QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR ELECTRONICS INDUSTRY

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

Contact Us:
ESSCI, New Delhi
Electronics Sector Skills Council of India
422, Okhla Industrial Estate, Phase-III,
New Delhi-110020
E-mail:
info@essc-india.org

Introduction

Qualifications Pack-Field Technician (Computing and Peripherals)

SECTOR: ELECTRONICS

SUB-SECTOR: IT Hardware

OCCUPATION: After Sales Support

REFERENCE ID: ELE/Q4601

ALIGNED TO: NCO-2015/ 7422.2001

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 peripherals such as printers, scanners and network devices.

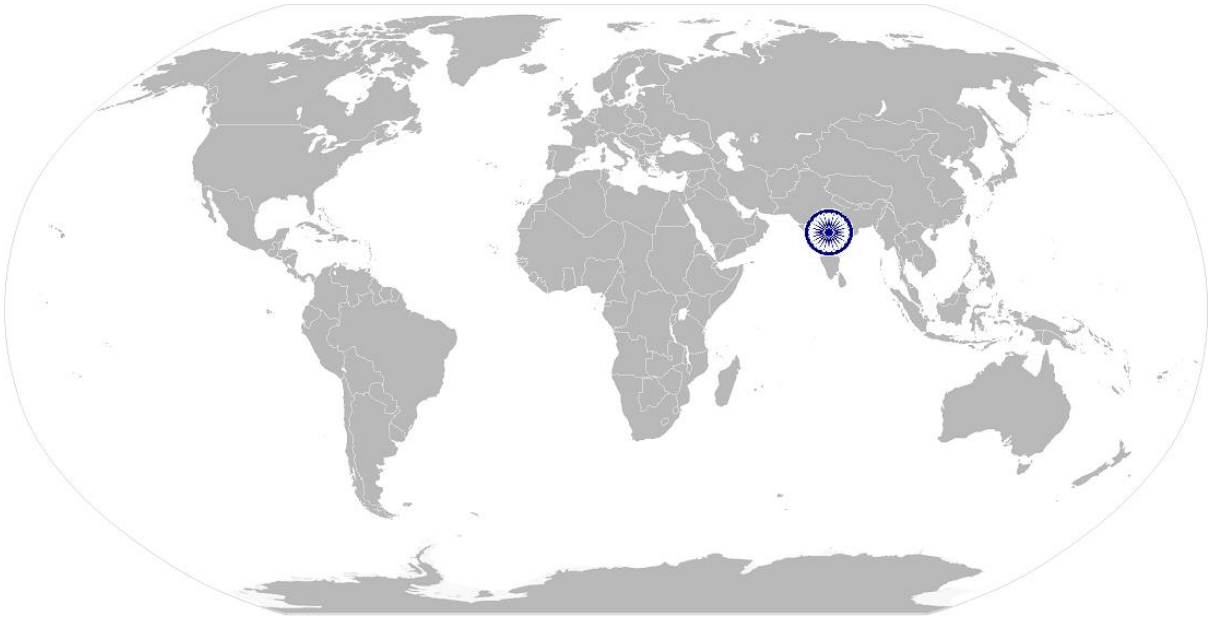
Personal Attributes: The job requires the individual to have: ability to build interpersonal relationships and critical thinking. The individual must be willing to travel to client premises in order to attend to calls at different locations.

Job Details

Qualifications Pack Code	ELE/Q4601		
Job Role	Field Technician – Computing and Peripherals		
Credits(NSQF)	TBD	Version number	1.0
Sector	Electronics	Drafted on	17/11/13
Sub-sector	IT Hardware	Last reviewed on	24/12/13
Occupation	After Sales Support	Next review date	30/06/16
NSQC Clearance on	22/04/15		

Job Role	Field Technician – Computing and Peripherals Also called 'Service Technician'
Role Description	Installing the system and configuring the peripherals, and attending to field calls from customer and complaints for system trouble shooting and repairs
NSQF level	4
Minimum Educational Qualifications	12th Standard Passed
Maximum Educational Qualifications	ITI, Diploma, B.E. (Electronics, Communications, Computer Science, IT)
Training	Not Applicable
Minimum Job Entry Age	18 years
Experience	1 year in computer hardware maintenance for 12th passed
Applicable National Occupational Standards (NOS)	**Compulsory:** 1. ELE/N4601 Engage with customer for IT hardware service 2. ELE/N4602 Install, configure and setup the system 3. ELE/N4603 Troubleshoot and replace faulty module 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 technician interacting with and understanding the customers' repair requirements.

