



## Qualification Pack



# Building Management System Project Manager

QP Code: ELE/Q7102

Version: 2.0

NSQF Level: 6

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



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### ELE/Q7102: Building Management System Project Manager

#### Brief Job Description

A Building Management System (BMS) Project Manager is responsible for the successful delivery of Building Management System (BMS) installation projects. The responsibilities include coordinating with the client to understand their requirements and then working with various teams within the organisation for the successful installation, testing, commissioning and handover of BMS to the client.

#### Personal Attributes

The individual must have managerial and problem-solving skills along with the ability to take independent decisions. The person must also have excellent interpersonal and organisational skills along with good written and verbal communication skills. The individual must be able to coordinate with multiple parties to achieve the work objectives.

#### Applicable National Occupational Standards (NOS)

##### Compulsory NOS:

1. [ELE/N6103: Manage the BMS tendering, designing and procurement processes](#)
2. [ELE/N6104: Manage the BMS installation, testing, commissioning and handover processes](#)
3. [ELE/N1002: Apply health and safety practices at the workplace](#)
4. [DGT/VSQ/N0102: Employability Skills \(60 Hours\)](#)

#### Qualification Pack (QP) Parameters

<b>Sector</b>	Electronics
<b>Sub-Sector</b>	Industrial Automation
<b>Occupation</b>	Engineering-I&A
<b>Country</b>	India
<b>NSQF Level</b>	6
<b>Credits</b>	31
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2015/7411.0100

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<b>Minimum Educational Qualification &amp; Experience</b>	<p>12th grade Pass with 4 Years of experience relevant experience</p> <p>OR</p> <p>12th grade Pass (2 year of any combination of (NTC/NAC/CITS)) with 2 Years of experience relevant experience</p> <p>OR</p> <p>Diploma (Completed 2 years of diploma after 12th) with 2 Years of experience relevant experience</p> <p>OR</p> <p>Completed 3 year UG degree with 1 Year of experience relevant experience</p> <p>OR</p> <p>Previous relevant Qualification of NSQF Level (5) with 3 Years of experience relevant experience</p>
<b>Minimum Level of Education for Training in School</b>	12th Class
<b>Pre-Requisite License or Training</b>	NA
<b>Minimum Job Entry Age</b>	21 Years
<b>Last Reviewed On</b>	NA
<b>Next Review Date</b>	03/05/2026
<b>NSQC Approval Date</b>	03/05/2023
<b>Version</b>	2.0
<b>Reference code on NQR</b>	QG-06-EH-00420-2023-V1.1-ESSC
<b>NQR Version</b>	1.0

## Qualification Pack

### ELE/N6103: Manage the BMS tendering, designing and procurement processes

#### Description

This OS unit is about securing the BMS installation project through the tendering process and then managing the BMS designing, planning and resource procurement processes.

#### Scope

The scope covers the following :

- Manage the tendering process
- Manage the BMS designing process
- Carry out planning for BMS installation
- Obtain the regulatory approvals
- Manage the procurement and installation team selection process

#### Elements and Performance Criteria

##### *Manage the tendering process*

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

- PC1.** evaluate the client's BMS related requirements and own enterprise's eligibility for the project by studying the tender documents
- PC2.** assess the feasibility of delivering the project through consultation with the planning, implementation, commissioning and testing teams
- PC3.** finalise the terms of project delivery with the client through discussions or seek clarification, as required
- PC4.** prepare a letter accepting the tender outlining the pricing and schedule along with the company's eligibility for the project
- PC5.** determine the terms of service and carry out necessary documentation with the client before the start of the project

##### *Manage the BMS designing process*

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

- PC6.** record all the necessary measurements and other key details by conducting a site visit along with the design team
- PC7.** determine the scope of work through coordination with the planning, implementation, commissioning and testing teams
- PC8.** instruct the design team to prepare a BMS design according to the measurements taken and client requirements
- PC9.** review the prepared design and approve it or suggest changes as required
- PC10.** coordinate with the client to take their approval for the prepared BMS design and the purchase of necessary hardware and software

##### *Carry out planning for BMS installation*

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

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- PC11.** carry out effective planning using the relevant planning software tools, ensuring time-bound scheduling and implementation of all critical tasks
- PC12.** assess possible risks that may arise during execution and create effective plans to mitigate them, ensuring minimum impact on the project costs and schedule

