

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

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



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Introduction

Qualifications Pack- Mobile Phone Hardware Repair Technician

SECTOR: ELECTRONICS

SUB-SECTOR: COMMUNICATION & BROADCASTING

OCCUPATION: AFTER SALES SERVICE

REFERENCE ID: ELE/Q8104

ALIGNED TO: NCO-2015/ 7422.2301

The Mobile Phone Hardware Repair Technician diagnoses problems and repairs the faulty module of the mobilephone.

Brief Job Description: The individual at work is responsible for rectifying faults in the mobilephone brought in by the customer. The individual receives the faulty mobile phone, diagnoses the problems, performs front end or hardware level repair as required, resolves software issues and ensures effective functioning before delivering back to customer.

Personal Attributes: The job requires the individual to have: attention to details, patience, ability to listen, steady hands, logical thinking and customer orientation. The individual must work on desk with different types of equipment.

Job Details

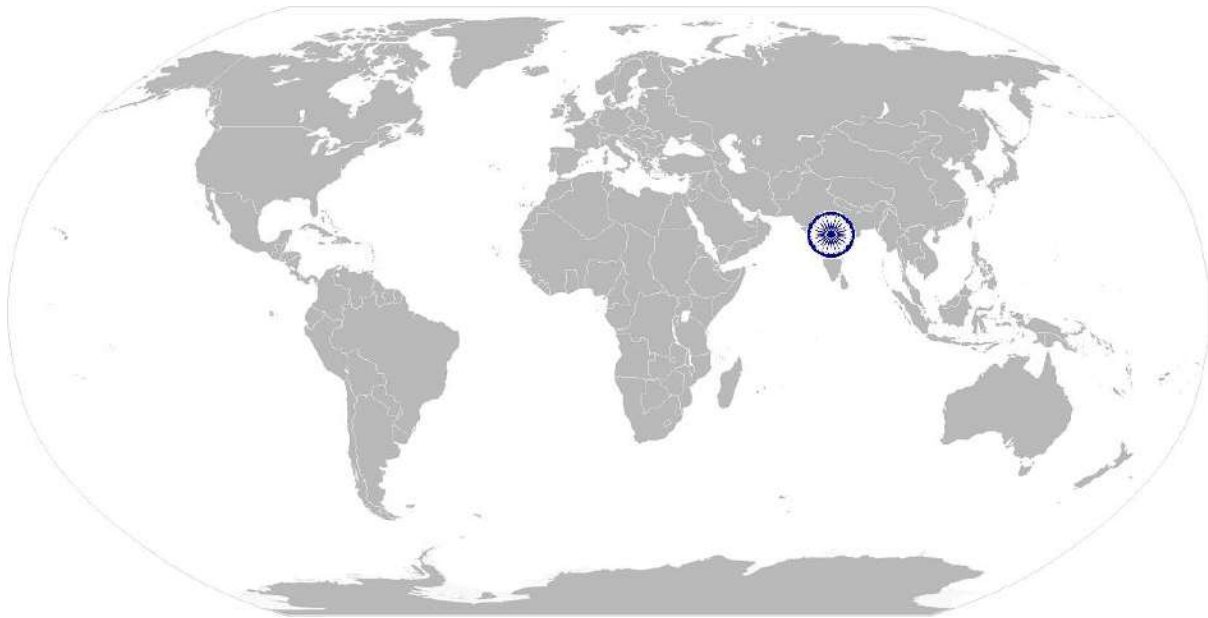
Qualifications Pack Code	ELE/Q8104		
Job Role	Mobile Phone Hardware Repair Technician		
Credits(NSQF)	TBD	Version number	1.0
Sector	Electronics	Drafted on	12/01/14
Sub-sector	Communication & Broadcasting	Last reviewed on	29/04/15
Occupation	After Sales Service	Next review date	30/06/16
NSQC Clearance on	18/05/15		

Job Role	Mobile Phone Hardware Repair Technician
Role Description	Diagnosing problems and repairing the faulty module of the mobile phone
NSQF level	4
Minimum Educational Qualifications	ITI
Maximum Educational Qualifications	B.E.
Training	Not applicable
Minimum Job Entry Age	18 years
Experience	1 year in hardware repair for ITI passed
Applicable National Occupational Standards (NOS)	<p>Compulsory:</p> <ol style="list-style-type: none"> ELE/N8106 Interact with customer and perform front end repair ELE/N8107 Repair and rectify the faults in mobile phone ELE/N9951 Interact with other employees ELE/N9910 Maintain safe and secure work environment <p>Optional: Not applicable</p>
Performance Criteria	As described in the relevant OS units

ELE/N8106

Interact with customer and perform front end repair

National Occupational Standard



Overview

This unit is about interacting with customers and understanding their requirements or problems faced with the mobile phone. It includes front end repairing where disassembling of hardware is not required.

ELE/N8106

Interact with customer and perform front end repair

National Occupational Standard

Unit Code	ELE /N8106
Unit Title (Task)	Interact with customer and perform front end repair
Description	This OS unit is about interacting with the customers and their customer requirements or problems faced in the mobile phone and performing front end repair where disassembling of hardware is not required
Scope	<p>This unit/ task covers the following:</p> <ul style="list-style-type: none"> Engage with the customer Understand the complaint Check for terms and conditions of using system Perform front end repair Interact with supervisor or superior and achieve targets
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Engaging with customers	<p>To be competent, the user/ individual must be able to:</p> <p>PC1. receive the customers and greet them as per company's norms</p> <p>PC2. follow behavioural etiquettes while interacting with customers</p> <p>PC3. ensure the customers are comfortable in the store</p> <p>PC4. communicate in the language which the customers are comfortable with</p> <p>PC5. understand the profile of the customers and offer service</p> <p>PC6. inform about repair charges and warranty applicable</p>
Understanding the complaint	<p>To be competent, the user/ individual must be able to:</p> <p>PC7. interact with customers to understand the customer's purpose of visit such as repair of phone, purchase of accessories, software upload, collection of repaired phone</p> <p>PC8. listen to customers and understand the customer level complaint such as display not working, not switching on</p> <p>PC9. interrogate the customers to assess the cause of problem such as physical damage, uploading of any unauthorised software or application</p> <p>PC10. decide on the action to be performed, i.e., front end repair or hardware level repair is required</p> <p>PC11. inform customers about the time taken and estimated cost for hardware level repair</p> <p>PC12. provide document to customers for collecting the device after repair</p>
Documenting on computer	<p>To be competent, the user/ individual must be able to:</p> <p>PC13. use the system to identify the warranty coverage of the mobile phone and other terms and conditions</p> <p>PC14. understand the customer relationship management policy of the mobile brand and inform customers about them</p> <p>PC15. log into customer portal and enter the details of the customer and other details such as phone model, complaints, warranty coverage</p> <p>PC16. understand and use the interactive ERP system of the company and enter</p>

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Interact with customer and perform front end repair

