

## QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR ELECTRONICS INDUSTRY

### What are Occupational Standards(OS)?

- OS describe what individuals need to do, know and understand in order to carry out a particular job role or function
- OS are performance standards that individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding

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### Introduction

## Qualifications Pack- Field Technician: Other Home Appliances

**SECTOR:** ELECTRONICS

**SUB-SECTOR:** CONSUMER ELECTRONICS

**OCCUPATION:** AFTER SALES SERVICE

**REFERENCE ID:** ELE/Q3104

**ALIGNED TO:** NCO-2004/7249.90

**Other Home Appliances Field Technician:** Also called, 'Home Appliance Repair Technician', this is an after sales service job for installing and providing support to the water purifier, mixer/grinder buyers.

**Brief Job Description:** The individual at work installs the appliance and interacts with customers to diagnose the problem and possible causes. Once the problem and causes have been identified, the individual rectifies minor problems or replaces faulty modules for failed parts or recommends factory repairs for bigger faults.

**Personal Attributes:** The individual must be willing to work in the field and travel through the day from one customer's premise to another. Punctuality, amenable behaviour, patience, good interpersonal relationship building, trustworthiness, integrity, and critical thinking are important attributes<sub>1</sub> for this job.

Job Details	Qualifications Pack Code	ELE/Q3104		
	Job Role	Field Technician – Other Home Appliances		
	Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	TBD	Version number	1.0
	Sector	Electronics	Drafted on	18/02/14
	Sub-sector	Consumer Electronics	Last reviewed on	24/03/14
	Occupation	After Sales Service	Next review date	24/03/15

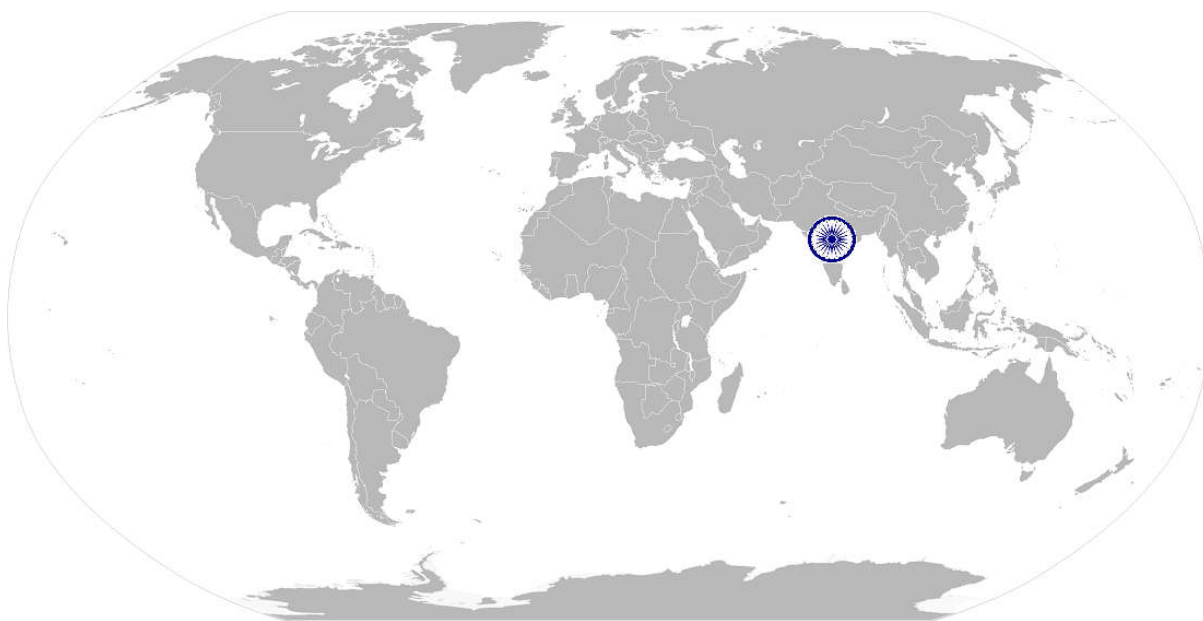
Job Role	<b>Field Technician – Other Home Appliances</b> Also called, ' Home Appliance Repair Technician'
Role Description	Install the appliance, decipher the symptoms and diagnose the problems in the appliance by carrying out basic volt ampere test, earth check and isolating electro-mechanical faults.
NVEQF/NVQF level	4
Minimum Educational Qualifications*	8 <sup>th</sup> Standard passed
Maximum Educational Qualifications*	ITI/Diploma (Electrical/Electronics)
Training (Suggested but not mandatory)	Not Applicable
Experience	Minimum 2 years as helper for 8 <sup>th</sup> / 9 <sup>th</sup> passed
Applicable National Occupational Standards (NOS)	<p><b>Compulsory:</b></p> <ol style="list-style-type: none"> <li><a href="#">ELE/N3101 Engage with customer for service</a></li> <li><a href="#">ELE/N3118 Install the water purifier</a></li> <li><a href="#">ELE/N3119 Repair dysfunctional water purifier</a></li> <li><a href="#">ELE/N3120 Repair dysfunctional mixer/juicer/grinder</a></li> <li><a href="#">ELE/N3121 Repair dysfunctional microwave oven</a></li> <li><a href="#">ELE/N9901 Interact with colleagues</a></li> </ol> <p><b>Optional:</b> Not applicable</p>
Performance Criteria	As described in the relevant OS units

**ELE/N3101**

**Engage with customer for service**

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# National Occupational Standard



## Overview

This unit is about interacting with customers to understand their requirements and build confidence.

## ELE/N3101

## Engage with customer for service

Unit Code	ELE/N3101
Unit Title (Task)	Engage with customer for service
Description	This OS unit is about interacting with customer to understand their requirement with respect to problem in the appliance
Scope	<p>This unit/ task covers the following:</p> <ul style="list-style-type: none"> <li>Interact with the customer prior to visit</li> <li>Interact with customer at their premises</li> <li>Suggest possible solutions to customer</li> <li>Achieve productivity and quality as per company's norms</li> </ul>
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
<b>Interacting with customer prior to visit</b>	<p>To be competent, the user/ individual must be able to:</p> <p>PC1. check customer complaint registered at customer care or installation schedule</p> <p>PC2. call customer to confirm problem and fix time for visit</p> <p>PC3. greet the customer and confirm the problem registered</p> <p>PC4. be polite and patient when interacting with customer</p> <p>PC5. check about warranty status of appliance and annual maintenance contract</p> <p>PC6. anticipate possible problems to carry tools and parts accordingly</p> <p>PC7. ascertain customer location in order to make the route plan for the day</p>
<b>Interacting with customer at their premises</b>	<p>To be competent, the user/ individual must be able to:</p> <p>PC8. enquire about the symptoms and history of problems in the appliance</p> <p>PC9. ask about the age of appliance and status of upkeep</p> <p>PC10. identify the problem based on customer's information</p> <p>PC11. communicate the problems identified and educate on possible reasons</p> <p>PC12. inform about costs involved</p>
<b>Suggesting possible solutions to customer</b>	<p>To be competent, the user/ individual must be able to:</p> <p>PC13. discuss the problem(s) identified with customer</p> <p>PC14. suggest possible solutions and costs involved</p> <p>PC15. explain the time required and methodology for servicing necessary</p> <p>PC16. seek customer's approval on further action</p>
<b>Achieving productivity and quality</b>	<p>To be competent, the user/ individual must be able to:</p> <p>PC17. accurately assess the problem and solution(s) necessary</p> <p>PC18. offer most appropriate and cost-effective service as per customer's requirement</p>

