being patient and courteous with all types of customers
	SB12. being polite and courteous under all circumstances

NOS Version Control

NOS Code	ELE/N4609		
Credits(NVEQF/NVQF/NSQF) [*OPTIONAL*]	TBD	Version number	1.0
Industry	Electronics	Drafted on	18/01/14
Industry Sub-sector	IT Hardware	Last reviewed on	24/03/15
		Next review date	24/04/16

National Occupational Standard
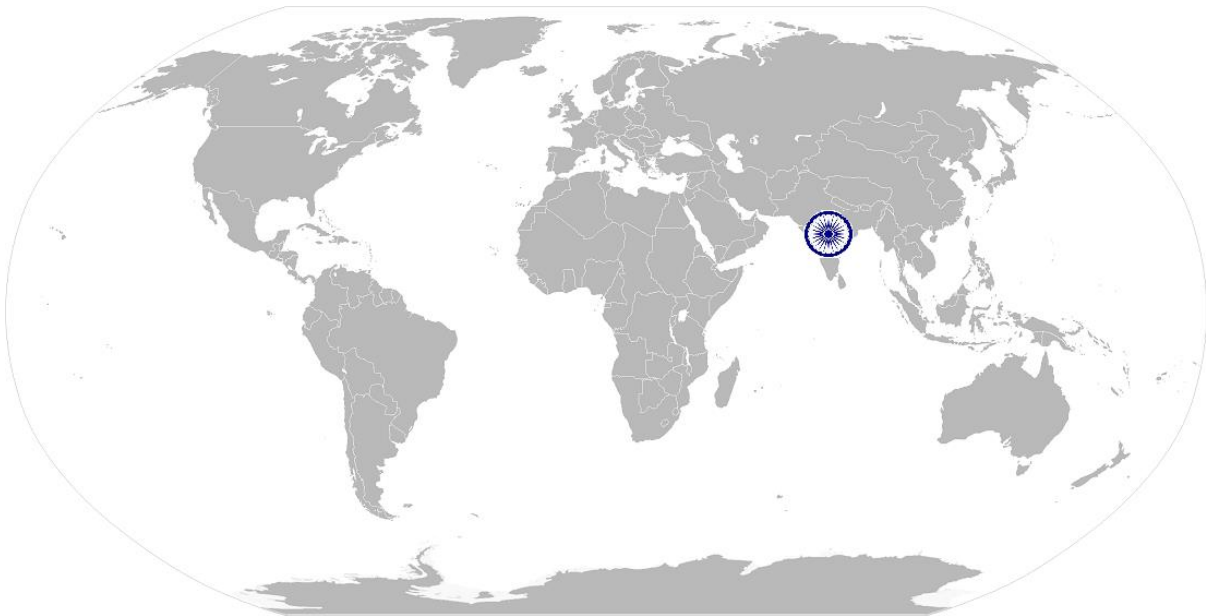
Overview

This unit is about installing the CCTV camera in the customer premises as per customer's preference and connecting the camera to the system through cables.

NOS
National Occupational Standards

ELE/N4610	**Install the CCTV Camera**

<div style="vertical: National Occupational Standard">

Unit Code	ELE /N4610
Unit Title (Task)	**Install the CCTV camera**
Description	This unit is about installing the CCTV camera at customer's premises as per customer's preference and connecting the camera to the system through cables
Scope	This unit/ task covers the following: • Procure the hardware required for installation • Test the hardware before installation • Connect the cables • Install and setup the camera • Use appropriate tools and equipments for installation • Achieve productivity and quality standards

Performance Criteria(PC) w.r.t. the Scope	
Element	**Performance Criteria**
Procuring CCTV hardware	To be competent, the user/ individual 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. and related documents for the hardware equipments
Testing hardware before installation	To be competent, the user/ individual 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 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 must be able to: 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

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ELE/N4610   **Install the CCTV Camera**

	PC17. decide on the height of camera installation according to the end purpose (for example: if the visitor entering the premise is to be monitored, camera should not be placed too high and their face would not be captured)
	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 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
	To be competent, the user/ individual must be able to:
	PC26. ensure that only quality hardware products are procured complying to industry and quality standards
	PC27. ensure product installation and user manual is available which should be given to the user or 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 company's policy
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	The individual on the job needs to know and understand:
	KA1. company's policies on: incentives, delivery standards, and personnel management
	KA2. company's sales and after sales support policy
	KA3. importance of the individual's role in the workflow
	KA4. reporting structure
	KA5. company's policy on product's warranty and other terms and conditions
	KA6. company's line of business and product portfolio
	KA7. company's customer support and service policy