	<p>appropriate details</p> <p>PC17. use the system to prepare invoice, stock management, order placement, accessories availability, etc.</p>
Performing front end repair	<p>To be competent, the user/ individual must be able to:</p> <p>PC18. identify problem and decide the action to be taken</p> <p>PC19. upload only licensed and brand approved applications as per customer requirement using system</p> <p>PC20. understand the application and software compatability with the mobile phone and suggest to customers accordingly</p> <p>PC21. check the accessories and perform a demo with the customer to ensure their functionality (chargers, SD card, etc)</p> <p>PC22. open the panel of the mobile phone without damaging them</p> <p>PC23. replace the parts such as battery and clean the inner parts of the phone</p> <p>PC24. ensure the functionality of the replaced part</p> <p>PC25. provide necessary details on the warranty, terms and conditions of the replaced parts</p> <p>PC26. educate customers on effective usage of mobile phone to save battery and to avoid any repeat problem</p>
Interacting with superior and meeting target	<p>To be competent, the user/ individual must be able to:</p> <p>PC27. understand the work requirement from superior, periodically</p> <p>PC28. report to superior on the work completed</p> <p>PC29. seek technical assistance from superior whenever required</p> <p>PC30. document the work completed on the company ERP software for tracking and future references</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. company's service level agreement (SLA) with the brand</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. operate various models of moilephone</p> <p>KB3. features of mobile phone and their purpose</p> <p>KB4. different types of mobile phone and their model specifications</p> <p>KB5. how to document the spares movement note and capture all the action performed</p> <p>KB6. different accessories available for mobile phones and their purpose</p> <p>KB7. software and applications related to mobile phone</p> <p>KB8. procedures of replacing accessories such as battery, SD card</p> <p>KB9. software and applications available in the mobile phone market, their usage</p>

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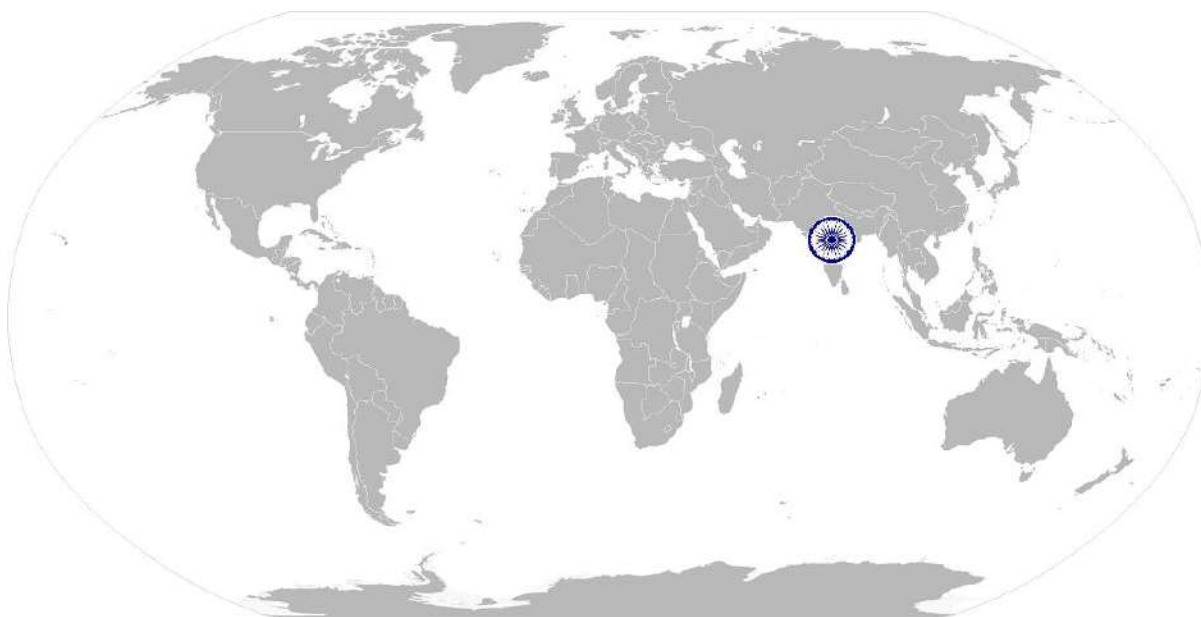
Interact with customer and perform front end repair

	<p>and purpose</p> <p>KB10. licensed and authorised software compatible for mobile phones and the downloading procedure</p> <p>KB11. specifications of accessories such as chargers, battery</p> <p>KB12. service level agreement with the brand on parameters such as turn around time (TAT), repair procedure, warranty</p> <p>KB13. company's ERP system and operational procedure</p> <p>KB14. safety rules, policies and procedures</p> <p>KB15. quality standards to be followed</p>
Skills (S)	
<p>A. Core Skills/ Generic Skills</p>	<p>Reading and writing skills</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SA1. prepare complaints note with customer details, issues faced, phone details</p> <p>SA2. note customer complaints and solution provided</p> <p>SA3. prepare invoice with appropriate details</p>
	<p>Teamwork and multitasking</p> <p>The user/individual on the job needs to know and understand how:</p> <p>SA4. to share work load as required</p> <p>SA5. to achieve the targets given on service</p>
<p>B. Professional Skills</p>	<p>Interpersonal skills</p> <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>
	<p>Communication skills</p> <p>The individual on the job needs to know and understand:</p> <p>SB4. how to seek inputs from customers 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 or accessories replacement</p> <p>SB8. how to educate on precautions to be taken for effective uage of mobile phone</p>
	<p>Behavioural skills</p>
	<p>The individual on the job needs to know and understand:</p> <p>SB9. importance of personal grooming</p> <p>SB10. significance of etiquette such as maintaining the appropriate physical distance with customer during conversation</p> <p>SB11. importance of being patient and courteous with all types of customers</p> <p>SB12. being polite and courteous under all circumstances</p>

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Interact with customer and perform front end repair

	Computer and Software related skills
	<p>The user/individual on the job needs to know and understand:</p> <p>SB13. how to operate computer and laptop with ease</p> <p>SB14. software and applications related to mobile phone with its features and purpose</p> <p>SB15. how to download software and application from company's website and from cloud</p> <p>SB16. how to download mobile phone related document from internet such as model specification ,repair manual</p>



