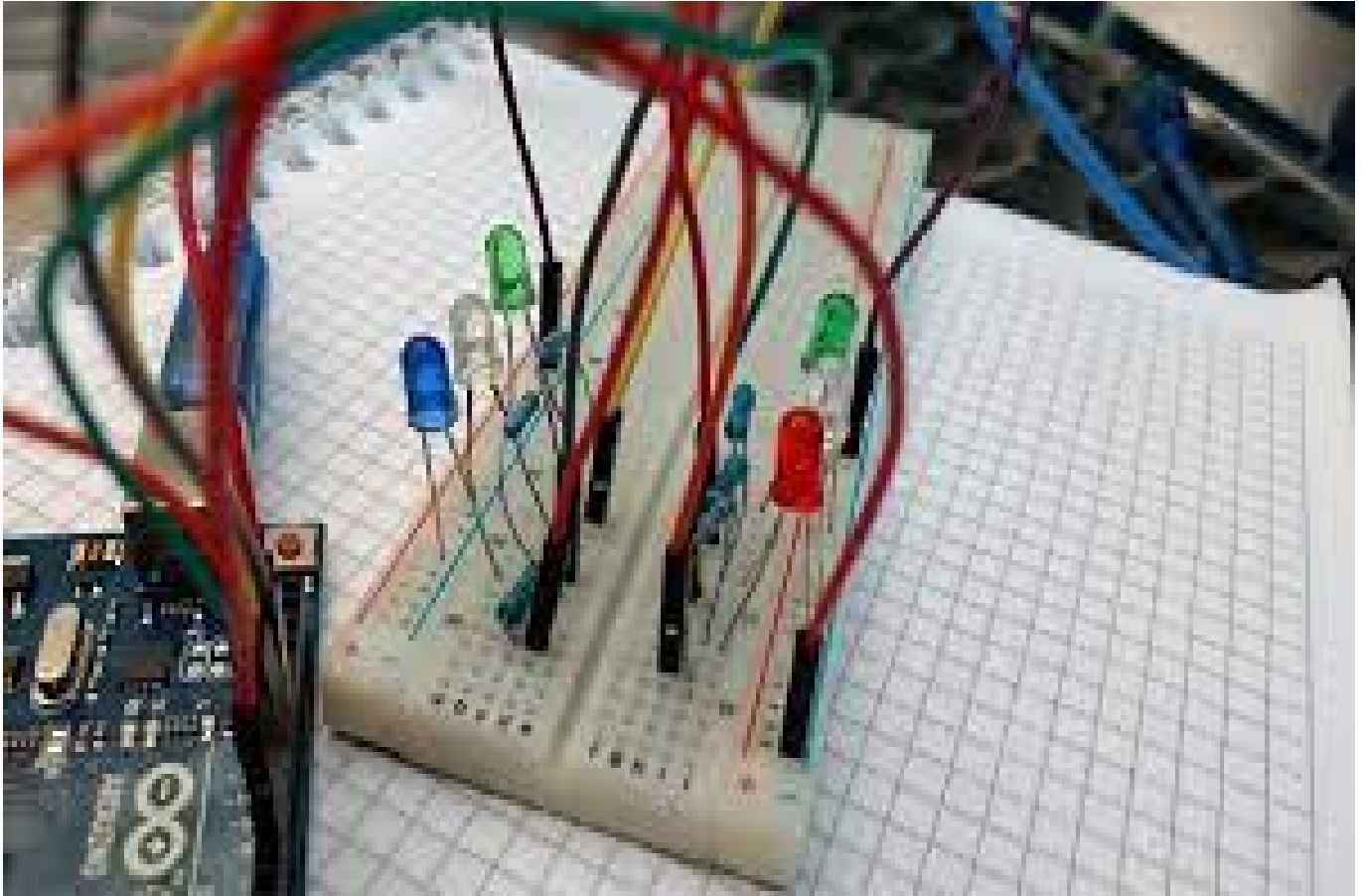


Qualification Pack



LED Luminary Mechanical Assembly and Testing Technician

QP Code: ELE/Q5803

Version: 3.0

NSQF Level: 4

Electronics Sector Skills Council of India || 155, 2nd Floor, ESC House Okhla Industrial Area-Phase 3
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ELE/Q5803: LED Luminary Mechanical Assembly and Testing Technician

Brief Job Description

The individual at work is responsible for fitting together different electronic, electrical and mechanical parts and connect them to make the final LED luminary as per product design as well as testing LED luminaries using different testing equipment.

