

## Qualification



# Electrician

QP Code: ELE/Q5804

Version: 1.0

NSQF Level: 4

Electronic Sector Skill Council of India || 155, 2nd Floor, ESC House, Okhla Phase 3  
New Delhi - 110020



## Qualification

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## Qualification

### ELE/Q5804: Electrician

#### Brief Job Description

The individual at work Planning, Design & Installation modules and sub parts together that form the electrical & electronic system of the product.

#### Personal Attributes

The job requires the individual to be physically fit and work in high-decibel noise environment.

#### Applicable National Occupational Standards (NOS)

##### Compulsory NOS:

1. [ELE/N5806: Planning, Design & Installation of electrical & electronics sub system](#)
2. [ELE/N5805: Testing, Commissioning, Maintenance, Fault Finding & Repair](#)
3. [DGT/VSQ/N0102: Employability skills](#)
4. [ELE/N1002: Apply health and safety practices at the workplace](#)

#### Qualification Pack (QP) Parameters

<b>Sector</b>	Electronics
<b>Sub-Sector</b>	Industrial Automation
<b>Occupation</b>	Assembly And System Integration
<b>Country</b>	India
<b>NSQF Level</b>	4
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2015/7411.0100

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<b>Minimum Educational Qualification &amp; Experience</b>	8th grade pass + NTC (2 years after 8th) with 2 years of NAC/relevant experience OR 10th grade pass with 2 years NTC/NAC/relevant experience OR 12th grade pass OR Certificate (NSQF Level-3 in the Electrical Technician) with 2 years of relevant experience
<b>Minimum Level of Education for Training in School</b>	8th Class
<b>Pre-Requisite License or Training</b>	NA
<b>Minimum Job Entry Age</b>	18 Years
<b>Last Reviewed On</b>	17/11/2022
<b>Next Review Date</b>	17/11/2025
<b>Deactivation Date</b>	17/11/2025
<b>NSQC Approval Date</b>	17/11/2022
<b>Version</b>	1.0
<b>Reference code on NQR</b>	XXXXXX
<b>NQR Version</b>	1.0

#### Remarks:

NA
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## Qualification

# ELE/N5806: Planning, Design & Installation of electrical & electronics sub system

## Description

This NOS unit is about to Understanding Different Type of standard, Drawing & Installation Description and Manuals to obtain the entire electrical & electronics sub system of the product/solution.

## Scope

The scope covers the following:

- Understand work requirements from Manager
- Read, interpret and revise drawings and documentation

## Elements and Performance Criteria

### *Understand work requirements from the manager*

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

- PC1.** communicate with the manager in order to understand the day's planning requirement and plan work
- PC2.** apply approved drawings, job instructions or work manuals

### *Read, interpret and revise drawings and documentation*

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

- PC3.** collect assembled units from the store
- PC4.** collect consumables such as wires and connectors need for the assembly process
- PC5.** collect the work manual/job instruction.
- PC6.** visually inspect the boards and components received for any physical damage, any loose or wrong connections
- PC7.** follow the standard operating procedure to assemble the electrical & electronics sub system
- PC8.** interpret accurately drawings, wiring and job specifications/instructions
- PC9.** report defective or inadequate number of components
- PC10.** report about inadequate quantity of consumables such as wires, connectors, modules, screws, nuts, etc.

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### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** company's policies on: incentives, personnel management
- KU2.** company's code of conduct
- KU3.** importance of individuals role in the work flow
- KU4.** organization culture
- KU5.** company's reporting structure
- KU6.** company's documentation policy
- KU7.** electro-mechanical assembly instructions
- KU8.** general principles of wiring and assembly
- KU9.** circuit design, block diagram of the product being assembled and functioning of its different modules
- KU10.** fundamentals of electricity such as Ohms law, difference between Ac and DC, series and parallel connections

### Generic Skills (GS)

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

- GS1.** use computers for documentation
- GS2.** complete forms such as work orders, invoices, maintenance records
- GS3.** read warnings, instructions and other text material on product labels, components, etc.
- GS4.** read job sheets or work orders
- GS5.** receive and ask for clarifications from supervisor on the job requirement
- GS6.** follow standard operating procedures while making decisions
- GS7.** take approval from supervisor in case the decision has to be made for exceptions
- GS8.** supervisor and co-workers to achieve smooth workflow
- GS9.** superior and co-workers to share knowledge and learning
- GS10.** ensure quality standards and standard operating procedures are maintained