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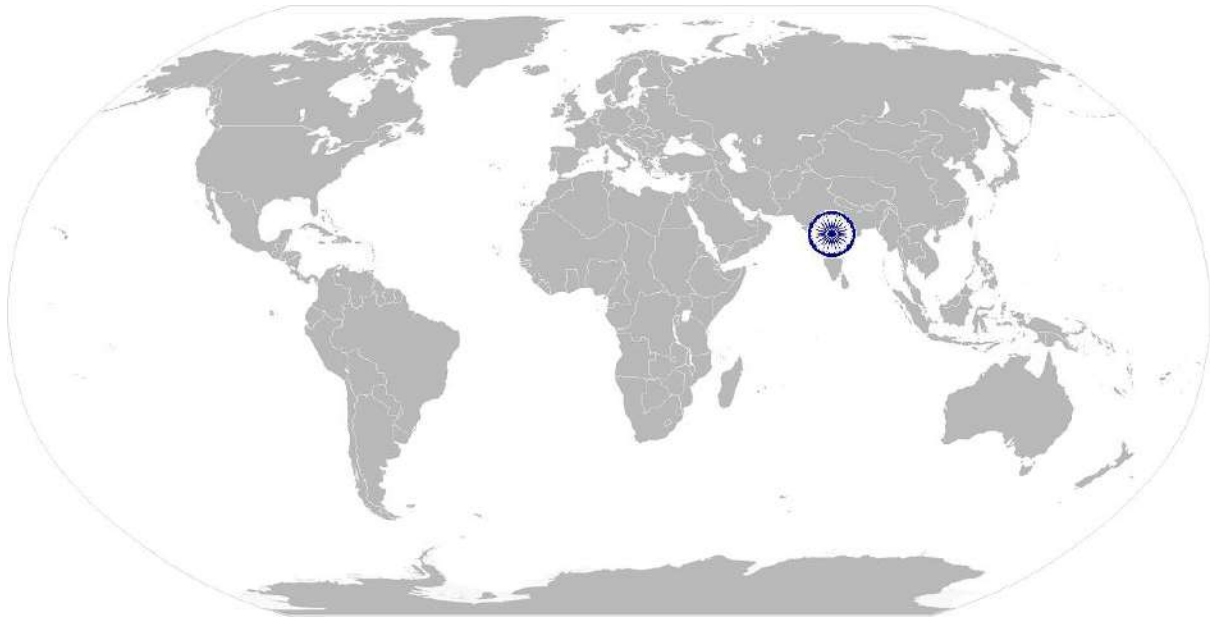
Interact with customer and perform front end repair

NOS Version Control

NOS Code	ELE/N8106		
Credits(NSQF)	TBD	Version number	1.0
Industry	Electronics	Drafted on	12/01/14
Industry Sub-sector	Communication & Broadcasting	Last reviewed on	29/04/15
Occupation	After Sales Service	Next review date	30/06/16



National Occupational Standard



Overview

This unit is about repairing the faulty module after identifying the problem, reworking and rectifying the module using various repairing tools and techniques. It is also about resolving software related problems.

ELE/N8107

Repair and rectify the faults in mobilephone

National Occupational Standard

Unit Code	ELE /N8107
Unit Title (Task)	Repair and rectify the faults in mobile phone
Description	This OS unit is about repairing the faulty module in the hardware and checking for effective functioning. Also, software issues are also checked and rectified.
Scope	<p>This unit/ task covers the following:</p> <ul style="list-style-type: none"> Follow standard repair procedures and avoid damage Diagnose the problem in the mobile phone Decide on the type of repairs to be performed Assemble or disassemble the mobile phone as per repair required Replace or repair the faulty module Fix the software malfunction Document the repair process Seek assistance from superior as necessary Report and document work status and achieve productivity target
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Following standard repair procedure	<p>To be competent, the user/ individual must be able to:</p> <p>PC1. follow the standard procedure as documented by the mobile phone brand for each model</p> <p>PC2. take anti static precautions before work and wear ESD wrist straps or aprons</p> <p>PC3. follow standard operating procedure while handling hardware modules such as handling PCB with ESD standards</p> <p>PC4. use recommended tools for specific operation suggested by the brand</p> <p>PC5. maintain zero-material defect during material handling by following standard operating procedure</p>
Assembling and disassembling the mobile phone	<p>To be competent, the user/ individual must be able to:</p> <p>PC6. open the outer panel of the mobile phone using metal / plastic case opening tools</p> <p>PC7. use the brand recommended screwdrivers to remove the screws to open the inner casing</p> <p>PC8. locate the connectors and release them to remove the motherboard from the device</p> <p>PC9. use hot air gun and other devices to remove the LCD screen from the panel</p> <p>PC10. follow similar process and use appropriate tools to assemble the mobile phone</p>
Diagnosing the problem	<p>To be competent, the user/ individual must be able to:</p> <p>PC11. understand the customer level complaint and confirm the issue</p> <p>PC12. take preventive measures and identify if there are any other issues in the mobile phone</p> <p>PC13. use the self diagnostic tools (similar to power on self test (POST) card) to</p>

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Repair and rectify the faults in mobilephone

	<p>perform standard diagnosis process and ensure functionality of different parts of the device</p> <p>PC14. follow the standard diagnostic procedure as documented by the mobile phone brand for each model</p> <p>PC15. check the recently installed application or software and verify the compatability of the software with the mobile phone</p>
Fixing the software	<p>To be competent, the user/ individual must be able to:</p> <p>PC16. check the recently installed application or software and verify the compatability of the software with the mobile phone</p> <p>PC17. uninstall the applications that is not compatable or creating issues in the mobile phone</p> <p>PC18. install the licensed and authorised softwares to resolve issues and suiting the customer's requirement</p>
Repairing the component or module	<p>To be competent, the user/ individual must be able to:</p> <p>PC19. understand the scope of component level of repair as suggested by the brand</p> <p>PC20. estimate the cost of repair and verify if it is with in Beyond Economic Repair (BER)</p> <p>PC21. heat the singled out component using hot air gun to melt the solder joints and remove from PCB</p> <p>PC22. clean the board by melting the old solder and removing</p> <p>PC23. place the new component precisely on the board at specified location</p> <p>PC24. solder the component on the PCB using soldering stations</p> <p>PC25. ensure the soldering is proper and the component is fixed as per the specification</p> <p>PC26. operate automated BGA (ball grid array) work station to precisely remove the chip from the board and repair them</p> <p>PC27. perform reballing function by dismantling, heating the chip to be removed from the board, remove the solder remains, put new solder balls, place the chip and solder them with the PCB</p> <p>PC28. check for functioning of the hardware after repairing</p> <p>PC29. ensure that there is no damage of PCB while removal and fixing of SMD components</p> <p>PC30. ensure other components are not damaged while using hot air gun for removal of a component which could cause damage</p> <p>PC31. ensure adequate soldering for fixing the component and no further rework is required</p>
Replacing faulty component	<p>To be competent, the user/ individual must be able to:</p> <p>PC32. receive spare module / component from stores or OEM</p> <p>PC33. identify and decide on replacing the module or component as the appropriate solution</p> <p>PC34. take adequate measures and follow procedures when replacing expensive or delicate components such as LCD</p> <p>PC35. ensure that cost of replacing is justified as the repair cost is beyond economic repair (BER)</p> <p>PC36. ensure that replaced module or component is working and no further rework is required</p>

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Repair and rectify the faults in mobilephone

