ESSCI
Skilling India in Electronics

N·S·D·C
National Skill Development Corporation

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

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Introduction

Qualifications Pack-Field Technician (Networking and Storage)

SECTOR: ELECTRONICS

SUB-SECTOR: IT Hardware

OCCUPATION: After Sales Support

REFERENCE ID: ELE/Q4606

ALIGNED TO: NCO-2004/ NIL

Field Technician: Also called 'Service Technician', the Field Technician provides after sale support services to customers, typically, at their premises.

Brief Job Description: The individual at work is responsible for attending to customer complaints, installing newly purchased products, troubleshooting system problems and, configuring hardware equipment such as servers, storage and other related networking devices.

Personal Attributes: The job requires the individual to have: ability to build interpersonal relationships, customer centric approach and critical thinking. The individual must be willing to travel to client premises in order to attend to calls at different locations.

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Qualifications Pack Code	ELE/Q4606		
Job Role	Field Technician – Networking and Storage		
Credits(NVEQF/NVQF/NSQF) [*OPTIONAL*]	TBD	Version number	1.0
Sector	Electronics	Drafted on	22/01/14
Sub-sector	IT Hardware	Last reviewed on	24/03/14
Occupation	After Sales Support	Next review date	24/03/15

Job Details

Job Role	Field Technician – Networking and Storage Also called 'Service Technician'
Role Description	Installing and configuring the networking, servers and storage systems, and attending to field calls from client and complaints for system trouble shooting and repairs
NVEQF/NVQF level Minimum Educational Qualifications Maximum Educational Qualifications	4 Diploma Graduate
Training	Certificate - server and storage equipment management
Minimum Job Entry Age	18 Years
Experience	2 years as Field Technician - computing and peripherals
Applicable National Occupational Standards (NOS)	**Compulsory:** 1. ELE/N4601 Engage with customer 2. ELE/N4612 Install, configure and setup the networking and storage system 3. ELE/N4613 Troubleshoot and fix equipment 4. ELE/N9909 Coordinate with colleagues and co-workers **Optional:** Not applicable
Performance Criteria	As described in the relevant OS units

National Occupational Standard
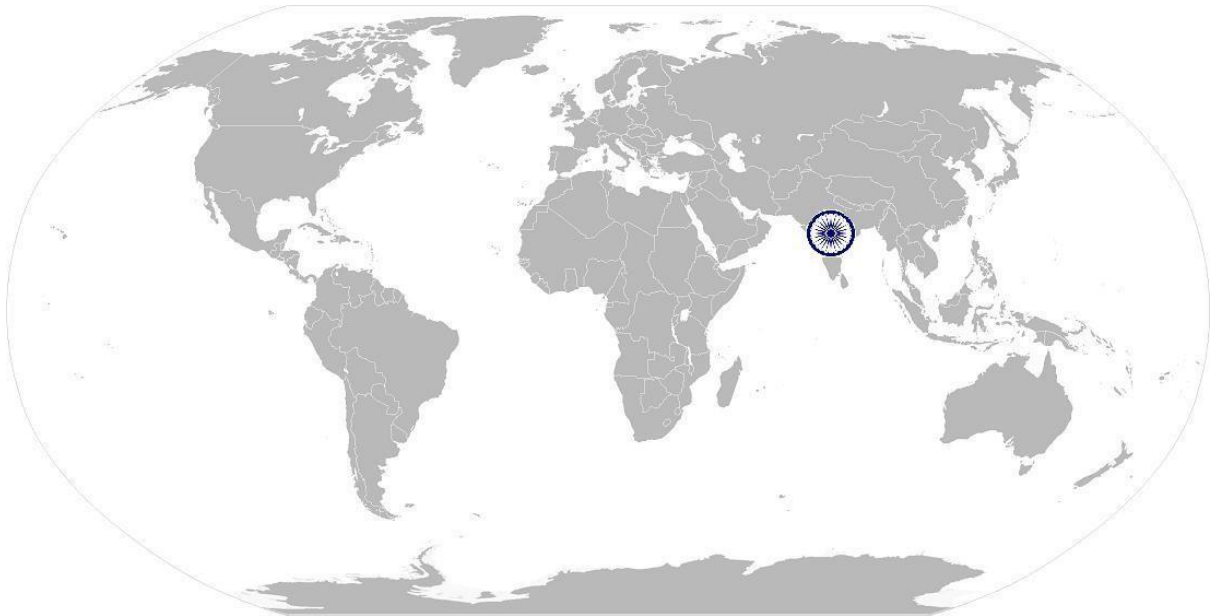
Overview

This unit is about interacting with customer and understanding the repair and installation requirements for networking, storage or server equipment.