Personal Attributes

The job requires the individual to have attention to details, good eyesight and ability to work for long hours in standing position.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [ELE/N5803: Assemble various parts of LED luminary according to standard practices](#)
2. [ELE/N5804: Test the LED luminary using various equipment](#)
3. [ELE/N1002: Apply health and safety practices at the workplace](#)
4. [DGT/VSQ/N0102: Employability Skills \(60 Hours\)](#)

Qualification Pack (QP) Parameters

Sector	Electronics
Sub-Sector	Solar & LED
Occupation	Assembly-S&L
Country	India
NSQF Level	4
Credits	20
Aligned to NCO/ISCO/ISIC Code	NCO-2015/3113.1001



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Minimum Educational Qualification & Experience	8th grade pass with 2 years of NTC (plus 2 year of NAC/ relevant experience) OR 10th grade pass (plus 2 year of NTC/NAC/relevant experience) OR 12th Class OR Certificate-NSQF (level 3 in Maintenance Technician) with 2 Years of experience
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/06653
NQR Version	1.0

Remarks:

NA



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ELE/N5803: Assemble various parts of LED luminary according to standard practices

Description

This OS unit is about assembling different electro-mechanical parts of LED Luminary as per the design.

Scope

The scope covers the following :

- Perform assembly of the base
- Perform heat sink assembly
- Join base assembly with heat sink assembly
- Prepare the LED luminary assembly for manufacturing
- Pack the final product

Elements and Performance Criteria

Perform assembly of the base

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

- PC1.** obtain the mechanical frame from press operator
- PC2.** rivet the mechanical frame as per luminary design
- PC3.** wrap the driver (PCB) with special tape to protect it
- PC4.** insert the driver (PCB) manually into the base of the luminary's mechanical frame
- PC5.** route the wires to their proper locations as instructed in organisational SOP for different product designs
- PC6.** screw the driver (PCB) onto the base of the luminary's mechanical frame
- PC7.** strip the ends of the wire using wire stripper accurately and safely
- PC8.** flip the assembly and dispense potting material into base assembly
- PC9.** cure the potting material as per standard procedure
- PC10.** insert a plastic cap to connect the base of the luminary's mechanical frame with the aluminium heat sink

Perform heat sink assembly

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

- PC11.** clean the LED circuit board as per industry approved methods and organisational timelines
- PC12.** apply a barrier film / tape to the underside
- PC13.** place the LED PCB assembly on to the aluminium heat sink as per manufacturer's instructions

Join base assembly with heat sink assembly

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

- PC14.** align the base assembly and heat sink assembly together
- PC15.** join the completed base assembly and heat sink manually by soldering the wires of driver (PCB) to the LED PCB

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- PC16.** screw the plastic cap onto the heat sink and tighten the base as per industry standards
- PC17.** fix base, cap and heat sink together firmly by applying glue as per manufacturer's guidelines
- PC18.** inspect the assembly visually using magnifying glass to identify errors and rectify the same
- PC19.** handover the assembly to tester for circuit testing

Prepare the LED luminary assembly for manufacturing

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

- PC20.** obtain the tested LED luminary assembly from tester
- PC21.** clean the heat sink, glass shell and base carefully as per industry approved methods
- PC22.** dispense the adhesive on the base and place the glass shell over it
- PC23.** cure the assembly following standard procedure
- PC24.** send the assembled LED luminary for retesting

Pack the final product

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

- PC25.** label the packed LED Luminary
- PC26.** assemble all the parts as per the product design to create LED luminary
- PC27.** ensure the assembly of the product to avoid rework

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** organisational policies on incentives, delivery standards and personnel management
- KU2.** organisational standard operating procedures and processes related to product assembly
- KU3.** importance of the individual's role in the workflow
- KU4.** reporting structure
- KU5.** follow safety and quality standards in the organization
- KU6.** types of LED luminary available in the electronics industry
- KU7.** process to rivet the mechanical frame as per luminary design
- KU8.** correct practice to insert the driver into the luminary
- KU9.** routing of wires as per assembly requirements
- KU10.** correct usage of machine tools for assembling the luminary
- KU11.** correct flipping of assembly and dispensing of potting material into the assembly
- KU12.** curing of potting material as per standard work practice
- KU13.** correct procedure to connect luminary frame with heat sink
- KU14.** cleaning of LED boards
- KU15.** importance of barrier film/tape to the underside
- KU16.** correct practice for placing the LED PCB assembly on the heat sink
- KU17.** importance of correct alignment of the base assembly and heat sink
- KU18.** correct soldering technique for PCB assembly
- KU19.** follow proper techniques for establishing proper connections in the assembly
- KU20.** inspection techniques for errors and defects within the assembly