<p>Using equipment</p>	<p>To be competent, the user/ individual must be able to:</p> <p>PC37. identify and use appropriate tools and manuals for repairing the specific issue</p> <p>PC38. prevent any accidents while handling hazardous tools</p> <p>PC39. achieve results using appropriate tools for specific rework activity</p> <p>PC40. maintain zero-material defect during material handling by following standard operating procedure for tools handling</p>
<p>Seeking assistance on unresolved faults</p>	<p>To be competent, the user/ individual must be able to:</p> <p>PC41. seek technical assistance from engineer on faults that cannot be fixed</p> <p>PC42. receive instruction from engineers on use of specific tools or new repair processes</p> <p>PC43. discuss with superior if the cost estimate is found to be Beyond Economic repair (BER) and take recommended action</p> <p>PC44. coordinate with superior for performing quality check on the repaired module</p>
<p>Reporting and achieving productivity target</p>	<p>To be competent, the user/ individual must be able to:</p> <p>PC45. report on the work load and completion status</p> <p>PC46. submit the appropriate documentation on completion of task assigned</p> <p>PC47. document the work completed on the company ERP software for tracking and future references</p> <p>PC48. achieve 100% daily and weekly target of number of repairs</p> <p>PC49. meet the target of quality as per the Service Level Agreement (SLA) of the brand and avoid rework</p> <p>PC50. repair within the turnaround time (TAT) and deliver them</p>
<p>Knowledge and Understanding (K)</p>	
<p>A. Organizational Context (Knowledge of the company / organization and its processes)</p>	<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 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. company's repair and stores policy</p> <p>KA8. documentation procedure followed in the company</p> <p>KA9. company's policy on repair time, turnaround time, production targets, working hours</p>
<p>B. Technical Knowledge</p>	<p>The individual on the job needs to know and understand:</p> <p>KB1. basic electronics involved in the hardware</p> <p>KB2. diagnostic or power on tests of different OEMs</p> <p>KB3. operations of different models of mobile phone</p> <p>KB4. features of mobile phone and their purpose</p> <p>KB5. different types of mobile phone and their model specifications</p> <p>KB6. new product specifications and their spares and repair details</p> <p>KB7. how to document the spares movement note and capture activity performed</p> <p>KB8. software and applications related to mobile phone</p>

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Repair and rectify the faults in mobilephone

	<p>KB9. assembling and disassembling mobile phone</p> <p>KB10. handling procedure of display systems in mobile phone (LCD and LED)</p> <p>KB11. frequently encountered problems in mobile phone and their repair procedures</p> <p>KB12. terminologies and procedures mentioned in repair manual</p> <p>KB13. softwares and operating system related to mobile phone</p> <p>KB14. applications including games that can be installed in mobile phone and the authentic source to download them</p> <p>KB15. licensed versions of software and application, its terms and conditions associated with it</p> <p>KB16. different types of soldering techniques such as surface mount, through hole</p> <p>KB17. basic electronic repairing and reworking such as desoldering, soldering, removal and fixing components</p> <p>KB18. usage of tools such as electric screwdrivers, multimeter, soldering station, hot air blower, BGA workstation</p> <p>KB19. overview of IPC Standards</p> <p>KB20. critical process handling such as Torque Drivers, Soldering Temperature Maintenance, Light Intensity, Hot Air Blower Temperature Calibrations</p> <p>KB21. problem solving techniques such as PDCA, RCA, 7QC Tools</p> <p>KB22. X-Ray validations for BGA Rework</p> <p>KB23. MSD component handling</p> <p>KB24. BGA rework in detail</p> <p>KB25. RF testing methodologies</p> <p>KB26. estimate cost of repair and verify Beyond Economic Repair (BER) value</p> <p>KB27. service level agreement (SLA) and conditions associated with it</p> <p>KB28. Electrostatic Discharge (ESD), its purpose and precautionary measures to be taken</p> <p>KB29. process system such as 5S</p> <p>KB30. documentation procedure to record customer, mobile phone and repair details</p> <p>KB31. check and test various electronic components on their functionality</p> <p>KB32. quality standards to be followed</p> <p>KB33. implementation process for Engineering Change Order (ECO)</p>
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Skills (S)

A. Core Skills/ Generic Skills	Reading and writing skills
	The user/individual on the job needs to know and understand how to:
	<p>SB1. read the standard operating or repair procedure manual for different equipment</p> <p>SB2. note the process done for diagnose</p> <p>SB3. document the completed work</p>
	Communication skills (oral and listening)
	The user/individual on the job needs to know and understand how:
	SB4. to share work load as required

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Repair and rectify the faults in mobilephone

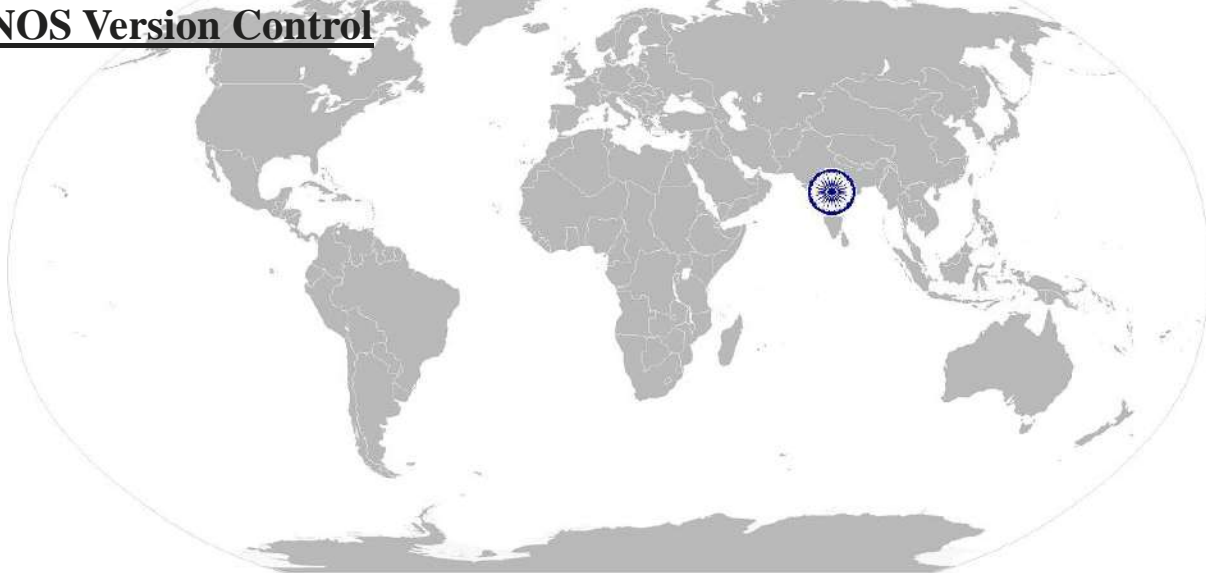
	SB5. to achieve the target
B. Professional Skills	Analytical skills
	The user/individual on the job needs to know and understand how to: SB1. operate computer and laptop SB2. operate the different software related to mobile phone SB3. download software and applications from company's website and from cloud appropriately
	Problem solving
	The user/individual on the job needs to know and understand how: SB4. to share work load as required SB5. to achieve the target
	Plan and organise
	The user/individual on the job needs to know and understand how to: SB1. to improve work processes SB2. to reduce errors and correct themselves with the experienced mistakes operate tools such as manual and electric screw drivers for disassembling and assembling of equipments SB3. use hot air blower/ gun for desoldering SB4. use semi-automated or automated BGA work station SB5. use other specific devices for repairs such as soldering iron, multimeter, POST cards SB6. use metal or plastic ply to open the panel of mobile phone SB7. use antistatic device such as ESD wrist strips
	Critical thinking
	The user/individual on the job needs to know and understand how: SB8. to spot process disruptions and delays SB9. to report on any issues faced to superiors without delay
	Customer Centricity
	NA
Decision making	
The user/individual on the job needs to know and understand: SB10. is there any software error in the mobile phone which can be checked with with USB cable and can be reported / corrected from OS console SB11. whether the mobile phone is beyond repair or use and throw type or repairable SB12. whether it is the LCD plus touch panel or the battery or motherboard which is faulty and can they be replaced SB13. whether the motherboard can be replaced at location other than OEM SB14. are there any hardware issues with camera modules, USB ports and LED light, SOUND devices like speaker mic, antennas for BLE, WIFI, GSM/LTE, NFC, light sensors, proximity sensors, gyro sensors, GPS sensors	