## ELE/N3101

## Engage with customer for service

	PC19. communicate problem effectively in order to secure customer's confidence PC20. ensure customer satisfaction and positive feedback PC21. record minimum customer complaints post service PC22. avoid repeat problem post service PC23. prepare most optimum route plan to complete daily target visits
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b> (Knowledge of the company / organization and its processes)	The individual on the job needs to know and 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>B. Technical Knowledge</b>	The individual on the job needs to know and understand: KB1. company's products and recurring problems reported in consumer appliances KB2. how to communicate with customers in order to put them at ease KB3. basic electrical and mechanical modules of various appliances KB4. electronics involved in the type of appliance KB5. models of different appliances and their common and distinguishing features KB6. functionality of different features of appliances and new features KB7. etiquette to be followed at customer's premises KB8. precautions to be taken while handling field calls and dealing with customers KB9. relevant reference sheets, manuals and documents to carry in the field
<b>Skills (S)</b>	
<b>A. Core Skills/ Generic Skills</b>	<b>Reading and writing skills</b> 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>B. Professional Skills</b>	<b>Interpersonal skills</b> The individual on the job needs to know and understand how: SB1. to put customer at ease and generate customer's confidence SB2. to listen carefully and interpret their statement of symptoms  <b>Communication skills</b> The individual on the job needs to know and understand how: SB3. to seek inputs at assess the problems SB4. how to communicate in local language SB5. how to educate and inform customer about contractual issues such as warranty, cost of service and module replacement SB6. to educate on precautions to be taken post repairs to avoid recurrence of problem

## ELE/N3101

## Engage with customer for service

	<b>Behavioural skills</b>
	<p>The individual on the job needs to know and understand:</p> <p>SB7. importance of personal grooming</p> <p>SB8. significance of etiquette such as maintaining the appropriate physical distance with customer during conversation, not entering bedroom without permission</p> <p>SB9. importance of being patient and courteous with all types of customers</p> <p>SB10. being polite and courteous under all circumstances</p> <p>SB11. importance of maintaining clean surface/work area</p>
	<b>Decision making skills</b>
	<p>SB12. decide on the spot on whether interaction of customer with supervisor is necessary or not</p> <p>SB13. when to call customer care and close the call after work is done to customer's satisfaction and documentation is complete</p>

**ELE/N3101**

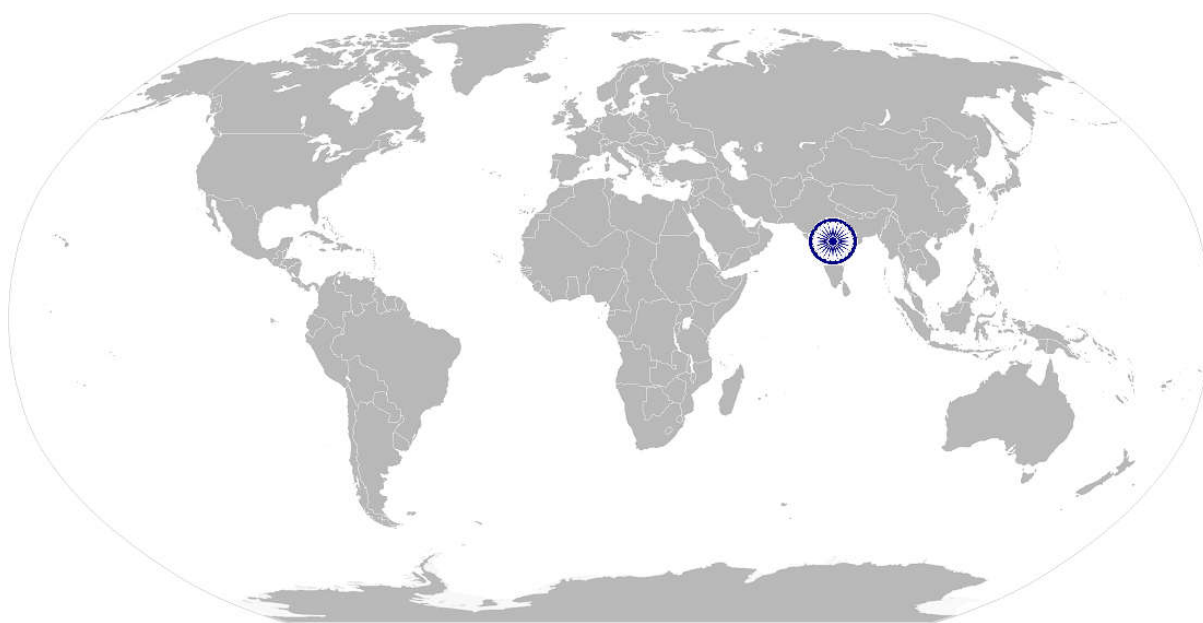
**Engage with customer for service**

## **NOS Version Control**

NOS Code	ELE/N3101		
Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	TBD	Version number	1.0
Industry	Electronics	Drafted on	18/02/14
Industry Sub-sector	Consumer Electronics	Last reviewed on	24/03/14
		Next review date	24/03/15



# National Occupational Standard



## Overview

This unit is about installing the newly-purchased water purifier at customer's premises.



# **ELE/N3118**

## **Install the water purifier**

### National Occupational Standard

Unit Code	ELE /N3118
Unit Title (Task)	Install the water purifier
Description	This OS unit is about installing the newly purchased water purifier at customer's location and make it ready to use
Scope	<p>This unit/ task covers the following:</p> <ul style="list-style-type: none"> <li>Undertake pre-installation site visit</li> <li>Remove packaging and check accessories</li> <li>Fix the water purifier at identified location</li> <li>Check water purifier's functioning</li> <li>Complete the documentation</li> <li>Interact with supervisor or superior</li> <li>Achieve productivity and quality as per company's norms</li> </ul>
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
<b>Undertaking pre-installation site visit</b>	<p>To be competent, the user/ individual must be able to:</p> <p>PC1. visit the customer's premise before carrying out the installation</p> <p>PC2. interact with the customer to understand whether the water purifier would be placed under the sink (UTS) or on the wall</p> <p>PC3. check that the location meets structural requirements such as distance from power supply, vicinity to plumbing point, etc.</p> <p>PC4. make the customer aware of any pre installations/masonry/electrical work to be carried out and educate the customer about requirement of adequate water pressure at the inlet source</p> <p>PC5. make necessary markings for placement of the water purifier unit</p> <p>PC6. seek appointment for the next visit</p>
<b>Removing packaging and checking accessories</b>	<p>To be competent, the user/ individual must be able to:</p> <p>PC7. remove the packaging in which the purifier was shipped to customer from point of sale/ warehouse</p> <p>PC8. check that the product matches the customer order in terms of colour and make</p> <p>PC9. check that all supporting accessories purchased have are there in the pack</p> <p>PC10. check that tools and fitments required for the installation are available</p> <p>PC11. clear up the packaging material waste and dispose as per company's norms</p>