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- KU21.** methods for cleaning parts and equipment such as heat sink, glass shell and base
- KU22.** usage of adhesives in assembling of LED luminary
- KU23.** labelling and final assembly of the LED luminary
- KU24.** operation and significance of various electronic, electrical and mechanical components of LED luminary
- KU25.** product designing basics and significance of optics
- KU26.** how to handle LEDs and PCBs during assembly and packaging
- KU27.** International Protection (IP) rating and CREE standards
- KU28.** take special ESD and work safety precautions during assembling
- KU29.** 5S standards (sorting, setting, standardise, sustain, shining)
- KU30.** safe and correct use of screw driver, Allen key set, wire stripper, press, weighing machines, torque measurement meter and temperature calibrator

Generic Skills (GS)

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

- GS1.** write material requirements of various departments
- GS2.** maintain day-to-day operational records
- GS3.** read organisational SOPs and work instructions
- GS4.** read text manuals regarding the hardware equipment issues
- GS5.** communicate in English and local language
- GS6.** speak with supervisor about the work requirements
- GS7.** communicate with colleagues about day-to-day work
- GS8.** follow standard operating procedures while making decisions
- GS9.** take approval from supervisor in case the decision has to be made for exceptions
- GS10.** plan for receiving the materials for assembly, keeping them at work station to assemble luminaries in minimum possible time
- GS11.** plan own tasks and coordinate with supervisor and co-workers to achieve smooth workflow and achieve the required target for LED luminary assembly
- GS12.** ensure personal grooming, punctuality and reducing absenteeism
- GS13.** solve day-to-day operational problems e.g. soldering station is not working
- GS14.** reduce repetitive errors and resolve problems promptly
- GS15.** operate organisational internal process software such as ERP for recording and documenting the customer call
- GS16.** spot process disruptions and delays
- GS17.** interpret instructions furnished in written, oral or schedule form
- GS18.** improve work process and enhance machine performance

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Perform assembly of the base</i>	11	26	-	-
PC1. obtain the mechanical frame from press operator	1	3	-	-
PC2. rivet the mechanical frame as per luminary design	1	3	-	-
PC3. wrap the driver (PCB) with special tape to protect it	1	2	-	-
PC4. insert the driver (PCB) manually into the base of the luminary's mechanical frame	1	3	-	-
PC5. route the wires to their proper locations as instructed in organisational SOP for different product designs	1	3	-	-
PC6. screw the driver (PCB) onto the base of the luminary's mechanical frame	1	3	-	-
PC7. strip the ends of the wire using wire stripper accurately and safely	1	3	-	-
PC8. flip the assembly and dispense potting material into base assembly	1	2	-	-
PC9. cure the potting material as per standard procedure	1	2	-	-
PC10. insert a plastic cap to connect the base of the luminary's mechanical frame with the aluminium heat sink	2	2	-	-
<i>Perform heat sink assembly</i>	4	7	-	-
PC11. clean the LED circuit board as per industry approved methods and organisational timelines	-	3	-	-
PC12. apply a barrier film / tape to the underside	2	2	-	-
PC13. place the LED PCB assembly on to the aluminium heat sink as per manufacturer's instructions	2	2	-	-
<i>Join base assembly with heat sink assembly</i>	7	17	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. align the base assembly and heat sink assembly together	1	3	-	-
PC15. join the completed base assembly and heat sink manually by soldering the wires of driver (PCB) to the LED PCB	1	3	-	-
PC16. screw the plastic cap onto the heat sink and tighten the base as per industry standards	1	3	-	-
PC17. fix base, cap and heat sink together firmly by applying glue as per manufacturer's guidelines	1	3	-	-
PC18. inspect the assembly visually using magnifying glass to identify errors and rectify the same	2	2	-	-
PC19. handover the assembly to tester for circuit testing	1	3	-	-
<i>Prepare the LED luminary assembly for manufacturing</i>	5	11	-	-
PC20. obtain the tested LED luminary assembly from tester	2	2	-	-
PC21. clean the heat sink, glass shell and base carefully as per industry approved methods	-	3	-	-
PC22. dispense the adhesive on the base and place the glass shell over it	1	2	-	-
PC23. cure the assembly following standard procedure	1	2	-	-
PC24. send the assembled LED luminary for retesting	1	2	-	-
<i>Pack the final product</i>	3	9	-	-
PC25. label the packed LED Luminary	1	3	-	-
PC26. assemble all the parts as per the product design to create LED luminary	1	3	-	-
PC27. ensure the assembly of the product to avoid rework	1	3	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
NOS Total	30	70	-	-

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National Occupational Standards (NOS) Parameters

NOS Code	ELE/N5803
NOS Name	Assemble various parts of LED luminary according to standard practices
Sector	Electronics
Sub-Sector	Solar & LED
Occupation	Assembly-S&L
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

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ELE/N5804: Test the LED luminary using various equipment

Description

This unit is about testing the LED luminary using relevant techniques and evaluating the performance on relevant performance parameters as per organizational and industry norms.

