

QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR ELECTRONICS INDUSTRY

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.

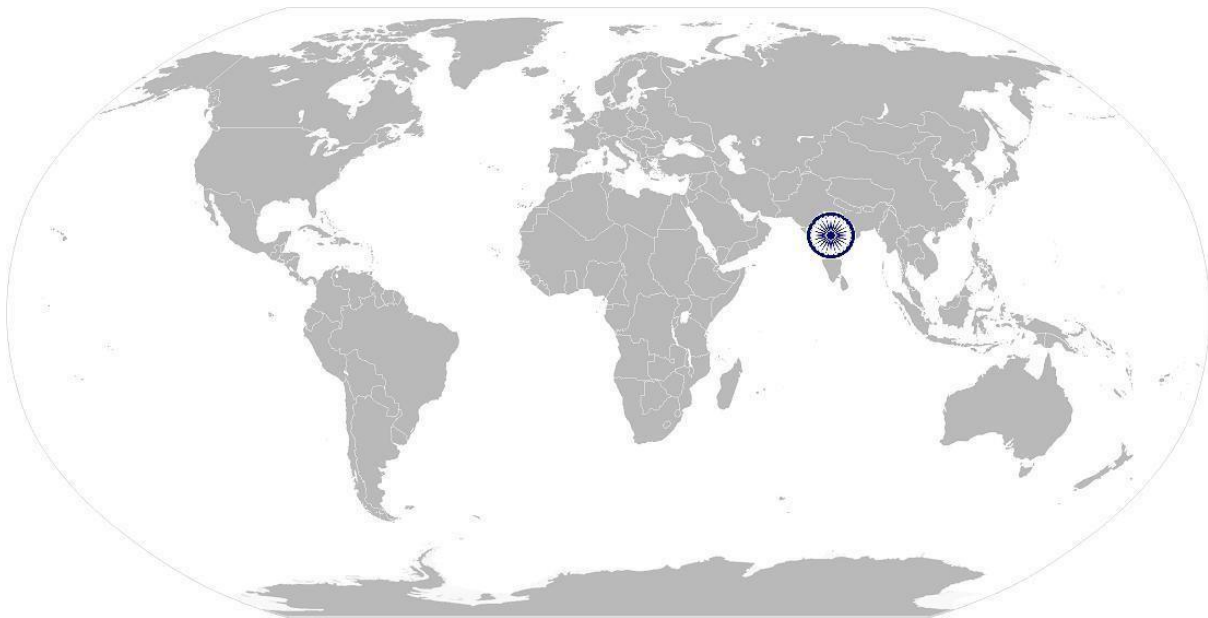
Personal Attributes: The job requires the individual to have: ability to build interpersonal relationships, customer centric approach and critical thinking. The individual must be willing to travel to client premises in order to attend to calls at different locations.

Qualifications Pack For Field Technician – Networking and Storage

Job Details	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 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	4
Minimum Educational Qualifications	Diploma
Maximum Educational Qualifications	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)	<p>Compulsory:</p> <ol style="list-style-type: none"> 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 <p>Optional: Not applicable</p>
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.

ELE/N4601

Engage with customers

Unit Code	ELE/N4601
Unit Title (Task)	Engage with customers
Description	This OS unit is about interacting with and understanding the customers' requirements
Scope	<p>This unit/ task covers the following:</p> <ul style="list-style-type: none"> 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	<p>To be competent, the user/ individual must be able to:</p> <p>PC1. call the customer based on inputs logged into customer care</p> <p>PC2. greet the customer and listen to their problem attentively</p> <p>PC3. check with customer about time for visit, field work and confirm location</p> <p>PC4. follow etiquette when interacting with customers as per company policy such as politeness and patience</p> <p>PC5. seek feedback from the customers on completion of work</p>
Understanding customer's requirements	<p>To be competent, the user/ individual must be able to:</p> <p>PC6. understand location requirement for placement of system during and after installation</p> <p>PC7. seek inputs to understand symptoms for the problem faced</p> <p>PC8. ask open and close-ended questions to understand the specific problem</p> <p>PC9. inform customer about the replacement or repair process</p> <p>PC10. enquire about warranty coverage</p> <p>PC11. educate about other useful products and annual maintenance contract</p>
Suggesting solutions	<p>To be competent, the user/ individual must be able to:</p> <p>PC12. summarise the problem to customer and suggest the possible solutions</p> <p>PC13. inform customers on whether the module has to be replaced or repaired with reasons</p> <p>PC14. explain the customers on time taken, repair process and possible cost for the service or inclusion under warranty</p> <p>PC15. seek customer's approval for further service</p>
Completing documentation	<p>To be competent, the user/ individual must be able to:</p> <p>PC16. provide note to customers about the problem(s), actions taken and the cost associated and retain a copy</p> <p>PC17. provide appropriate invoice for any purchase of module or parts by customer</p>
Achieving productivity and	<p>To be competent, the user/ individual must be able to:</p> <p>PC18. interact with customer in time and within the specified Service Level</p>