Unit Code	ELE/N4601
Unit Title (Task)	**Engage with customers**
Description	This OS unit is about interacting with and understanding the customers' requirements
Scope	This unit/ task covers the following: • Interact with the customer prior to visit • Understand customer's requirements prior to and on visit • Suggest possible solutions • Complete the documentation • Achieve productivity and quality as per company's norms

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. call the customer based on inputs logged into customer care PC2. greet the customer and listen to their problem attentively PC3. check with customer about time for visit, field work and confirm location PC4. follow etiquette when interacting with customers as per company policy such as politeness and patience PC5. seek feedback from the customers on completion of work
Understanding customer's requirements	To be competent, the user/ individual must be able to: PC6. understand location requirement for placement of system during and after installation PC7. seek inputs to understand symptoms for the problem faced PC8. ask open and close-ended questions to understand the specific problem PC9. inform customer about the replacement or repair process PC10. enquire about warranty coverage PC11. educate about other useful products and annual maintenance contract
Suggesting solutions	To be competent, the user/ individual must be able to: PC12. summarise the problem to customer and suggest the possible solutions PC13. inform customers on whether the module has to be replaced or repaired with reasons PC14. explain the customers on time taken, repair process and possible cost for the service or inclusion under warranty PC15. seek customer's approval for further service
Completing documentation	To be competent, the user/ individual must be able to: PC16. provide note to customers about the problem(s), actions taken and the cost associated and retain a copy PC17. provide appropriate invoice for any purchase of module or parts by customer
Achieving productivity and	To be competent, the user/ individual must be able to: PC18. interact with customer in time and within the specified Service Level

ELE/N4601   **Engage with customers**

quality		Agreement (SLA) time
	PC19.	identify the customer's requirement and available the resources and record
	PC20.	accurately assess the problem and suggest appropriate solutions
	PC21.	offer the 100% service as per customer's requirements
	PC22.	communicate problem effectively in order to secure customer's confidence
	PC23.	gauge customer satisfaction with the installation and placement of device
	PC24.	Achieve zero repeat or second escalation from customer
	PC25.	achieve customer satisfaction on engagement behaviour such as listening to complaints or appropriate dressing
	PC26.	achieve 100% customer satisfaction and positive feedback

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
	KA2.	company's code of conduct
	KA3.	organisation culture and typical customer profile
	KA4.	company's reporting structure
	KA5.	company's documentation policy
B. Technical Knowledge	The individual on the job needs to know and understand:	
	KB1.	company's products and recurring problems reported
	KB2.	how to communicate with customers in order to put them at ease
	KB3.	basic electrical and electronics of system hardware
	KB4.	hardware maintenance
	KB5.	functions of electrical and mechanical parts or modules of the equipment
	KB6.	behavioural aspects and etiquette to be followed at customer's premises
	KB7.	precautions to be taken while handling field calls and dealing with customers
	KB8.	relevant reference sheets, manuals and documents to carry in the field

Skills (S) [Optional]		
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 module replacement

ELE/N4601   **Engage with customers**

|	SB8.	how to educate on precautions to be taken post repairs to avoid recurrence of problem
	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
	Decision making skills	
	The individual on the job needs to know and understand:	
	SB13.	whether interaction of customer with supervisor is necessary or not
	SB14.	when to call customer care and close the call after work is done to customer's satisfaction and documentation is complete

NOS Version Control

NOS Code	ELE/N4601		
Credits(NVEQF/NVQF/NSQF) [*OPTIONAL*]	TBD	Version number	1.0
Industry	Electronics	Drafted on	22/01/14
Industry Sub-sector	IT Hardware	Last reviewed on	24/03/14
		Next review date	24/03/15

National Occupational Standard
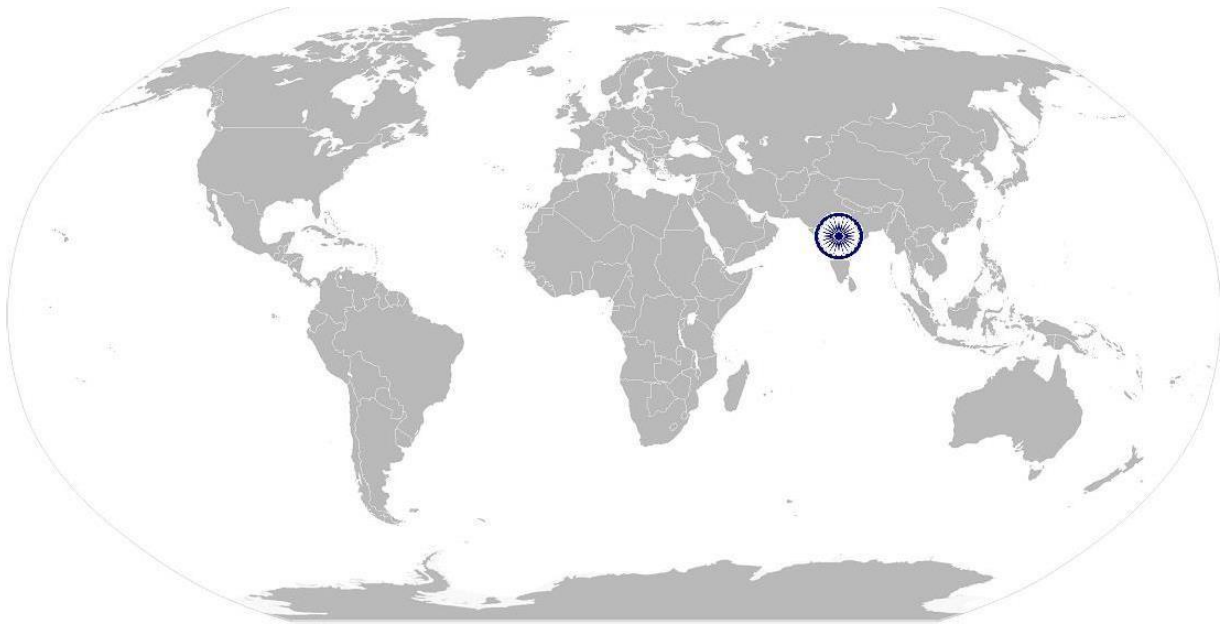
Overview

This unit is about installing the networking, servers and storage equipment as per the customer's requirement. It includes configuring and setting up the system and ensuring effective system functioning to satisfy the customer.