Scope

The scope covers the following :

- Test the LED luminary to evaluate performance parameters
- Adhere to industry work practices

Elements and Performance Criteria

Test the LED luminary to evaluate performance parameters

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

- PC1.** connect the LED luminary with testing equipment using wires
- PC2.** perform testing of LED luminary using various types of testing devices
- PC3.** operate the testing equipment as per the standard operating manual of the organization
- PC4.** interpret readings for various parameters by referring to the board display
- PC5.** evaluate the performance of LED luminary as per the readings from the board display
- PC6.** input the readings accurately and save them in the computer / performance data record sheet as per instructions from designated personnel
- PC7.** check if the LED luminary meets all the applicable testing standards
- PC8.** document the significant outcomes and problems

Adhere to industry work practices

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

- PC9.** comply with relevant legislation, standards, policies and procedures
- PC10.** adhere to health and safety practices at the workplace
- PC11.** wear appropriate personal protective equipment (PPE) while testing the LED luminary

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** organisational standard operating procedures and manuals
- KU2.** organisational norms for performing testing
- KU3.** role of various departments within an organisation
- KU4.** importance of the individual's role in the workflow
- KU5.** follow reporting structure within an organisation
- KU6.** documentation procedure

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- KU7.** various electronic and electrical components, materials and their properties
- KU8.** basics of power electronics and its application in lighting controls, LED power supplies and LED drivers
- KU9.** regulatory, statutory and quality standards related to LED industry in India
- KU10.** testing techniques and devices used for LED luminaries
- KU11.** performance parameters in LED luminaries
- KU12.** procedure for operating the testing equipment
- KU13.** test LED luminary by following applicable standards
- KU14.** how to decide whether a LED luminary is fit for manufacturing
- KU15.** importance of 5S standards in electronics industry
- KU16.** relevant legislation, standards, policies and procedures
- KU17.** health and safety practices at the workplace
- KU18.** Importance of wearing appropriate personal protective equipment (PPE) while testing the LED luminary

Generic Skills (GS)

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

- GS1.** write operating manual for testing equipment
- GS2.** write LED luminary testing documents
- GS3.** read LED luminary specific standards (e.g. LM80 for Aging Life Time Machine, IEC61000-4.2 for ESD Generator etc.), customer's requirements for LED luminary testing, applicable SOPs and work instructions
- GS4.** read organisational/industry manuals regarding the hardware equipment issues
- GS5.** communicate with supervisors and co-workers for luminary testing in English and local language
- GS6.** obtain instructions from department heads related to quality, quantity and variety of required materials
- GS7.** communicate the information relevant to the operation of testing equipment, testing requirements and various testing methods with the seniors and colleagues
- GS8.** communicate the related significant findings, outcomes and problems to the designated personnel
- GS9.** evaluate if a product is correctly assembled by conducting relevant checks
- GS10.** select the right testing technique and device as per organizational/industry norms
- GS11.** manage multiple tasks effectively
- GS12.** ensure personal grooming, punctuality and reducing absenteeism
- GS13.** maintain proper etiquette with customer during conversation
- GS14.** seek permission before entering customer's premises
- GS15.** display patience and courteousness with all types of customers under all circumstances
- GS16.** maintain sound and friendly relation with customers
- GS17.** importance of being patient and courteous with all types of customers



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- GS18.** create good perception about organisational product
- GS19.** significance of etiquette such as maintaining the appropriate physical distance with customer during conversation, not entering office without permission
- GS20.** identify and rectify technical snags and glitches in the testing equipment's operations
- GS21.** analyse test results data and their acceptable error range
- GS22.** analyse the outcome data to find out irregular readings
- GS23.** find and make the minor changes in the setting of testing equipment based on the outcome data
- GS24.** spot process disruptions and delays
- GS25.** interpret instructions furnished in written, oral or schedule form
- GS26.** improve work process and enhance machine performance