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Engage with customers

quality	<p>Agreement (SLA) time</p> <p>PC19. identify the customer's requirement and available the resources and record</p> <p>PC20. accurately assess the problem and suggest appropriate solutions</p> <p>PC21. offer the 100% service as per customer's requirements</p> <p>PC22. communicate problem effectively in order to secure customer's confidence</p> <p>PC23. gauge customer satisfaction with the installation and placement of device</p> <p>PC24. Achieve zero repeat or second escalation from customer</p> <p>PC25. achieve customer satisfaction on engagement behaviour such as listening to complaints or appropriate dressing</p> <p>PC26. achieve 100% customer satisfaction and positive feedback</p>
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	<p>The individual on the job needs understand:</p> <p>KA1. company's policies on: customer care</p> <p>KA2. company's code of conduct</p> <p>KA3. organisation culture and typical customer profile</p> <p>KA4. company's reporting structure</p> <p>KA5. company's documentation policy</p>
B. Technical Knowledge	<p>The individual on the job needs to know and understand:</p> <p>KB1. company's products and recurring problems reported</p> <p>KB2. how to communicate with customers in order to put them at ease</p> <p>KB3. basic electrical and electronics of system hardware</p> <p>KB4. hardware maintenance</p> <p>KB5. functions of electrical and mechanical parts or modules of the equipment</p> <p>KB6. behavioural aspects and etiquette to be followed at customer's premises</p> <p>KB7. precautions to be taken while handling field calls and dealing with customers</p> <p>KB8. relevant reference sheets, manuals and documents to carry in the field</p>
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	Reading and writing skills
	<p>The individual on the job needs to know and understand:</p> <p>SA1. how to read product and module serial numbers and interpret details such as make, date, availability</p> <p>SA2. how to note problems on job sheet and details of work done</p>
B. Professional Skills	Interpersonal skills
	<p>The individual on the job needs to know and understand:</p> <p>SB1. how to develop a rapport with customers</p> <p>SB2. how to listen carefully and interpret their requirement</p> <p>SB3. how to suggest customer on possible solutions</p>
	Communication skills
	<p>The individual on the job needs to know and understand:</p> <p>SB4. how to seek inputs at assess the problems</p> <p>SB5. how to put the customer at ease and suggest solutions</p> <p>SB6. how to communicate in local language</p> <p>SB7. how to educate and inform customer about contractual issues such as warranty, cost of service and module replacement</p>

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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

