

Qualification Pack



In-Process And Final Quality Engineer

QP Code: ELE/Q5501

Version: 3.0

NSQF Level: 5

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Qualification Pack

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ELE/Q5501: In-Process And Final Quality Engineer

Brief Job Description

The individual at work sample checks final PCB assembly for functional conformance as well as visually before they are packed and dispatched. The individual is responsible for ensuring total quality or IPC or ISO standards compliance during the assembly of PCBs

Personal Attributes

The job requires the individual to have: attention to detail, ability for implementing process standardisation, good eye sight, and command over test tools and equipment

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [ELE/N5501: Check quality of assembled PCB](#)
2. [ELE/N1002: Apply health and safety practices at the workplace](#)
3. [DGT/VSQ/N0102: Employability Skills \(60 Hours\)](#)

Qualification Pack (QP) Parameters

| | |
|--------------------------------------|------------------------------|
| Sector | Electronics |
| Sub-Sector | PCB Design and Manufacturing |
| Occupation | Quality Assurance |
| Country | India |
| NSQF Level | 5 |
| Credits | 26 |
| Aligned to NCO/ISCO/ISIC Code | NCO-2015/1213.0101 |

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| | |
|---|--|
| Minimum Educational Qualification & Experience | Diploma (After 10 (Electrical/Electronics/Mechanical)) with 1 Year of experience Relevant Experience OR 12th grade pass with 1 year NTC/ NAC with 1 Year of experience Relevant Experience OR 12th grade Pass with 2 Years of experience Relevant Experience OR Previous relevant Qualification of NSQF Level (4) with 3 Years of experience Relevant Experience OR 10th grade pass with 4 Years of experience Relevant Experience |
| Minimum Level of Education for Training in School | 10th Class |
| Pre-Requisite License or Training | NA |
| Minimum Job Entry Age | 18 Years |
| Last Reviewed On | NA |
| Next Review Date | 24/02/2025 |
| NSQC Approval Date | 24/02/2022 |
| Version | 3.0 |
| Reference code on NQR | QG-05-EH-01334-2023-V1.1-ESSC |
| NQR Version | 1.0 |

Remarks:

| |
|----|
| NA |
|----|

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ELE/N5501: Check quality of assembled PCB

Description

This OS unit is about checking PCB after every stage of assembly up to the final stage and ensure that quality is maintained for the final assembled processes as well as in the process of assembly

Elements and Performance Criteria

Understanding work requirement

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

- PC1.** understand work to be done according to the job sheet
- PC2.** understand the number of boards to be checked or as defined by customer
- PC3.** Record the number of boards received at every process and at the final stage of assembly
- PC4.** check the quality of assembly according to the customer specification sheet or from the standard company procedure
- PC5.** ensure that defect free assembled boards are sent for packing
- PC6.** maintain accurate documentation on the boards received

Performing Quality Check

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

- PC7.** read the customers and companys specification sheet
- PC8.** perform the quality check as specified
- PC9.** comply with quality standards of the company
- PC10.** perform 100% functional quality check for each assembled boards
- PC11.** select right test ad measuring instruments, jigs or instruments for checking
- PC12.** monitor quality data and suggest improvements to reduce failure rate
- PC13.** ensure productive and efficient pick and place programs, reflow, testing and production assemblies
- PC14.** develop and implement process control techniques and procedures for manufacturing
- PC15.** manage improvement in quality maturity assessment score
- PC16.** work with a cross functional team with design, assembly and testing to develop the quality conformance, validation and simulation testing plan
- PC17.** examine PCBs visually to detect circuit shorts, using magnifying glass and lamp
- PC18.** record the output of the tests and check against specifications to approve the boards as quality check passed
- PC19.** ensure all lots are checked and specifications compiled with
- PC20.** take precautions before work and wear ESD wrist straps or aprons
- PC21.** ensure there are no missing components in the assembly
- PC22.** identify clearly the defects and document as per company policy
- PC23.** ensure no faulty modules are sent to packing

Completing the QC process

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

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- PC24.** identify any problems and diagnose the cause
- PC25.** determine and monitor the effectiveness of corrective and preventative actions to resolve any repetitive quality issues
- PC26.** provide creative solutions with high quality and on time
- PC27.** provide technical assistance as needed to prevent recurrence of the complaints and issues
- PC28.** provide technical assistance as needed to prevent recurrence of the complaints and issues
- PC29.** paste stickers such as quality check passed or okay on the boards for quality passed ones
- PC30.** send the okayed ones to the final packing and the faulty ones for rework
- PC31.** document the quality test details as per check sheets