ELE/N4612 **Install, configure and setup the networking and storage system**

National Occupational Standard		
	Unit Code	ELE /N4602
	Unit Title (Task)	Install, configure and setup the networking and storage system
	Description	This OS unit is about installing the system, configuring and setting it up to make it ready to work on
	Scope	This unit/ task covers the following: • Understand the installation requirement and install the hardware • Configure and setup the network, servers and storage system • Check system functionality • Set up the software • 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**
Installing the networking, servers and storage devices	To be competent, the user/ individual must be able to: PC1. check site conditions PC2. check and ensure any tailor-made system as required by the customer PC3. understand the system design PC4. open the packaging of new product and take out the hardware carefully PC5. connect all the hardware devices such as servers, storage device, networking devices PC6. connect battery, plug in and switch on the system PC7. follow standard operating procedure while handling hardware modules with recommended material handling procedure PC8. follow the standard operating procedure for installation of each model of hardware devices and comply with them PC9. place the system at a location as preferred by customer PC10. understand any temperature requirement for the servers and ensure compliane PC11. install the servers / storage equipment as per standard operating procedure PC12. install the networking device as per standard operating procedure PC13. ensure that appropriate device and model specific procedure is followed as per installation manual PC14. maintain zero-material defect during material handling by following standard operating procedure PC15. carry tools and manuals as per installation manual
Configuring and setting up the system	To be competent, the user/ individual must be able to: PC16. understand the system design requirements of customers and ensure all hardware equipment are available PC17. understand the type of design architecture to be used in the system

ELE/N4612   Install, configure and setup the networking and storage system

	integration
	PC18. configure networking device such as router by building a configuration file
	PC19. log and upload the configuration of networking equipment
	PC20. ensure all the computing system are connected with the storage equipment
	PC21. follow the safety procedures while handling and installing the equipment
	PC22. install and configure peripherals as standard operating procedure
	PC23. ensure the placement of all hardware equipment are as per customer requirement
Setting up Software	To be competent, the user/ individual must be able to:
	PC24. install the appropriate application software as per the server and storage requirement
	PC25. load the appropriate networking device driver and set the device in the system
	PC26. install ERP related software package as per client requirement
	PC27. install additional software as per customer requirement
	PC28. ensure that only authorised and licensed version of software is installed
Checking system functionality	To be competent, the user/ individual must be able to:
	PC29. connect the networking device, servers or storage and check system functions
	PC30. perform unit and integration testing as per design requirement
	PC31. ensure product functions are tested and demo given to the customer after hardware, software, and peripheral integration with reference to the installation manual
	PC32. ensure that client is satisfied
Completing installation	To be competent, the user/ individual must be able to:
	PC33. measure and meet multipart calls norm against benchmark
	PC34. complete the installation within the agreed Turn Around Time (TAT)
	PC35. complete the call closure / installation in single visit
	PC36. complete the task with the quality benchmark of the company
Interacting with customer	To be competent, the user/ individual must be able to:
	PC37. understand the customer requirement and queries on the hardware
	PC38. educate customer on use of and procedures to be followed in operation of hardware
	PC39. inform customer about warranty and other terms and conditions on the hardware devices
	PC40. provide adequate information about the hardware devices, operating procedure, maintenance, temperature control, etc., to the customer
	PC41. address the queries and issues raised by the customer on device
	PC42. inform customers clearly about warranty, and product terms and conditions
	PC43. provide customers on all the appropriate documents including invoice
Interacting with superior	PC44. understand the work requirement from superior, periodically
	PC45. report to superior on the work completed
	PC46. escalate the customer issues and problems that cannot be handled at field level
	PC47. document the work completed on the company ERP software for tracking and future references

ELE/N4612   **Install, configure and setup the networking and storage system**

Achieving productivity and quality	To be competent, the user/ individual must be able to:
	PC48. achieve 100% on-time completion of field installation with reference to agreed target and time
	PC49. submit feedback form on customer satisfaction level with respect to the product installation
	PC50. find solutions to customer complaints and queries unresolved in the field
	PC51. report work status and prepare documentation as per company standards

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. client database and their location
	KA8. Service Level Agreement (SLA) with client on Turn Around Time and quality parameters

B. Technical Knowledge	The individual on the job needs to know and understand:
	KB1. basic electronics involved in the hardware
	KB2. different types of IT hardware products and functionalities
	KB3. functions of electrical and mechanical parts/ modules
	KB4. typical customer profile
	KB5. company's portfolio of products and that of competitors
	KB6. installation procedures given in the manuals
	KB7. different types of servers, storage, networking devices offered by the company
	KB8. different types of servers and storage hardware equipment and their standard installation procedure
	KB9. specification and the procedures to be followed for configuration and setting up the server system
	KB10. design architecture for system configuration
	KB11. networking of devices
	KB12. different types of networking devices, their functionality
	KB13. operate and load networking drivers
	KB14. how to operate the system and other hardware peripherals
	KB15. assembling and dismantling of components / modules in hardware equipment
	KB16. use of hardware equipment manufacturer recommended tools
	KB17. computer operation and use of Microsoft word, excel for documentation and reporting
	KB18. quality standards to be followed