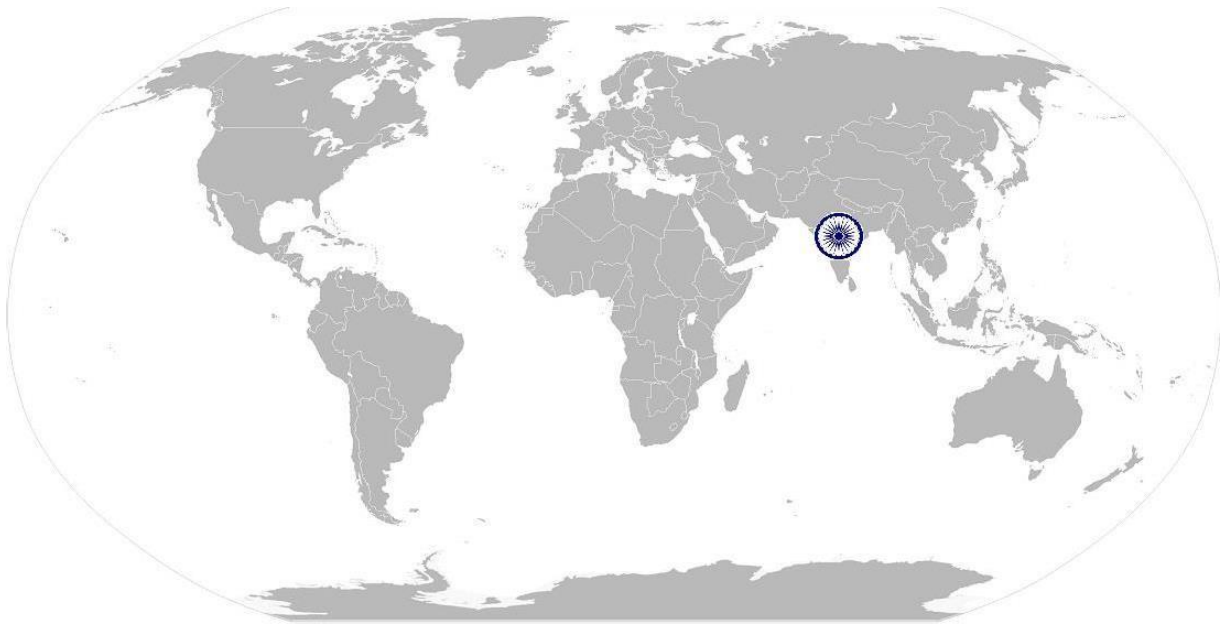
ELE/N4601

Engage with customers

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

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	<p>To be competent, the user/ individual must be able to:</p> <p>PC1. check site conditions</p> <p>PC2. check and ensure any tailor-made system as required by the customer</p> <p>PC3. understand the system design</p> <p>PC4. open the packaging of new product and take out the hardware carefully</p> <p>PC5. connect all the hardware devices such as servers, storage device, networking devices</p> <p>PC6. connect battery, plug in and switch on the system</p> <p>PC7. follow standard operating procedure while handling hardware modules with recommended material handling procedure</p> <p>PC8. follow the standard operating procedure for installation of each model of hardware devices and comply with them</p> <p>PC9. place the system at a location as preferred by customer</p> <p>PC10. understand any temperature requirement for the servers and ensure compliance</p> <p>PC11. install the servers / storage equipment as per standard operating procedure</p> <p>PC12. install the networking device as per standard operating procedure</p> <p>PC13. ensure that appropriate device and model specific procedure is followed as per installation manual</p> <p>PC14. maintain zero-material defect during material handling by following standard operating procedure</p> <p>PC15. carry tools and manuals as per installation manual</p>
Configuring and setting up the system	<p>To be competent, the user/ individual must be able to:</p> <p>PC16. understand the system design requirements of customers and ensure all hardware equipment are available</p> <p>PC17. understand the type of design architecture to be used in the system</p>

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Install, configure and setup the networking and storage system

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

ELE/N4612

Install, configure and setup the networking and storage system

Achieving productivity and quality	<p>To be competent, the user/ individual must be able to:</p> <p>PC48. achieve 100% on-time completion of field installation with reference to agreed target and time</p> <p>PC49. submit feedback form on customer satisfaction level with respect to the product installation</p> <p>PC50. find solutions to customer complaints and queries unresolved in the field</p> <p>PC51. report work status and prepare documentation as per company standards</p>
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	<p>The individual on the job needs to know and understand:</p> <p>KA1. company's policies on: incentives, delivery standards, and personnel management</p> <p>KA2. company's sales and after sales support policy</p> <p>KA3. importance of the individual's role in the workflow</p> <p>KA4. reporting structure</p> <p>KA5. company's policy on product's warranty and other terms and conditions</p> <p>KA6. company's line of business and product portfolio</p> <p>KA7. client database and their location</p> <p>KA8. Service Level Agreement (SLA) with client on Turn Around Time and quality parameters</p>
B. Technical Knowledge	<p>The individual on the job needs to know and understand:</p> <p>KB1. basic electronics involved in the hardware</p> <p>KB2. different types of IT hardware products and functionalities</p> <p>KB3. functions of electrical and mechanical parts/ modules</p> <p>KB4. typical customer profile</p> <p>KB5. company's portfolio of products and that of competitors</p> <p>KB6. installation procedures given in the manuals</p> <p>KB7. different types of servers, storage, networking devices offered by the company</p> <p>KB8. different types of servers and storage hardware equipment and their standard installation procedure</p> <p>KB9. specification and the procedures to be followed for configuration and setting up the server system</p> <p>KB10. design architecture for system configuration</p> <p>KB11. networking of devices</p> <p>KB12. different types of networking devices, their functionality</p> <p>KB13. operate and load networking drivers</p> <p>KB14. how to operate the system and other hardware peripherals</p> <p>KB15. assembling and dismantling of components / modules in hardware equipment</p> <p>KB16. use of hardware equipment manufacturer recommended tools</p> <p>KB17. computer operation and use of Microsoft word, excel for documentation and reporting</p> <p>KB18. quality standards to be followed</p>