National Occupational Standard

ELE/N4601 **Engage with customers for IT hardware service**

Unit Code	**ELE/N4601**
Unit Title (Task)	**Engage with customers for IT hardware service**
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 on visit or prior to 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 on time within the specified Service Level Agreement

quality	(SLA) time PC19. identify the customer's requirement and identify the resources and record PC20. accurately assess the problem and suggest appropriate solutions PC21. offer the right 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. maintain no 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 electronics of system hardware KB4. hardware maintenance KB5. functions of electrical and mechanical parts/ modules 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)	
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

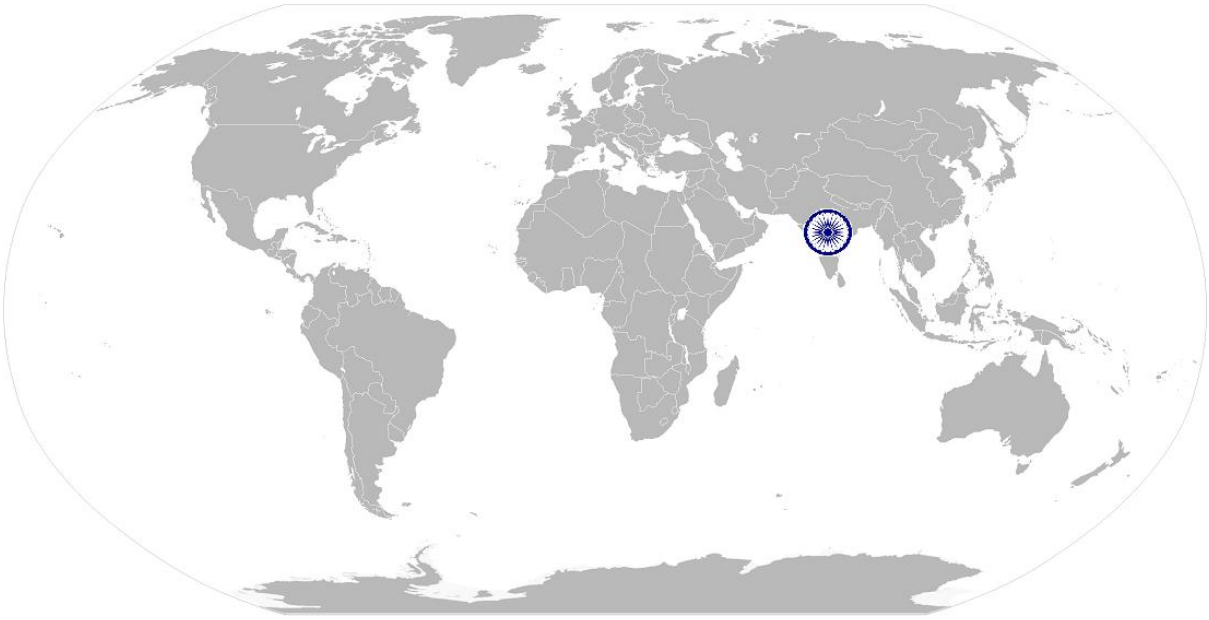
	SB7. how to educate and inform customer about contractual issues such as warranty, cost of service and module replacement SB8. how to educate on precautions to be taken post repairs to avoid recurrence of problem
	Behavioural skills
	The individual on the job needs to know and understand: SB9. importance 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
	SB13. decide on the spot on 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(NSQF)	TBD	Version number	1.0
Industry	Electronics	Drafted on	17/11/13
Industry Sub-sector	IT Hardware	Last reviewed on	24/12/13
Occupation	After Sales Support	Next review date	30/06/16

ELE/N4602 **Install, configure and setup hardware system**

National Occupational Standard



Overview

This unit is about installing the system and configuring peripherals such as the printers, scanners, and network devices.

National Occupational Standard

ELE/N4602 Install, configure and setup hardware system

Unit Code	**ELE /N4602**
Unit Title (Task)	**Install, configure and setup hardware system**
Description	This OS unit is about installing the system, configuring the and setting 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 install the peripherals • 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 hardware	To be competent, the user/ individual must be able to: PC1. check site conditions PC2. check and ensure any tailor-made programs required by the customer PC3. open the packaging of new product and take out the hardware carefully PC4. connect all the hardware devices such as CPU, Monitor, Keyboard, Mouse, as per the specifications of the system PC5. in case of laptop, connect battery, plug in and switch on the system PC6. follow standard operating procedure while handling hardware modules such as handling PCB with ESD standards PC7. follow the standard operating procedure for installation of each model of hardware devices and comply with them PC8. place the system at a location as preferred by customer PC9. install the hardware / devices as per standard operating procedure PC10. ensure that appropriate device and model specific procedure is followed as per installation manual PC11. maintain zero-material defect during material handling by following standard operating procedure PC12. carry tools and manuals as per installation manual
Configuring and setting up peripherals	To be competent, the user/ individual must be able to: PC13. understand the peripheral requirements of customers and ensure all hardware are available PC14. understand the placement requirement of peripheral equipment such as printers, modems, etc., as per customer preferences PC15. connect the peripheral devices with the system as per the standard procedure followed for each equipment PC16. install the peripherals, connect the appropriate peripheral such as printer,