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Repair and rectify the faults in mobilephone

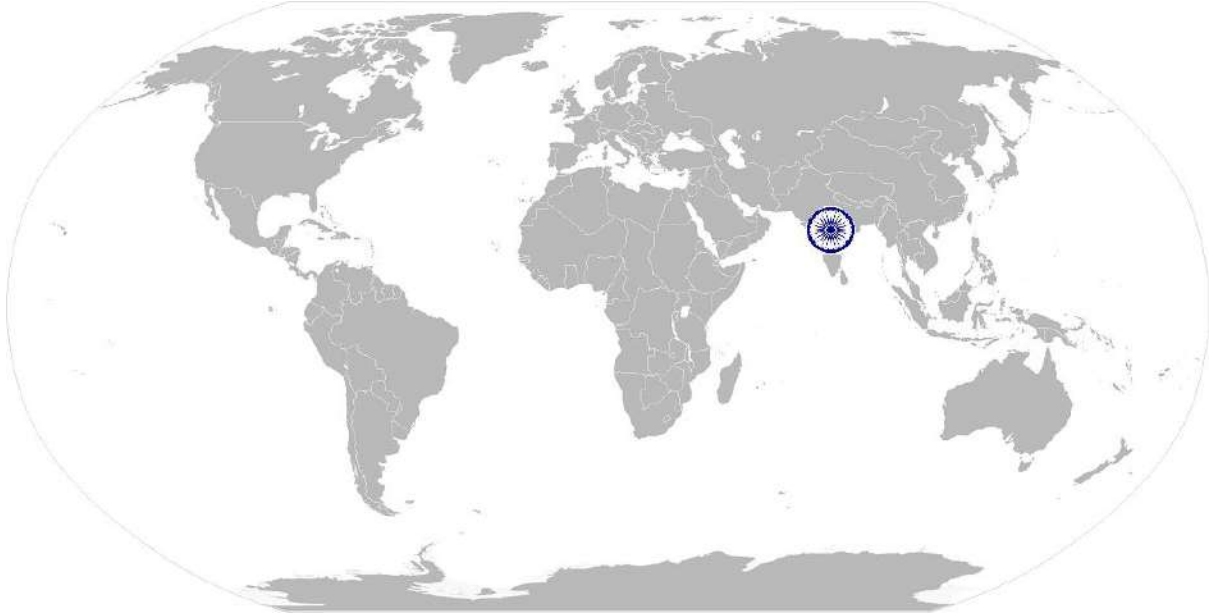
NOS Code	ELE/N8107		
Credits(NSQF)	TBD	Version number	1.0
Industry	Electronics	Drafted on	12/01/14
Industry Sub-sector	Communication & Broadcasting	Last reviewed on	29/04/15
Occupation	After Sales Service	Next review date	30/06/16

NOS Version Control

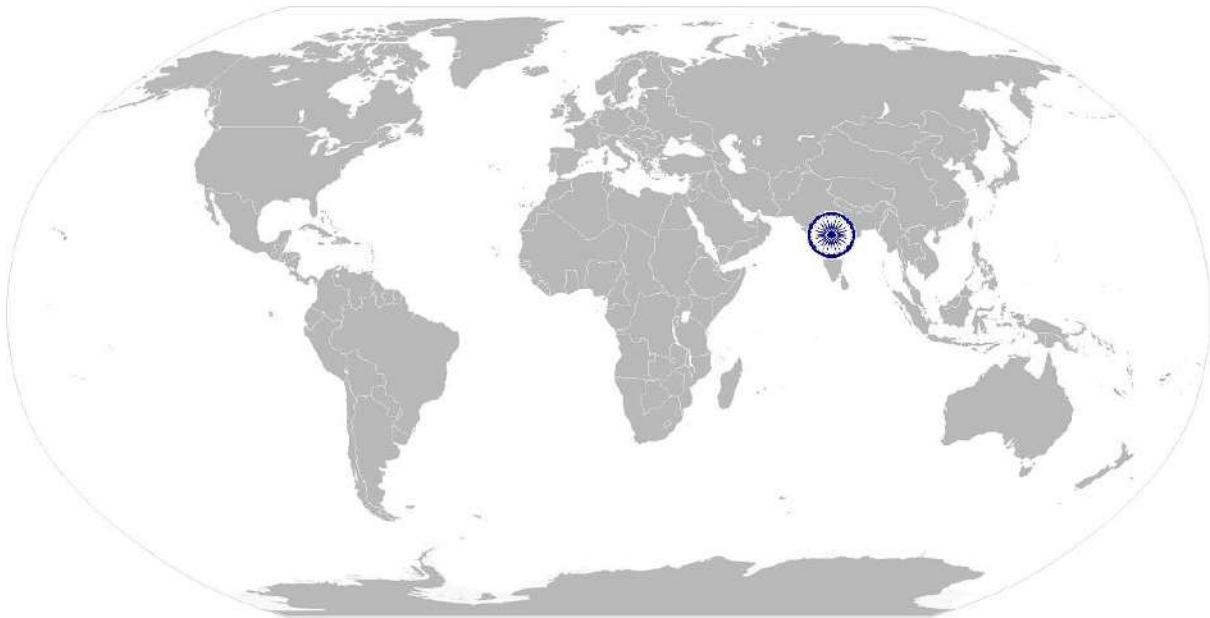


ELE/N8107

Repair and rectify the faults in mobilephone



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.

