Model Curriculum

Service Technician- Home Appliances

(Options: Washing Machine/Water Purifier/ Microwave Oven)

SECTOR: ELECTRONICS
SUB-SECTOR: Consumer Electronics
OCCUPATION: After Sales Service
REF ID: ELE/Q3111, v1.0
NSQF LEVEL: 4

Skill India
कौशल भारत-कुशल भारत

Certificate

COMPLIANCE TO
QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARD

Is hereby issued by the

Electronics Sector Skills Council of India

for

Skilling Content : **Service Technician – Home Appliances**

Complying to National Occupational Standards of

Job Role/QP : **Service Technician – Home Appliances**, QP No: **ELE/Q3111 Level 4**

Date of Issuance : 8th May 2017
Valid up to* : 7th May 2019
*Valid upto the next QP Review Date or the date mentioned above (whichever is earlier)

Authorized Signatory
Electronics Sector Skills Council of India

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Service Technician- Home Appliances (Options: Washing Machine/Water Purifier/Microwave Oven)

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a "Service Technician- Home Appliances", in the "Electronics" Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	**Service Technician – Home Appliances (Options: Washing Machine/Water Purifier/ Microwave Oven)**		
Qualification Pack Name & Reference ID. ID	ELE/Q3111, v1.0		
Version No.	1.0	**Version Update Date**	07/05/2017
Pre-requisites to Training	8th standard pass/ITI/Diploma (Electrical/ Mechanical/RAC)		
Training Outcomes	**After completing this programme, participants will be able to:** • **Engage with customer for service:** Interact with customers to understand their requirements and build confidence. • **Install newly purchased refrigerator:** Installing the newly purchased refrigerator at customer's location and make it ready to use. • **Attend to service complaints – refrigerator:** Understanding the customer's complaints, identifying the fault and fixing the refrigerator. • **Install newly purchased air conditioner:** Install the newly purchased air conditioner at customer's location and make it ready for use. • **Attend to service complaints- air conditioner:** Understand the customer's complaints, identifying the fault and fixing the air conditioner. • **Interact with colleagues:** Communicate with colleagues and seniors in order to achieve smooth work flow. • **Install newly purchased washing machine:** Install the newly purchased washing machine at customer's location and make it ready to use. • **Attend to service complaints- washing machine:** understand the customer's complaints, identifying the fault and fixing the washing machine. • **Install water purifier:** Install the newly purchased water purifier at customer's location and make it ready to use.		

	• **Repair dysfunctional water purifier:** Understanding the customer's complaints, identifying the fault and fixing the water purifier. • **Repair dysfunctional microwave oven:** Understand the customer's complaints, identifying the fault and fixing the microwave oven.

This course encompasses 6 out of 6 compulsory NOS (National Occupational Standards), 3 out of 3 Optional NOS of "Service Technician- Home Appliances" Qualification Pack issued by "Electronics Sector Skills Council of India (ESSCI)".

Compulsory NOS

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	**Engage with customers for service** **Theory Duration** (hh:mm) 16:00 **Practical Duration** (hh:mm) 16:00 **Corresponding NOS Code** ELE/N3101	• Interact with the customer prior to visit • Interact with customer at their premises • Suggest possible solutions to customer • Achieve productivity and quality as per company's norms	
2	**Install newly purchased refrigerator** **Theory Duration** (hh:mm) 12:00 **Practical Duration** (hh:mm) 12:00 **Corresponding NOS Code** ELE/N3112	• Remove packaging and check accessories • Place the appliance to appropriate location • Check refrigerator's functioning • Complete documentation • Interact with superiors • Interact with and train service • technicians • Achieve productivity and quality as per company's standards	
3	**Attend to service complaints- Refrigerator** **Theory Duration** (hh:mm) 16:00 **Practical Duration** (hh:mm) 16:00	• Understand the symptoms and identify the fault • Replace dysfunctional module in the refrigerator unit • Confirm functionality of the repaired unit • Achieve productivity and quality as per company's standards • Interact with and train technicians	Usage of Multimeter (Analog) Usage of Multimeter (Digital) Water Pressure Gauge TDS Meter Hand Tools Maintenance Tools