ELE/N4612   **Install, configure and setup the networking and storage system**

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 received by customer care SA2. to document the completed work SA3. to note customer complaints solution provided SA4. to read the standard operating procedures 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 targets given on service and sales
B. Professional Skills	**Hardware and Software operation skills**
	The user/individual on the job needs to know and understand how to: SB1. operate computer and laptop SB2. operate the peripheral hardware SB3. operate the different software appropriate to server system SB4. configure different settings and installations of hardware and software as per customer requirement
	Networking, Servers and storage hardware related skills
	The user/individual on the job needs to know and understand how: SB5. to connect all networking devices as per system requirement SB6. networking, its purpose and functionalities to assemble and set up server and storage system SB7. different hardware modules in the servers and storage equipment SB8. to identify basic electronic components and know their functions
	Using tools and machines
	The user/individual on the job needs to know and understand how: SB9. to operate electronic screw drivers for installation of equipment SB10. to use other specific devices for installation of peripherals
	Reflective thinking
	The user/individual on the job needs to know and understand how: SB11. to improve work processes SB12. to reduce repetition of errors
	Critical thinking
	The user/individual on the job needs to know and understand how: SB13. to spot process disruptions and delays SB14. to report on any customer concerns to superiors without delay

NOS Version Control

NOS Code		ELE/N4612	
Credits(NVEQF/NVQF/NSQF) [*OPTIONAL*]	TBD	Version number	1.0
Industry	Electronics	Drafted on	22/01/14
Industry Sub-sector	IT Hardware	Last reviewed on	24/03/14
		Next review date	24/03/15

National Occupational Standard
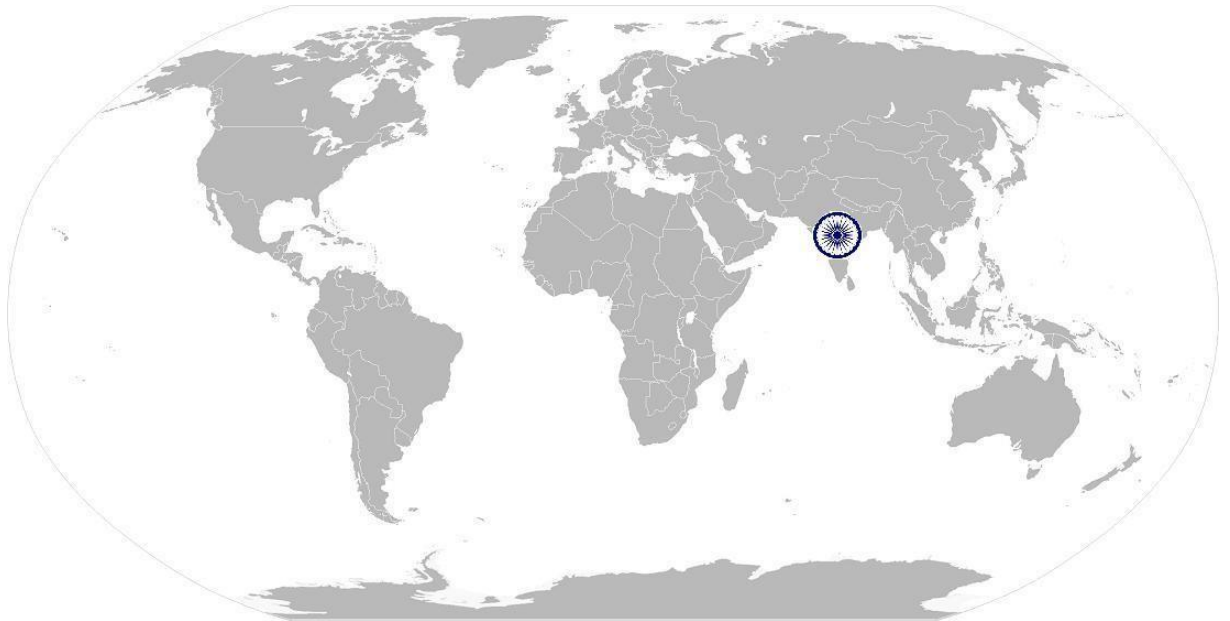
Overview

This unit is about troubleshooting hardware related problems in networking, servers and storage equipment by diagnosing and replacing faulty module at client's premises.