ELE/N4602 **Install, configure and setup hardware system**

	scanner to the system and run the installed program for set up PC17. follow the safety procedures while handling and installing the equipment PC18. install and configure peripherals as standard operating procedure PC19. ensure the placement of peripherals are as per customer requirement
Setting up Software	To be competent, the user/ individual must be able to: PC20. install the operating system and appropriate application software as per customer preference PC21. install additional software as per standard customer requirement PC22.
Checking system functionality	To be competent, the user/ individual must be able to: PC23. switch on the system and peripherals and check for effective functioning PC24. check and ensure the functionality of system, peripherals and applications PC25. ensure product functions are tested and demo given to the customer after hardware, software, operating system and peripheral integration with reference to the installation manual PC26. ensure that customer is satisfied
Completing installation	To be competent, the user/ individual must be able to: PC27. measure and meet multipart calls norm against benchmark PC28. complete the installation within the agreed Turn Around Time (TAT) PC29. complete the call closure in single visit PC30. complete the task with the quality benchmark of the company
Interacting with customer	To be competent, the user/ individual must be able to: PC31. understand the customer requirement and queries on the hardware PC32. educate customer on use of and procedures to be followed in operation of hardware PC33. inform customer about warranty and other terms and conditions on the hardware devices PC34. inform about cost estimates for any other new installations PC35. provide adequate information about the hardware devices, operating procedure, maintenance, etc., to the customer PC36. address the queries and issues raised by the customer on device PC37. inform customers clearly about warranty, and product terms and conditions PC38. provide customers on all the appropriate documents including invoice
Interacting with superior	PC39. understand the work requirement from superior, periodically PC40. report to superior on the work completed PC41. escalate the customer issues and problems that cannot be handled at field level PC42. document the work completed on the company ERP software for tracking and future references
Achieving productivity and quality	To be competent, the user/ individual must be able to: PC43. achieve 100% on-time completion of field installation with reference to agreed target and time PC44. submit feedback form on customer satisfaction level with respect to the product installation PC45. find solutions to customer complaints and queries unresolved in the field

ELE/N4602 **Install, configure and setup hardware system**

	PC46. 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
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 equipment assembled in a pack (one system) KB8. different types of peripherals and their standard installation procedure KB9. specification and the procedures to be followed for setting up the system KB10. voltage and power requirement for different hardware devices KB11. memory, input, output and storage devices KB12. different modules in system such as SMPS, drivers, hard disk, battery, mother board KB13. different module in the peripheral and their functions KB14. how to operate the system and other hardware peripherals KB15. controls of different peripherals including UPS KB16. implementation process for Engineering Change Order (ECO) KB17. all safety rules, policies and procedures KB18. quality standards to be followed
Skills (S)	
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