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	Corresponding NOS Code ELE/N3113		
4	**Install newly purchased Air conditioner** **Theory Duration** (hh:mm) 12:00 **Practical Duration** (hh:mm) 12:00 **Corresponding NOS Code** ELE/N3114	• Undertake pre-installation site visit • Remove packaging and check accessories • Place the Air conditioner at identified location • Check Air Conditioner's functioning • Complete the documentation • Interact With Supervisor • Interact with and train service technicians • Achieve productivity and quality as per company's norms	Usage of Multimeter (Analog) Usage of Multimeter (Digital) Water Pressure Gauge TDS Meter Hand Tools Maintenance Tools
5	**Attend to service complaints- Air conditioner** **Theory Duration** (hh:mm) 20:00 **Practical Duration** (hh:mm) 20:00 **Corresponding NOS Code** ELE/N3115	• Understand the symptoms in the air-conditioner and identify the fault • Replace dysfunctional module in the air conditioner unit • Confirm functionality of the repaired unit • Interact with and train service technician • Achieve productivity and quality as per company's norms	Usage of Multimeter (Analog) Usage of Multimeter (Digital) Water Pressure Gauge TDS Meter Hand Tools Maintenance Tools
6	**Interact with colleagues** **Theory Duration** (hh:mm) 10:00 **Practical Duration** (hh:mm) 10:00 **Corresponding NOS Code** ELE/N9901	• Interact with supervisor • Coordinate with colleagues	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	Total Duration **Theory Duration 86:00** **Practical Duration 86:00**	**Unique Equipment Required:** Multimeter (Analog), Multimeter (Digital), Water Pressure Gauge TDS Meter, Hand Tools, Maintenance Tools, Electric drill, Clamp meter, spanner, screw driver set	

Option -1 : Washing Machine

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	**Install newly purchased washing machine** **Theory Duration** (hh:mm) 12:00 **Practical Duration** (hh:mm) 12:00 **Corresponding NOS Code** ELE/N3116	• Remove packaging and check accessories • Place the washing machine at appropriate location • Check washing machine's functioning • Complete documentation • Interact with superior • Interact with and train service technicians • Achieve productivity and quality as per company's standards	Usage of Multimeter (Analog) Usage of Multimeter (Digital) Water Pressure Gauge TDS Meter Hand Tools Maintenance Tools
2	**Attend to service complaints-washing machine** **Theory Duration** (hh:mm) 20:00 **Practical Duration** (hh:mm) 20:00 **Corresponding NOS Code** ELE/N3117	• Understand the symptoms and identify the fault • Repair the washing machine • Confirm functionality of the • repaired unit • Achieve target as per company's policy • Interact with and train service technicians	Usage of Multimeter (Analog) Usage of Multimeter (Digital) Water Pressure Gauge TDS Meter Hand Tools Maintenance Tools
	Total Duration **Theory**	**Unique Equipment Required:** Multimeter (Analog), Multimeter (Digital), Water Pressure Gauge TDS Meter, Hand Tools, Maintenance Tools	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	Duration 32:00 **Practical Duration 32:00**		

Option -2 : Water purifier

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	**Install the water purifier** **Theory Duration** (hh:mm) 08:00 **Practical Duration** (hh:mm) 08:00 **Corresponding NOS Code** ELE/N3118	• Undertake pre-installation site visit • Remove packaging and check accessories • Fix the water purifier at identified location • Check water purifier's functioning • Complete the documentation • Interact with supervisor or superior • Achieve productivity and quality as per company's norms	Usage of Multimeter (Analog) Usage of Multimeter (Digital) Water Pressure Gauge TDS Meter Hand Tools Maintenance Tools
2	**Repair dysfunctional water purifier** **Theory Duration** (hh:mm) 08:00 **Practical Duration** (hh:mm) 08:00 **Corresponding NOS Code** ELE/N3119	• Understand the symptoms in the water purifier and identify the fault • Replace dysfunctional part in the water purifier unit • Confirm functionality of the repaired unit • Achieve productivity and quality as per company's norms	Usage of Multimeter (Analog) Usage of Multimeter (Digital) Water Pressure Gauge TDS Meter Hand Tools Maintenance Tools
	Total Duration **Theory Duration 16:00** **Practical Duration 16:00**	**Unique Equipment Required:** Multimeter (Analog), Multimeter (Digital), Water Pressure Gauge TDS Meter, Hand Tools, Maintenance Tools	

Option -3 : Microwave Oven

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	**Repair dysfunctional microwave oven** **Theory Duration** (hh:mm) 16:00 **Practical Duration** (hh:mm) 16:00 **Corresponding NOS Code** ELE/N3121	• Understand the symptoms in the microwave and identify the fault • Replace dysfunctional part in the microwave • Confirm functionality of the repaired unit • Achieve productivity and quality as per company's norms	Usage of Multimeter (Analog) Usage of Multimeter (Digital) Water Pressure Gauge TDS Meter Hand Tools Maintenance Tools
	Total Duration **Theory Duration** **16:00** **Practical Duration** **16:00**	**Unique Equipment Required:** Multimeter (Analog), Multimeter (Digital), Water Pressure Gauge TDS Meter, Hand Tools, Maintenance Tools	

	GRAND Total Duration **Minimum Duration for the QP= 172 hrs** **Theory: 86 hrs** **Practical: 86 hrs** **Maximum Duration for the QP= 300 hrs** **Theory: 150 hrs** **Practical: 150 hrs**	**Unique Equipment Required for the QP:** Multimeter (Analog), Multimeter (Digital), Water Pressure Gauge TDS Meter, Hand Tools, Maintenance Tools, Electric drill, Clamp meter, spanner, screw driver set