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Test the LED luminary to evaluate performance parameters</i>	23	53	-	-
PC1. connect the LED luminary with testing equipment using wires	3	6	-	-
PC2. perform testing of LED luminary using various types of testing devices	3	7	-	-
PC3. operate the testing equipment as per the standard operating manual of the organization	3	7	-	-
PC4. interpret readings for various parameters by referring to the board display	4	8	-	-
PC5. evaluate the performance of LED luminary as per the readings from the board display	4	8	-	-
PC6. input the readings accurately and save them in the computer / performance data record sheet as per instructions from designated personnel	3	7	-	-
PC7. check if the LED luminary meets all the applicable testing standards	1	5	-	-
PC8. document the significant outcomes and problems	2	5	-	-
<i>Adhere to industry work practices</i>	7	17	-	-
PC9. comply with relevant legislation, standards, policies and procedures	2	6	-	-
PC10. adhere to health and safety practices at the workplace	2	6	-	-
PC11. wear appropriate personal protective equipment (PPE) while testing the LED luminary	3	5	-	-
NOS Total	30	70	-	-

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National Occupational Standards (NOS) Parameters

NOS Code	ELE/N5804
NOS Name	Test the LED luminary using various equipment
Sector	Electronics
Sub-Sector	Solar & LED
Occupation	Assembly-S&L
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

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ELE/N1002: Apply health and safety practices at the workplace

Description

This OS unit is about knowledge and practices relating to health, safety and security that candidates need to use in the workplace.

Scope

The scope covers the following :

- Deal with workplace hazards
- Apply fire safety practices
- Follow emergencies, rescue and first-aid procedures
- Effective waste management/recycling practices

Elements and Performance Criteria

Deal with workplace hazards

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

- PC1.** identify job-site hazards and possible causes of accident in the workplace
- PC2.** perform work complying to organizational safe working practices and observing hazard signs displayed on containers, equipment and in various work areas such as inside buildings, in open areas and public spaces, etc.
- PC3.** use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards
- PC4.** follow standard safety procedures while handling tool/ ,equipment, hazardous substances and while working in hazardous environments
- PC5.** dispose electronic waste (such as toxins; metals such as lead, cadmium, barium; flame retardant plastics, welding slag etc.) as per industry approved techniques
- PC6.** avoid damage of components due to negligence in electrostatic discharge (ESD) procedures
- PC7.** locate general health and safety equipment in the workplace such as fire extinguishers; first aid equipment; safety instruments, clothing and installations (fire exits, exhaust fans)
- PC8.** maintain appropriate posture while handling heavy objects
- PC9.** apply good housekeeping practices at all times

Apply fire safety practices

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

- PC10.** take preventive measures to prevent fire hazards
- PC11.**
 - use appropriate fire extinguishers for different types of fires
 - Types of fires: Class A: e.g. ordinary solid combustibles, such as wood, paper, cloth, plastic, charcoal, etc.; Class B: flammable liquids and gases, such as gasoline, propane, diesel fuel, tar, cooking oil, and similar substances; Class C: e.g. electrical equipment such as appliances, wiring, breaker panels, etc. (These categories of fires become Class A, B, and D fires when the electrical equipment that initiated the fire is no l
- PC12.** exhibit rescue and first-aid techniques in case of fire or electrocution

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Follow emergencies, rescue and first-aid procedures

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

- PC13.** administer appropriate first aid to victims in case of bleeding, burns, choking, electric shock, poisoning etc.
- PC14.** administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock,
- PC15.** participate regularly in emergency procedures such as raising alarm, safe/efficient, evacuation, correct means of taking shelter and escaping, correct assembly point, roll call, correct return to work
- PC16.** use correct method to move injured people and others during an emergency

Effective waste management/recycling practices

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

- PC17.** identify recyclable and non-recyclable, and hazardous waste generated
- PC18.** segregate waste into different categories
- PC19.** ensure disposal of non-recyclable waste appropriately
- PC20.** deposit non-recyclable and reusable material at identified location
- PC21.** follow processes specified for disposal of hazardous waste

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** importance of working in clean and safe work environment following safety practices and procedures
- KU2.** health and safety roles and responsibilities of relevant personnel within and outside the organisation
- KU3.** key internal and external sources of health and safety information
- KU4.** basic knowledge of electronic devices and related health risks
- KU5.** meaning of hazards and risks
- KU6.** various types of health and safety hazards commonly present in the work environment such as physical hazards, electrical hazards, chemical hazards, fire hazards, equipment related hazards, health hazards, etc.
- KU7.** methods of accident prevention
- KU8.** importance of using protective clothing/equipment while working
- KU9.** general principles for identifying and controlling health and safety risks
- KU10.** main hazards and preventive as well as control measures while working with different types of equipment
- KU11.** importance of carrying out electrical and non-electrical isolation to prevent hazards from loss of machine/system/process control
- KU12.** main hazards and preventive as well as control measures when working with electrical systems or using electrical equipment
- KU13.** forms and classifications of hazardous substances
- KU14.** safe working practices while working at various hazardous sites
- KU15.** prevention and control measures to reduce risks from exposure to hazardous substances