ELE/N4610   **Install the CCTV Camera**

B. Technical Knowledge	The individual on the job needs to know and understand: KB1. basic electronics involved in the hardware KB2. basic electrical and wiring KB3. different types of electronic surveillance products and functionalities KB4. functions of electrical and mechanical parts or modules KB5. typical customer profile KB6. elements of CCTV systems such as camera, DVR, monitor KB7. company's portfolio of products and that of competitors KB8. installation procedures given in the manuals KB9. specification and the procedures to be followed for setting up the system KB10. different type of cables used for data transmission and power transmission KB11. power requirement of different CCTV related equipment KB12. video recording of footage – analog and digital KB13. different types of camera available in the market KB14. camera specifications such as focus, lens type, zoom KB15. controls of different options in camera such as rotation, speed of movement in pan / tilt camera KB16. voltage and power requirement for different hardware devices KB17. how to operate the system and other hardware KB18. safety rules, policies and procedures KB19. quality standards to be followed

Skills (S) [Optional]	
A. Core Skills/ Generic Skills	**Reading and writing skills**
	The user/individual on the job needs to know and understand how: SA1. to document the completed work SA2. to note the installation completed SA3. to read the standard operating procedures for different equipment
	Teamwork and multitasking
	The user/individual on the job needs to know and understand how: SA4. to share work load as required SA5. to achieve the targets given on installations
B. Professional Skills	**Hardware and electrical skills**
	The user/individual on the job needs to know and understand how to: SB1. operate hardware equipment in CCTV system SB2. different types of cables that are required to integrate CCTV system SB3. voltage requirement and other specification on CCTV hardware
	Using tools and equipment
	The user/individual on the job needs to know and understand how: SB4. to operate tools such as diagonal cutter, screwdrivers, crimping tools for cabling and mounting of camera SB5. to use other specific devices for installation of camera

ELE/N4610   **Install the CCTV Camera**

	Reflective thinking
	The user/individual on the job needs to know and understand how: SB6. to improve work processes SB7. to reduce repetition of errors
	Critical thinking
	The user/individual on the job needs to know and understand how: SB8. to spot process disruptions and delays SB9. to report on any customer concerns to superiors without delay

NOS Version Control

NOS Code	ELE/N4610		
Credits(NVEQF/NVQF/NSQF) [*OPTIONAL*]	TBD	Version number	1.0
Industry	Electronics	Drafted on	18/01/14
Industry Sub-sector	IT Hardware	Last reviewed on	24/03/15
		Next review date	24/04/16