*(This syllabus/ curriculum has been approved by **Electronics Sector Skills Council of India)***

Trainer Prerequisites for Job role: "Service Technician- Home Appliances" mapped to Qualification Pack: "ELE/Q3111, v1.0"

Sr. No.	Area	Details
1	**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.
2	**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 for this job.
3	**Minimum Educational Qualifications**	ITI/ Diploma (Electrical/ Mechanical/RAC)
4a	**Domain Certification**	Certified for Job Role: "Service Technician- Home Appliances" mapped to QP: "ELE/Q3111, v1.0". Minimum accepted score is 80%
4b	**Platform Certification**	Recommended that the Trainer is certified for the Job Role: "Trainer", mapped to the Qualification Pack: "MEP/Q0102". Minimum accepted as per respective SSC guidelines is 80%.
5	**Experience**	NA

Criteria For Assessment Of Trainees

Job Role: Service Technician – Home Appliances

Qualification Pack: ELE/Q3111

Sector Skill Council: Electronics Sector Skill 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. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criterion.
6. To pass the Qualification Pack, every trainee should score a minimum of 70% of aggregate marks to successfully clear the assessment.
7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

Total Marks: 600	Compulsory		NOS	Marks Allocation	
Assessment outcomes	Assessment Criteria for outcomes	Total Marks	Out of	Theory	Skills Practical
ELE/N3101 Engage with customer for service	PC1. check customer complaint registered at customer care or installation schedule	100	3	1	2
	PC2. call customer to confirm problem and fix time for visit		4	2	2
	PC3. greet the customer and confirm the problem registered		4	2	2
	PC4. be polite and patient when interacting with customer		4	2	2
	PC5. check about warranty status of appliance and annual maintenance contract		3	1	2
	PC6. anticipate possible problems to carry tools and parts accordingly		4	2	2
	PC7. ascertain customer location in order to make the route plan for the day		3	1	2

	PC8. enquire about the symptoms and history of problems in the appliance		5	2	3
	PC9. ask about the age of appliance and status of upkeep		5	2	3
	PC10. identify the problem based on customer's information		5	2	3
	PC11. communicate the problems identified and educate on possible reasons		5	2	3
	PC12. inform about costs involved		5	2	3
	PC13. discuss the problem(s) identified with customer		6	3	3
	PC14. suggest possible solutions and costs involved		6	3	3
	PC15. explain the time required and methodology for servicing necessary		7	3	4
	PC16. seek customer's approval on further action		6	3	3
	PC17. accurately assess the problem and solution(s) necessary		3	1	2
	PC18. offer most appropriate and cost-effectiveserviceasper customer's requirement		3	1	2
	PC19. communicate problem effectively in order to secure customer's confidence		4	1	3
	PC20. ensure customer satisfaction and positive feedback		4	1	3
	PC21. record minimum customer complaints post service		3	1	2
	PC22. avoid repeat problem post service		4	1	3
	PC23. prepare most optimum route plan to complete daily target visits		4	1	3
		Total	100	40	60
ELE/N3112 Install newly purchased refrigerator	PC1. remove the refrigerator packaging in which it was shipped to customer	100	2	1	1
	PC2. check that the product matches the customer order in terms of colour and make		2	1	1
	PC3. check that all supporting accessories purchased are there in the pack		2	1	1
	PC4. check tools and fitments required for the installation are available		2	1	1
	PC5. clear up the packaging material waste and dispose as per company's norms		2	1	1
	PC6. seek customer's input on placement of refrigerator		3	1	2

	PC7. maintain required distance from wall and floor		3	1	2
	PC8. check nearest plug point and distance of refrigerator from it		3	1	2
	PC9. place on appropriate stand or platform as recommended by company		3	1	2
	PC10. educate customer on placing refrigerator in obstruction-free area, importance of proper placing and every day care		3	1	2
	PC11. fit in water-disposal beaker, handle, shelves, basket and side buckets		2	1	1
	PC12. set cooling and freezer temperature knobs according to the season		3	1	2
	PC13. connect the refrigerator to power supply		3	1	2
	PC14. demonstrate the features and utility		3	1	2
	PC15. explain the precautions to be taken while using the refrigerator		2	1	1
	PC16. explain about heating of outside walls of the refrigerator		2	1	1
	PC17. fill in customer acknowledgement form		4	2	2
	PC18. seek customer's signature		4	2	2
	PC19. complete other documentation for recording completion of installation		4	2	2
	PC20. call customer care and inform about job completion		3	1	2
	PC21. identify the work requirement from superior, periodically		3	1	2
	PC22. report to superior on the work completed		3	1	2
	PC23. escalate customer issues and problems that are unresolved at field level		3	1	2
	PC24. document the work completed on the company ERP software for tracking and future references		3	1	2
	PC25. refer customer queries on non-field service areas		3	1	2
	PC26. interact with service technicians from time to time in order to understand problems faced on field		7	3	4
	PC27. educate junior level technicians about installation procedures and customer handling		7	3	4