ELE/N4613   **Troubleshoot and fix equipment**

Unit Code	ELE /N4613
Unit Title (Task)	**Troubleshoot and replace faulty module in the equipment**
Description	This OS unit is about diagnosing the problem and troubleshooting problems in the networking and storage system
Scope	This unit/ task covers the following: • Receive and understand the customer complaint registered at customer care • Identify system problems on field visit • Replace faulty module after diagnosis • Coordinate with Remote Technical Helpdesk for assistance • Interact with customer • Report to Superior

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

Element	Performance Criteria
Understanding customer complaint	To be competent, the user/ individual must be able to: PC1. listen carefully to concerns registered by customer at customer care PC2. interact with customer on telephone for better understanding of concern before the visit PC3. commence field trip based on type of complaint PC4. understand the Turn Around Time (TAT) as per the Service Level Agreement (SLA) PC5. carry the troubleshooting instructions sheets PC6. understand the warranty, terms and conditions with relation to the product PC7. identify the type of problem and carry relevant tools and equipment based customer complaint and standard operating procedure PC8. assess whether replacement or repair of module may be required PC9. ensure timely reporting and maintain punctuality PC10. carry only 100% approved and verified field replaceable parts for repairing or replacing PC11. decide on whether it can be repaired in field or at company's test centre
Identifying system-level problem on field	To be competent, the user/ individual must be able to: PC12. understand the frequently encountered problems in the storage system and solution for them PC13. understand the problems experienced by the customer PC14. conduct root-cause analysis and identify the likely problem area PC15. diagnose the issue in networking device PC16. confirm all the issues in the storage by conducting standard diagnostics procedure PC17. coordinate with remote technical team to diagnose and confirm the issues faced in the storage system PC18. disassemble and check each part of networking, servers / storage system to isolate the failed module

ELE/N4613   **Troubleshoot and fix equipment**

	PC19. follow standard operating procedure while handling hardware modules such as handling PCB with ESD standards
	PC20. make decision on whether the part can be replaced or component should be repaired
	PC21. identify the solution design where the module to be replaced or software to be installed or updated
	PC22. decide on whether to replace module or send to repair centre
Replacing faulty module	To be competent, the user/ individual must be able to:
	PC23. if the module has to be replaced, disassemble the system, remove and replace and re-assemble the system
	PC24. if soldering needs to be done, use manual hand soldering iron unit to solder the components or parts
	PC25. if there is any operating system error, software related issues, reinstall the software or fix the issues
	PC26. fix the common problems faced with peripherals and networking devices
	PC27. escalate the problems which cannot be addressed at field level to the superior for servicing at company's repair stations
	PC28. coordinate with remote technical helpdesk to seek technical assistance in the field
	PC29. explain clearly the symptoms in the system to the remote technical helpdesk and perform the work as per their instructions
	PC30. perform diagnosis and troubleshooting as per remote technical helpdesk instructions
	PC31. follow appropriate safety procedures while handling tools such as soldering iron
	PC32. ensure system function is tested after new hardware modules or software is installed
Completing repair	To be competent, the user/ individual must be able to:
	PC33. understand clearly the requirement before field visit
	PC34. report percentage of call closure in multiple visits against benchmark
	PC35. ensure no sub-standard or unverified parts are used in replacing
	PC36. attend to the client location as per the time decided in the service level agreement with the client
	PC37. complete the function within the agreed Turn Around Time (TAT) and as per the Service level agreement with the client
	PC38. complete the call closure in single visit
	PC39. complete the task with the quality benchmark of the company
	PC40. meet monthly or daily target given
Interacting with customer	To be competent, the user/ individual must be able to:
	PC41. inform customer about the problem, action to be taken
	PC42. inform customer on adequate information about hardware device or software
	PC43. instruct customer on use of and procedures to be followed for operating the system or hardware
	PC44. confirm acceptance before replacing module or sending for repairs to company
	PC45. inform customer about warranty and other terms and conditions on the

	replaced or repaired hardware devices
	PC46. provide relevant documents to customers on completion of work
	PC47. achieve 100% satisfaction with customer on post sales service
Reporting to superior	To be competent, the user/ individual must be able to:
	PC48. receive the work order from the superior or customer care about the complaint registered
	PC49. report on the work load and completion status
	PC50. find solutions to customer complaints and queries that are unresolved in the field
	PC51. escalate the problems that cannot be resolved at field level with reason
	PC52. report 100% on time completion of field repair or hardware replacement with reference to agreed target and time or reasons for not meeting target
	PC53. submit the feedback form on customer satisfaction level with respect to the product repair
	PC54. accurately report work status through proper documentation as per company's standards
	PC55. create knowledge bank on the complex repairs made through documentation
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. client database and their location
	KA8. Service Level Agreement (SLA) with client on Turn Around Time and quality parameters
B. Technical Knowledge	The individual on the job needs to know and understand:
	KB1. company's portfolio of products
	KB2. different types of IT hardware products and functionalities KB3. different electrical and mechanical modules in the product KB4. basic electronics of the hardware
	KB5. different models of devices and their repair procedures
	KB6. standard operating procedure for disassembling and re-assembling of hardware equipment
	KB7. procedures to be followed for trouble shooting and standards to follow
	KB8. voltage and power requirement for different hardware devices
	KB9. servers, storage and network devices
	KB10. ERP software application and its installation procedure
	KB11. frequently occurring issues in storage and server device and measures to be taken
	KB12. tools required for repair such as soldering iron, multimeter
	KB13. controls of different peripherals