National Occupational Standard
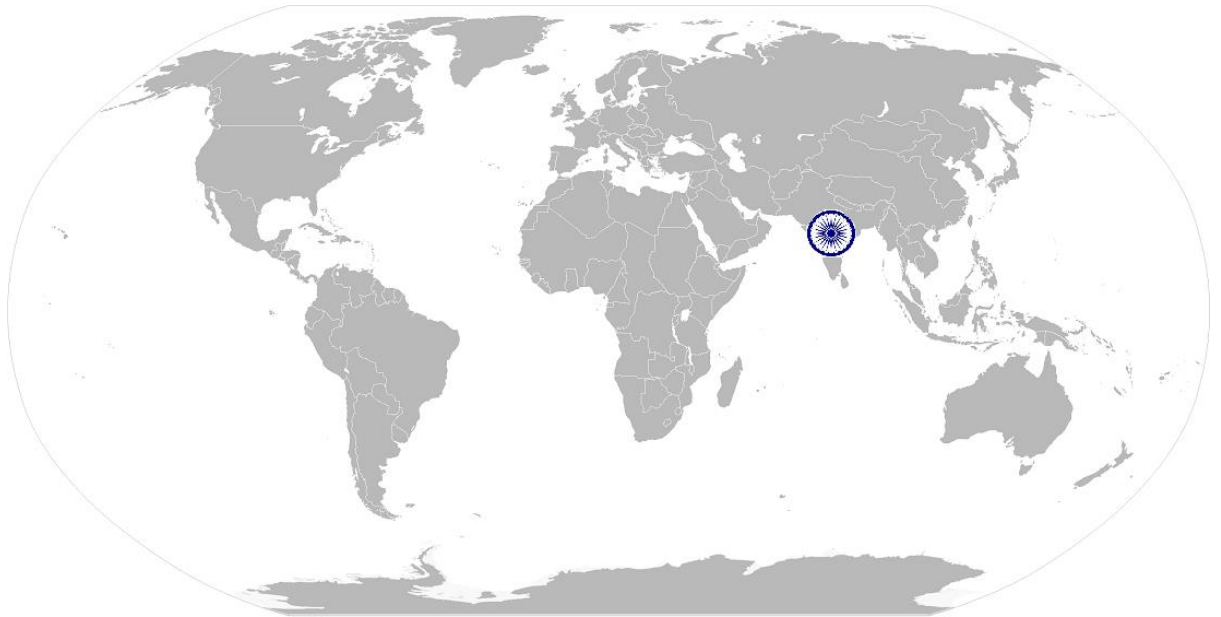
Overview

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

ELE/N4611   **Setup the CCTV Surveillance System**

National Occupational Standard

Unit Code	ELE /N4611
Unit Title (Task)	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 customer's requirement.
Scope	This unit/ task covers the following: • Connect CCTV camera and DVR with the system • Setup the CCTV system • Ensure system functioning and perform a demo • Complete the installation task and report • Interact with customer • Interact with superior • Achieve productivity and quality as per company's norms

Performance Criteria(PC) w.r.t. the Scope

Element	Performance Criteria
Connecting CCTV camera and DVR with the system	To be competent, the user/ individual must be able to: PC1. procure and place the Digital Video Recorder (DVR) in an appropriate place as per customer's requirement PC2. connect all the cameras installed to the DVR PC3. ensure that all cameras are connected to the DVR and the wiring is appropriate PC4. connect the monitor (TV / PC) with the video output connection in the DVR PC5. connect speakers, if required, for audio output to DVR PC6. connect the camera optional controls (tilt / pan / zoom) to DVR PC7. use DVR link option to connect with other DVR in the network PC8. connect the DVR to router, if required, to enable remote monitoring
Setting up CCTV system	To be competent, the user/ individual must be able to: PC9. connect the power supply of DVR, monitor, speakers to set up the system PC10. install the appropriate software for IP network or remote monitoring PC11. enter the appropriate IP address to receive the video signals through IP network / internet PC12. connect all equipments and switch on to start the video capture
Checking functioning of CCTV system	To be competent, the user/ individual must be able to: PC13. perform a demo of CCTV system operation with the customer PC14. ensure that all the controls in the system are properly working PC15. ensure that pan, tilt, zoom options of the camera are working PC16. monitor and switch to multiple camera installed and connected in the system PC17. perform viewing, recording and replaying the video captured in the system as per customer requirement

ELE/N4611   **Setup the CCTV Surveillance System**

	PC18. take corrective action and fix the issues such as no video, lack of clarity in the system when found
	PC19. perform remote monitoring and controls associated if it is opted by customer
Interacting with customer	To be competent, the user/ individual must be able to: PC20. inform customer on adequate information about hardware device or software PC21. 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 must be able to: PC22. receive the work order from the superior PC23. report on the work load and completion status PC24. escalate the problems that cannot be resolved at field level with reason PC25. submit the feedback form on customer satisfaction level with respect to the installation PC26. accurately report work status through proper documentation as per company's standards
Achieving productivity and quality standards	To be competent, the user/ individual must be able to: PC27. ensure that there is no problem after installing the CCTV system and the output video is per customer's expectation PC28. confirm acceptance on installing any hardware or software in the system PC29. inform customer about warranty and other terms and conditions on the hardware equipment PC30. provide relevant documents to customers on completion of installation PC31. achieve 100% satisfaction with customer on installation service PC32. achieve 100% on time completion of field installation with reference to agreed target and time or reasons for not meeting target
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	The individual on the job needs to know and understand: KA1. company's policies on: incentives, delivery standards, and personnel management KA2. company's sales and after sales support policy KA3. importance of the individual's role in the workflow KA4. reporting structure KA5. company's policy on product's warranty and other terms and conditions KA6. company's line of business and product portfolio
B. Technical Knowledge	The individual on the job needs to know and understand: KB1. different types of electronic surveillance products and functionalities KB2. functions of electrical and mechanical parts/ modules KB3. specification and the procedures to be followed for setting up the system KB4. different type of cables used for data transmission and power transmission KB5. power requirement of different CCTV related equipment KB6. video recording of footage – analog and digital KB7. different types of camera available in the market KB8. camera specifications such as focus, lens type, zoom KB9. controls of different options in camera such as rotation, speed of movement