	PC28. ensure no damage to the refrigerator unit or accessories while removing packaging		3	1	2
	PC29. use the correct tools and equipment for installation		2	1	1
	PC30. position and install in safe and stable condition		3	1	2
	PC31. complete installation in time target given		3	1	2
	PC32. report in time, work status and prepare required documentation as per company rules		2	1	1
	PC33. achieve 100% customer satisfaction and feedback on each field visit		3	1	2
		Total	100	40	60
ELE/N3113 Attend to service complaints - refrigerator	PC1. verify if thermostat settings are appropriate	100	5	2	3
	PC2. diagnose the fault in the unit as per customer interaction and initial inspection		5	2	3
	PC3. unplug the unit, carry out basic tests such as power supply inspection, volt ampere test and earth test power supply, compressor, motors, PCB, condenser		5	2	3
	PC4. follow the electrical circuit path and inspect each component in that sequence in order to identify the faulty module		5	2	3
	PC5. send to factory for in-depth diagnosis, if problem cannot be identified at site		5	2	3
	PC6. repair at location, if the fault identified is due to damage of components such as relay or thermostat		8	3	5
	PC7. remove and replace module during either second visit or as per complaint registered with customer care and as collected from the service centre, if the dysfunctional module/part is specialised such as PCB and cannot be repaired immediately		8	3	5
	PC8. if the fault identified is a gas leak, take necessary actions for the refrigerator to be transported to the service centre for brazing		8	3	5
	PC9. reassemble the unit		2	1	1
	PC10. switch on power supply and confirm that the unit is functioning		2	1	1
	PC11. check that all the modules of the unit work as per specifications		3	1	2

	PC12. demonstrate and confirm functionality of the unit to the customer		3	1	2
	PC13. educate the customer about cleaning procedures and best practices		3	1	2
	PC14. collect necessary payments from the customer		3	1	2
	PC15. fill in customer acknowledgement form		2	1	1
	PC16. complete other documentation procedures to record complaint closure Achieving productivity		2	1	1
	PC17. diagnose the problem accurately and in short time		2	1	1
	PC18. identify the problem modules such as the power supply, compressor, motors, PCB, condenser optimise the time taken to fix the dysfunctional refrigerator		2	1	1
	PC19. rectify to avoid repeat fault in the fridge		2	1	1
	PC20. meet daily target for attending to number of complaints		2	1	1
	PC21. record minimum customer complaints post service		2	1	1
	PC22. select the right spares according to recorded complaints at the customer care		2	1	1
	PC23. educate customer on refrigerator maintenance in order to avoid problems		2	1	1
	PC24. ensure damage free handling of the unit		2	1	1
	PC25. achieve 100% customer satisfaction		2	1	1
	PC26. make sale of related products such as new equipment or annual maintenance contracts (AMC)		3	1	2
	PC27. interact with service technicians from time to time in order to understand problems faced on field		5	1	4
	PC28. educate junior level technicians about commonly occurring problems and diagnosis procedures		5	2	3
		Total	100	40	60
ELE/N3114 Install newly	PC1. visit the customer's premise before carrying out the installation	100	2	1	1

purchased air conditioner	PC2. interact with the customer to understand where the air conditioner is to be installed, i.e., window, split, high, low, etc.		2	1	1
	PC3. check that the location meets structural requirements such as distance from power supply, distance from windows/doors being opened frequently		2	1	1
	PC4. make the customer aware of any pre installations/masonry/electrical work to be carried out and educate the customer about requirement of concealed drainage and electric conduits		2	1	1
	PC5. make necessary markings for placement of indoor and outdoor units		2	1	1
	PC6. seek appointment for the next visit		2	1	1
	PC7. remove the air conditioner packaging in which it was shipped to customer from point of sale/ warehouse		2	1	1
	PC8. check that the product matches the customer order in terms of colour and make		2	1	1
	PC9. check that all supporting accessories purchased have are there in the pack		2	1	1
	PC10. check that tools and fitments required for the installation are available		2	1	1
	PC11. clear up the packaging material waste and dispose as per company's norms		2	1	1
	PC12. check if pre installation requirements are met		2	1	1
	PC13. maintain required distance from door/window		2	1	1
	PC14. make measurements at the location identified and drill holes ensuring no internal wiring damage takes place		2	1	1
	PC15. mount the indoor unit and ensure that the screws are fastened securely		2	1	1
	PC16. place the outdoor unit at a suitable location and attach it firmly to wall/floor		2	1	1
	PC17. connect the indoor and the outdoor units using the field copper pipe of appropriate size and interconnecting cables		2	1	1

