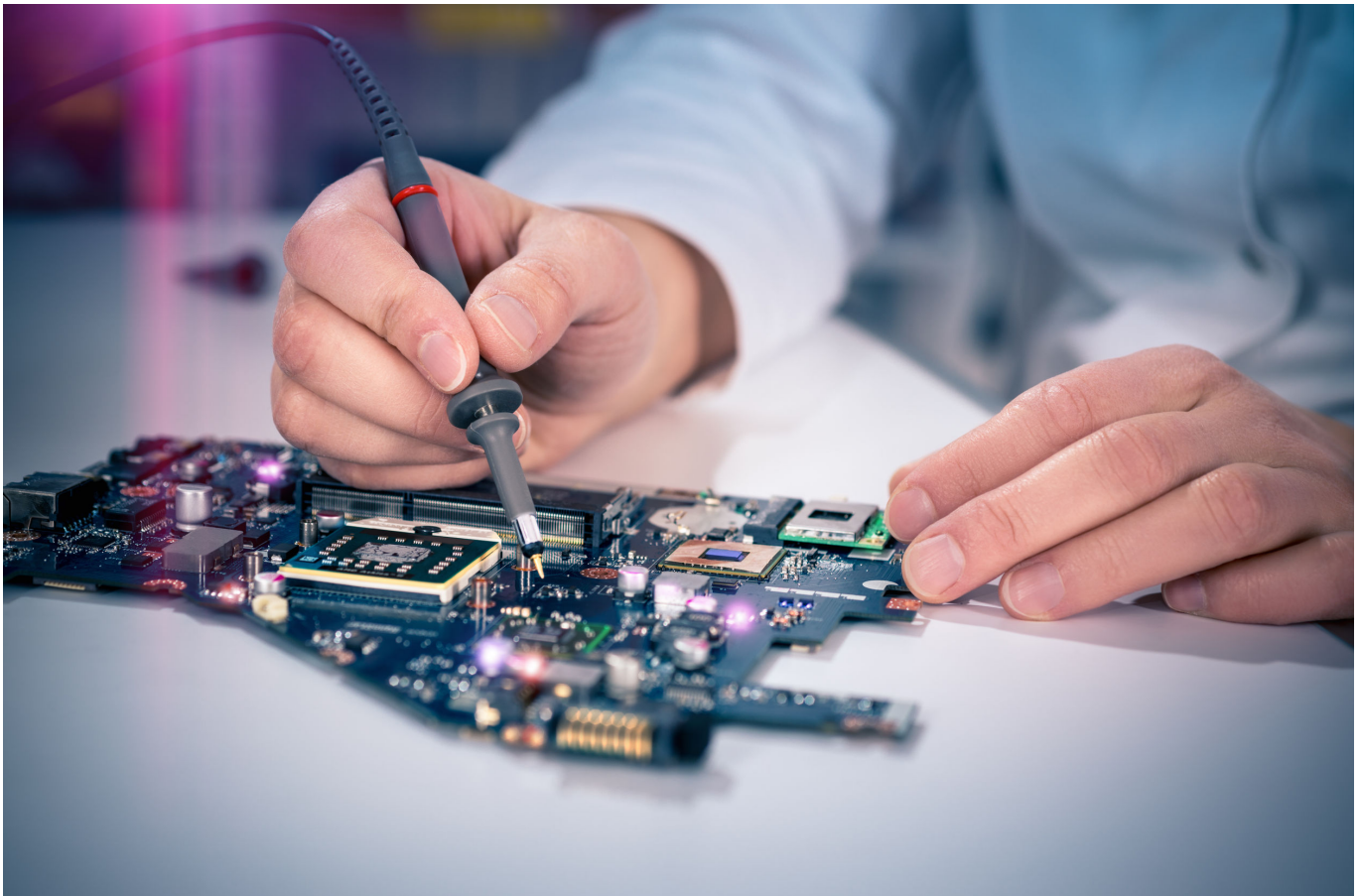


Qualification Pack



Maintenance Technician

QP Code: ELE/Q4501

Version: 3.0

NSQF Level: 3

Electronics Sector Skills Council of India || 155, 2nd Floor, ESC House Okhla Industrial Area-Phase 3
New Delhi- 110020 || email:ceo@essc-india.org



Qualification Pack

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Qualification Pack

ELE/Q4501: Maintenance Technician

Brief Job Description

The individual at work undertakes periodical preventive maintenance of machines as per the set schedule for the electrical and mechanical systems installed in the factory. The individual is also responsible for attending to any breakdown and repairs to restore temporary or permanent functioning or call expert for significant down time problems.