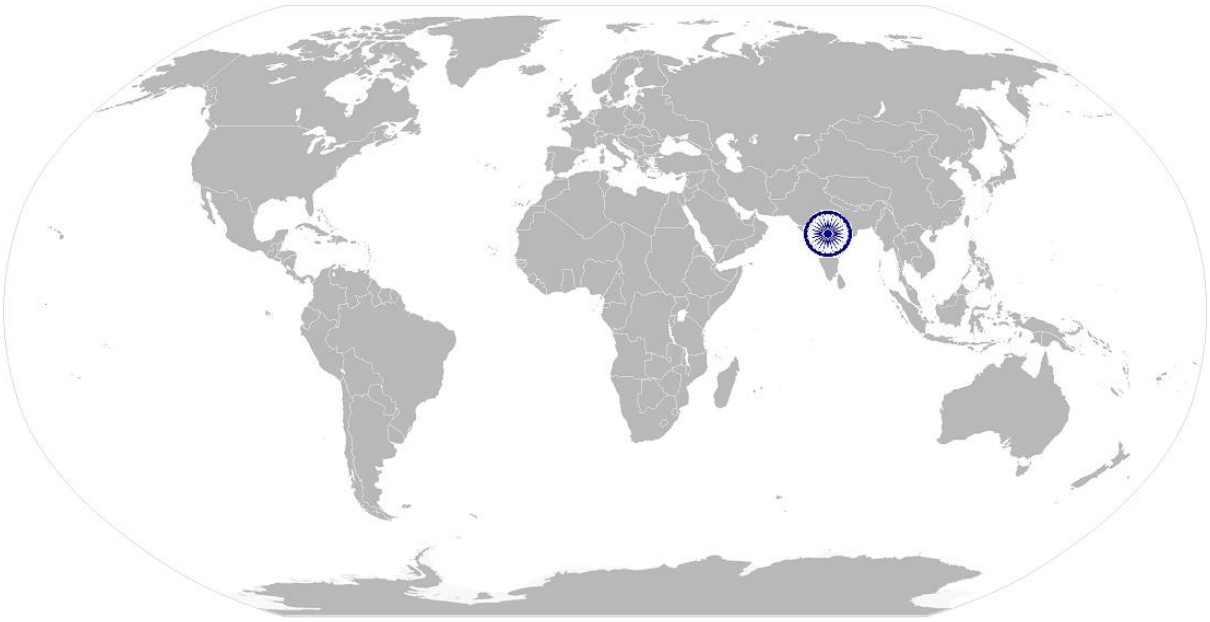
ELE/N4602 **Install, configure and setup hardware system**

	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 SB4. configure different settings and installations of hardware and software as per customer requirement
	Computer system and peripheral hardware related skills
	The user/individual on the job needs to know and understand how: SB5. to assemble and set up computer and laptop SB6. to assemble and install the peripheral hardware SB7. different hardware modules in the computer system and peripherals 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/N4602		
Credits(NSQF)	TBD	Version number	1.0
Industry	Electronics	Drafted on	17/11/13
Industry Sub-sector	IT Hardware	Last reviewed on	24/12/13
Occupation	After Sales Support	Next review date	30/06/16

National Occupational Standard



Overview

This unit is about troubleshooting hardware related problems by diagnosing and replacing faulty module at customer's premises.

ELE/N4603 **Troubleshoot and replace faulty module**

National Occupational Standard

Unit Code	**ELE /N4603**
Unit Title (Task)	**Troubleshoot and replace faulty module**
Description	This OS unit is about diagnosing the problem and troubleshooting problems in the hardware
Scope	This unit/ task covers the following: • Receive and understand the customer complaint registered at customer care • Identify system problems on firld visit • Replace faulty module after diagnosis • 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. carry the troubleshooting instructions sheets PC5. understand the warranty, terms and conditions with relation to the product PC6. identify the type of problem and carry relevant tools and euipment based customer complaint and standard operating procedure PC7. assess whether replacement or repair of module may be required PC8. carry only 100% approved and verified field replacable parts for repairing or replacing PC9. 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: PC10. understand the problems experienced by the customer PC11. use equipment such as 'power on self test' (POST) card to identify the common errors and issues in the system which does not start up PC12. conduct root-cause analysis and identify the likely problem area PC13. disassemble and check each part of computing system such as SMPS, Memory, Hard disk to isolate the failed module PC14. follow standard operating procedure while handling hardware modules such as handling PCB with ESD standards PC15. in case of peripherals, check all parts such as print head, lens, led display to isolate faulty module PC16. make decision on whether the part can be replaced or component should be repaired PC17. identify the solution design where the module to be replaced or software to be installed or updated