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

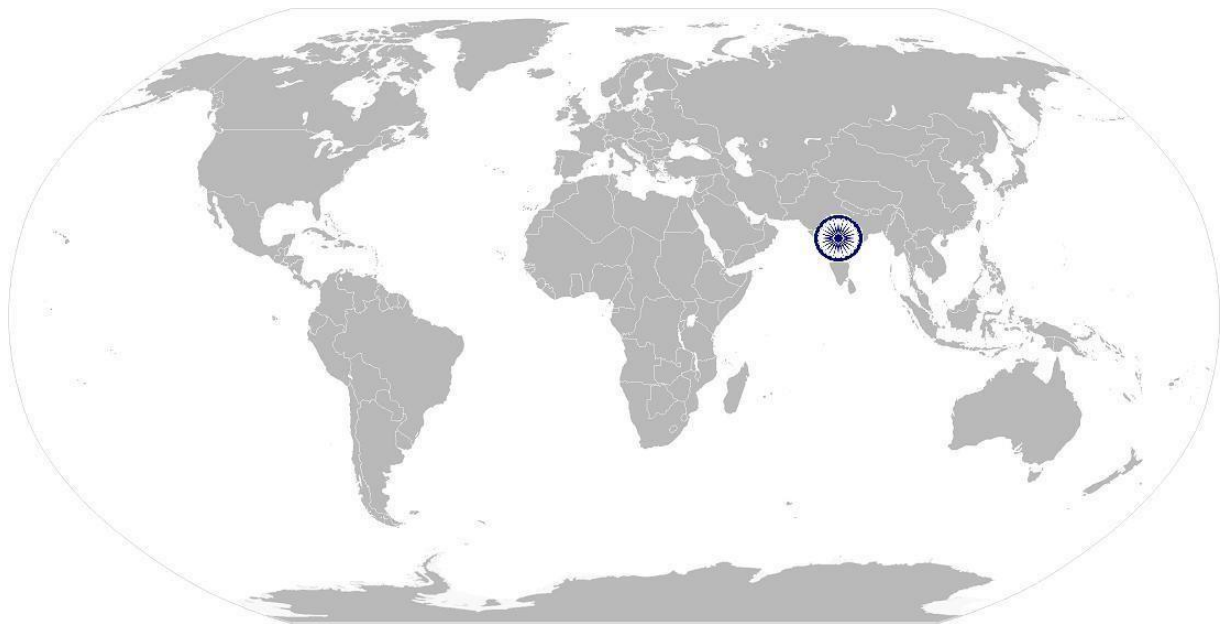
ELE/N4612

Install, configure and setup the networking and storage system

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

National Occupational Standard

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	<p>This unit/ task covers the following:</p> <ul style="list-style-type: none"> • 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	<p>To be competent, the user/ individual must be able to:</p> <p>PC1. listen carefully to concerns registered by customer at customer care</p> <p>PC2. interact with customer on telephone for better understanding of concern before the visit</p> <p>PC3. commence field trip based on type of complaint</p> <p>PC4. understand the Turn Around Time (TAT) as per the Service Level Agreement (SLA)</p> <p>PC5. carry the troubleshooting instructions sheets</p> <p>PC6. understand the warranty, terms and conditions with relation to the product</p> <p>PC7. identify the type of problem and carry relevant tools and equipment based customer complaint and standard operating procedure</p> <p>PC8. assess whether replacement or repair of module may be required</p> <p>PC9. ensure timely reporting and maintain punctuality</p> <p>PC10. carry only 100% approved and verified field replaceable parts for repairing or replacing</p> <p>PC11. decide on whether it can be repaired in field or at company's test centre</p>
Identifying system-level problem on field	<p>To be competent, the user/ individual must be able to:</p> <p>PC12. understand the frequently encountered problems in the storage system and solution for them</p> <p>PC13. understand the problems experienced by the customer</p> <p>PC14. conduct root-cause analysis and identify the likely problem area</p> <p>PC15. diagnose the issue in networking device</p> <p>PC16. confirm all the issues in the storage by conducting standard diagnostics procedure</p> <p>PC17. coordinate with remote technical team to diagnose and confirm the issues faced in the storage system</p> <p>PC18. disassemble and check each part of networking, servers / storage system to isolate the failed module</p>