Personal Attributes

The individual must have the ability to work in standing position for long hours, good eye sight, non-allergic to dust, good physical strength to walk across the factory premises and move heavy objects from one place to another, if necessary

Applicable National Occupational Standards (NOS)

Compulsory NOS:

- [1. ELE/N4501: Perform periodical preventive maintenance](#)
- [2. ELE/N4502: Perform breakdown maintenance](#)
- [3. ELE/N9972: Communicate and coordinate effectively with others](#)
- [4. ELE/N1003: Work effectively, sustainably and safely](#)
- [5. DGT/VSQ/N0101: Employability Skills \(30 Hours\)](#)

Qualification Pack (QP) Parameters

Sector	Electronics
Sub-Sector	Consumer Electronics & IT Hardware
Occupation	Maintenance
Country	India
NSQF Level	3
Credits	15
Aligned to NCO/ISCO/ISIC Code	NCO-2004/2145.35



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Minimum Educational Qualification & Experience	8th grade pass (plus 2 year of NTC/relevant experience) OR 10th grade pass
Minimum Level of Education for Training in School	8th Class
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	NA
Next Review Date	24/06/2025
NSQC Approval Date	24/02/2022
Version	3.0
Reference code on NQR	2022/EHW/ESSCI/06641
NQR Version	1.0

Remarks:

NA

Qualification Pack

ELE/N4501: Perform periodical preventive maintenance

Description

This OS unit is about carrying out preventive maintenance activities on the facilities in the manufacturing unit

Elements and Performance Criteria

Understanding work requirement

To be competent, the user/individual on the job must be able to:

- PC1.** understand the work flow of the manufacturing process
- PC2.** interact with the supervisor in order to understand the work schedules, shifts and delivery dates
- PC3.** plan maintenance activities based the work flow and deliverables
- PC4.** understand the maintenance policy of the organisation and time available for daily or annual maintenance
- PC5.** understand the various department to interact for undertaking maintenance
- PC6.** minimise absenteeism and report to work on time

Scheduling maintenance

To be competent, the user/individual on the job must be able to:

- PC7.** interact with the supervisor in each department to understand the production plan and scheduled and unscheduled maintenance
- PC8.** inform about scheduled period of maintenance and confirm with departments
- PC9.** plan the work including time, manpower and material requirement
- PC10.** understand any specific requirement from the department head before maintenance (example: spares for replacement of components)
- PC11.** co-ordinate with stores and arrange for any consumables
- PC12.** ensure the tools and equipment are adequate and are in good condition
- PC13.** refer to and use relevant product manuals, job instructions, wiring diagrams and schematics
- PC14.** arrange for safety gears and tools to be used while carrying out maintenance

Carrying out preventive maintenance

To be competent, the user/individual on the job must be able to:

- PC15.** maintain electrical equipment such as single, three-phase and direct current power supplies, motors, starters, switchgears, control systems and wiring enclosures
- PC16.** maintain mechanical equipment such as gear box, pumps, machine tools, conveyor systems, engines, processing plant and equipment and production related machines
- PC17.** maintain utility equipment such as heating, ventilation, air conditioning unit, lightings, lifts, fire alarm system and other equipment
- PC18.** maintain electronic system in the units including communication electronic system, sub-assemblies
- PC19.** carry out basic inspection, visual and, using tools and instruments

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- PC20.** dismantle the electrical system to replace faulty modules and perform soldering, crimping, harnessing to secure cables and components
- PC21.** dismantle the mechanical equipment for maintenance and assemble them
- PC22.** clean all the components of the machine by removing any accumulated dust, dirt or foreign particles
- PC23.** tighten any loose fasteners on the equipment
- PC24.** lubricate the equipment using the right amount of lubricant suggested in the manual
- PC25.** replace oil or grease as specified in maintenance procedure
- PC26.** re-assemble the equipment to working condition after completing maintenance
- PC27.** ensure zero-material defect while handling consumables, tools and equipment by following recommended material handling procedure
- PC28.** document the procedure followed, replaced component, consumables used, other details of maintenance for any reference
- PC29.** use only equipment manufacturer recommended tools, appliances, cleaning agents, lubricants for maintenance activity
- PC30.** carry out maintenance activities of all equipment at recommended frequency

Completing the work

To be competent, the user/individual on the job must be able to:

- PC31.** clean the work area after completing the maintenance activity
- PC32.** remove all the tools, consumables used from the work area and return the excess to the stores
- PC33.** run the equipment and test its functionality in the presence of the concerned authority
- PC34.** record any relevant test data if applicable
- PC35.** fill in the job completion form and secure acceptance
- PC36.** educate operator about use of equipment to avoid unscheduled down time
- PC37.** ensure that incident registers / records are maintained
- PC38.** follow work plan and complete procedures within the agreed time schedules
- PC39.** raise any recurring problems to superior or expert
- PC40.** follow company standards in documentation of maintenance activities

Following quality and safety procedures

To be competent, the user/individual on the job must be able to:

- PC41.** coordinate continuously with the concerned departments to ensure on time reporting of any problems identified
- PC42.** use grounded wrist straps and other electrostatic precautions as applicable for handling electronic hardware equipment
- PC43.** wear protective gear such as work helmet, shoes, cotton gloves, goggles, etc., while carrying out maintenance activities
- PC44.** use only quality and standard tools (such as ISI marker tool) to maintain quality
- PC45.** calibrate the test equipment as per standard requirement
- PC46.** take adequate precautionary measures while handling electrical system
- PC47.** follow quality and process standards such as TQM, 5S followed in the company
- PC48.** keep work area clean and organised

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PC49. dispose-off any waste materials in accordance with safe working practices and procedures