	PC18. fill in additional gas if the distance between the indoor and the outdoor units is more than what is recommended		2	1	1
	PC19. make necessary power supply connections		4	1	3
	PC20. align the air conditioner as per the instructions manual		4	1	3
	PC21. demonstrate the features and utility		4	1	3
	PC22. explain the precautions to be taken while using the air conditioner		4	1	3
	PC23. fill in customer acknowledgement form		3	1	2
	PC24. seek customer's signature		2	1	1
	PC25. complete other documentation for recording completion of installation		3	1	2
	PC26. call customer care and inform about job completed		2	1	1
	PC27. identity the work requirement from superior, periodically		4	1	3
	PC28. report to superior on the work completed		4	1	3
	PC29. escalate the customer issues and problems that are unresolved in the field		4	1	3
	PC30. document the work completed on the company ERP software for tracking and future references		4	1	3
	PC31. interact with service technicians from time to time in order to understand problems faced on field		5	2	3
	PC32. educate junior level technicians about installation procedures and customer handling		5	2	3
	PC33. remove packaging without damage to the air conditioner unit and accessories		1	1	0
	PC34. position air conditioner as per requirements specified in instructions manual		2	1	1
	PC35. educate customer on importance of proper placing		2	1	1
	PC36. inform about switching off the unit during voltage fluctuations and use of stabilizers, if necessary		1	0	1
	PC37. carry and use the correct tools and equipment for installation		1	0	1
	PC38. operate and check that they are in a safe and stable condition		1	0	1

	PC39. complete installation in time target given		1	1	0
	PC40. educate customer on proper operation and maintenance procedures		1	1	0
	PC41. complete daily field schedule as per instructions/format within the designated time		2	1	1
		Total	100	40	60
ELE/N3115 Attend to service complaints – air conditioner	PC1. identify usage pattern of the air conditioner from the customer	100	4	2	2
	PC2. diagnose the fault based on customer interaction and initial inspection		4	2	2
	PC3. unplug the unit, carry out basic tests such as power supply inspection, volt ampere test and earthing test power supply, compressor, motors, PCB, condenser		4	2	2
	PC4. separate and inspect every module of the unit if the fault is not identified through basic tests		4	2	2
	PC5. send to factory for in depth diagnosis, if problem remains un-identified at site		4	2	2
	PC6. replace component at location, if the fault identified is because of damage of components such as relay or thermostat		6	3	3
	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		7	3	4
	PC8. carry out brazing operation at the customer premise or pass the complaint on to a specialist in-charge of handling brazing, if the fault identified is a gas leak		7	3	4
	PC9. reassemble the unit		3	1	2
	PC10. switch on power supply and confirm that unit is functioning		3	1	2
	PC11. check that all the modules of the unit work as per specifications		3	1	2
	PC12. demonstrate and confirm functionality of the unit with customer		3	1	2
	PC13. educate the customer about cleaning procedures and other best practices		2	1	1
	PC14. collect necessary payments from the customer, if applicable		2	1	1

	PC15. fill in customer acknowledgement form		2	1	1
	PC16. complete other documentation procedures to record complaint closure		2	1	1
	PC17. ensure damage free handling of the unit		1	0	1
	PC18. diagnose the problem accurately and in assigned time		2	1	1
	PC19. identify the problem modules accurately such as the power supply, compressor, fan motors, PCB		2	1	1
	PC20. fix the dysfunctional air conditioner in designated time		2	1	1
	PC21. rectify completely to avoid repeat fault in the air conditioner		1	1	0
	PC22. record minimum customer complaints post service		1		1
	PC23. meet daily target on attending to number of complaints		1	0	1
	PC24. select the right spares according to recorded complaints at the customer care		1	0	1
	PC25. clearly communicate type of module required to the service centre, if a faulty module is to be replaced		1	0	1
	PC26. secure repairs completion receipt from customer		2	1	1
	PC27. educate customer on air conditioner maintenance and correct practices to follow in order to avoid further problems		2	1	1
	PC28. ensure 100% customer satisfaction		2	1	1
	PC29. recover payments as per rate sheet/ communication from customer care		1	0	1
	PC30. sell related products such as new equipment or Annual Maintenance Contracts (AMC) as per company policy		1	0	1
	PC31. interact with service technicians from time to time in order to understand problems faced on field		10	3	7
	PC32. educate junior level technicians about commonly occurring problems and diagnosis procedures		10	3	7
		Total	100	40	60
ELE/N9901 Interact with	PC1. understand work requirements, targets and incentives	100	5	2	3

colleagues	PC2. learn about new product models, their features and functions		5	2	3
	PC3. report problems identified in the field		5	2	3
	PC4. escalate customer concerns that cannot be handled on field		6	2	4
	PC5. resolve personnel issues		5	2	3
	PC6. receive feedback on work standards and customer satisfaction		5	2	3
	PC7. communicate any potential hazards at a particular location		5	2	3
	PC8. meet given targets		5	2	3
	PC9. deliver work of expected quality despite constraints		5	2	3
	PC10. Have feedback from a happy and satisfied customer		5	2	3
	PC11. resolve inter-personnel conflicts and achieve smooth workflow		8	3	5
	PC12. receive spares from tool room or stores		8	3	5
	PC13. deposit faulty modules and tools to stores		8	3	5
	PC14. pass on customer complaints to colleagues in a respective geographical area		8	3	5
	PC15. assist colleagues with resolving field problems		9	4	5
	PC16. clearly demarcate roles of each team member		8	4	4
		Total	**100**	**40**	**60**