ELE/N4613

Troubleshoot and fix equipment

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

ELE/N4613

Troubleshoot and fix equipment

	<p>replaced or repaired hardware devices</p> <p>PC46. provide relevant documents to customers on completion of work</p> <p>PC47. achieve 100% satisfaction with customer on post sales service</p>
Reporting to superior	<p>To be competent, the user/ individual must be able to:</p> <p>PC48. receive the work order from the superior or customer care about the complaint registered</p> <p>PC49. report on the work load and completion status</p> <p>PC50. find solutions to customer complaints and queries that are unresolved in the field</p> <p>PC51. escalate the problems that cannot be resolved at field level with reason</p> <p>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</p> <p>PC53. submit the feedback form on customer satisfaction level with respect to the product repair</p> <p>PC54. accurately report work status through proper documentation as per company's standards</p> <p>PC55. create knowledge bank on the complex repairs made through documentation</p>
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	<p>The individual on the job needs to know and understand:</p> <p>KA1. company's policies on: incentives, delivery standards, and personnel management</p> <p>KA2. company's sales and after sales support policy</p> <p>KA3. importance of the individual's role in the workflow</p> <p>KA4. reporting structure</p> <p>KA5. company's policy on product's warranty and other terms and conditions</p> <p>KA6. company's line of business and product portfolio</p> <p>KA7. client database and their location</p> <p>KA8. Service Level Agreement (SLA) with client on Turn Around Time and quality parameters</p>
B. Technical Knowledge	<p>The individual on the job needs to know and understand:</p> <p>KB1. company's portfolio of products</p> <p>KB2. different types of IT hardware products and functionalities</p> <p>KB3. different electrical and mechanical modules in the product</p> <p>KB4. basic electronics of the hardware</p> <p>KB5. different models of devices and their repair procedures</p> <p>KB6. standard operating procedure for disassembling and re-assembling of hardware equipment</p> <p>KB7. procedures to be followed for trouble shooting and standards to follow</p> <p>KB8. voltage and power requirement for different hardware devices</p> <p>KB9. servers, storage and network devices</p> <p>KB10. ERP software application and its installation procedure</p> <p>KB11. frequently occurring issues in storage and server device and measures to be taken</p> <p>KB12. tools required for repair such as soldering iron, multimeter</p> <p>KB13. controls of different peripherals</p>

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	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