ELE/N4611   **Setup the CCTV Surveillance System**

	in pan / tilt camera
	KB10. voltage and power requirement for different hardware devices
	KB11. integration of hardware to setup the system
	KB12. parameters and specification for different types of system integration
	KB13. accessing image from remote locations
	KB14. CCTV monitoring and control over IP network / Internet
	KB15. IP technology and networking principles
	KB16. basics of networking
	KB17. video recording technologies
	KB18. controls in digital video recorder and their usage
	KB19. how to operate the system and other hardware
	KB20. safety rules, policies and procedures
	KB21. quality standards to be followed
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	**Reading and writing skills**
	The user/individual on the job needs to know and understand how:
	SA1. to read job sheet and/or complaints registered at customer care
	SA2. to document the completed work
	SA3. to note customer complaints and solution provided
	SA4. to read the standard operating procedure manual for different equipment
	Teamwork and multitasking
	The user/individual on the job needs to know and understand how:
	SA5. to share work load as required
	SA6. to achieve the target
B. Professional Skills	**Hardware and software operating skills**
	The user/individual on the job needs to know and understand how to:
	SB1. operate computer and laptop
	SB2. operate CCTV related hardware equipments , their controls and specifications
	SB3. complete operational controls in Digital Video Recorder (DVR)
	SB4. networking and software involved set up CCTV system in a network
	SB5. configure different settings and installations of hardware and software as per customer requirement
	Using tools and machines
	The user/individual on the job needs to know and understand how to:
	SB6. to operate tools such as diagonal cutter, screwdrivers, crimping tools for cabling and mounting of camera
	SB7. to use other specific devices for installation of camera
	SB8. to use tools for integrating the systems

ELE/N4611   **Setup the CCTV Surveillance System**

	Reflective thinking
	The user/individual on the job needs to know and understand how to: SB9. improve work processes SB10. reduce errors on field and repeat trips
	Critical thinking
	The user/individual on the job needs to know and understand how to: SB11. spot process disruptions and delays SB12. report on any issues raised by customers to superiors without delay

NOS Version Control

NOS Code	ELE/N4611		
Credits(NVEQF/NVQF/NSQF) [*OPTIONAL*]	TBD	**Version number**	1.0
Industry	Electronics	**Drafted on**	18/01/14
Industry Sub-sector	IT Hardware	**Last reviewed on**	24/03/15
		Next review date	24/04/16

National Occupational Standard
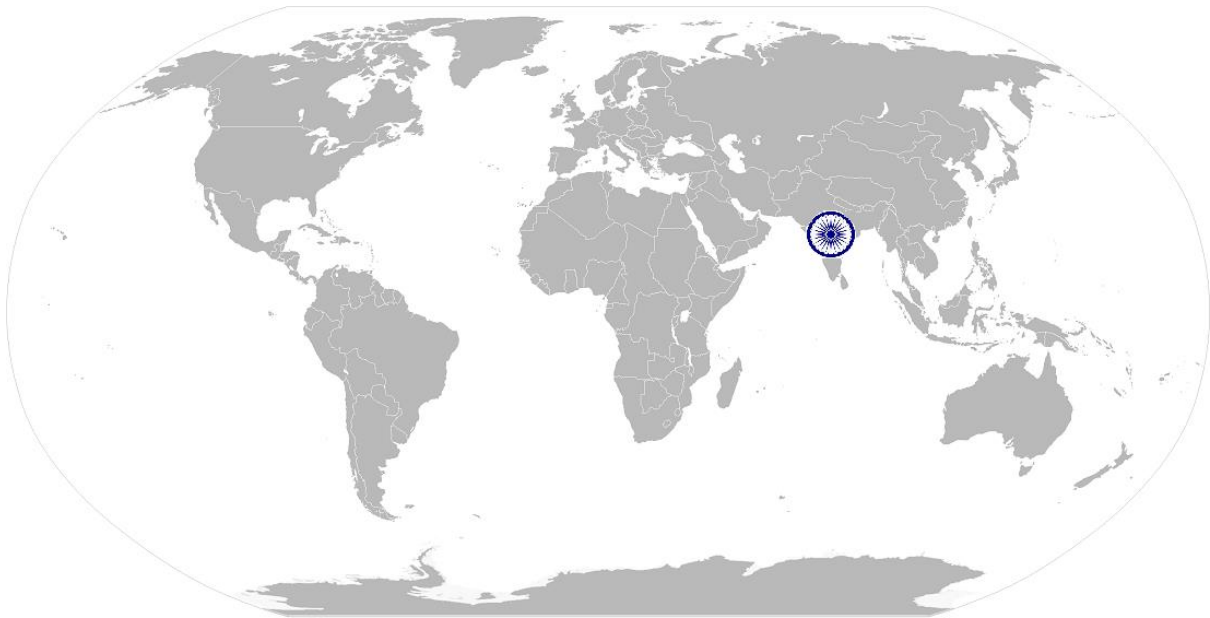
Overview

This unit is about the individual's level of communication with colleagues and other departments within the organisation. It determines the ability to work as a team member to achieve the required deliverables on schedule.