Achieving productivity and quality standards

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

- PC32.** achieve the target number of boards to be checked
- PC33.** deliver boards in time to the next process
- PC34.** achieve 100% accuracy on the quality check

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** companys policies on: incentives, delivery standards, and personnel
- KU2.** work flow involved in assembly process of the company
- KU3.** importance of the individuals role in the workflow
- KU4.** reporting structure
- KU5.** profile of clients
- KU6.** organizational capabilities with respect to input materials/processes
- KU7.** safety and quality standards followed in the organization
- KU8.** basic electronics, PCBs and components
- KU9.** PCB assembly process
- KU10.** Electrostatic Discharge (ESD) and precautionary steps
- KU11.** quality system requirements and standards
- KU12.** quality assurance methods
- KU13.** customer specifications, drawings and sampling plan
- KU14.** electronics products and troubleshooting at the assembly level
- KU15.** electronics components, their different size, shape and type, datasheets, specifications of the components for part suggestions and alternatives
- KU16.** use of debugging tools such as oscilloscopes and programming tools
- KU17.** ISO procedures and work instructions
- KU18.** how test instruments and machines operate
- KU19.** use of different test jigs and their purposes
- KU20.** how to document the material movement note
- KU21.** how to monitor entire assembly process



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- KU22.** how to mount the fallen components manually, perform basic soldering and rework of smt components
- KU23.** IPC standards

Generic Skills (GS)

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

- GS1.** to read job and specification sheet and technical writing
- GS2.** to use computers and MS Office, i.e., Excel, Word, Access and Powerpoint
- GS3.** to document the completed work on material movement note
- GS4.** to read assembling procedures for different models
- GS5.** to effectively communicate, speak clearly and persuasively in positive or negative situations
- GS6.** to effectively communicate, speak clearly and persuasively in positive or negative situations
- GS7.** to share work load as required
- GS8.** to achieve the targets given
- GS9.** to reduce repetition of errors
- GS10.** to improve work process over time
- GS11.** to be prompt in resolving effectively
- GS12.** to manage conflicts
- GS13.** to use testing tools and equipment such as multimeter, calipers, oscilloscope, microscope, logic analyzers, hoscilloscopes, function of generators, magnifiers and similar test equipment.
- GS14.** to identify component misplacement and solder defects or any other defects
- GS15.** to use Automated Optical Inspection (AOI) equipment
- GS16.** to inspect populated PCBs for correct component placement, value, and orientation
- GS17.** to check with in-circuit tester for hidden PCB sections
- GS18.** to spot process disruptions and delays
- GS19.** to prioritizes and plan work activities
- GS20.** to use time efficiently setting goals and objectives
- GS21.** to demonstrate interpersonal, conceptual and negotiation thinking and skills
- GS22.** to be aware of quality, health, safety rules, policies and procedures and environmental norms
- GS23.** to make independent and informed decisions
- GS24.** to manage time for on time delivery
- GS25.** to be aware of quality, health, safety rules, policies and procedures and environmental norms

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Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|--|--------------|-----------------|---------------|------------|
| <i>Understanding work requirement</i> | 6 | 6 | - | - |
| PC1. understand work to be done according to the job sheet | 1 | 1 | - | - |
| PC2. understand the number of boards to be checked or as defied by customer | 1 | 1 | - | - |
| PC3. Record the number of boards received at every process and at the final stage of assembly | 1 | 1 | - | - |
| PC4. check the quality of assembly according to the customer specification sheet or from the standard company procedure | 1 | 1 | - | - |
| PC5. ensure that defect free assembled boards are sent for packing | 1 | 1 | - | - |
| PC6. maintain accurate documentation on the boards received | 1 | 1 | - | - |
| <i>Performing Quality Check</i> | 18 | 33 | - | - |
| PC7. read the customers and companys specification sheet | 1 | 2 | - | - |
| PC8. perform the quality check as specified | 1 | 2 | - | - |
| PC9. comply with quality standards of the company | 1 | 2 | - | - |
| PC10. perform 100% functional quality check for each assembled boards | 2 | 1 | - | - |
| PC11. select right test ad measuring instruments, jigs or instruments for checking | 1 | 2 | - | - |
| PC12. monitor quality data and suggest improvements to reduce failure rate | 1 | 2 | - | - |
| PC13. ensure productive and efficient pick and place programs, reflow, testing and production assemblies | 1 | 2 | - | - |
| PC14. develop and implement process control techniques and procedures for manufacturing | 1 | 2 | - | - |