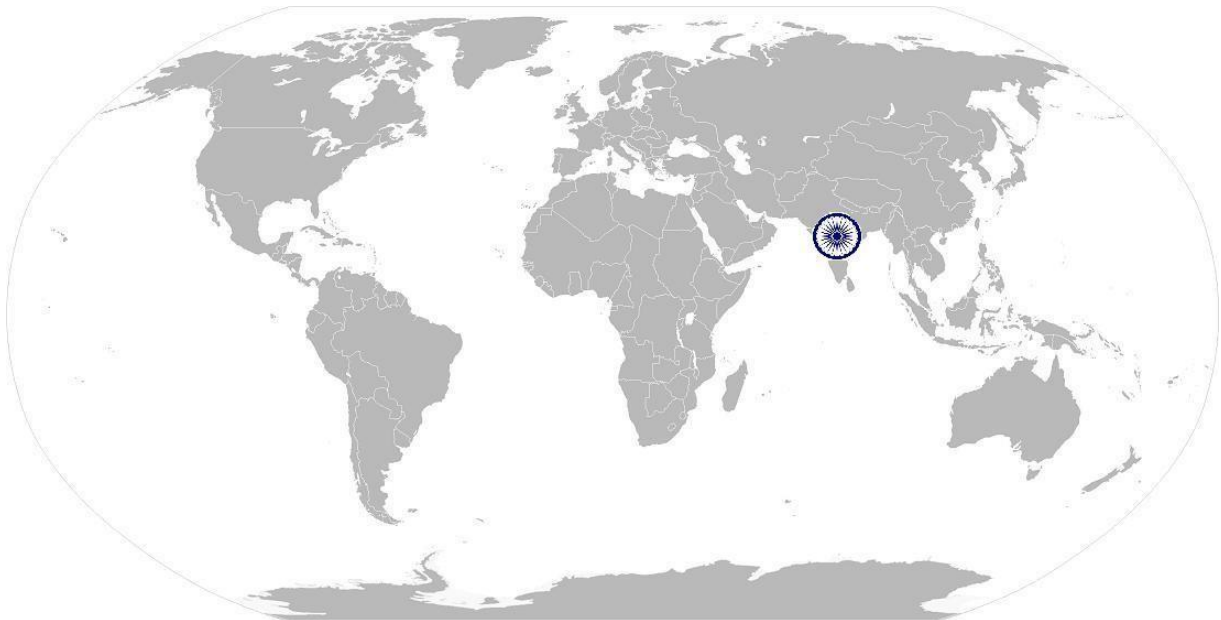
ELE/N4613

Troubleshoot and fix equipment

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.

ELE/N9909

Coordinate with colleagues and co-workers

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	<p>This unit/ task covers the following:</p> <ul style="list-style-type: none"> • Interact with supervisor or superior • Coordinate with colleagues
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Interacting with supervisor	<p>To be competent, the user/ individual must be able to:</p> <p>PC1. understand and assess work requirements</p> <p>PC2. understand the targets and incentives</p> <p>PC3. understand new operating procedures and constraints</p> <p>PC4. report problems in the field</p> <p>PC5. resolve personnel issues</p> <p>PC6. receive feedback on work standards and customer satisfaction</p> <p>PC7. communicate any potential hazards at a particular location</p> <p>PC8. meet given targets</p> <p>PC9. deliver work of expected quality despite constraints</p> <p>PC10. receive positive feedback on behaviour and attitude shown during interaction</p>
Coordinating with colleagues	<p>To be competent, the user/ individual must be able to:</p> <p>PC11. interact with colleagues from different functions and understand the nature of their work</p> <p>PC12. receive spares from tool room or stores; deposit faulty modules and tools to stores</p> <p>PC13. pass on customer complaints to colleagues in a respective geographical area</p> <p>PC14. assist colleagues with resolving field problems, conflicts and achieve smooth workflow</p> <p>PC15. follow the company policy during cross functional interaction</p>
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	<p>The individual on the job needs to know and understand:</p> <p>KA1. company's policies on: incentives, delivery standards, and personnel management</p> <p>KA2. importance of the individual's role in the workflow</p> <p>KA3. reporting structure</p>

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Coordinate with colleagues and co-workers

<p>B. Technical Knowledge</p>	<p>The individual on the job needs to know and understand: KB1. how to communicate effectively KB2. how to build team coordination</p>
<p>Skills (S) [Optional]</p>	
<p>A. Core Skills/ Generic Skills</p>	<p>Teamwork and multitasking</p>
<p>B. Professional Skills</p>	<p>The individual on the job needs to know and understand how: SA1. to deliver product to next work process on time</p>
<p>B. Professional Skills</p>	<p>Decision making</p>
<p>B. Professional Skills</p>	<p>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</p>
<p>B. Professional Skills</p>	<p>Reflective thinking</p>
<p>B. Professional Skills</p>	<p>The individual on the job needs to know and understand: SB3. how to improve work process</p>
<p>B. Professional Skills</p>	<p>Critical thinking</p>
<p>B. Professional Skills</p>	<p>The individual on the job needs to know and understand: SB4. how to spot process disruptions and delays</p>

ELE/N9909

Coordinate with colleagues and co-workers

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

Qualifications Pack For Field Technician – Networking and Storage

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.

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Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish
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	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.
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

Acronyms

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)

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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 QP or NOS	Q
Next two numbers	Occupation code	01
Next two numbers	OS number	01

Qualifications Pack For Field Technician – Networking and Storage

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 evaluations 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.

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Element	Performance Criteria	Total Marks (400)	Out Of	Marks Allocation	
				Theory	Skills Practical
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

Qualifications Pack For Field Technician – Networking and Storage

	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 compliance		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

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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

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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

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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

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	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
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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
		L			