## ELE/N3118

## Install the water purifier

<b>Fitting the water purifier</b>	<p>To be competent, the user/ individual must be able to:</p> <p>PC12. check if pre installation requirements are met</p> <p>PC13. make measurements at the location identified and drill holes ensuring no internal wiring damage takes place</p> <p>PC14. mount the filter and ensure that the screws are fastened securely</p> <p>PC15. drain the inlet line before connecting it to the water purifier</p> <p>PC16. connect the outlet pipe to the drain (if applicable)</p> <p>PC17. connect the purifier to the nearest power supply point</p>
<b>Checking functioning</b>	<p>To be competent, the user/ individual must be able to:</p> <p>PC18. ensure that the filter is aligned as per instructions in the installation manual</p> <p>PC19. run the purifier and ensure there are no leaks at any point</p> <p>PC20. demonstrate the features and utility to the customer</p> <p>PC21. explain maintenance procedures to be followed while using the water purifier</p>
<b>Completing documentation</b>	<p>To be competent, the user/ individual must be able to:</p> <p>PC22. fill in customer acknowledgement form</p> <p>PC23. seek customer's signature</p> <p>PC24. complete other documentation for recording completion of installation</p> <p>PC25. call customer care and inform about job completed</p>
<b>Interacting with supervisor or superior</b>	<p>To be competent, the user/ individual must be able to:</p> <p>PC26. understand the work requirement from superior, periodically</p> <p>PC27. report to superior on the work completed</p> <p>PC28. escalate the customer issues and problems that are unresolved in the field</p> <p>PC29. document the work completed on the company ERP software for tracking and future references</p>
<b>Achieving productivity and quality</b>	<p>To be competent, the user/ individual must be able to:</p> <p>PC30. remove packaging without damage to the water purifier unit and accessories</p> <p>PC31. position the water filter as per requirements specified in instructions manual</p> <p>PC32. educate customer on importance of proper placing</p> <p>PC33. carry and use the correct tools and equipment for installation</p> <p>PC34. operate and check that they are in a safe and stable condition</p> <p>PC35. complete installation in time target given</p> <p>PC36. educate customer on proper operation and maintenance procedures</p> <p>PC37. complete daily field schedule as per instructions/format within the designated time</p>

## ELE/N3118

## Install the water purifier

Knowledge and Understanding (K)	
<b>B. Organizational Context</b> (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, call closure</p> <p>KA2. company's sales, installation 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>
<b>B. Technical Knowledge</b>	<p>The individual on the job needs to know and understand:</p> <p>KB1. Installation site requirements (structural requirements, plumbing etc.)</p> <p>KB2. water flow diagram and electrical circuit diagram of the appliance</p> <p>KB3. water purification process and different layers of filter present within the unit such as sediment filter, carbon block filter, TFC/TFM membrane, inline carbon filter etc.</p> <p>KB4. different technologies in water purification (such as reverse osmosis, de ionisation etc.)</p> <p>KB5. different features and functionalities of various models</p> <p>KB6. safety precautions to be taken while installing</p> <p>KB7. manual-based procedure of installing the water purifier</p> <p>KB8. packaging waste disposal procedures</p> <p>KB9. other products of the company</p> <p>KB10. safety rules, policies and procedures</p> <p>KB11. quality standards to be followed</p>
Skills (S) [Optional]	
<b>C. Core Skills/ Generic Skills</b>	<b>Reading and writing skills</b>
	<p>The user/individual on the job needs to know and understand how:</p> <p>SA1. to read job sheet for installation as registered by customer care/ company's ERP system</p> <p>SA2. to document the completed work</p> <p>SA3. to read the standard operating procedures for different types of water purifiers</p> <p>SA4. to read about different types of water purifiers, their basic electro-mechanical structure and functionality of features</p>
	<b>Teamwork and multitasking</b>
	<p>The user/individual on the job needs to know and understand how:</p> <p>SA5. to share work load as required</p> <p>SA6. to achieve the targets given on installation per day or month</p>
<b>D. Professional Skills</b>	<b>Water Purifier operation</b>
	<p>The user/individual on the job needs to know and understand how:</p> <p>SB1. the water flows through various switches, valves and different layers of filter</p>

# NOS

## National Occupational Standards

**ELE/N3118**

### **Install the water purifier**

	SB2. to operate the water purifier and use the various features
	SB3. to fix various accessories and parts that have accompanied the unit
	SB4. to check features and functionalities after installation
	<b>Using tools and machines</b>
	The user/individual on the job needs to know and understand how:
	SB5. to operate tools such as electric drill, screw drivers, wrenches, tube cutters/benders, spanners, etc.
	SB6. to make appropriate settings after plugging in
	<b>Reflective thinking</b>
	The user/individual on the job needs to know and understand how:
	SB7. to improve work processes
	SB8. to reduce repetition of errors in installation
	<b>Critical thinking</b>
	The user/individual on the job needs to know and understand how:
	SB9. to spot process disruptions and delays
	SB10. to report on any customer concerns to superiors without delay

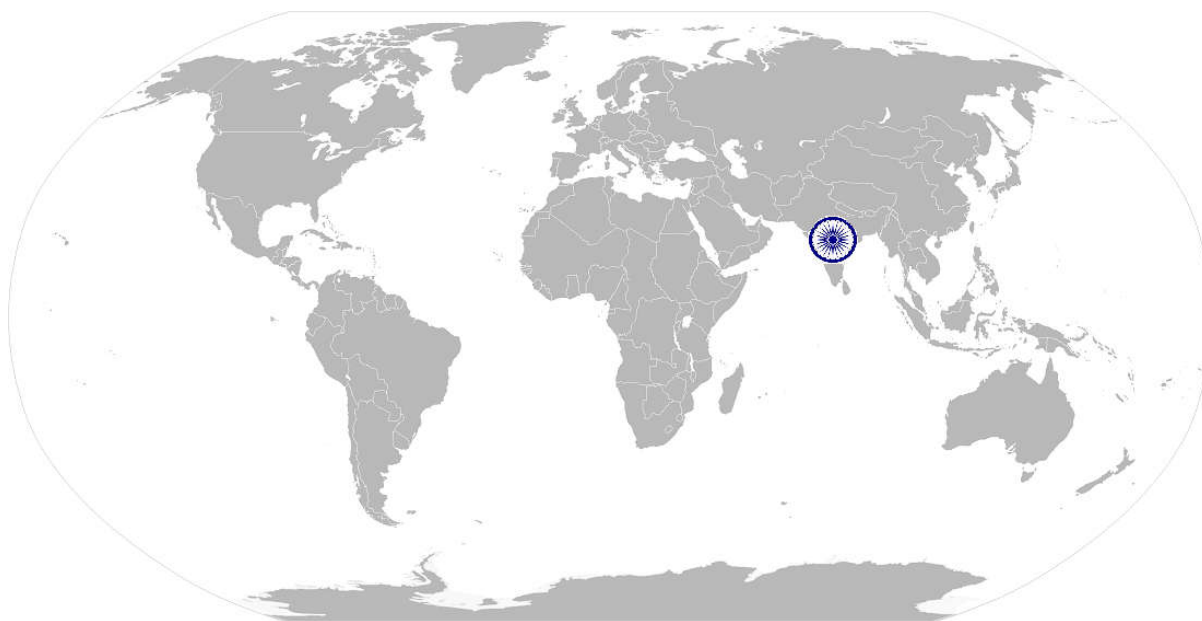
**ELE/N3118**

**Install the water purifier**

## **NOS Version Control**

NOS Code		ELE/N3118	
Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	TBD	Version number	1.0
Industry	Electronics	Drafted on	18/02/14
Industry Sub-sector	Consumer Electronics	Last reviewed on	24/03/14
		Next review date	24/03/15

# National Occupational Standard



## Overview

This unit is about moving from one customer's premise to another in order to rectify faults in dysfunctional water purifier as recorded by the customer with customer care unit.