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- KU16.** health effects associated with exposure to noise and vibration and the appropriate control measures
- KU17.** precautionary activities to prevent the fire accident
- KU18.** various causes of fire such as heating of metal, spontaneous ignition, sparking, electrical eating, loose fires (smoking, welding, etc.) chemical fires etc.
- KU19.** techniques of using the different fire extinguishers
- KU20.** different methods and material to extinguish fires
- KU21.** different materials used for extinguishing fire such as sand, water, foam, CO₂, dry powder
- KU22.** rescue techniques used during a fire hazard
- KU23.** various types of safety signs and their meaning
- KU24.** basic first aid treatment relevant to the common work place injuries e.g. shock, electrical shock, bleeding, breaks to bones, minor burns, resuscitation, poisoning, eye injuries
- KU25.** contents of written accident report
- KU26.** potential injuries and ill health associated with incorrect handling of tools and equipment
- KU27.** safe lifting and carrying practices
- KU28.** potential impact to a person who is moved incorrectly
- KU29.** personal safety, health and dignity issues relating to the movement of a person by others
- KU30.** ESD measures and 5S
- KU31.** efficient utilization and management of material and water
- KU32.** ways to recognize common electrical problems and practices of conserving electricity
- KU33.** usage of different colours of dustbins, categorization of waste into dry, wet, recyclable, nonrecyclable and items of single-use plastics
- KU34.** organization's procedure for minimizing waste
- KU35.** waste management and methods of waste disposal
- KU36.** common sources of pollution and ways to minimize it
- KU37.** names, contact information and location of people responsible for health and safety in the workplace
- KU38.** location of documents and equipment for health and safety compliance/practices in the workplace
- KU39.** safety notices, signs and instructions at workplace

Generic Skills (GS)

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

- GS1.** interpret general health and safety guidelines labels, charts, signages
- GS2.** read operation manuals
- GS3.** write health and safety compliance report
- GS4.** write an accident/incident report in local language or English
- GS5.** provide an emergency or safety incident brief to seniors or relevant authorities in a calm, clear and to-the-point manner
- GS6.** communicate general health and safety guidelines to colleagues/co-workers



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- GS7.** communicate appropriately with co-workers in order to clarify instructions and other issues
- GS8.** act in case of any potential hazards observed in the work place
- GS9.** plan and organize their own work schedule, work area, tools, equipment in compliance with organizational policies for health, safety and security
- GS10.** take adequate measures to ensure the safety of clients and visitors at the workplace
- GS11.** identify immediate or temporary solutions to resolve delays
- GS12.** evaluate the work area for health and safety risks or hazards
- GS13.** use cause and effect relations to anticipate potential issues, problems and their solution in the work area related to safety
- GS14.** recognise emergency and potential emergency situations
- GS15.** protect self and others from a health and safety risk or hazard
- GS16.** communicate and collaborate to incorporate sustainable practices (greening) in workplace processes
- GS17.** record data on waste disposal at workplace