ELE/N4603 **Troubleshoot and replace faulty module**

	PC18. decide on whether to replace module or send to repair centre
Replacing faulty module	To be competent, the user/ individual must be able to: PC19. if the module has to be replaced, disassemble the system, remove and replace and re-assemble the system PC20. if soldering needs to be done, use manual hand soldering iron unit to solder the components or parts PC21. if there is any operating system error, software related issues, reinstal the software or fixing the issues PC22. fix the common problems faced with peripherals and networking devices PC23. escalate the problems which cannot be addressed at field level to the superior for servicing at company's repair stations PC24. coordinate with remote technical helpdesk to seek any assistance on field PC25. follow appropriate safety procedures while handling tools such as soldering iron PC26. test 100% products or functions are tested after new hardware modules or software is installed
Completing repairs	To be competent, the user/ individual must be able to: PC27. understand clearly the requirement before field visit PC28. report percentage of call closure in multiple visits against benchmark PC29. ensure no sub-standard or unverified parts are used in replacing PC30. complete the function within the agreed Turn Around Time (TAT) PC31. complete the call closure in single visit PC32. complete the task with the quality benchmark of the company PC33. meet monthly or daily target given
Interacting with customer	To be competent, the user/ individual must be able to: PC34. inform customer about the problem, action to be taken PC35. inform customer on adequate information about hardware device or software PC36. instruct customer on use of and procedures to be followed for operating the system or hardware PC37. confirm acceptance before replacing module or sending for repairs to company PC38. inform customer about warranty and other terms and conditions on the replaced or repaired hardware devices PC39. provide relevant documents to customers on completion of work PC40. achieve 100% satisfaction with customer on post sales service
Reporting to superior	To be competent, the user/ individual must be able to: PC41. receive the work order from the superior or customer care about the complaint registered PC42. report on the work load and completion status PC43. find solutions to customer complaints and queries that are unresolved in the field PC44. escalate the problems that cannot be resolved at field level with reason PC45. report 100% on time completion of field repair or hardware replacement with reference to agreed target and time or reasons for not meeting target PC46. submit the feedback form on customer satisfaction level with respect to the

ELE/N4603 **Troubleshoot and replace faulty module**

	product repair PC47. accurately report work status through proper documentation as per company's standards PC48. 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
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. different equipments assembled in a pack (one system) KB7. peripherals and their standard operating procedure for disassembling and re-assembling KB8. procedures to be followed for trouble shooting and standards to follow KB9. voltage and power requirement for different hardware devices KB10. memory, input, output and storage devices KB11. different modules in system such as SMPS, drivers, hard disk, battery, mother board KB12. tools required for repair such as soldering iron, multimeter KB13. controls of different peripherals KB14. all safety procedures to follow KB15. quality standards to be followed KB16. Electrostatic Discharge (ESD) and measures to be taken
Skills (S)	
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

ELE/N4603 **Troubleshoot and replace faulty module**

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
	Computer system and peripheral hardware related skills
	The user/individual on the job needs to know and understand how: SB5. different modules and their functions in computer systems SB6. to diagnose the issues in computer and laptop hardware modules SB7. to diagnose the issues in peripheral modules SB8. assemble modules in computer system and peripherals
	Using tools and machines
	The user/individual on the job needs to know and understand how to: SB9. operate electronic screw drivers for disassembling and assembling of equipments SB10. 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: SB11. improve work processes SB12. reduce errors on field and repeat trips
	Critical thinking
	The user/individual on the job needs to know and understand how to: SB13. spot process disruptions and delays SB14. report on any issues raised by customers to superiors without delay

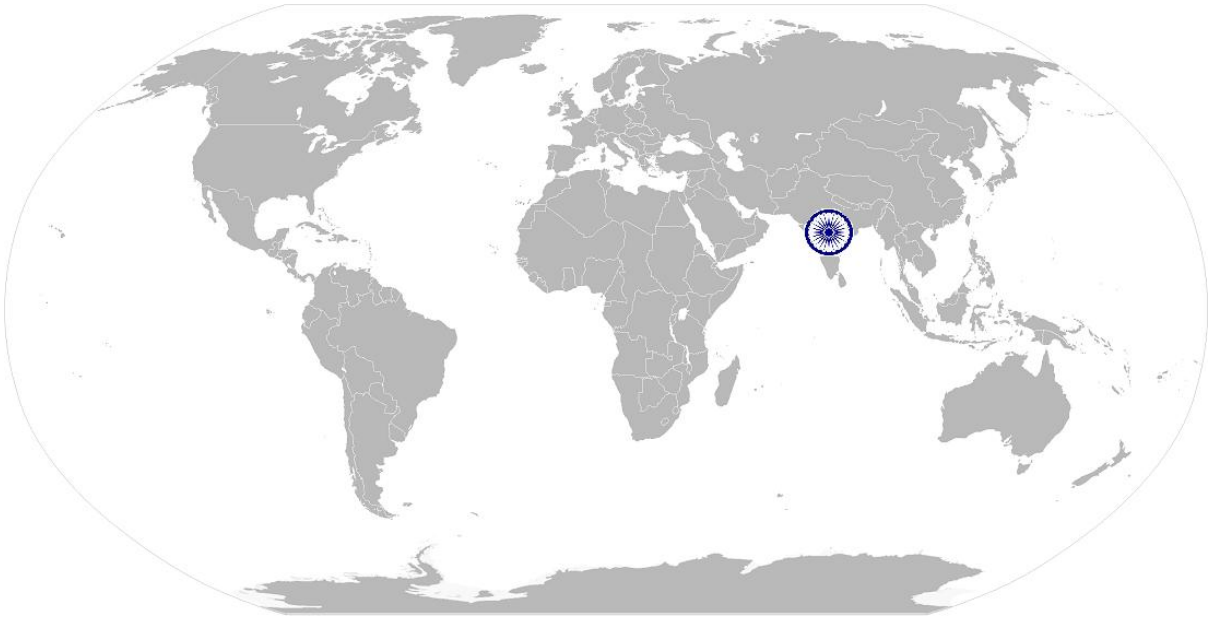
ELE/N4603 **Troubleshoot and replace faulty module**