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** companys policies on: incentives, personnel management
- KU2.** companys code of conduct
- KU3.** importance of individuals role in the work flow
- KU4.** organisation culture
- KU5.** companys reporting structure
- KU6.** companys documentation policy
- KU7.** companys different department and concerned authority
- KU8.** companys maintenance policy
- KU9.** units layout and authorised access to areas
- KU10.** electrical wiring system
- KU11.** mechanical equipment and their function
- KU12.** maintenance procedure of equipment
- KU13.** faults that can be prevented by maintenance and those that cannot
- KU14.** basic principles of how a circuit functions, and the purpose of various modules
- KU15.** working of AC/DC servo motors, transformers
- KU16.** utility maintenance of heating, ventilation, air conditioning units, lifts, power system and water supplies, generators and other equipment
- KU17.** use of precision tools and equipment
- KU18.** assembling and dismantling of equipment and use of tools
- KU19.** different types of control systems and their operation
- KU20.** basics of pneumatics and hydraulic systems
- KU21.** how to read manuals, drawings, wiring schedules, circuit layouts, component specifications
- KU22.** consumables used for maintenance such as oil, lubrication and their purpose and types
- KU23.** occupational health and safety standards and waste management procedures

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** how to read job sheets and maintenance reports, etc.
- GS2.** how to read warnings, instructions and product labels
- GS3.** how to fill in job completion form
- GS4.** purpose and specification of tools used in maintenance activity
- GS5.** how to operate/use: screw driver, ratchets, spring driver, speciality wrenches, spanner, inspection jigs, wire cutter, pliers, tester, spanner, oscillators, multimeter, etc
- GS6.** how to handle tools and equipments and maintain them in a good condition



Qualification Pack

GS7. how to interact with supervisor to understand the daily production target

GS8. how to interact with co-workers in order to coordinate work processes

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Understanding work requirement</i>	6	8	-	-
PC1. understand the work flow of the manufacturing process	1	2	-	-
PC2. interact with the supervisor in order to understand the work schedules, shifts and delivery dates	1	2	-	-
PC3. plan maintenance activities based the work flow and deliverables	1	1	-	-
PC4. understand the maintenance policy of the organisation and time available for daily or annual maintenance	1	1	-	-
PC5. understand the various department to interact for undertaking maintenance	1	1	-	-
PC6. minimise absenteeism and report to work on time	1	1	-	-
<i>Scheduling maintenance</i>	8	8	-	-
PC7. interact with the supervisor in each department to understand the production plan and scheduled and unscheduled maintenance	1	1	-	-
PC8. inform about scheduled period of maintenance and confirm with departments	1	1	-	-
PC9. plan the work including time, manpower and material requirement	1	1	-	-
PC10. understand any specific requirement from the department head before maintenance (example: spares for replacement of components)	1	1	-	-
PC11. co-ordinate with stores and arrange for any consumables	1	1	-	-
PC12. ensure the tools and equipment are adequate and are in good condition	1	1	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. refer to and use relevant product manuals, job instructions, wiring diagrams and schematics	1	1	-	-
PC14. arrange for safety gears and tools to be used while carrying out maintenance	1	1	-	-
<i>Carrying out preventive maintenance</i>	16	16	-	-
PC15. maintain electrical equipment such as single, three-phase and direct current power supplies, motors, starters, switchgears, control systems and wiring enclosures	1	1	-	-
PC16. maintain mechanical equipment such as gear box, pumps, machine tools, conveyor systems, engines, processing plant and equipment and production related machines	1	1	-	-
PC17. maintain utility equipment such as heating, ventilation, air conditioning unit, lightings, lifts, fire alarm system and other equipment	1	1	-	-
PC18. maintain electronic system in the units including communication electronic system, sub-assemblies	1	1	-	-
PC19. carry out basic inspection, visual and, using tools and instruments	1	1	-	-
PC20. dismantle the electrical system to replace faulty modules and perform soldering, crimping, harnessing to secure cables and components	1	1	-	-
PC21. dismantle the mechanical equipment for maintenance and assemble them	1	1	-	-
PC22. clean all the components of the machine by removing any accumulated dust, dirt or foreign particles	1	1	-	-
PC23. tighten any loose fasteners on the equipment	1	1	-	-
PC24. lubricate the equipment using the right amount of lubricant suggested in the manual	1	1	-	-
PC25. replace oil or grease as specified in maintenance procedure	1	1	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC26. re-assemble the equipment to working condition after completing maintenance	1	1	-	-
PC27. ensure zero-material defect while handling consumables, tools and equipment by following recommended material handling procedure	1	1	-	-
PC28. document the procedure followed, replaced component, consumables used, other details of maintenance for any reference	1	1	-	-
PC29. use only equipment manufacturer recommended tools, appliances, cleaning agents, lubricants for maintenance activity	1	1	-	-
PC30. carry out maintenance activities of all equipment at recommended frequency	1	1	-	-
<i>Completing the work</i>	6	14	-	-
PC31. clean the work area after completing the maintenance activity	-	2	-	-
PC32. remove all the tools, consumables used from the work area and return the excess to the stores	1	1	-	-
PC33. run the equipment and test its functionality in the presence of the concerned authority	1	1	-	-
PC34. record any relevant test data if applicable	-	2	-	-
PC35. fill in the job completion form and secure acceptance	1	1	-	-
PC36. educate operator about use of equipment to avoid unscheduled down time	-	2	-	-
PC37. ensure that incident registers / records are maintained	-	2	-	-
PC38. follow work plan and complete procedures within the agreed time schedules	1	1	-	-
PC39. raise any recurring problems to superior or expert	1	1	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC40. follow company standards in documentation of maintenance activities	1	1	-	-
<i>Following quality and safety procedures</i>	4	14	-	-
PC41. coordinate continuously with the concerned departments to ensure on time reporting of any problems identified	-	2	-	-
PC42. use grounded wrist straps and other electrostatic precautions as applicable for handling electronic hardware equipment	1	1	-	-
PC43. wear protective gear such as work helmet, shoes, cotton gloves, goggles, etc., while carrying out maintenance activities	1	1	-	-
PC44. use only quality and standard tools (such as ISI marker tool) to maintain quality	1	1	-	-
PC45. calibrate the test equipment as per standard requirement	-	2	-	-
PC46. take adequate precautionary measures while handling electrical system	-	2	-	-
PC47. follow quality and process standards such as TQM, 5S followed in the company	1	1	-	-
PC48. keep work area clean and organised	-	2	-	-
PC49. dispose-off any waste materials in accordance with safe working practices and procedures	-	2	-	-
NOS Total	40	60	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	ELE/N4501
NOS Name	Perform periodical preventive maintenance
Sector	Electronics
Sub-Sector	Consumer Electronics & IT Hardware
Occupation	Maintenance
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	24/02/2022
Next Review Date	24/06/2025
NSQC Clearance Date	24/02/2022