## ELE/N3119

## Repair dysfunctional water purifier

Unit Code	ELE/N3119
Unit Title (Task)	Repair dysfunctional water purifier
Description	This OS unit is about understanding the customer's complaints, identifying the fault and fixing the water purifier
Scope	<p>This unit/ task covers the following:</p> <ul style="list-style-type: none"> <li>Understand the symptoms in the water purifier and identify the fault</li> <li>Replace dysfunctional part in the water purifier unit</li> <li>Confirm functionality of the repaired unit</li> <li>Achieve productivity and quality as per company's norms</li> </ul>
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
<b>Understanding symptoms and identifying fault</b>	<p>To be competent, the user/ individual must be able to:</p> <p>PC1. diagnose the fault based on customer interaction and initial inspection</p> <p>PC2. check if the water pressure is as specified by company standards</p> <p>PC3. shut off the system by turning of water supply and unplug the unit</p> <p>PC4. place a piece of cloth or towel under the unit in order to avoid any water spills on the floor</p> <p>PC5. carry out basic inspection of feed water valve, tank valve, tubing, housing etc.</p> <p>PC6. separate and inspect every part of the unit if the fault is not identified through basic inspection</p> <p>PC7. send to factory for in depth diagnosis, if problem remains un-identified at site</p>
<b>Replacing dysfunctional module in water purifier</b>	<p>To be competent, the user/ individual must be able to:</p> <p>PC8. replace component at location, if the fault identified is because of damage of components such as valves or wearing out of membrane or filter</p> <p>PC9. remove and replace the faulty module with a functional one, either on a second visit or as pre-identified and collected from the service centre, if the problem is at the PCB level or components that cannot be replaced at site</p>
<b>Confirming functionality of repaired unit</b>	<p>To be competent, the user/ individual must be able to:</p> <p>PC9. reassemble the unit</p> <p>PC10. start supply of water to the unit and confirm that unit is functioning</p> <p>PC11. check that all the modules of the unit work as per specifications</p> <p>PC12. demonstrate and confirm functionality of the unit with customer</p> <p>PC13. educate the customer about cleaning procedures and other best practices</p> <p>PC14. collect necessary payments from the customer, if applicable</p> <p>PC15. fill in customer acknowledgement form</p>



## ELE/N3119

## Repair dysfunctional water purifier

	PC16. complete other documentation procedures to record complaint closure
<b>Achieving productivity and quality</b>	<p>To be competent, the user/ individual must be able to:</p> <p>PC17. ensure damage free handling of the unit</p> <p>PC18. diagnose the problem accurately and in assigned time</p> <p>PC19. identify the problem modules accurately such as inlet valve, auto shut off valve, saddle valve, housing, O ring, PCB</p> <p>PC20. fix the dysfunctional water purifier in designated time</p> <p>PC21. rectify completely to avoid repeat fault in the water purifier</p> <p>PC22. record minimum customer complaints post service</p> <p>PC23. meet daily target on attending to number of complaints</p> <p>PC24. select the right spares according to recorded complaints at the customer care</p> <p>PC25. clearly communicate type of module required to the service centre, if a faulty module is to be replaced</p> <p>PC26. secure repairs completion receipt from customer</p> <p>PC27. educate customer on water purifier maintenance and correct practices to follow in order to avoid further problems</p> <p>PC28. ensure 100% customer satisfaction</p> <p>PC29. recover payments as per rate sheet/ communication from customer care</p> <p>PC30. sell related products such as new equipment or Annual Maintenance Contracts (AMC) as per company policy</p>
<b>Knowledge and Understanding (K)</b>	
<b>C. Organizational Context</b> (Knowledge of the company / organization and its processes)	<p>The individual on the job needs to understand:</p> <p>KA1. company's policies on: incentives, delivery standards and personnel management and customer service standards</p> <p>KA2. reporting and documentation processes</p> <p>KA3. water purifier manufacturing capabilities of the organization</p> <p>KA4. importance of the individual's role in the system</p> <p>KA5. reporting structure</p>
<b>B. Technical Knowledge</b>	<p>The individual on the job needs to know and understand:</p> <p>KB1. water flow diagram and electrical circuit diagram of the appliance</p> <p>KB2. water purification process and different layers of filter present within the unit such as sediment filter, carbon block filter, TFC/TFM membrane, inline carbon filter etc.</p> <p>KB3. different technologies in water purification (such as reverse osmosis etc.)</p> <p>KB4. parameters such as production rate, water chemistry, drain rate, input water pressure/temperature etc.</p> <p>KB5. different types of water purifiers manufactured by the company</p> <p>KB6. features of different water purifier models of the company</p> <p>KB7. functioning of the appliance and its various filters</p> <p>KB8. basic electronics (knowledge of components such as diode, transformer, LED, photo transistor, capacitor, resistor, inductor, thermistor, ICs)</p> <p>KB9. chemical and other properties of various filters of the appliance</p> <p>KB10. fundamentals of electricity such as ohms law, difference between ac and dc,</p>

# NOS

## National Occupational Standards

**ELE/N3119**

### Repair dysfunctional water purifier

	<p>calculation of energy consumption of appliances, understanding of domestic wiring, understanding of series and parallel connections</p> <p>KB11. troubleshooting knowledge with respect to water purifiers</p> <p>KB12. hazards, their causes and prevention/personal safety</p> <p>KB13. frequently occurring faults such as low/no water production, leaks, bad tasting water etc.</p> <p>KB14. components/modules of the water purifier and their prices</p> <p>KB15. other products of the company</p>
<b>Skills (S) [Optional]</b>	
<b>E. Core Skills/ Generic Skills</b>	<b>Reading, writing and computer skills</b>
	<p>The individual on the job needs to know and understand:</p> <p>SA1. how to read warnings, instructions and other text material on product labels, and components</p> <p>SA2. how to read job sheet and complaints</p> <p>SA3. how to read product operating manuals</p> <p>SA4. how to operate computers and software installed</p> <p>SA5. how to read and understand electrical and electronic symbols, multiples and SI units</p>
	<b>Documentation skills</b>
	<p>The individual on the job needs to know and understand:</p> <p>SA6. how to document completion note for customer</p> <p>SA7. how to record completion information in the ERP system</p>
<b>F. Professional Skills</b>	<b>Using tools and machines</b>
	<p>The individual on the job needs to know and understand:</p> <p>SB1. to operate/use TDS tester, tube cutter, tube bender, temperature meter, pressure gauges, wrenches, pliers, screw drivers</p>
	<b>Fault diagnosis skills</b>
	<p>The individual on the job needs to know and understand:</p> <p>SB2. to detect basic electrical faults such as improper/no earth, defective power cord, connector or internal wiring defect, short/ loose/open contacts, blown fuse</p> <p>SB3. company specified procedures to change filters, resin and membrane of different models of water purifier</p> <p>SB4. to diagnose reasons for low/no water production due to feed water valve or tank valve not being on or kinked tubing</p> <p>SB5. to identify reasons for leaks in the filter housing due to loose housing, damaged or misaligned O ring, cracks in the housing</p> <p>SB6. to detect worn out auto shut off valve through symptoms such as loud vibrating noise, drain water never shutting off etc.</p> <p>SB7. to detect other problems such as clogged filters, storage tank problems,</p>