NOS Version Control

NOS Code	ELE/N4603		
Credits(NSQF)	TBD	Version number	1.0
Industry	Electronics	Drafted on	17/11/13
Industry Sub-sector	IT Hardware	Last reviewed on	24/12/13
Occupation	After Sales Support	Next review date	30/06/16

ELE/N9909 Coordinate with colleagues and co-workers

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	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 problemsresolve conflicts and achieve smooth workflow PC15. follow the company policy during cross functional interaction

Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	The individual on the job needs to know and understand: KA1. company's policies on: incentives, delivery standards, and personnel management KA2. importance of the individual's role in the workflow KA3. reporting structure

B. Technical Knowledge	The individual on the job needs to know and understand: KB1. how to communicate effectively KB2. how to build team coordination
Skills (S)	
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(NSQF)	TBD	Version number	1.0
Industry	Electronics	Drafted on	17/11/13
Industry Sub-sector	IT Hardware	Last reviewed on	24/12/13
Occupation	After Sales Support	Next review date	30/06/16

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.

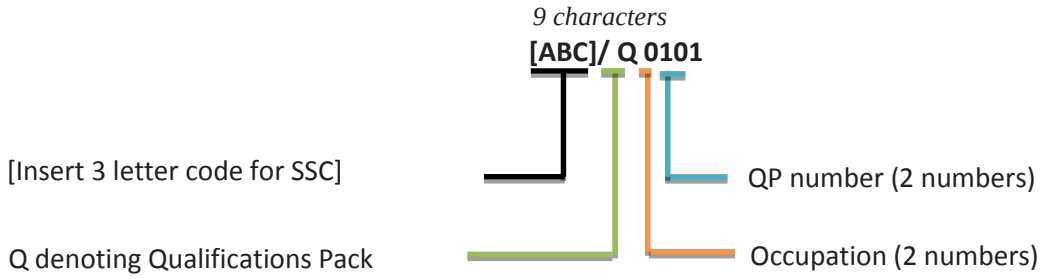
Acronyms

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

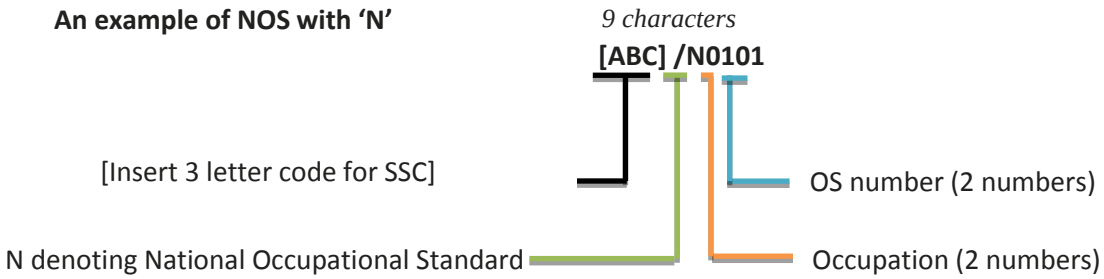
Nomenclature for QP and NOS

Qualifications Pack



Occupational Standard

An example of NOS with 'N'



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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
Generic Occupation	96 - 99

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

CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role	**Field Technician – Computing and Peripherals**
QP #	**ELE/Q4601**
Sector Skill Council	**Electronics Sector Skills Council of India**

Guidelines for Assessment:

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned portance 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	Marks Allocation	
				Theory	Skills Practical
ELE/N4601 Engage with customers					
Interacting with customer	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
Understanding customer's requirements	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
Suggesting solutions	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
Completing documentation	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
Achieving productivity and quality	PC18. interact with customer on time within the specified Service Level Agreement (SLA) time		3	1	2
	PC19. identify the customer's requirement and identify the resources and record		3	1	2
	PC20. accurately assess the problem and suggest appropriate solutions		3	1	2