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Deal with workplace hazards</i>	20	31	-	-
PC1. identify job-site hazards and possible causes of accident in the workplace	2	3	-	-
PC2. perform work complying to organizational safe working practices and observing hazard signs displayed on containers, equipment and in various work areas such as inside buildings, in open areas and public spaces, etc.	3	4	-	-
PC3. use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards	3	4	-	-
PC4. follow standard safety procedures while handling tool/ ,equipment, hazardous substances and while working in hazardous environments	3	4	-	-
PC5. dispose electronic waste (such as toxins; metals such as lead, cadmium, barium; flame retardant plastics, welding slag etc.) as per industry approved techniques	2	4	-	-
PC6. avoid damage of components due to negligence in electrostatic discharge (ESD) procedures	2	3	-	-
PC7. locate general health and safety equipment in the workplace such as fire extinguishers; first aid equipment; safety instruments, clothing and installations (fire exits, exhaust fans)	2	3	-	-
PC8. maintain appropriate posture while handling heavy objects	1	3	-	-
PC9. apply good housekeeping practices at all times	2	3	-	-
<i>Apply fire safety practices</i>	4	9	-	-
PC10. take preventive measures to prevent fire hazards	2	3	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. <ul style="list-style-type: none"> • use appropriate fire extinguishers for different types of fires • Types of fires: Class A: e.g. ordinary solid combustibles, such as wood, paper, cloth, plastic, charcoal, etc.; Class B: flammable liquids and gases, such as gasoline, propane, diesel fuel, tar, cooking oil, and similar substances; Class C: e.g. electrical equipment such as appliances, wiring, breaker panels, etc. (These categories of fires become Class A, B, and D fires when the electrical equipment that initiated the fire is no l 	1	3	-	-
PC12. exhibit rescue and first-aid techniques in case of fire or electrocution	1	3	-	-
<i>Follow emergencies, rescue and first-aid procedures</i>	6	13	-	-
PC13. administer appropriate first aid to victims in case of bleeding, burns, choking, electric shock, poisoning etc.	1	3	-	-
PC14. administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock,	1	2	-	-
PC15. participate regularly in emergency procedures such as raising alarm, safe/efficient, evacuation, correct means of taking shelter and escaping, correct assembly point, roll call, correct return to work	2	4	-	-
PC16. use correct method to move injured people and others during an emergency	2	4	-	-
<i>Effective waste management/recycling practices</i>	5	12	-	-
PC17. identify recyclable and non-recyclable, and hazardous waste generated	1	3	-	-
PC18. segregate waste into different categories	1	2	-	-
PC19. ensure disposal of non-recyclable waste appropriately	1	2	-	-
PC20. deposit non-recyclable and reusable material at identified location	1	3	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC21. follow processes specified for disposal of hazardous waste	1	2	-	-
NOS Total	35	65	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	ELE/N1002
NOS Name	Apply health and safety practices at the workplace
Sector	Electronics
Sub-Sector	Generic
Occupation	Generic - Health Safety
NSQF Level	4
Credits	TBD
Version	3.0
Last Reviewed Date	24/02/2022
Next Review Date	30/12/2026
NSQC Clearance Date	30/12/2021



Qualification Pack

DGT/VSQ/N0102: Employability Skills (60 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
- Career Development & Goal Setting
- 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.** identify employability skills required for jobs in various industries
- PC2.** identify and explore learning and employability portals

Constitutional values - Citizenship

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

- PC3.** recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.
- PC4.** follow environmentally sustainable practices

Becoming a Professional in the 21st Century

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

- PC5.** recognize the significance of 21st Century Skills for employment
- PC6.** practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life

Basic English Skills

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

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- PC7.** use basic English for everyday conversation in different contexts, in person and over the telephone
- PC8.** read and understand routine information, notes, instructions, mails, letters etc. written in English
- PC9.** write short messages, notes, letters, e-mails etc. in English

Career Development & Goal Setting

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

- PC10.** understand the difference between job and career
- PC11.** prepare a career development plan with short- and long-term goals, based on aptitude

Communication Skills

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

- PC12.** follow verbal and non-verbal communication etiquette and active listening techniques in various settings
- PC13.** work collaboratively with others in a team

Diversity & Inclusion

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

- PC14.** communicate and behave appropriately with all genders and PwD
- PC15.** escalate any issues related to sexual harassment at workplace according to POSH Act

Financial and Legal Literacy

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

- PC16.** select financial institutions, products and services as per requirement
- PC17.** carry out offline and online financial transactions, safely and securely
- PC18.** identify common components of salary and compute income, expenses, taxes, investments etc
- PC19.** identify relevant rights and laws and use legal aids to fight against legal exploitation

Essential Digital Skills

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

- PC20.** operate digital devices and carry out basic internet operations securely and safely
- PC21.** use e- mail and social media platforms and virtual collaboration tools to work effectively
- PC22.** use basic features of word processor, spreadsheets, and presentations

Entrepreneurship

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

- PC23.** identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research
- PC24.** develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion
- PC25.** identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity

Customer Service

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

- PC26.** identify different types of customers
- PC27.** identify and respond to customer requests and needs in a professional manner.

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PC28. follow appropriate hygiene and grooming standards

Getting ready for apprenticeship & Jobs

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

PC29. create a professional Curriculum vitae (Résumé)

PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively

PC31. apply to identified job openings using offline /online methods as per requirement

PC32. answer questions politely, with clarity and confidence, during recruitment and selection

PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. need for employability skills and different learning and employability related portals

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 English language for effective verbal (face to face and telephonic) and written communication in formal and informal set up

KU6. importance of career development and setting long- and short-term goals

KU7. about effective communication

KU8. POSH Act

KU9. Gender sensitivity and inclusivity

KU10. different types of financial institutes, products, and services

KU11. how to compute income and expenditure

KU12. importance of maintaining safety and security in offline and online financial transactions

KU13. different legal rights and laws

KU14. different types of digital devices and the procedure to operate them safely and securely

KU15. how to create and operate an e- mail account and use applications such as word processors, spreadsheets etc.