OPTIONS					
Option 1: Washing Machine					
Total Marks: 200				**Marks Allocation**	
Assessment outcomes	**Assessment Criteria for outcomes**	**Total Marks**	**Out of**	**Theory**	**Skills Practical**
ELE/N3116 Install newly purchased washing machine	PC1. remove the washing machine packaging in which it was shipped to customer	**100**	2	1	1
	PC2. check that the product matches the customer order in terms of colour and make		2	1	1
	PC3. check that all supporting accessories purchased are there in the pack		2	1	1
	PC4. remove all transport pins inside the drum of the washing machine before starting the machine		2	1	1

	PC5. check tools and fitments required for the installation are available		2	1	1
	PC6. clear up the packaging material waste and dispose as per company's norms		2	1	1
	PC7. seek customer's input on placement of washing machine		2	1	1
	PC8. make sure that the necessary plumbing installations for water inlet and outlet are available		2	1	1
	PC9. follow instructions in the installation manual to place the machine at appropriate distance from the water tank		2	1	1
	PC10. ensure that the machine is placed against an exterior wall in order to the drain hose running along the inside wall		2	1	1
	PC11. check nearest plug point and distance of washing machine from it		2	1	1
	PC12. place on appropriate stand or platform as recommended by company		2	1	1
	PC13. educate customer on placing washing machine in obstruction-free area		2	1	1
	PC14. identify the water inlet valve in the household plumbing		1	0	1
	PC15. ensure that the valve is turned off		2	1	1
	PC16. connect the PVC hose water inlet of the washing machine to the valve		2	1	1
	PC17. connect the waste water outlet from the washing machine to the waste system such that the dirty water does not get siphoned back into the washing machine		1	0	1
	PC18. connect the washing machine to power supply/stabiliser		1	0	1
	PC19. demonstrate the features and utility		1	0	1
	PC20. explain the precautions to be taken while using the washing machine		2	1	1
	PC21. use the correct tools and equipment for installation		2	1	1
	PC22. make inlet, outlet and power supply connections securely		1	1	0

	PC23. operate and check that there are no leaks and the machine is in a safe and stable condition		1	1	0
	PC24. educate customer on proper operation and maintenance procedures		2	1	1
	PC25. fill in customer acknowledgement form		3	1	2
	PC26. seek customer's signature		3	1	2
	PC27. complete other documentation for recording completion of installation		3	1	2
	PC28. call customer care and inform about job completion		3	1	2
	PC29. understand the work requirement from superior		3	1	2
	PC30. report to superior on the work completed		3	1	2
	PC31. escalate the customer issues and problems unresolved at field level		3	1	2
	PC32. carry out daily field schedule as per instructions		3	1	2
	PC33. refer unrelated customer queries		3	1	2
	PC34. report work status and prepare required documentation as per company standards		3	1	2
	PC35. interact with service technicians from time to time in order to understand problems faced on field		5	2	3
	PC36. educate junior level technicians about installation procedures and customer handling		5	2	3
	PC37. remove packaging without damage to the washing machine or accessories		3	1	2
	PC38. position the washing machine as per location guidelines given in the installation manual		3	1	2
	PC39. educate customer on importance of proper placing		3	1	2
	PC40. inform about switching off the unit during voltage fluctuations and use of voltage regulators, if necessary		3	1	2
	PC41. complete installation in time target given		3	1	2

	PC42. document the work completed on the company ERP software for tracking and future references		3	1	2
		Total	**100**	**40**	**60**
ELE/N3117 Attend to service complaints – washing machine	PC1. diagnose the fault in the unit as per customer interaction and initial inspection	**100**	2	1	1
	PC2. identify the cycle(fill/wash and rinse/spin and drain) during which the problem occurs based on customer interaction		3	1	2
	PC3. ensure that the unit is unplugged before carrying out any tests		2	1	1
	PC4. inspect basic parts such as valve strainers, fill hose, drain line, pressure tube, water valves, pressure sensor		2	1	1
	PC5. carry out basic tests such as power supply inspection, volt ampere test and continuity test		2	1	1
	PC6. dis assemble the washing machine and check for faults in the control/service panel, lid switch, temperature selector switch, water level control switch, timer, etc.		2	1	1
	PC7. follow the electrical circuit path and inspect each component in that sequence in order to identify any electrical faults in the unit		2	1	1
	PC8. ensure that all parts such as motors, transformer, pulley and belt system, motor starting switch, solenoid, clutch lining have been inspected		3	1	2
	PC9. send to factory for in depth diagnosis, if unable to identify problem at site		2	1	1
	PC10. if the fault identified is due to a problem in the water source, ensure that water supply is turned on and that there are no kinks in the hoses		4	1	3
	PC11. if the problem is due to soap deposition inside the machine, clean the same and run the machine through a complete wash cycle		4	2	2
	PC12. if the fault identified is due to damage of components such as water inlet valve, capacitor, fuse, circuit breaker or door knob, timer replace immediately		4	2	2