## Qualification

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Understand work requirements from the manager</i>	<b>20</b>	<b>30</b>	-	-
<b>PC1.</b> communicate with the supervisor in order to understand the day's planning requirement and plan work	10	15	-	-
<b>PC2.</b> apply approved drawings, job instructions or work manuals	10	15	-	-
<i>Read, interpret and revise drawings and documentation</i>	<b>20</b>	<b>30</b>	-	-
<b>PC3.</b> collect consumables such as wires and connectors need for the assembly process	2	4	-	-
<b>PC4.</b> collect the work manual/job instruction	2	4	-	-
<b>PC5.</b> visually inspect the boards and components received for any physical damage, any loose or wrong connections	2	4	-	-
<b>PC6.</b> follow the standard operating procedure to assemble the electrical sub system	2	4	-	-
<b>PC7.</b> interpret accurately drawings, wiring and job specifications/instructions	4	4	-	-
<b>PC8.</b> underline any errors in previous step of the assembly process identified	2	4	-	-
<b>PC9.</b> report defective or inadequate number of components	4	4	-	-
<b>PC10.</b> report about inadequate quantity of consumables such as wires, connectors, modules, screws, nuts, etc.	2	2	-	-
<b>NOS Total</b>	<b>40</b>	<b>60</b>	-	-



## Qualification

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ELE/N5806
<b>NOS Name</b>	Planning, Design & Installation of electrical & electronics sub system
<b>Sector</b>	Electronics
<b>Sub-Sector</b>	Industrial Automation
<b>Occupation</b>	Assembly & System Integration
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	17/11/2022
<b>Next Review Date</b>	17/11/2025
<b>NSQC Clearance Date</b>	17/11/2022



## Qualification

# ELE/N5805: Testing, Commissioning, Maintenance, Fault Finding & Repair

## Description

This NOS unit is about to Testing, commissioning, maintenance, fault finding & repair of the electrical & electronics system.

## Scope

The scope covers the following:

- Industrial regulations and standards applicable to different types of installations
- Verification standards, methods and reports to be used to record verification results
- Types of measuring instruments
- Tools and software used for parameterization, programming and commissioning
- The correct operation of the electrical & electronics installation in accordance with the planned specification and customer requirements
- Different types of installations for specific environments
- Different generations of installation
- The purpose of a specific installation
- The customers' needs for various functions

## Elements and Performance Criteria

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

**PC1.** Test installations before energizing to ensure personal and electrical safety to include: insulation resistance and earth continuity tests, correct polarity and complete a visual inspection

**PC2.** Test installations when energized by checking complete function on all equipment installed to ensure correct operation of new installation as per instructions, for example correct voltage, phase rotation and correct functioning of protection devices

**PC3.** Set-up equipment to include: selecting and using the appropriate software for programming programmable relays, bus-system; creating necessary settings on devices such as timers and overload relays; downloading and importing applications required and programming bus-system, for example KNX, DALI, Modbus and IP or IT based systems

**PC4.** Set the installation to fully functioning and ensure customer can operate.

### *Maintenance, fault finding and repair*

**PC5.** Adapt to changing circumstances

**PC6.** Troubleshoot electrical installation and identify faults including: short and open circuits, incorrect polarity, insulation resistance and earth continuity faults, incorrect settings on equipment and incorrect program on programmable devices

**PC7.** Diagnose electrical installation and identify problems including; bad connections, incorrect wiring, high loop impedance and equipment failure

## Qualification

- PC8.** Verify that an existing electrical installation still meets current standards.
- PC9.** Use, test and calibrate measuring equipment including: insulation resistance, continuity and installation testers, multi, clamp and network cable testers
- PC10.** Repair and replace faulty components in electrical installations
- PC11.** Rewire and repair faulty installations