Qualification Pack

ELE/N4502: Perform breakdown maintenance

Description

This OS unit is about carrying out breakdown maintenance of dysfunctional equipment and systems

Elements and Performance Criteria

Understanding work requirement

To be competent, the user/individual on the job must be able to:

- PC1.** interact with the department or operator to understand repairs required
- PC2.** understand the delivery schedule and available time for repairs
- PC3.** ensure all time availability of manpower for critical repair activity
- PC4.** plan the repairs based on deliverables and time

Understanding repairs requirement

To be competent, the user/individual on the job must be able to:

- PC5.** undertake timely action in case of a machine breakdown during work
- PC6.** identify quickly the exact nature of problem
- PC7.** interact with machine operator to understand fault a probable reason
- PC8.** diagnose the problem and inform the operator or department
- PC9.** estimate the repair time, manpower and material requirement
- PC10.** decide whether repair can be done internally or requires external expert
- PC11.** understand specific requirement for spares, necessary tools, supplies and other consumables
- PC12.** co-ordinate with stores to arrange for spares, tools and consumables
- PC13.** ensure the tools and equipment are in working condition
- PC14.** refer to relevant product manuals, job instructions, wiring diagrams and schematics

Repairing the equipment

To be competent, the user/individual on the job must be able to:

- PC15.** diagnose the problem area in mechanical system: gear box, pumps, machine tools, conveyor systems, engines, processing plant, production or assembly line equipment
- PC16.** diagnose the problem area in utilities: heating, ventilation, air conditioning unit, lightings, lifts, fire alarm system and other equipments
- PC17.** diagnose the problem area in electronics: communication system, networking and sub-assemblies
- PC18.** identify the module for repair such as power supplies, electro-mechanical, control systems, wiring and cabling
- PC19.** carry out basic inspection of the module identified
- PC20.** refer to the product manual for specific repair procedures for the module
- PC21.** dismantle the system or machine to replace faulty module or perform any soldering, crimping, harnessing to secure cables and components
- PC22.** report to the supervisor in case the problem cannot be fixed immediately
- PC23.** coordinate with equipment manufacturers technical expert for technical assistance

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- PC24.** use manufacturer recommended tools and consumables for repairing the equipment
- PC25.** fix the machine within agreed timelines in order to reduce down time
- PC26.** re-assemble machine and restore to working condition after completing repairs
- PC27.** ensure no repeat faults in the same machine
- PC28.** ensure zero-material defect while handling consumables, tools and equipment
- PC29.** document the procedure followed, replaced component or modules, consumables used, other details

Completing the work

To be competent, the user/individual on the job must be able to:

- PC30.** clean the work area after completing the repair activity
- PC31.** remove all the tools, consumables used from the work area and return the excess to the stores
- PC32.** run the equipment and test its functionality
- PC33.** fill in the job completion form and secure acceptance
- PC34.** educate operator about use of equipment to avoid unscheduled down time
- PC35.** follow work plan and complete procedures within the agreed time schedules
- PC36.** raise any recurring problems to superior or expert
- PC37.** follow company standards in documentation of maintenance activities
- PC38.** coordinate regularly with the concerned departments to ensure on time reporting of any problems identified

Following quality and safety procedures

To be competent, the user/individual on the job must be able to:

- PC39.** use grounded wrist straps and other electrostatic precautions as applicable for handling electronic hardware equipment
- PC40.** wear protective gear such as work helmet, shoes, cotton gloves, goggles, etc., while carrying out maintenance activities
- PC41.** take adequate precautionary measures while handling electrical system
- PC42.** follow quality and process standards such as TQM, 5S followed in the company
- PC43.** keep work area clean and organised
- PC44.** dispose-off any waste materials in accordance with safe working practices and procedures

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** companys policies on: incentives, delivery standards, and personnel management
- KU2.** companys code of conduct
- KU3.** importance of individuals role in the work flow
- KU4.** organisation culture
- KU5.** companys reporting structure
- KU6.** companys documentation policy
- KU7.** companys different department and concerned authority