	PC13. if the dysfunctional module/part is specialised and cannot be replaced immediately, remove and replace during second visit with a functional one as collected from the service centre		4	2	2
	PC14. select the right spares according to recorded complaints at the customer care		4	2	2
	PC15. reassemble the unit		3	1	2
	PC16. switch on power supply and confirm that the unit is functioning as per specifications		3	1	2
	PC17. demonstrate and confirm functionality of the unit with the customer		3	1	2
	PC18. collect necessary payments from the customer		3	1	2
	PC19. fill in customer acknowledgement form		3	1	2
	PC20. complete other documentation procedures to record complaint closure		3	1	2
	PC21. secure repairs completion receipt from customer		3	1	2
	PC22. educate customer on washing machine maintenance in order to avoid further problems		3	1	2
	PC23. ensure damage free handling of the unit		3	1	2
	PC24. optimise the time taken to fix the dysfunctional washing machine		3	1	2
	PC25. rectify to avoid repeat fault in the washing machine		3	1	2
	PC26. meet daily target for attending to number of complaints		3	1	2
	PC27. record 100% customer satisfaction on feedback form, post service		3	1	2
	PC28. make sale of related products or annual maintenance contracts		3	1	2
	PC29. interact with service technicians from time to time in order to understand problems faced on field		9	4	5
	PC30. educate junior level technicians about commonly occurring problems and diagnosis procedures		9	4	5
		Total	**100**	**40**	**60**

OPTIONS					
Option 2: Water Purifier					
Total Marks: 200				**Marks Allocation**	
Assessment outcomes	**Assessment Criteria for outcomes**	**Total Marks**	**Out of**	**Theory**	**Skills Practical**
ELE/N3118 Install the water purifier	PC1. visit the customer's premise before carrying out the installation	**100**	2	1	1
	PC2. interact with the customer to understand whether the water purifier would be placed under the sink (UTS) or on the wall		3	1	2
	PC3. check that the location meets structural requirements such as distance from power supply, vicinity to plumbing point, etc.		2	1	1
	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		2	1	1
	PC5. make necessary markings for placement of the water purifier unit		2	1	1
	PC6. seek appointment for the next visit		2	1	1
	PC7. remove the packaging in which the purifier was shipped to customer from point of sale/ warehouse		2	1	1
	PC8. check that the product matches the customer order in terms of colour and make		2	1	1
	PC9. check that all supporting accessories purchased have are there in the pack		2	1	1
	PC10. check that tools and fitments required for the installation are available		2	1	1
	PC11. clear up the packaging material waste and dispose as per company's norms		2	1	1
	PC12. check if pre installation requirements are met		3	1	2
	PC13. make measurements at the location identified and drill holes ensuring no internal wiring damage takes place		4	2	2
	PC14. mount the filter and ensure that the screws are fastened securely		3	1	2
	PC15. drain the inlet line before connecting it to the water purifier		3	1	2

	PC16. connect the outlet pipe to the drain (if applicable)		3	1	2
	PC17. connect the purifier to the nearest power supply point		3	1	2
	PC18. ensure that the filter is aligned as per instructions in the installation manual		5	2	3
	PC19. run the purifier and ensure there are no leaks at any point		5	2	3
	PC20. demonstrate the features and utility to the customer		5	1	4
	PC21. explain maintenance procedures to be followed while using the water purifier		5	2	3
	PC22. fill in customer acknowledgement form		2	1	1
	PC23. seek customer's signature		2	1	1
	PC24. complete other documentation for recording completion of installation		3	1	2
	PC25. call customer care and inform about job completed		3	1	2
	PC26. understand the work requirement from superior, periodically		3	1	2
	PC27. report to superior on the work completed		3	1	2
	PC28. escalate the customer issues and problems that are unresolved in the field		3	1	2
	PC29. document the work completed on the company ERP software for tracking and future references		3	1	2
	PC30. remove packaging without damage to the water purifier unit and accessories		2	1	1
	PC31. position the water filter as per requirements specified in instructions manual		2	1	1
	PC32. educate customer on importance of proper placing		2	1	1
	PC33. carry and use the correct tools and equipment for installation		2	1	1
	PC34. operate and check that they are in a safe and stable condition		2	1	1
	PC35. complete installation in time target given		2	0	2
	PC36. educate customer on proper operation and maintenance procedures		2	1	1