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| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| PC15. manage improvement in quality maturity assessment score | 1 | 2 | - | - |
| PC16. work with a cross functional team with design, assembly and testing to develop the quality conformance, validation and simulation testing plan | 1 | 2 | - | - |
| PC17. examine PCBs visually to detect circuit shorts, using magnifying glass and lamp | 1 | 2 | - | - |
| PC18. record the output of the tests and check against specifications to approve the boards as quality check passed | 1 | 2 | - | - |
| PC19. ensure all lots are checked and specifications compiled with | 1 | 2 | - | - |
| PC20. take precautions before work and wear ESD wrist straps or aprons | 1 | 2 | - | - |
| PC21. ensure there are no missing components in the assembly | 1 | 2 | - | - |
| PC22. identify clearly the defects and document as per company policy | 1 | 2 | - | - |
| PC23. ensure no faulty modules are sent to packing | 1 | 2 | - | - |
| <i>Completing the QC process</i> | 13 | 15 | - | - |
| PC24. identify any problems and diagnose the cause | 2 | 2 | - | - |
| PC25. determine and monitor the effectiveness of corrective and preventative actions to resolve any repetitive quality issues | 2 | 2 | - | - |
| PC26. provide creative solutions with high quality and on time | 2 | 2 | - | - |
| PC27. provide technical assistance as needed to prevent recurrence of the complaints and issues | 2 | 2 | - | - |
| PC28. provide technical assistance as needed to prevent recurrence of the complaints and issues | 2 | 1 | - | - |

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| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|--|--------------|-----------------|---------------|------------|
| PC29. paste stickers such as quality check passed or okay on the boards for quality passed ones | 1 | 2 | - | - |
| PC30. send the okayed ones to the final packing and the faulty ones for rework | 1 | 2 | - | - |
| PC31. document the quality test details as per check sheets | 1 | 2 | - | - |
| <i>Achieving productivity and quality standards</i> | 3 | 6 | - | - |
| PC32. achieve the target number of boards to be checked | 1 | 2 | - | - |
| PC33. deliver boards in time to the next process | 1 | 2 | - | - |
| PC34. achieve 100% accuracy on the quality check | 1 | 2 | - | - |
| NOS Total | 40 | 60 | - | - |



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National Occupational Standards (NOS) Parameters

| | |
|----------------------------|----------------------------------|
| NOS Code | ELE/N5501 |
| NOS Name | Check quality of assembled PCB |
| Sector | Electronics |
| Sub-Sector | Electronics Manufacturing System |
| Occupation | Quality Check |
| NSQF Level | 5 |
| Credits | TBD |
| Version | 1.0 |
| Last Reviewed Date | 24/02/2022 |
| Next Review Date | 24/02/2025 |
| 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 | - | - |



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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 |



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



Qualification Pack

- 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

Qualification Pack

Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|--|--------------|-----------------|---------------|------------|
| <i>Introduction to Employability Skills</i> | 1 | 1 | - | - |
| PC1. 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 | - | - |

Qualification Pack

| 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 | - | - | - | - |

Qualification Pack

| 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 | 30/11/2023 |
| Next Review Date | 30/11/2026 |
| NSQC Clearance Date | 30/11/2023 |

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Element/ Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each Element/ PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.
6. To pass the Qualification Pack assessment, every trainee should score the Recommended Pass % aggregate for the QP.
7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.



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/N5501.Check quality of assembled PCB | 40 | 60 | - | - | 100 | 70 |
| ELE/N1002.Apply health and safety practices at the workplace | 35 | 65 | - | - | 100 | 15 |
| DGT/VSQ/N0102.Employability Skills (60 Hours) | 20 | 30 | - | - | 50 | 15 |
| Total | 95 | 155 | - | - | 250 | 100 |



Qualification Pack

Acronyms

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

Qualification Pack

Glossary

| | |
|--|--|
| Sector | Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests. |
| Sub-sector | Sub-sector is derived from a further breakdown based on the characteristics and interests of its components. |
| Occupation | Occupation is a set of job roles, which perform similar/ related set of functions in an industry. |
| Job role | Job role defines a unique set of functions that together form a unique employment opportunity in an organisation. |
| Occupational Standards (OS) | OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts. |
| Performance Criteria (PC) | Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task. |
| National Occupational Standards (NOS) | NOS are occupational standards which apply uniquely in the Indian context. |
| Qualifications Pack (QP) | QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code. |
| Unit Code | Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N' |
| Unit Title | Unit title gives a clear overall statement about what the incumbent should be able to do. |
| Description | Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for. |
| Scope | Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required. |

Qualification Pack

| | |
|---|--|
| Knowledge and Understanding (KU) | 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. |
| Organisational Context | Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility. |
| Technical Knowledge | Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities. |
| Core Skills/ Generic Skills (GS) | 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. |
| Electives | 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. |
| Options | 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. |