# NOS

## National Occupational Standards

**ELE/N3119**

### **Repair dysfunctional water purifier**

	clogged flow resistor, inadequate/excessive water pressure, improper saddle valve mounting etc.
	<b>Communication skills</b>
	<p>The individual on the job needs to know and understand:</p> <p>SB8. how to interact with customer to understand the problem faced</p> <p>SB9. how to market and sell accessories and products of the company</p> <p>SB10. importance of communicating in language</p> <p>SB11. precautions and etiquette while dealing with customer</p> <p>SB12. be polite, patient and punctual</p>
	<b>Critical thinking</b>
	<p>The individual on the job needs to know and understand:</p> <p>SB13. to match symptoms of the fault noticed to the cause of the problem</p> <p>SB14. anticipate and avoid hazards that may occur during repairs because of tools, materials used or repair processes</p>

**ELE/N3119**

**Repair dysfunctional water purifier**

## **NOS Version Control**

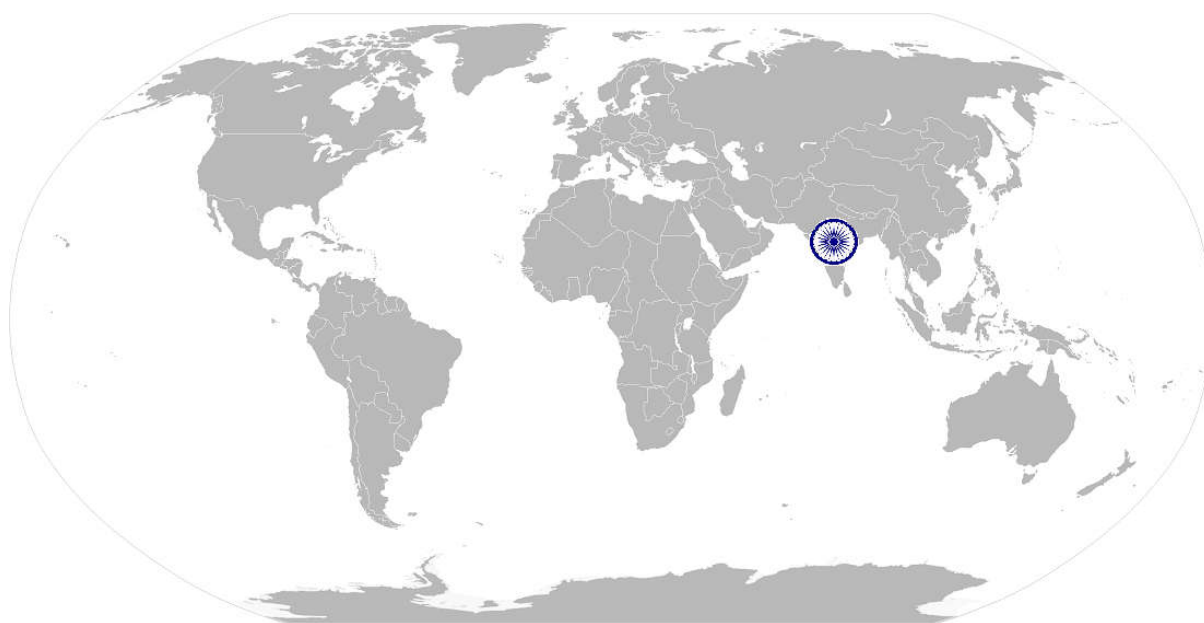
NOS Code		ELE/N3119	
Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	TBD	Version number	1.0
Industry	Electronics	Drafted on	18/02/14
Industry Sub-sector	Consumer Electronics	Last reviewed on	24/03/14
		Next review date	24/03/15

**ELE/N3120**

**Repair dysfunctional mixer/juicer/grinder**

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# National Occupational Standard



## Overview

This unit is about moving from one customer's premise to another in order to rectify faults in small appliances such as mixers, juicers, grinders as recorded by the customer with customer care unit.

**ELE/N3120**

**Repair dysfunctional mixer/juicer/grinder**

National Occupational Standard

Unit Code	ELE/N3120
Unit Title (Task)	Repair dysfunctional mixer/juicer/grinder
Description	This OS unit is about understanding the customer's complaints, identifying the fault and fixing the mixer/juicer/grinder
Scope	<p>This unit/ task covers the following:</p> <ul style="list-style-type: none"> <li>Understand the symptoms in the appliance and identify the fault</li> <li>Replace dysfunctional part of the small appliance</li> <li>Confirm functionality of the repaired unit</li> <li>Achieve productivity and quality as per company's norms</li> </ul>
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
<b>Understanding symptoms and identifying fault</b>	<p>To be competent, the user/ individual must be able to:</p> <p>PC1. understand usage pattern of the mixer/grinder from the customer</p> <p>PC2. diagnose the fault based on customer interaction and initial inspection</p> <p>PC3. unplug the unit , turn overload switch back to original position if the appliance turned off due to overload</p> <p>PC4. carry out basic tests such as power supply inspection, volt ampere test and earth test power supply</p> <p>PC5. separate and inspect every module of the unit if the fault is not identified through basic tests</p> <p>PC6. send to factory for in depth diagnosis, if problem remains un-identified at site</p>
<b>Replacing dysfunctional module in mixer/juicer/grinder</b>	<p>To be competent, the user/ individual must be able to:</p> <p>PC7. replace component at location, if the fault identified is because of damage of components such as relay or thermostat</p> <p>PC8. remove and replace the faulty module with a functional one, either on a second visit or as pre-identified and collected from the service centre, if the problem is at the PCB level or components that cannot be replaced at site</p>
<b>Confirming functionality of repaired unit</b>	<p>To be competent, the user/ individual must be able to:</p> <p>PC9. reassemble the unit</p> <p>PC10. switch on power supply and confirm that unit is functioning</p> <p>PC11. demonstrate and confirm functionality of the unit with customer</p> <p>PC12. educate the customer about cleaning procedures, using different jars for different purposes and other best practices</p> <p>PC13. collect necessary payments from the customer, if applicable</p> <p>PC14. fill in customer acknowledgement form</p>

## ELE/N3120

## Repair dysfunctional mixer/juicer/grinder

	PC15. complete other documentation procedures to record complaint closure
<b>Achieving productivity and quality</b>	<p>To be competent, the user/ individual must be able to:</p> <p>PC16. ensure damage free handling of the unit</p> <p>PC17. diagnose the problem accurately and in assigned time</p> <p>PC18. identify the problem modules accurately such as the power supply, overload circuit breaker, motors, PCB</p> <p>PC19. fix the dysfunctional appliance in designated time</p> <p>PC20. rectify completely to avoid repeat fault in the appliance</p> <p>PC21. record minimum customer complaints post service</p> <p>PC22. meet daily target on attending to number of complaints</p> <p>PC23. select the right spares according to recorded complaints at the customer care</p> <p>PC24. clearly communicate type of module required to the service centre, if a faulty module is to be replaced</p> <p>PC25. secure repairs completion receipt from customer</p> <p>PC26. educate customer on maintenance and correct practices to follow in order to avoid further problems</p> <p>PC27. ensure 100% customer satisfaction</p> <p>PC28. recover payments as per rate sheet/ communication from customer care</p> <p>PC29. sell related products such as new equipment or Annual Maintenance Contracts (AMC) as per company policy</p>
<b>Knowledge and Understanding (K)</b>	
<b>D. Organizational Context</b> (Knowledge of the company / organization and its processes)	<p>The individual on the job needs to understand:</p> <p>KA1. company's policies on: incentives, delivery standards and personnel management and customer service standards</p> <p>KA2. reporting and documentation processes</p> <p>KA3. importance of the individual's role in the system</p> <p>KA4. reporting structure</p>
<b>B. Technical Knowledge</b>	<p>The individual on the job needs to know and understand:</p> <p>KB1. different models of mixers, grinders and their features and functionalities</p> <p>KB2. functioning of the appliance and its various modules</p> <p>KB3. basic electrical fundamentals with regard to functioning of motors, circuit breakers, etc.</p> <p>KB4. basic electronics (knowledge of components such as diode, transformer, LED, photo transistor, capacitor, resistor, inductor, thermistor, ICs)</p> <p>KB5. functioning of various electromechanical parts of the mixer/grinder</p> <p>KB6. fundamentals of electricity such as ohms law, difference between ac and dc, calculation of energy consumption of appliances, understanding of domestic wiring, understanding of series and parallel connections</p> <p>KB7. troubleshooting knowledge with respect to small home appliances</p> <p>KB8. hazards, their causes and prevention/personal safety</p> <p>KB9. frequently occurring faults such as abnormal noise during use, jars</p>