ELE/N4613   **Troubleshoot and fix equipment**

	KB14. all safety procedures to follow
	KB15. quality standards to be followed
	KB16. Electrostatic Discharge (ESD) and measures to be taken
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 operating skills**
	The user/individual on the job needs to know and understand how to: SB1. operate computer and laptop SB2. operate the peripheral hardware equipment SB3. operate the different software SB4. configure different settings and installations of hardware and software as per customer requirement
	Networking, servers and storage hardware equipment related skills
	The user/individual on the job needs to know and understand: SB5. different modules and their functions in storage systems SB6. different types of networking devices and their functionalities SB7. how to diagnose the issues in servers and storage hardware modules SB8. how to diagnose the issues in networking device SB9. how to assemble modules in networking, servers and storage system
	Using tools and machines
	The user/individual on the job needs to know and understand how to: SB10. operate electronic screw drivers for disassembling and assembling of hardware equipments SB11. use other specific devices for repairs such as soldering iron, multimeter, POST cards
	Reflective thinking
	The user/individual on the job needs to know and understand how to: SB12. improve work processes SB13. reduce errors on field and repeat trips

ELE/N4613   **Troubleshoot and fix equipment**

Critical thinking
The user/individual on the job needs to know and understand how to: SB14.   spot process disruptions and delays SB15.   report on any issues raised by customers to superiors without delay

NOS Version Control

NOS Code	ELE/N4613		
Credits(NVEQF/NVQF/NSQF) [*OPTIONAL*]	TBD	Version number	1.0
Industry	Electronics	Drafted on	22/01/14
Industry Sub-sector	IT Hardware	Last reviewed on	24/03/14
		Next review date	24/03/15

National Occupational Standard
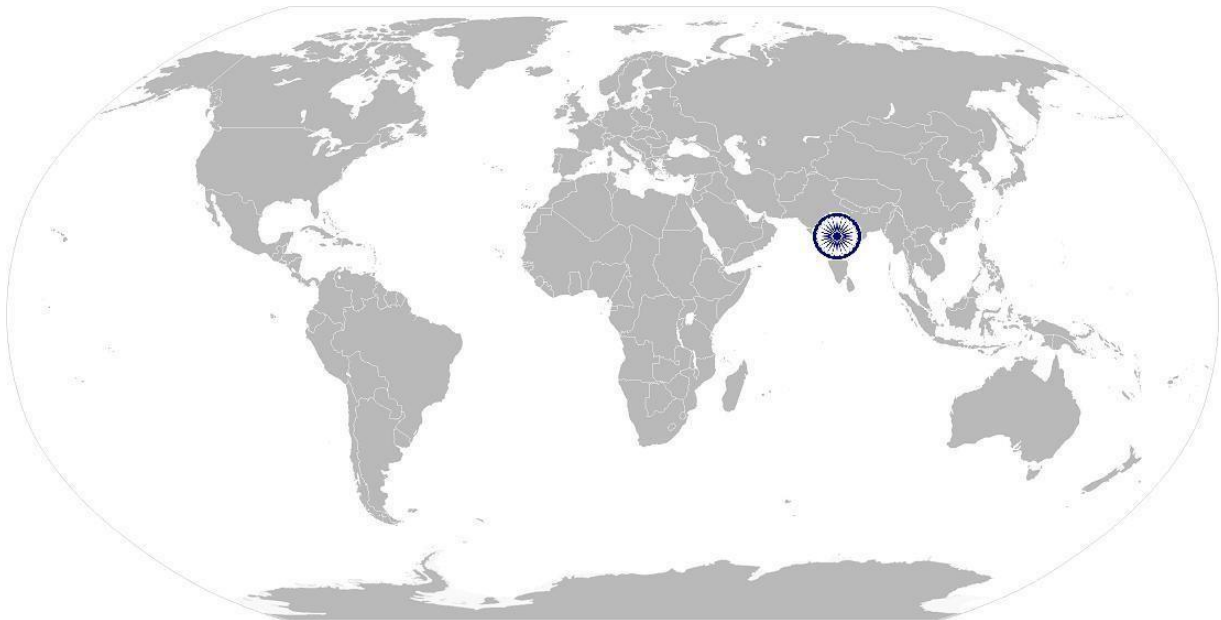
Overview

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.

National Occupational Standard

Unit Code	ELE/N9909
Unit Title (Task)	Coordinate with colleagues
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, 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

ELE/N9909   **Coordinate with colleagues and co-workers**

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	22/01/14	
Industry Sub-sector	IT Hardware	Last reviewed on	24/03/14	
		Next review date	24/03/15	

Definitions

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

	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 codes for SSC]   QP number (2 numbers)

Q denoting Qualifications Pack   Occupation (2 numbers)

Occupational Standard

An example of NOS with 'N'   *9 characters*
[ABC] /N0101

[Insert 3 letter code for SSC]   OS number (2 numbers)

N denoting National Occupational Standard   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

Assessment Criteria for Field Technician – Network and Storage	
Job Role	**Field Technician – Network and Storage**
Qualification Pack	**ELE/ Q4606 version1.0**
Sector Skill Council	**Electronic**

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.