ELE/N9909   **Coordinate with Colleagues and Co-Workers**

National Occupational Standard

Unit Code	ELE/N9909
Unit Title (Task)	Coordinate with colleagues and co-workers
Description	This OS unit is about communicating with colleagues and seniors in order to achieve smooth work flow
Scope	This unit/ task covers the following: • Interact with supervisor or superior • Coordinate with colleagues

Performance Criteria(PC) w.r.t. the Scope	
Element	**Performance Criteria**
Interacting with supervisor	To be competent, the user/ individual must be able to: PC1. understand and assess work requirements PC2. understand the targets and incentives PC3. understand new operating procedures and constraints PC4. report problems in the field PC5. resolve personnel issues PC6. receive feedback on work standards and customer satisfaction PC7. communicate any potential hazards at a particular location PC8. meet given targets PC9. deliver work of expected quality despite constraints PC10. receive positive feedback on behaviour and attitude shown during interaction
Coordinating with colleagues	To be competent, the user/ individual must be able to: PC11. interact with colleagues from different functions and understand the nature of their work PC12. receive spares from tool room or stores; deposit faulty modules and tools to stores PC13. pass on customer complaints to colleagues in a respective geographical area PC14. assist colleagues with resolving field problems resolve conflicts and achieve smooth workflow PC15. follow the company policy during cross functional interaction
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	The individual on the job needs to know and understand: KA1. company's policies on: incentives, delivery standards, and personnel management KA2. importance of the individual's role in the workflow KA3. reporting structure

B. Technical Knowledge	The individual on the job needs to know and understand: KB1. how to communicate effectively KB2. how to build team coordination
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	**Teamwork and multitasking**
	The individual on the job needs to know and understand how: SA1. to deliver product to next work process on time
B. Professional Skills	**Decision making**
	The individual on the job needs to know and understand: SB1. how to report potential areas of disruptions to work process SB2. when to report to supervisor and when to deal with a colleague depending on the type of concern
	Reflective thinking
	The individual on the job needs to know and understand: SB3. how to improve work process
	Critical thinking
	The individual on the job needs to know and understand: SB4. how to spot process disruptions and delays

NOS Version Control

NOS Code	ELE/N9909		
Credits(NVEQF/NVQF/NSQF) [*OPTIONAL*]	TBD	Version number	1.0
Industry	Electronics	Drafted on	18/01/14
Industry Sub-sector	IT Hardware	Last reviewed on	24/03/15
		Next review date	24/04/16

Keywords /Terms	Description
Sector	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.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Function	Function is an activity necessary for achieving the key purpose of the sector, occupation, or an area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of OS.
Sub-function	Sub-functions are sub-activities essential to fulfil the achieving the objectives of the function.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the knowledge and understanding they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria	Performance criteria are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (OS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	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.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	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.
Scope	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.
Knowledge and Understanding	Knowledge and understanding 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.
Organisational Context	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.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish

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NOS

National Occupational Standards

GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP

N·S·D·C
National
Skill Development
Corporation
Transforming the skill landscape

Qualifications Pack For CCTV Installation Technician

	specific designated responsibilities.
Core Skills/ Generic Skills	Core skills or generic skills 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.

Acronyms

Keywords /Terms	Description
NOS	National Occupational Standard(s)
NVQF	National Vocational Qualifications Framework
NSQF	National Qualifications Framework
NVEQF	National Vocational Education Qualifications Framework
QP	Qualifications Pack

Annexure

Nomenclature for QP and NOS

Qualifications Pack

9 characters

[ABC]/ Q 0101

[Insert 3 letter code for SSC]

Q denoting Qualifications Pack

QP number (2 numbers)

Occupation (2 numbers)
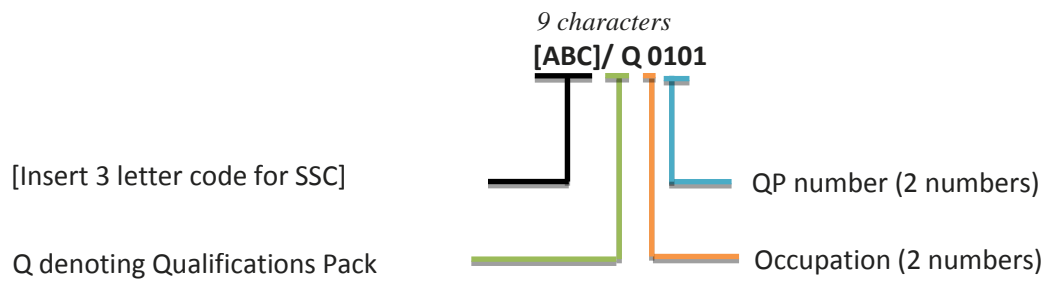
Occupational Standard

An example of NOS with 'N'