Unit Code	ELE/N9951
Unit Title (Task)	Interact with other employees
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</p> <p>PC15. resolve conflicts and achieve smooth workflow</p> <p>PC16. 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>

ELE/N9951

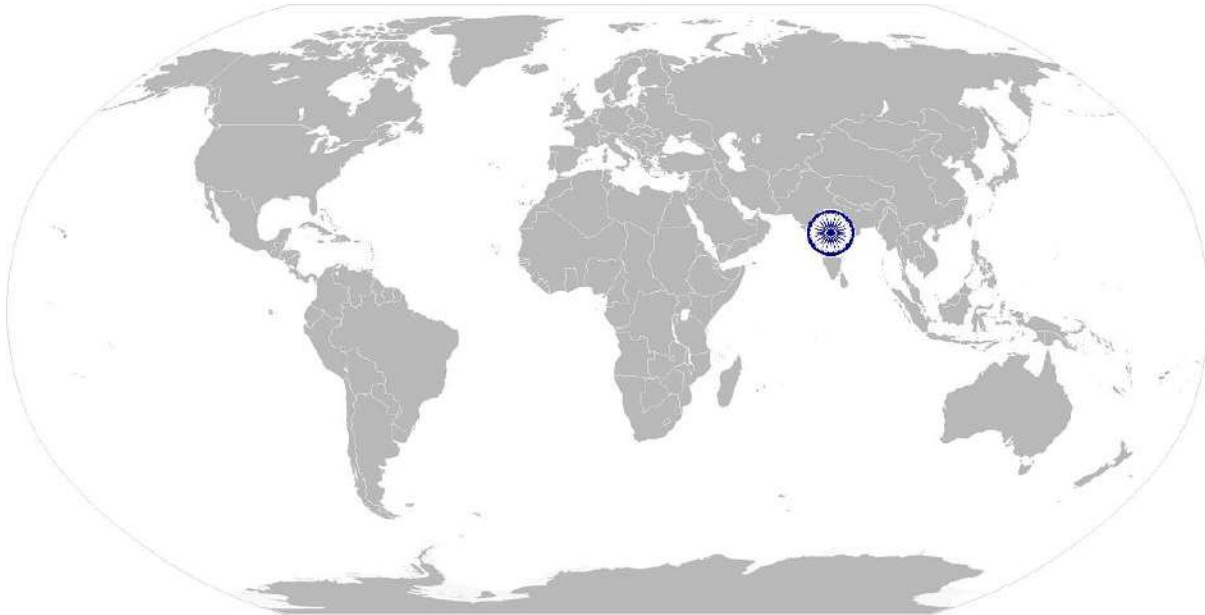
Interact with other employees

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	<p>Reading and writing 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>Communication skills (oral and listening)</p> <p>The individual on the job needs to know and understand how: SA2. to communicate with colleagues and others</p>
B. Professional Skills	<p>Decision making</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>Plan and organise</p> <p>The individual on the job needs to know and understand: SB3. how to improve work process</p> <p>Customer centricity</p> <p>NA</p> <p>Analytical skills</p> <p>NA</p> <p>Critical thinking</p> <p>The individual on the job needs to know and understand: SB4. how to spot process disruptions and delays</p> <p>Problem solving</p> <p>The individual on the job needs to know and understand how: SB5. to deliver product to next work process on time</p>

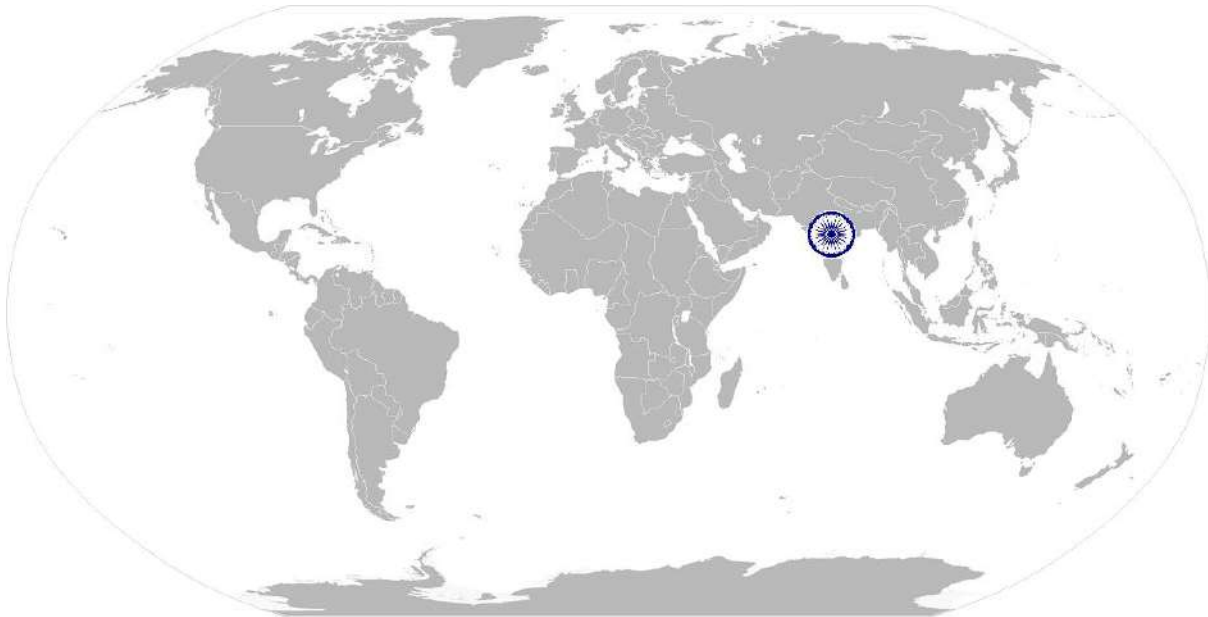
Interact with other employees

NOS Version Control

NOS Code	ELE/N9951		
Credits(NSQF)	TBD	Version number	1.0
Industry	Electronics	Drafted on	12/01/14
Industry Sub-sector	Communication & Broadcasting	Last reviewed on	29/04/15
Occupation	After Sales Service	Next review date	30/06/16



National Occupational Standard



Overview

This unit is about the individual's effort to maintain a safe, healthy and secure working environment.