Element	Performance Criteria	Total Marks (400)	Out Of	Theory	Skills Practical
				Marks Allocation	
1.ELE/N4601 Engage with customers	PC1. call the customer based on inputs logged into customer care	**100**	3	1	2
	PC2. greet the customer and listen to their problem attentively		3	1	2
	PC3. check with customer about time for visit, field work and confirm location		4	2	2
	PC4. follow etiquette when interacting with customers as per company policy such as politeness and patience		6	2	4
	PC5. seek feedback from the customers on completion of work		4	2	2
	PC6. understand location requirement for placement of system during and after installation		2	1	1
	PC7. seek inputs to understand symptoms for the problem faced		4	2	2
	PC8. ask open and close-ended questions to understand the specific problem		4	2	2
	PC9. inform customer about the replacement or repair process		4	2	2
	PC10. enquire about warranty coverage		3	1	2
	PC11. educate about other useful products and annual maintenance contract		3	1	2
	PC12. summarise the problem to customer and suggest the possible solutions		5	2	3
	PC13. inform customers on whether the module has to be replaced or repaired with reasons		5	2	3
	PC14. explain the customers on time taken, repair process and possible cost for the service or inclusion under warranty		5	2	3
	PC15. seek customer's approval for further service		5	2	3
	PC16. provide note to customers about the problem(s), actions taken and the cost associated and retain a copy		5	2	3
	PC17. provide appropriate invoice for any purchase of module or parts by customer		5	2	3
	PC18. interact with customer in time and within the specified Service Level Agreement (SLA) time		3	1	2
	PC19. identify the customer's requirement and available the resources and record		3	1	2
	PC20. accurately assess the problem and suggest appropriate solutions		3	1	2
	PC21. offer the 100% service as per customer's requirements		3	1	2
	PC22. communicate problem effectively in order to secure customer's confidence		4	2	2
	PC23. gauge customer satisfaction with the installation and placement of device		4	2	2
	PC24. Achieve zero repeat or second escalation from customer		4	1	3
	PC25. achieve customer satisfaction on engagement behaviour such as listening to complaints or appropriate dressing		3	1	2

	PC26. achieve 100% customer satisfaction and positive feedback		3	1	2
		TOTAL	**100**	**40**	**60**
2. ELE/N4612 Install, configure and setup the networking and storage system	PC1. check site conditions	**100**	1	0	1
	PC2. check and ensure any tailor-made system as required by the customer		1	0	1
	PC3. understand the system design		1	1	0
	PC4. open the packaging of new product and take out the hardware carefully		1	0	1
	PC5. connect all the hardware devices such as servers, storage device, networking devices		1	0	1
	PC6. connect battery, plug in and switch on the system		1	0	1
	PC7. follow standard operating procedure while handling hardware modules with recommended material handling procedure		1	1	0
	PC8. follow the standard operating procedure for installation of each model of hardware devices and comply with them		1	1	0
	PC9. place the system at a location as preferred by customer		1	0	1
	PC10. understand any temperature requirement for the servers and ensure compliane		1	1	0
	PC11. install the servers / storage equipment as per standard operating procedure		1	0	1
	PC12. install the networking device as per standard operating procedure		1	0	1
	PC13. ensure that appropriate device and model specific procedure is followed as per installation manual		1	0	1
	PC14. maintain zero-material defect during material handling by following standard operating procedure		1	0	1
	PC15. carry tools and manuals as per installation manual		1	1	0
	PC16. understand the system design requirements of customers and ensure all hardware equipment are available		2	1	1
	PC17. understand the type of design architecture to be used in the system integration		2	1	1
	PC18. configure networking device such as router by building a configuration file		2	1	1
	PC19. log and upload the configuration of networking equipment		2	1	1
	PC20. ensure all the computing system are connected with the storage equipment		2	1	1
	PC21. follow the safety procedures while handling and installing the equipment		2	1	1
	PC22. install and configure peripherals as standard operating procedure		2	1	1
	PC23. ensure the placement of all hardware equipment are as per customer requirement		2	1	1
	PC24. install the appropriate application software as per the server and storage requirement		3	1	2
	PC25. load the appropriate networking device driver and set the device in the system		3	1	2

	PC26. install ERP related software package as per client requirement		3	1	2
	PC27. install additional software as per customer requirement		3	1	2
	PC28. ensure that only authorised and licensed version of software is installed		3	1	2
	PC29. connect the networking device, servers or storage and check system functions		3	1	2
	PC30. perform unit and integration testing as per design requirement		4	2	2
	PC31. ensure product functions are tested and demo given to the customer after hardware, software, and peripheral integration with reference to the installation manual		4	2	2
	PC32. ensure that client is satisfied		3	1	2
	PC33. measure and meet multipart calls norm against benchmark		2	1	1
	PC34. complete the installation within the agreed Turn Around Time (TAT)		2	1	1
	PC35. complete the call closure / installation in single visit		2	1	1
	PC36. complete the task with the quality benchmark of the company		2	1	1
	PC37. understand the customer requirement and queries on the hardware		2	1	1
	PC38. educate customer on use of and procedures to be followed in operation of hardware		2	1	1
	PC39. inform customer about warranty and other terms and conditions on the hardware devices		2	1	1
	PC40. provide adequate information about the hardware devices, operating procedure, maintenance, temperature control, etc., to the customer		2	1	1
	PC41. address the queries and issues raised by the customer on device		2	0	2
	PC42. inform customers clearly about warranty, and product terms and conditions		1	0	1
	PC43. provide customers on all the appropriate documents including invoice		1	0	1
	PC44. understand the work requirement from superior, periodically		2	1	1
	PC45. report to superior on the work completed		2	1	1
	PC46. escalate the customer issues and problems that cannot be handled at field level		2	1	1
	PC47. document the work completed on the company ERP software for tracking and future references		2	1	1
	PC48. achieve 100% on-time completion of field installation with reference to agreed target and time		3	1	2
	PC49. submit feedback form on customer satisfaction level with respect to the product installation		3	1	2
	PC50. find solutions to customer complaints and queries unresolved in the field		3	1	2
	PC51. report work status and prepare documentation as per company standards		3	1	2
			100	**40**	**60**
	PC1. listen carefully to concerns registered by customer at customer care	**100**	2	1	1