9 characters

[ABC] /N0101

[Insert 3 letter code for SSC]

N denoting National Occupational Standard

OS number (2 numbers)

Occupation (2 numbers)
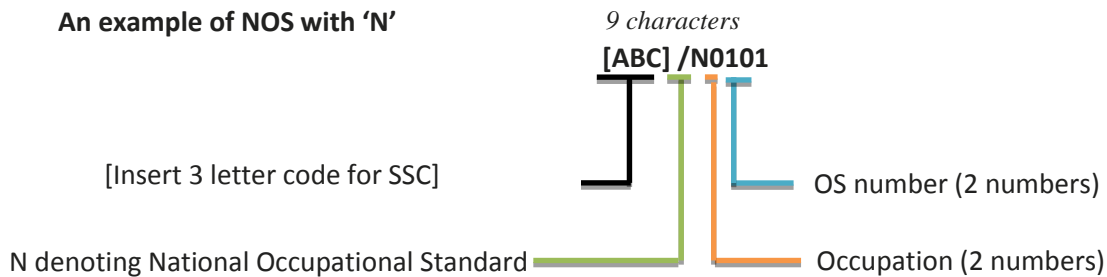
The following acronyms/codes have been used in the nomenclature above:

Sub-sector	Range of Occupation numbers
Passive Components	01 - 10
Semiconductors	11 - 20
PCB Manufacturing	21 - 30
Consumer Electronics	31 - 40
IT Hardware	41 - 50
PCB Assembly	51 - 55
Solar Electronics	56 - 60
Strategic Electronics	61 - 65
Automotive Electronics	66 - 70
Industrial Electronics	71 - 75
Medical Electronics	76 - 80
Communication Electronics	81 - 85
PCB Design	86 - 90
LED	91 - 95

Sequence	Description	Example
Three letters	Industry name	ELE
Slash	/	/
Next letter	Whether **Q**P or **N**OS	Q
Next two numbers	Occupation code	01
Next two numbers	OS number	01

CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role	CCTV installation technician
QP #	ELE/Q4605
Sector Skill Council	Electronics Sector Skills Council of India

Guidelines for Assessment:

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. Individual assessment agencies will create *unique question papers for theory part for each candidate at each examination/training center* (as per assessment criteria below)

4. Individual assessment agencies will create *unique evaulations for skill practical for every student at each examination/training center* based on this criteria

5. To pass the Qualification Pack , every trainee should score a minimum of 70% in every NOS

6. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.

				Marks Allocation	
Element	**Performance Criteria**	**Total Marks (400)**	**Out Of**	**Theory**	**Skills Practical**
ELE/N4609 Visit site and understand customer requirement					
Interacting with customer	PC1. greet the customer and listen to their requirements	100	3	1	2
	PC2. understand the basic requirement of the customer		3	1	2

Qualifications Pack For CCTV Installation Technician

Element	Performance Criteria	Total Marks (400)	Out Of	Marks Allocation	
				Theory	Skills Practical
	PC3. understand the basic layout of site where the CCTV system to be installed from the customer		3	1	2
	PC4. check with customer about time for visit, field work and confirm location		3	1	2
	PC5. follow etiquette when interacting with customers as per company policy		3	1	2
Understanding customer's requirements	PC6. interact with the customers to understand the purpose of CCTV installation		5	2	3
	PC7. understand the system monitoring requirement including combination of viewing, recording and replay		5	2	3
	PC8. understand the type of camera preferred by customer such as fixed camera, pan/tilt, zoom options, day/night camera		5	2	3
Understanding the site condition	PC9. visit the site and understand the layout		3	1	2
	PC10. seek customer's approval for visiting the rooms in the premises		3	1	2
	PC11. understand the area and other measurement specifications		3	1	2
	PC12. identify the locations where the CCTV camera to be installed which could capture maximum area in the video coverage		4	2	2
	PC13. decide if any mounting structure or pole is required for camera installing		4	2	2
	PC14. understand the building structure for cabling purpose		3	1	2
Suggesting solutions	PC15. interact with customer to inform the observation made from surveillance aspect after the site check		4	2	2
	PC16. suggest the CCTV systems that could fulfil customer's and site requirement		3	1	2
	PC17. suggest the type of camera and recording system to be installed		3	1	2
	PC18. suggest the hardware / software requirements if it has to be connected with IP network or for remote monitoring		4	2	2
	PC19. suggest the hardware system that suit the customer budget and meet the functional requirement		3	1	2