KU16. how to identify business opportunities

KU17. types and needs of customers

KU18. how to apply for a job and prepare for an interview

KU19. apprenticeship scheme and the process of registering on apprenticeship portal

Generic Skills (GS)

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

GS1. read and write different types of documents/instructions/correspondence

GS2. communicate effectively using appropriate language in formal and informal settings



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- GS3.** behave politely and appropriately with all
- GS4.** how to work in a virtual mode
- GS5.** perform calculations efficiently
- GS6.** solve problems effectively
- GS7.** pay attention to details
- GS8.** manage time efficiently
- GS9.** maintain hygiene and sanitization to avoid infection

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Introduction to Employability Skills</i>	1	1	-	-
PC1. identify employability skills required for jobs in various industries	-	-	-	-
PC2. identify and explore learning and employability portals	-	-	-	-
<i>Constitutional values - Citizenship</i>	1	1	-	-
PC3. recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.	-	-	-	-
PC4. follow environmentally sustainable practices	-	-	-	-
<i>Becoming a Professional in the 21st Century</i>	2	4	-	-
PC5. recognize the significance of 21st Century Skills for employment	-	-	-	-
PC6. practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life	-	-	-	-
<i>Basic English Skills</i>	2	3	-	-
PC7. use basic English for everyday conversation in different contexts, in person and over the telephone	-	-	-	-
PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English	-	-	-	-
PC9. write short messages, notes, letters, e-mails etc. in English	-	-	-	-
<i>Career Development & Goal Setting</i>	1	2	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. understand the difference between job and career	-	-	-	-
PC11. prepare a career development plan with short- and long-term goals, based on aptitude	-	-	-	-
<i>Communication Skills</i>	2	2	-	-
PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings	-	-	-	-
PC13. work collaboratively with others in a team	-	-	-	-
<i>Diversity & Inclusion</i>	1	2	-	-
PC14. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC15. escalate any issues related to sexual harassment at workplace according to POSH Act	-	-	-	-
<i>Financial and Legal Literacy</i>	2	3	-	-
PC16. select financial institutions, products and services as per requirement	-	-	-	-
PC17. carry out offline and online financial transactions, safely and securely	-	-	-	-
PC18. identify common components of salary and compute income, expenses, taxes, investments etc	-	-	-	-
PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation	-	-	-	-
<i>Essential Digital Skills</i>	3	4	-	-
PC20. operate digital devices and carry out basic internet operations securely and safely	-	-	-	-
PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively	-	-	-	-
PC22. use basic features of word processor, spreadsheets, and presentations	-	-	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Entrepreneurship</i>	2	3	-	-
PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research	-	-	-	-
PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion	-	-	-	-
PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity	-	-	-	-
<i>Customer Service</i>	1	2	-	-
PC26. identify different types of customers	-	-	-	-
PC27. identify and respond to customer requests and needs in a professional manner.	-	-	-	-
PC28. follow appropriate hygiene and grooming standards	-	-	-	-
<i>Getting ready for apprenticeship & Jobs</i>	2	3	-	-
PC29. create a professional Curriculum vitae (Résumé)	-	-	-	-
PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively	-	-	-	-
PC31. apply to identified job openings using offline /online methods as per requirement	-	-	-	-
PC32. answer questions politely, with clarity and confidence, during recruitment and selection	-	-	-	-
PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements	-	-	-	-
NOS Total	20	30	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	DGT/VSQ/N0102
NOS Name	Employability Skills (60 Hours)
Sector	Cross Sectoral
Sub-Sector	Professional Skills
Occupation	Employability
NSQF Level	4
Credits	2
Version	1.0
Last Reviewed Date	NA
Next Review Date	24/02/2025
NSQC Clearance Date	24/02/2022

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

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 the proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the theory part will be based on the 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 the theory part for each candidate at each examination/training center (as per assessment criteria below).

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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 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.

Minimum Aggregate Passing % at QP Level : 70

(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/N5803.Assemble various parts of LED luminary according to standard practices	30	70	-	-	100	40
ELE/N5804.Test the LED luminary using various equipment	30	70	-	-	100	35
ELE/N1002.Apply health and safety practices at the workplace	35	65	-	-	100	15
DGT/VSQ/N0102.Employability Skills (60 Hours)	20	30	-	-	50	10
Total	115	235	-	-	350	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.

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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>