	PC37. complete daily field schedule as per instructions/format within the designated time		2	1	1
		Total	**100**	**40**	**60**
ELE/N3119 Repair dysfunctional Water Purifier	PC1. diagnose the fault based on customer interaction and initial inspection	**100**	4	2	2
	PC2. check if the water pressure is as specified by company standards		3	1	2
	PC3. shut off the system by turning of water supply and unplug the unit		3	1	2
	PC4. place a piece of cloth or towel under the unit in order to avoid any water spills on the floor		3	1	2
	PC5. carry out basic inspection of feed water valve, tank valve, tubing, housing etc.		3	1	2
	PC6. separate and inspect every part of the unit if the fault is not identified through basic inspection		4	2	2
	PC7. send to factory for in depth diagnosis, if problem remains un-identified at site		4	2	2
	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		11	4	7
	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		11	4	7
	PC10. reassemble the unit		3	1	2
	PC11. start supply of water to the unit and confirm that unit is functioning		3	1	2
	PC12. check that all the modules of the unit work as per specifications		4	2	2
	PC13. demonstrate and confirm functionality of the unit with customer		4	2	2
	PC14. educate the customer about cleaning procedures and other best practices		3	1	2
	PC15. collect necessary payments from the customer, if applicable		3	1	2
	PC16. fill in customer acknowledgement form		3	1	2

	PC17. complete other documentation procedures to record complaint closure		3	1	2
	PC18. ensure damage free handling of the unit		2	1	1
	PC19. diagnose the problem accurately and in assigned time		2	1	1
	PC20. identify the problem modules accurately such as inlet valve, auto shut off valve, saddle valve, housing, O ring, PCB		2	1	1
	PC21. fix the dysfunctional water purifier in designated time		2	1	1
	PC22. rectify completely to avoid repeat fault in the water purifier		2	1	1
	PC23. record minimum customer complaints post service		2	1	1
	PC24. meet daily target on attending to number of complaints		2	1	1
	PC25. select the right spares according to recorded complaints at the customer care		2	1	1
	PC26. clearly communicate type of module required to the service centre, if a faulty module is to be replaced		2	1	1
	PC27. secure repairs completion receipt from customer		2	1	1
	PC28. educate customer on water purifier maintenance and correct practices to follow in order to avoid further problems		2	0	2
	PC29. ensure 100% customer satisfaction		2	0	2
	PC30. recover payments as per rate sheet/ communication from customer care		2	1	1
	PC31. sell related products such as new equipment or Annual Maintenance Contracts (AMC) as per company policy		2	1	1
		Total	**100**	**40**	**60**

OPTIONS
Option 3: Microwave Oven

Total Marks: 100				Marks Allocation	
Assessment outcomes	**Assessment Criteria for outcomes**	**Total Marks**	**Out of**	**Theory**	**Skills Practical**
ELE/N3121 Repair dysfunctional Microwave oven	PC1. understand usage pattern of the microwave from the customer	**100**	5	2	3
	PC2. diagnose the fault based on customer interaction and initial inspection		5	2	3
	PC3. unplug the unit , carry out basic tests such as power supply inspection, volt ampere test and earth test power supply		5	2	3
	PC4. separate and inspect every module of the unit if the fault is not identified through basic tests		5	2	3
	PC5. send to factory for in depth diagnosis, if problem remains un-identified at site		5	2	3
	PC6. replace component at location, if the fault identified is because of damage of components such as relay or thermostat		12	4	8
	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		12	4	8
	PC8. reassemble the unit		4	2	2
	PC9. switch on power supply and confirm that unit is functioning		4	2	2
	PC10. demonstrate and confirm functionality of the unit with customer		4	2	2
	PC11. educate the customer about cleaning and maintenance procedures		4	2	2
	PC12. collect necessary payments from the customer, if applicable		4	1	3
	PC13. fill in customer acknowledgement form		3	1	2
	PC14. complete other documentation procedures to record complaint closure		3	1	2
	PC15. ensure damage free handling of the unit		2	1	1
	PC16. diagnose the problem accurately and in assigned time		1	0	1
	PC17. identify the problem modules accurately such as the power supply, timer/control panel,		2	1	1

	magnetron, motor etc.				
	PC18. fix the dysfunctional appliance in designated time		2	1	1
	PC19. rectify completely to avoid repeat fault in the appliance		2	1	1
	PC20. record minimum customer complaints post service		2	1	1
	PC21. meet daily target on attending to number of complaints		1	0	1
	PC22. select the right spares according to recorded complaints at the customer care		2	1	1
	PC23. clearly communicate type of module required to the service centre, if a faulty module is to be replaced		2	1	1
	PC24. secure repairs completion receipt from customer		2	1	1
	PC25. educate customer on maintenance and correct practices to follow in order to avoid further problems		2	1	1
	PC26. ensure 100% customer satisfaction		2	1	1
	PC27. recover payments as per rate sheet/ communication from customer care		1	0	1
	PC28. sell related products such as new equipment or Annual Maintenance Contracts (AMC) as per company policy		2	1	1
		Total	**100**	**40**	**60**