# NOS

National Occupational Standards

**ELE/N3120**

## Repair dysfunctional mixer/juicer/grinder

	<p>overflowing, jar leaking etc.</p> <p>KB10. components/modules of different small home appliances and their prices</p> <p>KB11. energy ratings such as BEE rating and concepts of e waste</p> <p>KB12. other products of the company</p>
<b>Skills (S) [Optional]</b>	
<b>G. Core Skills/ Generic Skills</b>	<b>Reading, writing and computer skills</b>
	<p>The individual on the job needs to know and understand:</p> <p>SA1. how to read warnings, instructions and other text material on product labels, and components</p> <p>SA2. how to read job sheet and complaints</p> <p>SA3. how to read product operating manual</p> <p>SA4. how to read and understand electrical and electronic symbols, multiples and SI units</p>
	<b>Documentation skills</b>
	<p>The individual on the job needs to know and understand:</p> <p>SA5. how to document completion note for customer</p> <p>SA6. how to record completion information in the ERP system</p>
<b>H. Professional Skills</b>	<b>Using tools and machines</b>
	<p>The individual on the job needs to know and understand:</p> <p>SB1. to operate/use multi-meter, clamp meter, tube cutter, tube bender, screw drivers, wrenches, pliers etc.</p>
	<b>Fault diagnosis skills</b>
	<p>The individual on the job needs to know and understand:</p> <p>SB2. to detect basic electrical faults such as improper/no earth, defective power cord, connector or internal wiring defect, short/ loose/open contacts, blown fuse</p> <p>SB3. to diagnose reasons for abnormal noise during use such as loose jar coupler, overloading of jar, worn out blade shaft, worn out jar bush, worn out/broken motor coupler</p> <p>SB4. to diagnose reasons for appliance not running due to dysfunctional motor, overload circuit breaker tripping, no power supply etc.</p> <p>SB5. to identify reasons for overflowing/leaking of contents from the jar such as faulty fitting of dome lid cap, dome gasket, overloading of the jar etc.</p> <p>SB6. to detect problems in the indicator switch due to lack of power supply, tripping of overload circuit breaker etc.</p>
	<b>Communication skills</b>
	<p>The individual on the job needs to know and understand:</p> <p>SB7. how to interact with customer to understand the problem faced</p> <p>SB8. how to market and sell accessories and products of the company</p>

# NOS

## National Occupational Standards

### ELE/N3120

### Repair dysfunctional mixer/juicer/grinder

	SB9. importance of communicating in language SB10. precautions and etiquette while dealing with customer SB11. be polite, patient and punctual
	<b>Critical thinking</b>
	The individual on the job needs to know and understand: SB12. to match symptoms of the fault noticed to the cause of the problem SB13. anticipate and avoid hazards that may occur during repairs because of tools, materials used or repair processes

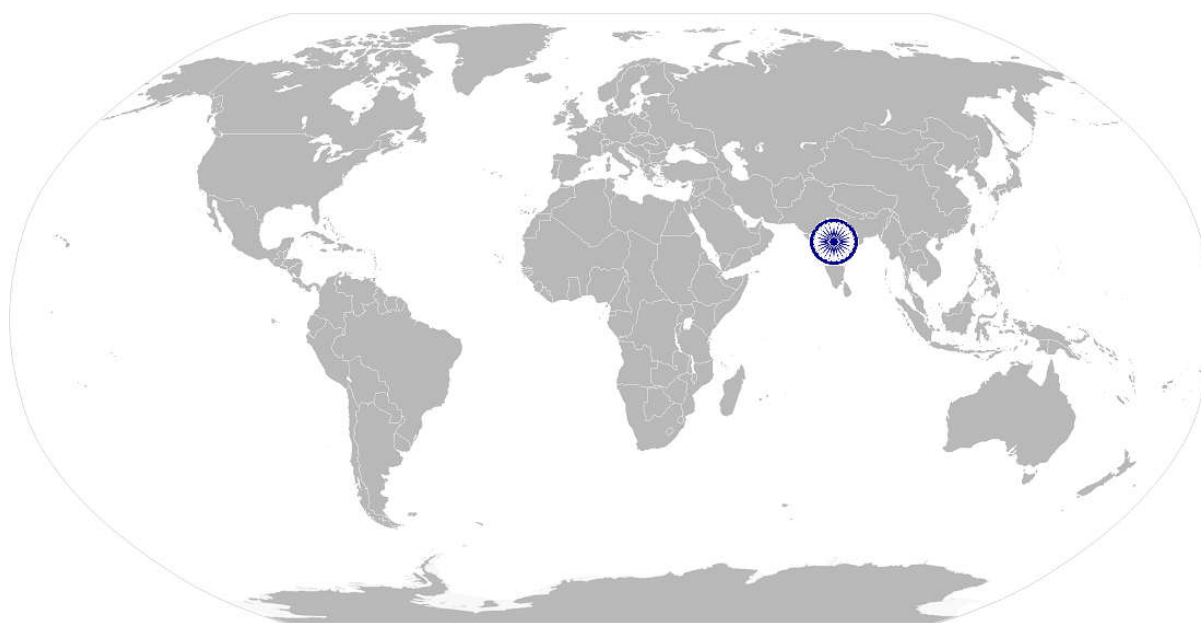
**ELE/N3120**

**Repair dysfunctional mixer/juicer/grinder**

## **NOS Version Control**

<b>NOS Code</b>	<b>ELE/N3120</b>		
<b>Credits(NVEQF/NVQF/NSQF) [OPTIONAL]</b>	<b>TBD</b>	<b>Version number</b>	<b>1.0</b>
<b>Industry</b>	<b>Electronics</b>	<b>Drafted on</b>	<b>18/02/14</b>
<b>Industry Sub-sector</b>	<b>Consumer Electronics</b>	<b>Last reviewed on</b>	<b>24/03/14</b>
		<b>Next review date</b>	<b>24/03/15</b>

# National Occupational Standard



## Overview

This unit is about moving from one customer's premise to another in order to rectify faults in dysfunctional microwave as recorded by the customer with customer care unit.