Qualification Pack

- KU8.** companys maintenance policy
- KU9.** units layout and authorised access to areas
- KU10.** basic electronics, electronic components and their functions
- KU11.** electrical wiring system
- KU12.** mechanical equipment and their function
- KU13.** basic principles of how a circuit functions, and the purpose of various modules
- KU14.** repair of modules in heating, ventilation, air conditioning units, lifts, power system and water supplies, generators and other equipment
- KU15.** use of precision tools and equipment
- KU16.** assembling and dismantling of equipment and use of tools
- KU17.** different types of control systems and their operation
- KU18.** basics of pneumatics and hydraulic systems
- KU19.** how to read manuals, drawings, wiring schedules, circuit layouts, component specifications
- KU20.** consumables used for maintenance such as oil, lubrication and their purpose and types
- KU21.** occupational health and safety standards and waste management procedures
- KU22.** how to make use of warranty period and annual maintenance contract

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** how to read job sheets and maintenance reports, etc.
- GS2.** how to read warnings, instructions and product labels
- GS3.** how to fill in job completion form
- GS4.** how to operate/use screw driver, ratchets, spring driver, speciality wrenches, inspection fixtures, wire cutter, pliers, tester, spanner, oscilloscopes, multimeter
- GS5.** how to use other specified measuring equipment
- GS6.** how to interact with supervisor to understand the daily target
- GS7.** to improve work processes by prioritising repairs work
- GS8.** to reduce repetition of problems
- GS9.** how to report potential areas of disruptions to work process
- GS10.** when to report to external expert and when to work with internal resources

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Understanding work requirement</i>	3	4	-	-
PC1. interact with the department or operator to understand repairs required	-	1	-	-
PC2. understand the delivery schedule and available time for repairs	1	1	-	-
PC3. ensure all time availability of manpower for critical repair activity	1	1	-	-
PC4. plan the repairs based on deliverables and time	1	1	-	-
<i>Understanding repairs requirement</i>	10	18	-	-
PC5. undertake timely action in case of a machine breakdown during work	1	1	-	-
PC6. identify quickly the exact nature of problem	1	1	-	-
PC7. interact with machine operator to understand fault a probable reason	1	2	-	-
PC8. diagnose the problem and inform the operator or department	1	2	-	-
PC9. estimate the repair time, manpower and material requirement	1	2	-	-
PC10. decide whether repair can be done internally or requires external expert	1	2	-	-
PC11. understand specific requirement for spares, necessary tools, supplies and other consumables	1	2	-	-
PC12. co-ordinate with stores to arrange for spares, tools and consumables	1	2	-	-
PC13. ensure the tools and equipment are in working condition	1	2	-	-
PC14. refer to relevant product manuals, job instructions, wiring diagrams and schematics	1	2	-	-
<i>Repairing the equipment</i>	15	23	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC15. diagnose the problem area in mechanical system: gear box, pumps, machine tools, conveyor systems, engines, processing plant, production or assembly line equipment	1	2	-	-
PC16. diagnose the problem area in utilities: heating, ventilation, air conditioning unit, lightings, lifts, fire alarm system and other equipments	1	2	-	-
PC17. diagnose the problem area in electronics: communication system, networking and sub-assemblies	1	2	-	-
PC18. identify the module for repair such as power supplies, electro-mechanical, control systems, wiring and cabling	1	2	-	-
PC19. carry out basic inspection of the module identified	1	2	-	-
PC20. refer to the product manual for specific repair procedures for the module	1	2	-	-
PC21. dismantle the system or machine to replace faulty module or perform any soldering, crimping, harnessing to secure cables and components	1	2	-	-
PC22. report to the supervisor in case the problem cannot be fixed immediately	1	2	-	-
PC23. coordinate with equipment manufacturers technical expert for technical assistance	1	1	-	-
PC24. use manufacturer recommended tools and consumables for repairing the equipment	1	1	-	-
PC25. fix the machine within agreed timelines in order to reduce down time	1	1	-	-
PC26. re-assemble machine and restore to working condition after completing repairs	1	1	-	-
PC27. ensure no repeat faults in the same machine	1	1	-	-
PC28. ensure zero-material defect while handling consumables, tools and equipment	1	1	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC29. document the procedure followed, replaced component or modules, consumables used, other details	1	1	-	-
<i>Completing the work</i>	9	9	-	-
PC30. clean the work area after completing the repair activity	1	1	-	-
PC31. remove all the tools, consumables used from the work area and return the excess to the stores	1	1	-	-
PC32. run the equipment and test its functionality	1	1	-	-
PC33. fill in the job completion form and secure acceptance	1	1	-	-
PC34. educate operator about use of equipment to avoid unscheduled down time	1	1	-	-
PC35. follow work plan and complete procedures within the agreed time schedules	1	1	-	-
PC36. raise any recurring problems to superior or expert	1	1	-	-
PC37. follow company standards in documentation of maintenance activities	1	1	-	-
PC38. coordinate regularly with the concerned departments to ensure on time reporting of any problems identified	1	1	-	-
<i>Following quality and safety procedures</i>	3	6	-	-
PC39. use grounded wrist straps and other electrostatic precautions as applicable for handling electronic hardware equipment	1	1	-	-
PC40. wear protective gear such as work helmet, shoes, cotton gloves, goggles, etc., while carrying out maintenance activities	1	1	-	-
PC41. take adequate precautionary measures while handling electrical system	1	1	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC42. follow quality and process standards such as TQM, 5S followed in the company	-	1	-	-
PC43. keep work area clean and organised	-	1	-	-
PC44. dispose-off any waste materials in accordance with safe working practices and procedures	-	1	-	-
NOS Total	40	60	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	ELE/N4502
NOS Name	Perform breakdown maintenance
Sector	Electronics
Sub-Sector	Consumer Electronics & IT Hardware
Occupation	Maintenance
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	24/02/2022
Next Review Date	24/06/2025
NSQC Clearance Date	24/02/2022