Maintain safe and secure work environment

Unit Code	ELE/N9910
Unit Title (Task)	Maintain safe and secure working environment
Description	This OS unit is about following adequate safety procedures to make work environment safe
Scope	<p>This unit/ task covers the following:</p> <ul style="list-style-type: none"> Follow standard safety procedures while handling an equipment Participate in company's safety drills and workshops
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Following safety measures	<p>To be competent, the user/ individual must be able to:</p> <p>PC1. comply with safety procedures followed in the company</p> <p>PC2. take adequate safety measures while handling hazardous materials or tools</p> <p>PC3. follow Electrostatic Discharge (ESD) measures for electronic components</p> <p>PC4. escalate matters about hazardous materials or things found in the premises</p> <p>PC5. use safety materials such as gloves, goggles, masks, etc.</p> <p>PC6. adequate safety measures while on work to prevent accidents</p> <p>PC7. ensure zero accidents in work</p> <p>PC8. avoid damage of components due to negligence in ESD procedures</p> <p>PC9. ensure no loss for company due to safety negligence</p>
Participating in drills and workshops	<p>To be competent, the user/ individual must be able to:</p> <p>PC10. participate in regular safety drills for being prepared in the event of a fire or natural calamity</p> <p>PC11. help others during the drill or calamity</p> <p>PC12. administer basic first aid</p> <p>PC13. participate in company organised games and fitness sessions such as yoga, etc.</p> <p>PC14. develop good posture for working so that long term health problems do not arise</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 occupational safety and health policy followed</p> <p>KA3. company emergency evacuation procedure</p> <p>KA4. company's medical policy</p>
B. Technical Knowledge	<p>The individual on the job needs to know and understand:</p> <p>KB1. how to maintain the work area safe and secure</p> <p>KB2. how to handle hazardous material</p> <p>KB3. how to operate hazardous tools and equipment</p> <p>KB4. emergency procedures to be followed such as fire accidents, etc.</p>

Maintain safe and secure work environment

Skills (S)	
A. Core Skills / Generic Skills	Reading and Writing skills
	The individual on the job needs to know and understand: SA1. the significance of meters and readings and safety indicators SA2. how to maintain logs of discrepancies for further analysis
	Communication skills (oral and listening)
	The individual on the job needs to know and understand: SA3. how to communicate discrepant or potentially hazardous information to higher level or authority in the company
B. Professional Skills	Analytical skills
	The individual on the job needs to know and understand: SB1. the purpose of using safety materials such as gloves, etc. SB2. how to use safety equipment such as fire extinguisher during fire accidents
	Decision making
	The individual on the job needs to know and understand: SB3. when to report potential hazards in time
	Plan and organise
	The individual on the job needs to know and understand: SB4. how to maintain the workplace and equipment in good running condition SB5. how to avoid hazardous situations by following prescribed safety standards
	Critical thinking
	The individual on the job needs to know and understand: NA
	Problem solving
	The individual on the job needs to know and understand: SB6. how to use and share experience or knowledge to help the safety control team in avoiding hazards
	Customer centricity
The individual on the job needs to know and understand: SB7. the significance of avoiding downtime or work flow stoppage arising from hazards and accidents or mishaps by reporting potential safety hazards in time	

Maintain safe and secure work environment

NOS Version Control

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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.

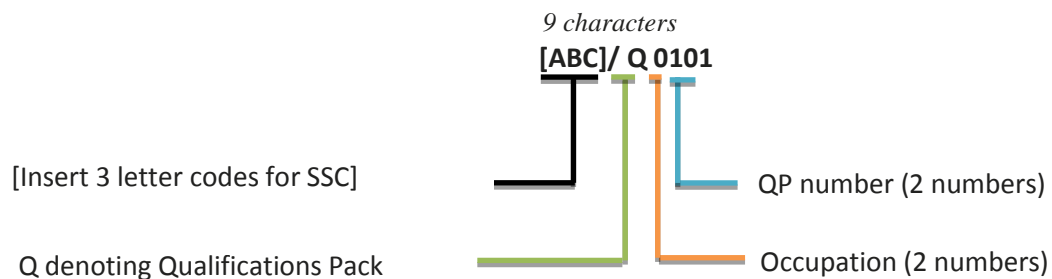
Acronyms

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

Annexure

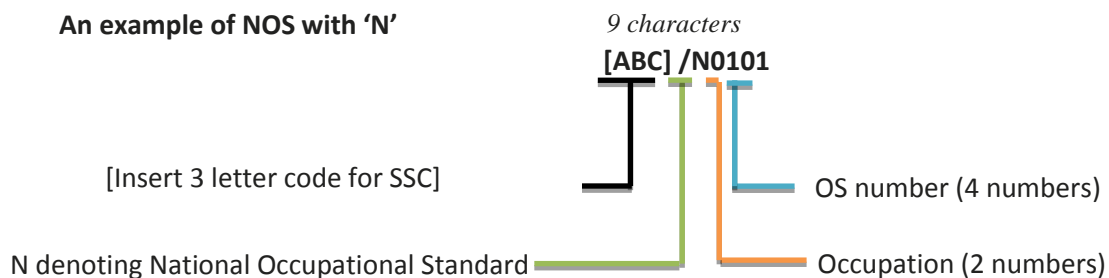
Nomenclature for QP and NOS

Qualifications Pack



Occupational Standard

An example of NOS with 'N'



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

CRITERIA FOR ASSESSMENT OF TRAINEES



Job Role	Mobile Phone Hardware Repair Technician
QP #	ELE/Q8104
Sector Skill Council	Electronics Sector Skills Council of India

- Guidelines for Assessment:**
1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
 2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
 3. Individual assessment agencies will create *unique question papers for theory part for each candidate at each examination/training center* (as per assessment criteria below)
 4. Individual assessment agencies will create *unique 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.

	Performance Criteria	Total Marks (400)	Out Of	Marks Allocation	
				Theory	Skills Practical
ELE/N8106 Interact with customer and perform front end repair					
	PC1. receive the customers and greet them as per company's norms	100	3	1	2
	PC2. follow behavioural etiquettes while interacting with customers		4	2	2
	PC3. ensure the customers are comfortable in the store		4	2	2
	PC4. communicate in the language which the customers are comfortable with		3	1	2
	PC5. understand the profile of the customers and offer service		3	1	2
	PC6. inform about repair charges and warranty applicable		3	1	2
	PC7. interact with customers to understand the customer's purpose of visit such as repair of phone, purchase of accessories, software upload, collection of repaired phone		3	1	2
	PC8. listen to customers and understand the customer level complaint such as display not working, not switching on		4	1	3
	PC9. interrogate the customers to assess the cause of problem such as physical damage, uploading of any unauthorised software or application		3	1	2
	PC10. decide on the action to be performed, i.e., front end repair or hardware level repair is required		4	1	3
	PC11. inform customers about the time taken and estimated cost for hardware level repair		3	1	2