## ELE/N3121

## Repair dysfunctional Microwave oven

Unit Code	ELE/N3121
Unit Title (Task)	Repair dysfunctional microwave oven
Description	This OS unit is about understanding the customer's complaints, identifying the fault and fixing the microwave oven
Scope	<p>This unit/ task covers the following:</p> <ul style="list-style-type: none"> <li>Understand the symptoms in the microwave and identify the fault</li> <li>Replace dysfunctional part in the microwave</li> <li>Confirm functionality of the repaired unit</li> <li>Achieve productivity and quality as per company's norms</li> </ul>
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
<b>Understanding symptoms and identifying fault</b>	<p>To be competent, the user/ individual must be able to:</p> <p>PC1. understand usage pattern of the microwave from the customer</p> <p>PC2. diagnose the fault based on customer interaction and initial inspection</p> <p>PC3. unplug the unit , carry out basic tests such as power supply inspection, volt ampere test and earth test power supply</p> <p>PC4. separate and inspect every module of the unit if the fault is not identified through basic tests</p> <p>PC5. send to factory for in depth diagnosis, if problem remains un-identified at site</p>
<b>Replacing dysfunctional module in microwave</b>	<p>To be competent, the user/ individual must be able to:</p> <p>PC6. replace component at location, if the fault identified is because of damage of components such as relay or thermostat</p> <p>PC7. remove and replace the faulty module with a functional one, either on a second visit or as pre-identified and collected from the service centre, if the problem is at the PCB level or components that cannot be replaced at site</p>
<b>Confirming functionality of repaired unit</b>	<p>To be competent, the user/ individual must be able to:</p> <p>PC8. reassemble the unit</p> <p>PC9. switch on power supply and confirm that unit is functioning</p> <p>PC10. demonstrate and confirm functionality of the unit with customer</p> <p>PC11. educate the customer about cleaning and maintenance procedures</p> <p>PC12. collect necessary payments from the customer, if applicable</p> <p>PC13. fill in customer acknowledgement form</p> <p>PC14. complete other documentation procedures to record complaint closure</p>
<b>Achieving productivity and</b>	<p>To be competent, the user/ individual must be able to:</p> <p>PC15. ensure damage free handling of the unit</p>

## ELE/N3121

## Repair dysfunctional Microwave oven

<b>quality</b>	<p>PC16. diagnose the problem accurately and in assigned time</p> <p>PC17. identify the problem modules accurately such as the power supply, timer/control panel, magnetron, motor etc.</p> <p>PC18. fix the dysfunctional appliance in designated time</p> <p>PC19. rectify completely to avoid repeat fault in the appliance</p> <p>PC20. record minimum customer complaints post service</p> <p>PC21. meet daily target on attending to number of complaints</p> <p>PC22. select the right spares according to recorded complaints at the customer care</p> <p>PC23. clearly communicate type of module required to the service centre, if a faulty module is to be replaced</p> <p>PC24. secure repairs completion receipt from customer</p> <p>PC25. educate customer on maintenance and correct practices to follow in order to avoid further problems</p> <p>PC26. ensure 100% customer satisfaction</p> <p>PC27. recover payments as per rate sheet/ communication from customer care</p> <p>PC28. sell related products such as new equipment or Annual Maintenance Contracts (AMC) as per company policy</p>
<b>Knowledge and Understanding (K)</b>	
<b>E. Organizational Context</b> (Knowledge of the company / organization and its processes)	<p>The individual on the job needs to understand:</p> <p>KA1. company's policies on: incentives, delivery standards and personnel management and customer service standards</p> <p>KA2. reporting and documentation processes</p> <p>KA3. microwave manufacturing capabilities of the organisation</p> <p>KA4. importance of the individual's role in the system</p> <p>KA5. reporting structure</p>
<b>B. Technical Knowledge</b>	<p>The individual on the job needs to know and understand:</p> <p>KB1. different models of microwave ovens and their features and functionalities</p> <p>KB2. functioning of the appliance and its various modules</p> <p>KB3. basic electrical fundamentals with regard to functioning of motors, circuit breakers, etc.</p> <p>KB4. basic electronics (knowledge of components such as diode, transformer, LED, photo transistor, capacitor, resistor, inductor, thermistor ICs)</p> <p>KB5. functioning of various electromechanical parts of the microwave</p> <p>KB6. fundamentals of electricity such as ohms law, difference between ac and dc, calculation of energy consumption of appliances, understanding of domestic wiring, understanding of series and parallel connections</p> <p>KB7. troubleshooting knowledge with respect to microwaves</p> <p>KB8. hazards, their causes and prevention/personal safety</p> <p>KB9. frequently occurring faults such as intermittent heating, no heating, timing problem, display problem etc.</p> <p>KB10. components/modules of different microwaves and their prices</p> <p>KB11. energy ratings such BEE rating and concepts of e waste</p> <p>KB12. other products of the company</p>

## ELE/N3121

## Repair dysfunctional Microwave oven

Skills (S) [Optional]	
<b>I. Core Skills/ Generic Skills</b>	<b>Reading, writing and computer skills</b> The individual on the job needs to know and understand: SA1. how to read warnings, instructions and other text material on product labels, and components SA2. how to read job sheet and complaints SA3. how to read product operating manuals SA4. how to operate computers and software installed SA5. how to read and understand electrical and electronic symbols, multiples and SI units
	<b>Documentation skills</b> The individual on the job needs to know and understand: SA6. how to document completion note for customer SA7. how to record completion information in the ERP system
	<b>J. Professional Skills</b>
	<b>Using tools and machines</b> The individual on the job needs to know and understand: SB1. to operate/use multi-meter, clamp meter, microwave leakage detector, microwave power detector, thermometer, screwdriver etc.
	<b>Fault diagnosis skills</b> The individual on the job needs to know and understand: SB2. to detect basic electrical faults such as improper/no earth, defective power cord, connector or internal wiring defect, short/ loose/open contacts, blown fuse SB3. to diagnose problem of oven running but not heating due to shorted diode, HV transformer or magnetron, damaged magnetron dome, magnetron insulator breakdown, shorted HV capacitor or HV wiring SB4. to diagnose reasons low heating due to ageing magnetron, cracked magnet, burned dome or magnetron insulator breakdown SB5. to identify reasons for intermittent/uneven heating due to oxidised/burned connection to magnetron filament terminals, burned connector due to poor crimp or weakened connection SB6. to detect electrical power problems such as loose terminal connections, open motor windings etc. SB7. to detect other problems such as defective touch panel/keypad, defective control board, defective sensor unit, burned slip on connector, defective triac, open fuse/open HV capacitor, open HV diode etc.
	<b>Communication skills</b> The individual on the job needs to know and understand: SB8. how to interact with customer to understand the problem faced SB9. how to market and sell accessories and products of the company SB10. importance of communicating in language SB11. precautions and etiquette while dealing with customer



**ELE/N3121**

**Repair dysfunctional Microwave oven**

	SB12. be polite, patient and punctual
	<b>Critical thinking</b>
	<p>The individual on the job needs to know and understand:</p> <p>SB13. to match symptoms of the fault noticed to the cause of the problem</p> <p>SB14. anticipate and avoid hazards that may occur during repairs because of tools, materials used or repair processes</p>