Qualification Pack

ELE/N9972: Communicate and coordinate effectively with others

Description

This unit is about effective, respectful communication and coordination with supervisors and colleagues

Scope

The scope covers the following :

- Communicate effectively with supervisor and colleagues
- Respect gender and ability differences

Elements and Performance Criteria

Communicate effectively with supervisor and colleagues

To be competent, the user/individual on the job must be able to:

- PC1.** communicate potential hazards of a particular location
- PC2.** comply with organisation's policies and procedures for working with colleagues
- PC3.** maintain personal hygiene and professional appearance
- PC4.** seek clarification on the information provided by supervisor, if needed
- PC5.** respect the personal and professional space of colleagues and superiors
- PC6.** report work completed as per the schedule to superior and inform of any deviations or anomalies
- PC7.** analyse and act on feedback received from supervisor

Respect gender and ability differences

To be competent, the user/individual on the job must be able to:

- PC8.** work depicting proper behaviour towards all genders and people with disability
- PC9.** identify acts of discrimination and sexual harassment and report to concerned authorities

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** importance of personal grooming
- KU2.** organisation's policy on code of conduct
- KU3.** organisation's reporting structure and documentation policy
- KU4.** how to communicate effectively through all means including face-to-face, telephonic as well as written
- KU5.** different types of information that colleagues might need and the importance of providing the same as and when required
- KU6.** rights and duties w.r.t PwD at workplace
- KU7.** organisation policies and standards to support PwD



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- KU8.** gender and disability based concepts or issues such as social and cultural bias, gender roles stereotypes, gender inequality and discrimination, especially for women and transgender
- KU9.** organisation grievance redressal mechanisms and related legislations
- KU10.** health and safety precautions for all individuals, including PwD at workplace

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** listen actively and carefully in all interactions
- GS2.** communicate politely under all circumstances
- GS3.** report potential areas of disruptions to work process in writing or in person
- GS4.** maintain positive and effective relationships with others
- GS5.** decide when to report to supervisor and when to deal with a colleague depending on the type of concern
- GS6.** receive and act on supervisor's feedback in a constructive manner
- GS7.** speak, listen, and write using gender-inclusive or gender-neutral terms and gestures
- GS8.** be aware and accountable of ones own gender identity and role, as well as beliefs and practices about disability

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Communicate effectively with supervisor and colleagues</i>	27	51	-	-
PC1. communicate potential hazards of a particular location	4	7	-	-
PC2. comply with organisation's policies and procedures for working with colleagues	4	7	-	-
PC3. maintain personal hygiene and professional appearance	4	7	-	-
PC4. seek clarification on the information provided by supervisor, if needed	4	8	-	-
PC5. respect the personal and professional space of colleagues and superiors	3	8	-	-
PC6. report work completed as per the schedule to superior and inform of any deviations or anomalies	4	7	-	-
PC7. analyse and act on feedback received from supervisor	4	7	-	-
<i>Respect gender and ability differences</i>	8	14	-	-
PC8. work depicting proper behaviour towards all genders and people with disability	4	7	-	-
PC9. identify acts of discrimination and sexual harassment and report to concerned authorities	4	7	-	-
NOS Total	35	65	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	ELE/N9972
NOS Name	Communicate and coordinate effectively with others
Sector	Electronics
Sub-Sector	Generic
Occupation	Generic - Organizational Behaviour
NSQF Level	3
Credits	TBD
Version	2.0
Last Reviewed Date	24/02/2022
Next Review Date	24/06/2025
NSQC Clearance Date	24/02/2022

Qualification Pack

ELE/N1003: Work effectively, sustainably and safely

Description

This unit is about following health and safety procedures, waste management procedures and resource management in order to achieve required productivity and quality.