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** Knowledge of Testing and Earthing
- KU2.** Understanding of New Installation and check parameter
- KU3.** Knowledge of software KNX, DALI & Modbus based system
- KU4.** Knowledge to understand full function & installation
- KU5.** company's reporting structure
- KU6.** Understanding of Troubleshooting and provide solution
- KU7.** electro-mechanical related debugging
- KU8.** general principles of wiring and assembly
- KU9.** Calibration of measuring instruments
- KU10.** circuit design, block diagram of the product being assembled and functioning of its different modules
- KU11.** fundamentals of electricity such as Ohms law, difference between Ac and DC, series and parallel connections

## Generic Skills (GS)

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

- GS1.** use computers for documenting
- GS2.** complete forms such as work orders, invoices, maintenance records
- GS3.** read warnings, instructions and other text material on product labels, components, etc.
- GS4.** read job sheets or work orders
- GS5.** receive and ask for clarifications from supervisor on the job requirement
- GS6.** follow standard operating procedures while making decisions
- GS7.** take approval from supervisor in case the decision has to be made for exceptions
- GS8.** supervisor and co-workers to achieve smooth workflow
- GS9.** superior and co-workers to share knowledge and learning
- GS10.** ensure quality standards and standard operating procedures are maintained

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### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC1.</b> Test installations before energizing to ensure personal and electrical safety to include: insulation resistance and earth continuity tests, correct polarity and complete a visual inspection	4	5	-	-
<b>PC2.</b> Test installations when energized by checking complete function on all equipment installed to ensure correct operation of new installation as per instructions, for example correct voltage, phase rotation and correct functioning of protection devices	4	5	-	-
<b>PC3.</b> Set-up equipment to include: selecting and using the appropriate software for programming programmable relays, bus-system; creating necessary settings on devices such as timers and overload relays; downloading and importing applications required and programming bus-system, for example KNX, DALI, Modbus and IP or IT based systems	6	10	-	-
<b>PC4.</b> Set the installation to fully functioning and ensure customer can operate.	4	6	-	-
<i>Maintenance, fault finding and repair</i>			-	-
<b>PC5.</b> Adapt to changing circumstances	2	4	-	-
<b>PC6.</b> Troubleshoot electrical installation and identify faults including: short and open circuits, incorrect polarity, insulation resistance and earth continuity faults, incorrect settings on equipment and incorrect program on programmable devices	2	4	-	-
<b>PC7.</b> Diagnose electrical installation and identify problems including; bad connections, incorrect wiring, high loop impedance and equipment failure	2	4	-	-

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<b>PC8.</b> Verify that an existing electrical installation still meets current standards.	4	6	-	-
<b>PC9.</b> Use, test and calibrate measuring equipment including: insulation resistance, continuity and installation testers, multi, clamp and network cable testers	4	6	-	-
<b>PC10.</b> Repair and replace faulty components in electrical installations	4	6	-	-
<b>PC11.</b> Rewire and repair faulty installations	4	4	-	-
<b>NOS TOTAL</b>	<b>40</b>	<b>60</b>		



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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ELE/N5805
<b>NOS Name</b>	Testing, commissioning, maintenance, fault finding & Repair
<b>Sector</b>	Electronics
<b>Sub-Sector</b>	Industrial Automation
<b>Occupation</b>	Assembly & System Integration
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	17/11/2022
<b>Next Review Date</b>	17/11/2025
<b>NSQC Clearance Date</b>	17/11/2022

## Qualification

### DGT/VSQ/N0102: Employability skills

#### 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, Behavior Skills, time management, critical and adaptive thinking, problem-solving, creative thinking,

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social and cultural awareness, emotional awareness, learning to learn etc. in personal and professional life

### *Basic English Skills*

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

- 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 while communicating in professional and public 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, using various methods and check the entries in the passbook
- 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 use their features and applications securely and safely
- PC21.** use e- mail and social media platforms and virtual collaboration tools to work effectively

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**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 and ways to communicate with them

**PC27.** identify and respond to customer requests and needs in a professional manner

**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 opening 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.** 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



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- 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 in English and other languages
- GS2.** communicate effectively using appropriate language in formal and informal setting
- GS3.** behave politely and appropriately with all to maintain effective work relationship
- GS4.** how to work in a virtual mode, using various technological platforms
- 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