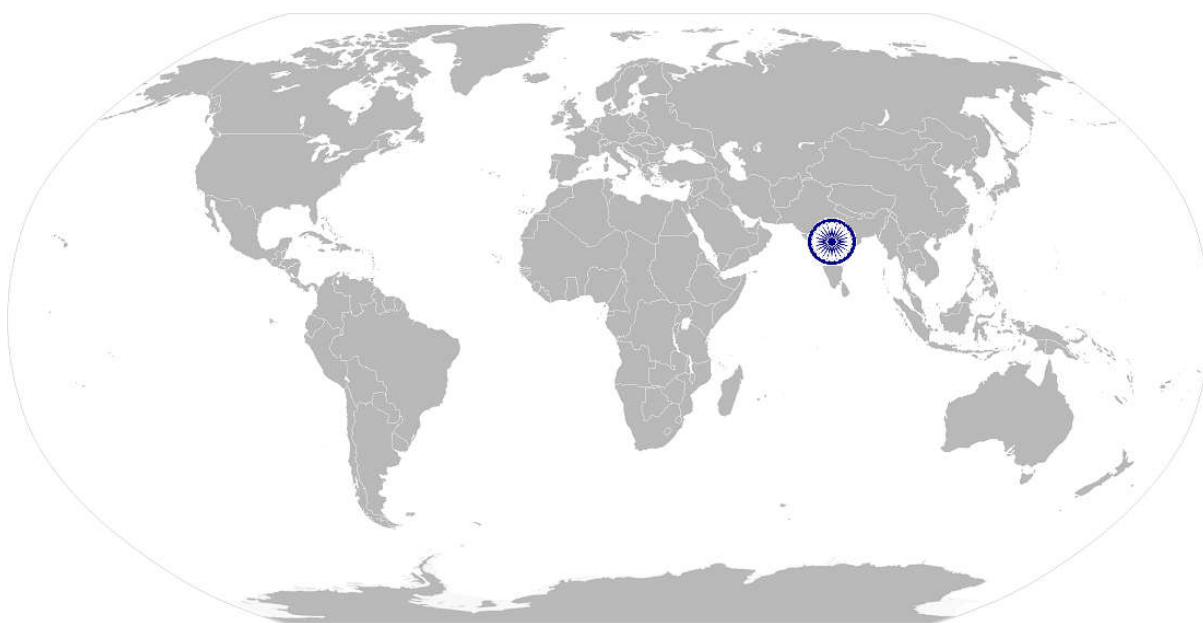
**ELE/N3121**

**Repair dysfunctional Microwave oven**

## **NOS Version Control**

<b>NOS Code</b>	<b>ELE/N3121</b>		
<b>Credits(NVEQF/NVQF/NSQF) [OPTIONAL]</b>	<b>TBD</b>	<b>Version number</b>	<b>1.0</b>
<b>Industry</b>	<b>Electronics</b>	<b>Drafted on</b>	<b>18/02/14</b>
<b>Industry Sub-sector</b>	<b>Consumer Electronics</b>	<b>Last reviewed on</b>	<b>24/03/14</b>
		<b>Next review date</b>	<b>24/03/15</b>

# 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/N9901

## Interact with colleagues

<b>Unit Code</b>	<b>ELE/N9901</b>
<b>Unit Title (Task)</b>	<b>Interact with colleagues</b>
<b>Description</b>	This OS unit is about communicating with colleagues and seniors in order to achieve smooth work flow
<b>Scope</b>	<p>This unit/ task covers the following:</p> <ul style="list-style-type: none"> <li>Interact with supervisor or superior</li> <li>Coordinate with colleagues</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Interacting with supervisor</b>	<p>To be competent, the user/ individual must be able to:</p> <p>PC1. understand work requirements, targets and incentives</p> <p>PC2. learn about new product models, their features and functions</p> <p>PC3. report problems identified in the field</p> <p>PC4. escalate customer concerns that cannot be handled on 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. have a happy and satisfied customer</p>
<b>Interacting with colleagues</b>	<p>To be competent, the user/ individual must be able to:</p> <p>PC11. resolve inter-personnel conflicts and achieve smooth workflow</p> <p>PC12. receive spares from tool room or stores</p> <p>PC13. deposit faulty modules and tools to stores</p> <p>PC14. pass on customer complaints to colleagues in a respective geographical area</p> <p>PC15. assist colleagues with resolving field problems</p> <p>PC16. clearly demarcate roles of each team member</p>
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b> (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>
<b>B. Technical Knowledge</b>	<p>The individual on the job needs to know and understand:</p> <p>KB1. how to communicate effectively</p> <p>KB2. how to build team coordination</p>

**ELE/N9901**

**Interact with colleagues**

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

**Interact with colleagues**

## **NOS Version Control**

NOS Code	ELE/N9901		
Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	TBD	Version number	1.0
Industry	Electronics	Drafted on	18/02/14
Industry Sub-sector	Consumer Electronics	Last reviewed on	24/03/14
		Next review date	24/03/15

Definitions

Keywords /Terms	Description
Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Function	Function is an activity necessary for achieving the key purpose of the sector, occupation, or an area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of OS.
Sub-function	Sub-functions are sub-activities essential to fulfil the achieving the objectives of the function.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the knowledge and understanding they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria	Performance criteria are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (OS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.
Knowledge and Understanding	Knowledge and understanding are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.
Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.

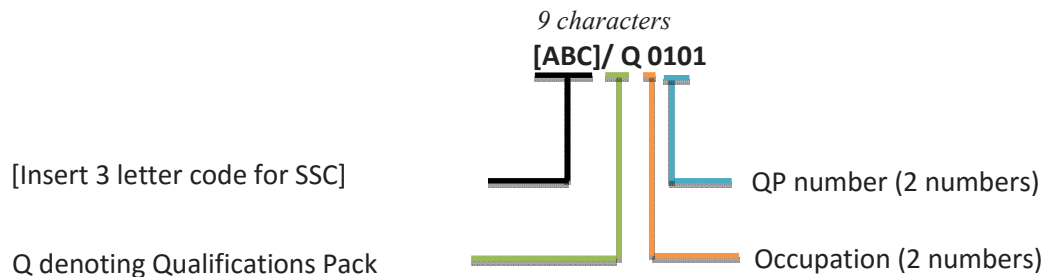


Core Skills/ Generic Skills	Core skills or generic skills are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
Keywords /Terms	Description
HV	High Voltage
NOS	National Occupational Standard(s)
NVQF	National Vocational Qualifications Framework
NSQF	National Qualifications Framework
NVEQF	National Vocational Education Qualifications Framework
PCB	Printed Circuit Board
QP	Qualifications Pack
TFC	Thin film composite
TMF	Tubular membrane filter

## Annexure

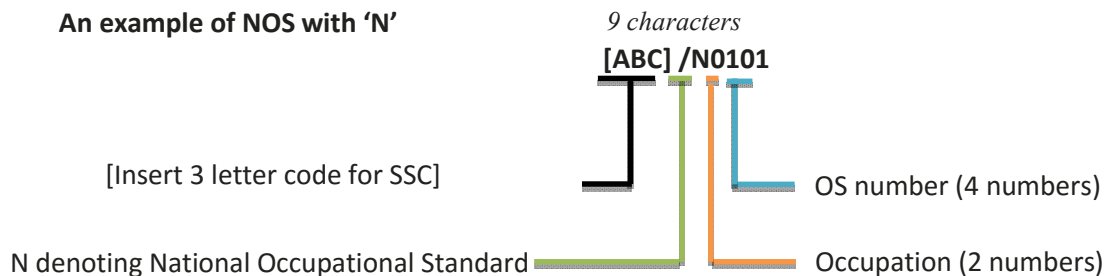
### Nomenclature for QP and NOS

#### 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

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