Scope

The scope covers the following :

- Achieve optimum productivity and quality
- Implement health and safety procedures
- Organise waste management and recycling
- Conserve resources

Elements and Performance Criteria

Achieve optimum productivity and quality

To be competent, the user/individual on the job must be able to:

- PC1.** keep immediate work area clean and tidy
- PC2.** work effectively to meet daily target
- PC3.** deliver work of expected quality despite constraints
- PC4.** ensure timely completion of tasks
- PC5.** comply with organization's policies and procedures

Implement health and safety procedures

To be competent, the user/individual on the job must be able to:

- PC6.** take ESD precautions while doing work
- PC7.** avoid any damage in components due to negligence in ESD procedures
- PC8.** participate in fire drills or any other safety workshops organised by the organisation
- PC9.** use appropriate Personal Protective Equipment (PPE) as advised by the organisation

Organise waste management and recycling

To be competent, the user/individual on the job must be able to:

- PC10.** identify and segregate recyclable/non-recyclable and hazardous wastes
- PC11.** dispose waste as per the suggested procedures by the organization
- PC12.** participate in waste management and waste disposal workshops organised at workplace

Conserve resources

To be competent, the user/individual on the job must be able to:

- PC13.** use all resources judiciously
- PC14.** perform routine cleaning of tools, machines and equipment
- PC15.** report malfunctioning of machines and equipment
- PC16.** connect electrical equipment and appliances properly when in use and turn off when not in use



Qualification Pack

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** importance of time management
- KU2.** organizational safety and health policy
- KU3.** different waste categories such as dry, wet, recyclable, non-recyclable and single use plastic items
- KU4.** usage of different colours of dustbins to dispose waste
- KU5.** cause and effect of greening of jobs
- KU6.** methods of waste disposal
- KU7.** methods of recycling as well as repairing and reusing electronic components
- KU8.** efficient utilisation of material and water
- KU9.** basics of electricity and prevalent energy efficient devices
- KU10.** ways to recognise common electrical problems
- KU11.** common practices of conserving electricity

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** read job cards/complaint registers for the work requirement
- GS2.** organise work and be punctual
- GS3.** read instructions, warnings, labels on equipment while doing work
- GS4.** escalate any health and safety issues to supervisors
- GS5.** report any inappropriate incidents/issues to the relevant person
- GS6.** write in local/English language and complete written work with attention to detail

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Achieve optimum productivity and quality</i>	12	18	-	-
PC1. keep immediate work area clean and tidy	2	4	-	-
PC2. work effectively to meet daily target	2	4	-	-
PC3. deliver work of expected quality despite constraints	2	3	-	-
PC4. ensure timely completion of tasks	3	4	-	-
PC5. comply with organization's policies and procedures	3	3	-	-
<i>Implement health and safety procedures</i>	9	14	-	-
PC6. take ESD precautions while doing work	2	4	-	-
PC7. avoid any damage in components due to negligence in ESD procedures	2	3	-	-
PC8. participate in fire drills or any other safety workshops organised by the organisation	2	3	-	-
PC9. use appropriate Personal Protective Equipment (PPE) as advised by the organisation	3	4	-	-
<i>Organise waste management and recycling</i>	8	12	-	-
PC10. identify and segregate recyclable/non-recyclable and hazardous wastes	3	4	-	-
PC11. dispose waste as per the suggested procedures by the organization	2	4	-	-
PC12. participate in waste management and waste disposal workshops organised at workplace	3	4	-	-
<i>Conserve resources</i>	11	16	-	-
PC13. use all resources judiciously	2	4	-	-
PC14. perform routine cleaning of tools, machines and equipment	3	4	-	-



Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC15. report malfunctioning of machines and equipment	3	4	-	-
PC16. connect electrical equipment and appliances properly when in use and turn off when not in use	3	4	-	-
NOS Total	40	60	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	ELE/N1003
NOS Name	Work effectively, sustainably and safely
Sector	Electronics
Sub-Sector	Generic
Occupation	Generic - Health Safety
NSQF Level	3
Credits	TBD
Version	2.0
Last Reviewed Date	24/02/2022
Next Review Date	17/11/2025
NSQC Clearance Date	17/11/2022



Qualification Pack

DGT/VSQ/N0101: Employability Skills (30 Hours)

Description

This unit is about employability skills, Constitutional values, becoming a professional in the 21st Century, digital, financial, and legal literacy, diversity and Inclusion, English and communication skills, customer service, entrepreneurship, and apprenticeship, getting ready for jobs and career development.

Scope

The scope covers the following :

- Introduction to Employability Skills
- Constitutional values - Citizenship
- Becoming a Professional in the 21st Century
- Basic English Skills
- Communication Skills
- Diversity & Inclusion
- Financial and Legal Literacy
- Essential Digital Skills
- Entrepreneurship
- Customer Service
- Getting ready for Apprenticeship & Jobs

Elements and Performance Criteria

Introduction to Employability Skills

To be competent, the user/individual on the job must be able to:

PC1. understand the significance of employability skills in meeting the job requirements

Constitutional values - Citizenship

To be competent, the user/individual on the job must be able to:

PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices

Becoming a Professional in the 21st Century

To be competent, the user/individual on the job must be able to:

PC3. explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.

Basic English Skills

To be competent, the user/individual on the job must be able to:

PC4. speak with others using some basic English phrases or sentences

Communication Skills

To be competent, the user/individual on the job must be able to:

PC5. follow good manners while communicating with others

PC6. work with others in a team

Qualification Pack

Diversity & Inclusion

To be competent, the user/individual on the job must be able to:

PC7. communicate and behave appropriately with all genders and PwD

PC8. report any issues related to sexual harassment

Financial and Legal Literacy

To be competent, the user/individual on the job must be able to:

PC9. use various financial products and services safely and securely

PC10. calculate income, expenses, savings etc.