Qualifications Pack For CCTV Installation Technician

Element	Performance Criteria	Total Marks (400)	Out Of	Marks Allocation	
				Theory	Skills Practical
	PC20. assess any hesitation from customer on selection of system and provide an alternative solution		3	1	2
Deciding the CCTV system to be installed	PC21. confirm the number and type of camera to be installed as per the site requirement		2	1	1
	PC22. take confirmation on mounting points of camera in the site		2	1	1
	PC23. confirm the location of system placement (recorder and monitoring)		2	1	1
	PC24. confirm the monitor or hardware requirement (TV / PC) and whether it is available		2	1	1
	PC25. confirm the type of transmission to output device: IP network or Digital Video Recorder (DVR) or remote and confirm hardware requirements		3	1	2
	PC26. estimate the time for installation process and inform the customer		2	1	1
	PC27. inform the customer about hardware details including cost and take their sign off		2	1	1
Acchieving productivity and quality standards	PC28. ask open and close-ended questions to understand the customer requirement and expectation about the CCTV system		4	2	2
	PC29. educate about different systems and equipments available to meet customer requirements		4	2	2
	PC30. achieve customer satisfaction on engagement behaviour such as listening to complaints or appropriate dressing		4	1	3
	PC31. educate customers about the different type of CCTV systems available in the market and suggest an ideal system for the site		3	1	2
		TOTAL	100	40	60
ELE/N4610 Install the CCTV camera					
Procuring CCTV hardware	PC1. procure the hardware required for CCTV system installation	**100**	4	2	2
	PC2. ensure that all the hardware matches the customer requirement, agreed features and specifications		4	2	2
	PC3. understand the warranty associated with the hardware product		3	1	2

Qualifications Pack For CCTV Installation Technician

Element	Performance Criteria	Total Marks (400)	Out Of	Theory	Skills Practical
				Marks Allocation	
	PC4. and related documents for the hardware equipments		4	2	2
Testing hardware before installation	PC5. check the hardware equipments before taking to the installation site		4	2	2
	PC6. replace the hardware if there is any issue or malfunction is found while testing		4	2	2
	PC7. check for critical equipment such as camera, recorder w.r.t quality and output		3	1	2
	PC8. ensure all the tools, equipments, utilities are available in good to enable installing in single visit		4	2	2
Connecting cables	PC9. lay the cables in the building or site to connect the camera and system		2	1	1
	PC10. ensure adequate length of co-axial and other cables are available for installation		2	1	1
	PC11. use BNC connectors for joining cables and crimp them		2	1	1
	PC12. use power cable of specified thickness to connect CCTV system with power supply		2	1	1
	PC13. connect all the cables from multiple cameras to the CCTV system area		2	1	1
Setting up the camera	PC14. mount the CCTV camera so as to cover maximum area		3	1	2
	PC15. decide whether the camera requires any enclosure to protect from dust, vandalism and climatic conditions		3	1	2
	PC16. use stable mounting structure and ensure that is not disturbed by wind or rain which would affect the video quality		3	1	2
	PC17. decide on the height of camera installation according to the end purpose (for example: if the visitor entering the premise is to be monitored, camera should not be placed too high and their face would not be captured)		3	1	2
	PC18. set up the type of camera such as pan, tilt, zoom unit as per customer requirement		3	1	2
	PC19. set camera controls		3	1	2
	PC20. connect the power and video output cable to the camera		3	1	2
Using tools and equipments	PC21. use tools such as diagonal cutters, screwdrivers, crimp tools, knife for cabling and camera mounting		4	2	2

Qualifications Pack For CCTV Installation Technician

Element	Performance Criteria	Total Marks (400)	Out Of	Marks Allocation	
				Theory	Skills Practical
	PC22. follow standard operating procedure of tools and equipments and avoid any hazard		4	2	2
	PC23. follow the installation manual for specific hardware product		4	2	2
	PC24. use recommended tools for specific equipment to avoid damage		4	2	2
	PC25. follow standard safety procedures while installing		4	2	2
Achieve productivity and quality standards	PC26. ensure that only quality hardware products are procured complying to industry and quality standards		2	1	1
	PC27. ensure product installation and user manual is available which should be given to the user or customer		2	1	1
	PC28. ensure that there are no cable joins, sharp bends during cabling		2	1	1
	PC29. ensure weather proof (UV proof) cable are used in outdoors		2	1	1
	PC30. ensure that cabling is sturdy, protected and does not disturb the ambience of building		2	0	2
	PC31. ensure that cameras are protected from light while installing in outdoor		2	0	2
	PC32. ensure the intended area is covered during movement in case of tilt or pan type of camera		2	0	2
	PC33. assess power requirement of camera and use required power supply and cable		2	0	2
	PC34. educate customer on use of cameras for desired monitoring and warranty period and annual maintenance requirement		1	0	1
	PC35. ensure zero-material damage while handling the equipment during installation process		1	0	1
	PC36. install target number of CCTVs as per company's policy		1	0	1
			100	40	60