	PC21. offer the right 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. maintain no 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
ELE/N4602 Install, configure and setup hardware system					
Installing hardware	PC1. check site conditions	**100**	1	0	1
	PC2. check and ensure any tailor-made programs required by the customer		1	0	1
	PC3. open the packaging of new product and take out the hardware carefully		1	0	1
	PC4. connect all the hardware devices such as CPU, Monitor, Keyboard, Mouse, as per the specifications of the system		2	1	1
	PC5. in case of laptop, connect battery, plug in and switch on the system		2	1	1
	PC6. follow standard operating procedure while handling hardware modules such as handling PCB with ESD standards		2	1	1
	PC7. follow the standard operating procedure for installation of each model of hardware devices and comply with them		2	1	1
	PC8. place the system at a location as preferred by customer		2	1	1
	PC9. install the hardware / devices as per standard operating procedure		2	1	1
	PC10. ensure that appropriate device and model specific procedure is followed as per installation manual		2	1	1
	PC11. maintain zero-material defect during material handling by following standard operating procedure		2	1	1
	PC12. carry tools and manuals as per installation manual		1	0	1
Configuring and setting up peripherals	PC13. understand the peripheral requirements of customers and ensure all hardware are available		3	1	2
	PC14. understand the placement requirement of peripheral equipment such as printers, modems, etc., as per customer preferences		3	1	2
	PC15. connect the peripheral devices with the system as per the standard procedure followed for each equipment		4	2	2
	PC16. install the peripherals, connect the appropriate peripheral such as printer, scanner to the system and run the installed program for set up		4	2	2
	PC17. follow the safety procedures while handling and installing the equipment		4	2	2
	PC18. install and configure peripherals as standard operating procedure		4	2	2
	PC19. ensure the placement of peripherals are as per customer requirement		3	1	2
Setting up Software	PC20. install the operating system and appropriate application software as per customer preference		5	2	3
	PC21. install additional software as per standard customer requirement		5	2	3
Checking system functionality	PC23. switch on the system and peripherals and check for effective functioning		2	1	1
	PC24. check and ensure the functionality of system, peripherals and applications		3	1	2
	PC25. ensure product functions are tested and demo given to the customer after hardware, software, operating system and peripheral integration with reference to the installation manual		3	1	2

	PC26. ensure that customer is satisfied		2	1	1
Completing installation	PC27. measure and meet multipart calls norm against benchmark		2	1	1
	PC28. complete the installation within the agreed Turn Around Time (TAT)		3	1	2
	PC29. complete the call closure in single visit		3	1	2
	PC30. complete the task with the quality benchmark of the company		2	1	1
Interacting with customer	PC31. understand the customer requirement and queries on the hardware		2	1	1
	PC32. educate customer on use of and procedures to be followed in operation of hardware		1	0	1
	PC33. inform customer about warranty and other terms and conditions on the hardware devices		1	0	1
	PC34. inform about cost estimates for any other new installations		2	1	1
	PC35. provide adequate information about the hardware devices, operating procedure, maintenance, etc., to the customer		1	0	1
	PC36. address the queries and issues raised by the customer on device		1	0	1
	PC37. inform customers clearly about warranty, and product terms and conditions		1	0	1
	PC38. provide customers on all the appropriate documents including invoice		1	0	1
Interacting with superior	PC39. understand the work requirement from superior, periodically		1	0	1
	PC40. report to superior on the work completed		1	0	1
	PC41. escalate the customer issues and problems that cannot be handled at field level		2	1	1
	PC42. document the work completed on the company ERP software for tracking and future references		1	0	1
Achieving productivity and quality	PC43. achieve 100% on-time completion of field installation with reference to agreed target and time		3	2	1
	PC44. submit feedback form on customer satisfaction level with respect to the product installation		3	2	1
	PC45. find solutions to customer complaints and queries unresolved in the field		2	1	1
	PC46. report work status and prepare documentation as per company standards		2	1	1
			100	**40**	**60**
ELE/N4603 Troubleshoot and replace faulty module					
Understanding customer complaint	PC1. listen carefully to concerns registered by customer at customer care		3	1	2
	PC2. interact with customer on telephone for better understanding of concern before the visit		3	1	2
	PC3. commence field trip based on type of complaint		2	1	1
	PC4. carry the troubleshooting instructions sheets		3	1	2
	PC5. understand the warranty, terms and conditions with relation to the product		3	1	2
	PC6. identify the type of problem and carry relevant tools and euipment based customer complaint and standard operating procedure		3	1	2
	PC7. assess whether replacement or repair of module may be required	**100**	3	1	2
	PC8. carry only 100% approved and verified field replacable parts for repairing or replacing		2	1	1
	PC9. decide on whether it can be repaired in field or at company's test centre		3	1	2
Identifying systemlevel problem on field	PC10. understand the problems experienced by the customer		2	1	1
	PC11. use equipment such as 'power on self test' (POST) card to identify the common errors and issues in the system which does not start up		3	1	2
	PC12. conduct root-cause analysis and identify the likely problem area		3	1	2
	PC13. disassemble and check each part of computing system such as SMPS, Memory, Hard disk to isolate the failed		3	1	2