PC12. provide document to customers for collecting the device after repair		3	1	2
PC13. use the system to identify the warranty coverage of the mobile phone and other terms and conditions		5	2	3
PC14. understand the customer relationship management policy of the mobile brand and inform customers about them		5	2	3
PC15. log into customer portal and enter the details of the customer and other details such as phone model, complaints, warranty coverage		5	2	3
PC16. understand and use the interactive ERP system of the company and enter appropriate details		5	2	3
PC17. use the system to prepare invoice, stock management, order placement, accessories availability, etc.		2	1	1
PC18. Identify problem and decide the action to be taken		2	1	1
PC19. upload only licensed and brand approved applications as per customer requirement using system		2	1	1
PC20. understand the application and software compatability with the mobile phone and suggest to customers accordingly		2	1	1
PC21. check the accessories and perform a demo with the customer to ensure their functionality (chargers, SD card, etc)		2	1	1
PC22. open the panel of the mobile phone without damaging them		2	1	1
PC23. replace the parts such as battery and clean the inner parts of the phone		2	1	1
PC24. ensure the functionality of the replaced part		2	1	1
PC25. provide necessary details on the warranty, terms and conditions of the replaced parts		2	1	1
PC26. educate customers on effective usage of mobile phone to save battery and to avoid any repeat problem		2	1	1
PC27. understand the work requirement from superior, periodically		5	2	3
PC28. report to superior on the work completed		5	2	3
PC29. seek technical assistance from superior whenever required		5	2	3
PC30. document the work completed on the company ERP software for tracking and future references		5	2	3
	Total	100	40	60
ELE/N8107 Repair and rectify the faults in mobile phone				
PC1. follow the standard procedure as documented by the mobile phone brand for each model	100	2	1	1
PC2. take anti static precautions before work and wear ESD wrist straps or aprons		2	1	1

PC3. follow standard operating procedure while handling hardware modules such as handling PCB with ESD standards	2	1	1
PC4. use recommended tools for specific operation suggested by the brand	2	0	2
PC5. maintain zero-material defect during material handling by following standard operating procedure	2	1	1
PC6. open the outer panel of the mobile phone using metal / plastic case opening tools	2	1	1
PC7. use the brand recommended screwdrivers to remove the screws to open the inner casing	2	1	1
PC8. locate the connectors and release them to remove the motherboard from the device	2	1	1
PC9. use hot air gun and other devices to remove the LCD screen from the panel	2	1	1
PC10. follow similar process and use appropriate tools to assemble the mobile phone	2	1	1
PC11. understand the customer level complaint and confirm the issue	3	1	2
PC12. take preventive measures and identify if there are any other issues in the mobile phone	3	1	2
PC13. use the self diagnostic tools (similar to power on self test (POST) card) to perform standard diagnosis process and ensure functionality of different parts of the device	3	1	2
PC14. follow the standard diagnostic procedure as documented by the mobile phone brand for each model	3	1	2
PC15. check the recently installed application or software and verify the compatability of the software with the mobile phone	3	1	2
PC16. check the recently installed application or software and verify the compatability of the software with the mobile phone	5	2	3
PC17. uninstall the applications that is not compatable or creating issues in the mobile phone	5	2	3
PC18. install the licensed and authorised softwares to resolve issues and suiting the customer's requirement	5	2	3
PC19. understand the scope of component level of repair as suggested by the brand	1	0	1
PC20. estimate the cost of repair and verify if it is with in Beyond Economic Repair (BER)	1	1	0
PC21. heat the singled out component using hot air gun to melt the solder joints and remove from PCB	1	0	1
PC22. clean the board by melting the old solder and removing	1	0	1
PC23. place the new component precisely on the board at specified location	1	0	1
PC24. solder the component on the PCB using soldering stations	1	0	1
PC25. ensure the soldering is proper and the component is fixed as per the specification	1	0	1
PC26. operate automated BGA (ball grid array) work station to precisely remove the chip from the board and repair them	1	0	1

PC27. perform reballing function by dismantling, heating the chip to be removed from the board, remove the solder remains, put new solder balls, place the chip and solder them with the PCB	1	0	1
PC28. check for functioning of the hardware after repairing	1	0	1
PC29. ensure that there is no damage of PCB while removal and fixing of SMD components	1	0	1
PC30. ensure other components are not damaged while using hot air gun for removal of a component which could cause damage	1	0	1
PC31. ensure adequate soldering for fixing the component and no further rework is required	1	0	1
PC32. receive spare module / component from stores	2	1	1
PC33. identify and decide on replacing the module or component as the appropriate solution	2	1	1
PC34. take adequate measures and follow procedures when replacing expensive or delicate components such as LCD	2	1	1
PC35. ensure that cost of replacing is justified as the repair cost is beyond economic repair (BER)	2	1	1
PC36. ensure that replaced module or component is working and no further rework is required	2	1	1
PC37. identify and use appropriate tools and manuals for repairing the specific issue	2	1	1
PC38. prevent any accidents while handling hazardous tools	2	1	1
PC39. achieve results using appropriate tools for specific rework activity	2	1	1
PC40. maintain zero-material defect during material handling by following standard operating procedure for tools handling	2	1	1
PC41. seek technical assistance from engineer on faults that cannot be fixed	2	1	1
PC42. receive instruction from engineers on use of specific tools or new repair processes	3	1	2
PC43. discuss with superior if the cost estimate is found to be Beyond Economic repair (BER) and take recommended action	3	1	2
PC44. coordinate with superior for performing quality check on the repaired module	2	1	1
PC45. report on the work load and completion status	1	1	0
PC46. submit the appropriate documentation on completion of task assigned	2	1	1
PC47. document the work completed on the company ERP software for tracking and future references	2	1	1
PC48. achieve 100% daily and weekly target of number of repairs	2	1	1
PC49. meet the target of quality as per the Service Level Agreement (SLA) of the brand and avoid rework	1	1	0
PC50. repair within the turnaround time (TAT) and deliver th	1	1	0

		Total	100	40	60
ELE/N9951 Interact with other employees					
	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		6	3	3
	PC5. resolve personnel issues		6	3	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		8	3	5
	PC12. receive spares from tool room or stores; deposit faulty modules and tools to stores		8	3	5
	PC13. pass on customer complaints to colleagues in a respective geographical area		8	3	5
	PC14. assist colleagues with resolving field problems		8	3	5
	PC15. resolve conflicts and achieve smooth workflow		8	3	5
	PC16. follow the company policy during cross functional interaction		8	3	5
		TOTAL	100	40	60
ELE/N9910 Maintain safe and secure work environment					
	PC1. comply with safety procedures followed in the company	100	5	2	3
	PC2. take adequate safety measures while handling hazardous materials or tools		5	2	3
	PC3. follow Electrostatic Discharge (ESD) measures for electronic components		6	3	3
	PC4. escalate matters about hazardous materials or things found in the premises		5	2	3
	PC5. use safety materials such as gloves, goggles, masks, etc.		6	3	3
	PC6. adequate safety measures while on work to prevent accidents		5	2	3
	PC7. ensure zero accidents in work		6	2	4
	PC8. avoid damage of components due to negligence in ESD procedures		6	2	4
	PC9. ensure no loss for company due to safety negligence		6	2	4

	PC10. participate in regular safety drills for being prepared in the event of a fire or natural calamity	10	4	6
	PC11. help others during the drill or calamity	10	4	6
	PC12. administer basic first aid	10	4	6
	PC13. participate in company organised games and fitness sessions such as yoga, etc.	10	4	6
	PC14. develop good posture for working so that long term health problems do not arise	10	4	6
	TOTAL	100	40	60