S. No	Module Name	Assessment Marks
1.	Introduction to Employability Skills	2
2.	Constitutional values - Citizenship	2
3.	Becoming a Professional in the 21st Century	6
4.	Basic English Skills	6
5.	Career Development & Goal Setting	3
6.	Communication Skills	4
7.	Diversity & Inclusion	2
8.	Financial and Legal Literacy	5
9.	Essential Digital Skills	8
10.	Entrepreneurship	4
11.	Customer Service	3
12.	Getting ready for apprenticeship & Job	5
	<b>Total</b>	<b>50</b>



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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	TBD
<b>NOS Name</b>	Employability Skills (60 Hours)
<b>Sector</b>	All sectors
<b>Sub-Sector</b>	Life Skills
<b>Occupation</b>	Employability Skills
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	17/11/2025
<b>NSQC Clearance Date</b>	17/11/2022

## Qualification

# 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 arcing, 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, CO<sub>2</sub>, 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, signs
- 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. recognize 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

## Qualification

### 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 industryapproved 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	-	-



## Qualification

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<p>PC11.</p> <ul style="list-style-type: none"> <li>use appropriate fire extinguishers for different types of fires</li> <li>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</li> </ul>	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	-	-



### Qualification

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

## Qualification

### 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	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 proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training Centre (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training Centre based on this criterion.
6. To pass the Qualification Pack, every trainee should score a minimum of 70% of aggregate marks to successfully clear the assessment.
7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

## Qualification

### 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/N5806. Planning, Design & Installation of electrical sub system	40	60	-	-	100	25
ELE/N5805. Testing, Commissioning, Maintenance, Fault Finding & Repair	40	60	-	-	100	25
DGT/VSQ/N0102. Employability Skills	50	-	-	-	50	25
ELE/N1002. Work effectively, sustainably and safely	35	65	-	-	100	25
<b>Total</b>	<b>165</b>	<b>185</b>	<b>-</b>	<b>-</b>	<b>350</b>	<b>100</b>

## Qualification

### Acronyms

<b>NOS</b>	National Occupational Standard(s)
<b>NSQF</b>	National Skills Qualifications Framework
<b>QP</b>	Qualifications Pack
<b>TVET</b>	Technical and Vocational Education and Training
<b>NOS</b>	National Occupational Standard(s)
<b>NVQF</b>	National Vocational Qualifications Framework
<b>NSQF</b>	National Qualifications Framework
<b>NVEQF</b>	National Vocational Education Qualifications Framework
<b>QP</b>	Qualification pack

## Qualification

### Glossary

<b>Sector</b>	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.
<b>Sub-sector</b>	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
<b>Occupation</b>	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
<b>Job role</b>	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
<b>Occupational Standards (OS)</b>	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.
<b>Performance Criteria (PC)</b>	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
<b>National Occupational Standards (NOS)</b>	NOS are occupational standards which apply uniquely in the Indian context.
<b>Qualifications Pack (QP)</b>	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.
<b>Unit Code</b>	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
<b>Unit Title</b>	Unit title gives a clear overall statement about what the incumbent should be able to do.
<b>Description</b>	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.
<b>Scope</b>	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

<b>Knowledge and Understanding (KU)</b>	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.
<b>Organisational Context</b>	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.
<b>Technical Knowledge</b>	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
<b>Core Skills/ Generic Skills (GS)</b>	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.
<b>Electives</b>	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.
<b>Options</b>	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.
<b>Sector</b>	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.
<b>Sub-sector</b>	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
<b>Occupation</b>	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
<b>Job role</b>	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
<b>Occupational Standards (OS)</b>	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.



## Qualification

<b>Performance Criteria (PC)</b>	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
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## Qualification

<b>National Occupational Standard</b>	NOS are occupational standards which apply uniquely in the Indian context.
<b>Qualifications Pack (QP)</b>	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.
<b>Unit Code</b>	Unit code is a unique identifier for an Occupational Standard, which is denoted by an N
<b>Unit Title</b>	Unit title gives a clear overall statement about what the incumbent should be able to do.
<b>Description</b>	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.
<b>Scope</b>	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.
<b>Knowledge and Understanding (K)</b>	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.
<b>Organisational Context</b>	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.
<b>Technical Knowledge</b>	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
<b>Core Skills/ Generic Skills (G)</b>	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today world. These skills are typically needed in any work environment in today 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.
<b>Electives</b>	Electives are NOS/set of NOS that are identified by the sector as contribute 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.