				Marks Allocation	
Element	**Performance Criteria**	**Total Marks (400)**	**Out Of**	**Theory**	**Skills Practical**
ELE/N4611 Setup the CCTV surveillance system				
Connecting CCTV camera and DVR with the system	PC1. procure and place the Digital Video Recorder (DVR) in an appropriate place as per customer's requirement		2	1	1
	PC2. connect all the cameras installed to the DVR		3	1	2
	PC3. ensure that all cameras are connected to the DVR and the wiring is appropriate		3	1	2
	PC4. connect the monitor (TV / PC) with the video output connection in the DVR		3	1	2
	PC5. connect speakers, if required, for audio output to DVR		2	1	1
	PC6. connect the camera optional controls (tilt / pan / zoom) to DVR		2	1	1
	PC7. use DVR link option to connect with other DVR in the network		2	1	1
	PC8. connect the DVR to router, if required, to enable remote monitoring		2	1	1
Setting up CCTV system	PC9. connect the power supply of DVR, monitor, speakers to set up the system		5	2	3
	PC10. install the appropriate software for IP network or remote monitoring	**100**	5	2	3
	PC11. enter the appropriate IP address to receive the video signals through IP network / internet		5	2	3
	PC12. connect all equipments and switch on to start the video capture		5	2	3
Checking functioning of CCTV system	PC13. perform a demo of CCTV system operation with the customer		3	1	2
	PC14. ensure that all the controls in the system are properly working		2	1	1
	PC15. ensure that pan, tilt, zoom options of the camera are working		3	1	2
	PC16. monitor and switch to multiple camera installed and connected in the system		3	1	2
	PC17. perform viewing, recording and replaying the video captured in the system as per customer requirement		3	1	2
	PC18. take corrective action and fix the issues such as no video, lack of clarity in the system when found		3	1	2
	PC19. perform remote monitoring and controls associated if it is opted by customer		3	1	2

Qualifications Pack For CCTV Installation Technician

Element	Performance Criteria	Total Marks (400)	Out Of	Theory	Skills Practical
				Marks Allocation	
Interacting with customer	PC20. inform customer on adequate information about hardware device or software		7	3	4
	PC21. instruct customer on use of and procedures to be followed for operating the system or hardware		7	3	4
Reporting to superior	PC22. receive the work order from the superior		3	1	2
	PC23. report on the work load and completion status		3	1	2
	PC24. escalate the problems that cannot be resolved at field level with reason		3	1	2
	PC25. submit the feedback form on customer satisfaction level with respect to the installation		3	1	2
	PC26. accurately report work status through proper documentation as per company's standards		3	1	2
Achieving productivity and quality standards	PC27. ensure that there is no problem after installing the CCTV system and the output video is per customer's expectation		2	1	1
	PC28. confirm acceptance on installing any hardware or software in the system		2	1	1
	PC29. inform customer about warranty and other terms and conditions on the hardware equipment		2	1	1
	PC30. provide relevant documents to customers on completion of installation		2	1	1
	PC31. achieve 100% satisfaction with customer on installation service		2	1	1
	PC32. achieve 100% on time completion of field installation with reference to agreed target and time or reasons for not meeting target		2	1	1
	TOTAL		**100**	**40**	**60**
ELE/N9909 Coordinate with colleagues					
Interacting with supervisor	PC1. understand and assess work requirements	**100**	5	2	3
	PC2. understand the targets and incentives		5	2	3
	PC3. understand new operating procedures and constraints		5	2	3
	PC4. report problems in the field		5	2	3

Qualifications Pack For CCTV Installation Technician

Element	Performance Criteria	Total Marks (400)	Out Of	Marks Allocation	
				Theory	**Skills Practical**
	PC5. resolve personnel issues		5	2	3
	PC6. receive feedback on work standards and customer satisfaction		5	2	3
	PC7. communicate any potential hazards at a particular location		5	2	3
	PC8. meet given targets		5	2	3
	PC9. deliver work of expected quality despite constraints		5	2	3
	PC10. receive positive feedback on behaviour and attitude shown during interaction		5	2	3
Coordinating with colleagues	PC11. interact with colleagues from different functions and understand the nature of their work		10	4	6
	PC12. receive spares from tool room or stores; deposit faulty modules and tools to stores		10	4	6
	PC13. pass on customer complaints to colleagues in a respective geographical area		10	4	6
	PC14. assist colleagues with resolving field problems resolve conflicts and achieve smooth workflow		10	4	6
	PC15. follow the company policy during cross functional interaction		10	4	6
		TOTAL	100	40	60