	module				
	PC14. follow standard operating procedure while handling hardware modules such as handling PCB with ESD standards		3	1	2
	PC15. in case of peripherals, check all parts such as print head, lens, led display to isolate faulty module		3	1	2
	PC16. make decision on whether the part can be replaced or component should be repaired		3	1	2
	PC17. identify the solution design where the module to be replaced or software to be installed or updated		3	1	2
	PC18. decide on whether to replace module or send to repair centre		2	1	1
Replacing faulty module	PC19. if the module has to be replaced, disassemble the system, remove and replace and re-assemble the system		2	1	1
	PC20. if soldering needs to be done, use manual hand soldering iron unit to solder the components or parts		3	1	2
	PC21. if there is any operating system error, software related issues, reinstal the software or fixing the issues		3	1	2
	PC22. fix the common problems faced with peripherals and networking devices		3	1	2
	PC23. escalate the problems which cannot be addressed at field level to the superior for servicing at company's repair stations		2	1	1
	PC24. coordinate with remote technical helpdesk to seek any assistance on field		2	1	1
	PC25. follow appropriate safety procedures while handling tools such as soldering iron		3	2	1
	PC26. test 100% products or functions are tested after new hardware modules or software is installed		2	1	1
Completing repairs	PC27. understand clearly the requirement before field visit		2	1	1
	PC28. report percentage of call closure in multiple visits against benchmark		1	1	0
	PC29. ensure no sub-standard or unverified parts are used in replacing		2	1	1
	PC30. complete the function within the agreed Turn Around Time (TAT)		2	1	1
	PC31. complete the call closure in single visit		1	1	0
	PC32. complete the task with the quality benchmark of the company		1	1	0
	PC33. meet monthly or daily target given		1	1	0
Interacting with customer	PC34. inform customer about the problem, action to be taken		1	0	1
	PC35. inform customer on adequate information about hardware device or software		2	1	1
	PC36. instruct customer on use of and procedures to be followed for operating the system or hardware		2	1	1
	PC37. confirm acceptance before replacing module or sending for repairs to company		1	1	0
	PC38. inform customer about warranty and other terms and conditions on the replaced or repaired hardware devices		2	1	1
	PC39. provide relevant documents to customers on completion of work		1	0	1
	PC40. achieve 100% satisfaction with customer on post sales service		1	0	1
Reporting to superior	PC41. receive the work order from the superior or customer care about the complaint registered		2	1	1
	PC42. report on the work load and completion status		1	0	1
	PC43. find solutions to customer complaints and queries that are unresolved in the field		2	1	1
	PC44. escalate the problems that cannot be resolved at field level with reason		1	0	1
	PC45. 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
	PC46. submit the feedback form on customer satisfaction level with respect to the product repair		1	0	1
	PC47. accurately report work status through proper documentation as per company's standards		1	0	1

	PC48. create knowledge bank on the complex repairs made through documentation		1	0	1
		TOTAL	100	40	60
ELE/N0009 Coordinate with colleagues					
Interacting with supervisor	PC1. understand and assess work requirements	**100**	5	2	3
	PC2. understand the targets and incentives		5	2	3
	PC3. understand new operating procedures and constraints		5	2	3
	PC4. report problems in the field		5	2	3
	PC5. resolve personnel issues		5	2	3
	PC6. receive feedback on work standards and customer satisfaction		5	2	3
	PC7. communicate any potential hazards at a particular location		5	2	3
	PC8. meet given targets		5	2	3
	PC9. deliver work of expected quality despite constraints		5	2	3
	PC10. receive positive feedback on behaviour and attitude shown during interaction		5	2	3
Coordinating with colleagues	PC11. interact with colleagues from different functions and understand the nature of their work		10	4	6
	PC12. receive spares from tool room or stores; deposit faulty modules and tools to stores		10	4	6
	PC13. pass on customer complaints to colleagues in a respective geographical area		10	4	6
	PC14. assist colleagues with resolving field problemsresolve conflicts and achieve smooth workflow		10	4	6
	PC15. follow the company policy during cross functional interaction		10	4	6
		TOTAL	100	40	60