3. ELE/N4613 Troubleshoot and fix equipment	PC2. interact with customer on telephone for better understanding of concern before the visit	2	1	1
	PC3. commence field trip based on type of complaint	2	1	1
	PC4. understand the Turn Around Time (TAT) as per the Service Level Agreement (SLA)	2	1	1
	PC5. carry the troubleshooting instructions sheets	2	1	1
	PC6. understand the warranty, terms and conditions with relation to the product	2	1	1
	PC7. identify the type of problem and carry relevant tools and equipment based customer complaint and standard operating procedure	2	1	1
	PC8. assess whether replacement or repair of module may be required	1	0	1
	PC9. ensure timely reporting and maintain punctuality	2	1	1
	PC10. carry only 100% approved and verified field replaceable parts for repairing or replacing	2	1	1
	PC11. decide on whether it can be repaired in field or at company's test centre	1	0	1
	PC12. understand the frequently encountered problems in the storage system and solution for them	2	1	1
	PC13. understand the problems experienced by the customer	2	1	1
	PC14. conduct root-cause analysis and identify the likely problem area	2	1	1
	PC15. diagnose the issue in networking device	2	1	1
	PC16. confirm all the issues in the storage by conducting standard diagnostics procedure	2	1	1
	PC17. coordinate with remote technical team to diagnose and confirm the issues faced in the storage system	2	1	1
	PC18. disassemble and check each part of networking, servers / storage system to isolate the failed module	2	1	1
	PC19. follow standard operating procedure while handling hardware modules such as handling PCB with ESD standards	2	1	1
	PC20. make decision on whether the part can be replaced or component should be repaired	1	0	1
	PC21. identify the solution design where the module to be replaced or software to be installed or updated	2	1	1
	PC22. decide on whether to replace module or send to repair centre	1	0	1
	PC23. if the module has to be replaced, disassemble the system, remove and replace and re-assemble the system	2	1	1
	PC24. if soldering needs to be done, use manual hand soldering iron unit to solder the components or parts	2	1	1
	PC25. if there is any operating system error, software related issues, reinstall the software or fix the issues	2	1	1
	PC26. fix the common problems faced with peripherals and networking devices	2	1	1
	PC27. escalate the problems which cannot be addressed at field level to the superior for servicing at company's repair stations	2	1	1

PC28. coordinate with remote technical helpdesk to seek technical assistance in the field	2	1	1
PC29. explain clearly the symptoms in the system to the remote technical helpdesk and perform the work as per their instructions	2	1	1
PC30. perform diagnosis and troubleshooting as per remote technical helpdesk instructions	2	1	1
PC31. follow appropriate safety procedures while handling tools such as soldering iron	2	1	1
PC32. ensure system function is tested after new hardware modules or software is installed	2	1	1
PC33. understand clearly the requirement before field visit	2	1	1
PC34. report percentage of call closure in multiple visits against benchmark	2	1	1
PC35. ensure no sub-standard or unverified parts are used in replacing	2	1	1
PC36. attend to the client location as per the time decided in the service level agreement with the client	2	1	1
PC37. complete the function within the agreed Turn Around Time (TAT) and as per the Service level agreement with the client	2	1	1
PC38. complete the call closure in single visit	2	1	1
PC39. complete the task with the quality benchmark of the company	2	0	2
PC40. meet monthly or daily target given	1	0	1
PC41. inform customer about the problem, action to be taken	2	1	1
PC42. inform customer on adequate information about hardware device or software	2	1	1
PC43. instruct customer on use of and procedures to be followed for operating the system or hardware	2	1	1
PC44. confirm acceptance before replacing module or sending for repairs to company	2	1	1
PC45. inform customer about warranty and other terms and conditions on the replaced or repaired hardware devices	2	1	1
PC46. provide relevant documents to customers on completion of work	2	1	1
PC47. achieve 100% satisfaction with customer on post sales service	2	0	2
PC48. receive the work order from the superior or customer care about the complaint registered	1	0	1
PC49. report on the work load and completion status	2	0	2
PC50. find solutions to customer complaints and queries that are unresolved in the field	2	0	2
PC51. escalate the problems that cannot be resolved at field level with reason	2	0	2
PC52. report 100% on time completion of field repair or hardware replacement with reference to agreed target and time or reasons for not meeting target	1	0	1
PC53. submit the feedback form on customer satisfaction level with respect to the product repair	1	0	1

	PC54. accurately report work status through proper documentation as per company's standards		1	0	1
	PC55. create knowledge bank on the complex repairs made through documentation		1	0	1
		TOTAL	**100**	**40**	**60**
4. ELE/N9909 Coordinate with colleagues and co-workers	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
	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
	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, conflicts and achieve smooth workflow		10	4	6
	PC15. follow the company policy during cross functional interaction		10	4	6
		TOTAL	**100**	**40**	**60**