PC11. approach the concerned authorities for any exploitation as per legal rights and laws

Essential Digital Skills

To be competent, the user/individual on the job must be able to:

PC12. operate digital devices and use its features and applications securely and safely

PC13. use internet and social media platforms securely and safely

Entrepreneurship

To be competent, the user/individual on the job must be able to:

PC14. identify and assess opportunities for potential business

PC15. identify sources for arranging money and associated financial and legal challenges

Customer Service

To be competent, the user/individual on the job must be able to:

PC16. identify different types of customers

PC17. identify customer needs and address them appropriately

PC18. follow appropriate hygiene and grooming standards

Getting ready for apprenticeship & Jobs

To be competent, the user/individual on the job must be able to:

PC19. create a basic biodata

PC20. search for suitable jobs and apply

PC21. identify and register apprenticeship opportunities as per requirement

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. need for employability skills

KU2. various constitutional and personal values

KU3. different environmentally sustainable practices and their importance

KU4. Twenty first (21st) century skills and their importance

KU5. how to use basic spoken English language

KU6. Do and dont of effective communication

KU7. inclusivity and its importance

KU8. different types of disabilities and appropriate communication and behaviour towards PwD

KU9. different types of financial products and services



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- KU10.** how to compute income and expenses
- KU11.** importance of maintaining safety and security in financial transactions
- KU12.** different legal rights and laws
- KU13.** how to operate digital devices and applications safely and securely
- KU14.** ways to identify business opportunities
- KU15.** types of customers and their needs
- KU16.** how to apply for a job and prepare for an interview
- KU17.** apprenticeship scheme and the process of registering on apprenticeship portal

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** communicate effectively using appropriate language
- GS2.** behave politely and appropriately with all
- GS3.** perform basic calculations
- GS4.** solve problems effectively
- GS5.** be careful and attentive at work
- GS6.** use time effectively
- GS7.** maintain hygiene and sanitisation to avoid infection

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Introduction to Employability Skills</i>	1	1	-	-
PC1. understand the significance of employability skills in meeting the job requirements	-	-	-	-
<i>Constitutional values - Citizenship</i>	1	1	-	-
PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices	-	-	-	-
<i>Becoming a Professional in the 21st Century</i>	1	3	-	-
PC3. explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.	-	-	-	-
<i>Basic English Skills</i>	2	3	-	-
PC4. speak with others using some basic English phrases or sentences	-	-	-	-
<i>Communication Skills</i>	1	1	-	-
PC5. follow good manners while communicating with others	-	-	-	-
PC6. work with others in a team	-	-	-	-
<i>Diversity & Inclusion</i>	1	1	-	-
PC7. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC8. report any issues related to sexual harassment	-	-	-	-
<i>Financial and Legal Literacy</i>	3	4	-	-
PC9. use various financial products and services safely and securely	-	-	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. calculate income, expenses, savings etc.	-	-	-	-
PC11. approach the concerned authorities for any exploitation as per legal rights and laws	-	-	-	-
<i>Essential Digital Skills</i>	4	6	-	-
PC12. operate digital devices and use its features and applications securely and safely	-	-	-	-
PC13. use internet and social media platforms securely and safely	-	-	-	-
<i>Entrepreneurship</i>	3	5	-	-
PC14. identify and assess opportunities for potential business	-	-	-	-
PC15. identify sources for arranging money and associated financial and legal challenges	-	-	-	-
<i>Customer Service</i>	2	2	-	-
PC16. identify different types of customers	-	-	-	-
PC17. identify customer needs and address them appropriately	-	-	-	-
PC18. follow appropriate hygiene and grooming standards	-	-	-	-
<i>Getting ready for apprenticeship & Jobs</i>	1	3	-	-
PC19. create a basic biodata	-	-	-	-
PC20. search for suitable jobs and apply	-	-	-	-
PC21. identify and register apprenticeship opportunities as per requirement	-	-	-	-
NOS Total	20	30	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	DGT/VSQ/N0101
NOS Name	Employability Skills (30 Hours)
Sector	Cross Sectoral
Sub-Sector	Professional Skills
Occupation	Employability
NSQF Level	2
Credits	1
Version	1.0
Last Reviewed Date	NA
Next Review Date	29/01/2026
NSQC Clearance Date	29/01/2021

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Element/ 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 Element/ 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 these criteria.
6. To pass the Qualification Pack assessment, every trainee should score the Recommended Pass % aggregate for the QP.
7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.



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Minimum Aggregate Passing % at QP Level : 50

(Please note: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
ELE/N4501.Perform periodical preventive maintenance	40	60	-	-	100	35
ELE/N4502.Perform breakdown maintenance	40	60	-	-	100	35
ELE/N9972.Communicate and coordinate effectively with others	35	65	-	-	100	10
ELE/N1003.Work effectively, sustainably and safely	40	60	-	-	100	10
DGT/VSQ/N0101.Employability Skills (30 Hours)	20	30	0	0	50	10
Total	175	275	0	0	450	100



Qualification Pack

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training

Qualification Pack

Glossary

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.
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 (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	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.

Qualification Pack

Knowledge and Understanding (KU)	<p>Knowledge and Understanding (KU) 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.</p>
Organisational Context	<p>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.</p>
Technical Knowledge	<p>Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.</p>
Core Skills/ Generic Skills (GS)	<p>Core skills or Generic Skills (GS) 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.</p>
Electives	<p>Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.</p>
Options	<p>Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.</p>