### *Obtain the regulatory approvals*

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

- PC13.** ensure the necessary documents are prepared in the required format and submitted to the relevant regulatory authority, following the applicable procedures to obtain the necessary permits/ approvals for the project
- PC14.** liaise with the regulatory authority to resolve any issues encountered while obtaining the required permits/ approval
- PC15.** carry out necessary changes to the design as per the regulatory authority's recommendations, ensuring to inform the client

### *Manage the procurement and installation team selection process*

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

- PC16.** carry out quantity take-off process to estimate the requirement of materials and manpower for the delivery of the project
- PC17.** identify the appropriate hardware and software for the installation of BMS through coordination with the procurement team
- PC18.** carry out negotiations with the third-party suppliers and contractors, ensuring various costs are kept within budgets
- PC19.** ensure timely procurement of various resources such as hardware and software in an appropriate number/ quantity for smooth completion of the project and within the agreed budgets
- PC20.** check that the procured materials are stored safely as per the manufacturer's instructions
- PC21.** ensure the availability of the necessary tools, equipment and Personal Protective Equipment (PPE) for the installation of BMS
- PC22.** ensure the tools and equipment are compatible with the selected BMS hardware
- PC23.** select a team of skilled and trained BMS engineers and support staff for the installation of BMS, ensuring their availability in an adequate number

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** various field devices used in building management systems such as sensors, controllers, valves, actuators, electrical panels, Direct Digital Controller (DDC)
- KU2.** basic plumbing and firefighting practices
- KU3.** operations of various electrical and HVAC equipment
- KU4.** working principle of analogue and digital input/ output
- KU5.** different types of building codes and standards such as American and European
- KU6.** different types of BMS installation projects and the practice of gauging the client requirements according to the scale of the project
- KU7.** different types of software used to create BMS drawing such as AutoCAD



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- KU8.** project finance, cost control and resource allocation practices
- KU9.** project management process and methodology
- KU10.** the use of project management software tools such as MS Project or Primavera
- KU11.** the use of various relevant computer applications for effective record management such as Microsoft Word, Excel, Visio or CAD, etc.

### Generic Skills (GS)

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

- GS1.** prepare work-related notes and documents
- GS2.** read the relevant literature to get the latest updates about the field of work
- GS3.** maintain professional relationships with clients and co-workers
- GS4.** listen attentively to understand the information being shared
- GS5.** co-ordinate with the co-workers to achieve the work objectives
- GS6.** identify possible disruptions to work and take appropriate preventive measures
- GS7.** plan and schedule various tasks for effective time-management
- GS8.** identify improvements to work processes through critical observation
- GS9.** take quick decisions to deal with any emergencies or accidents

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### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Manage the tendering process</i>	<b>10</b>	<b>12</b>	-	<b>10</b>
<b>PC1.</b> evaluate the client's BMS related requirements and own enterprise's eligibility for the project by studying the tender documents	-	-	-	-
<b>PC2.</b> assess the feasibility of delivering the project through consultation with the planning, implementation, commissioning and testing teams	-	-	-	-
<b>PC3.</b> finalise the terms of project delivery with the client through discussions or seek clarification, as required	-	-	-	-
<b>PC4.</b> prepare a letter accepting the tender outlining the pricing and schedule along with the company's eligibility for the project	-	-	-	-
<b>PC5.</b> determine the terms of service and carry out necessary documentation with the client before the start of the project	-	-	-	-
<i>Manage the BMS designing process</i>	<b>6</b>	<b>8</b>	-	<b>6</b>
<b>PC6.</b> record all the necessary measurements and other key details by conducting a site visit along with the design team	-	-	-	-
<b>PC7.</b> determine the scope of work through coordination with the planning, implementation, commissioning and testing teams	-	-	-	-
<b>PC8.</b> instruct the design team to prepare a BMS design according to the measurements taken and client requirements	-	-	-	-
<b>PC9.</b> review the prepared design and approve it or suggest changes as required	-	-	-	-
<b>PC10.</b> coordinate with the client to take their approval for the prepared BMS design and the purchase of necessary hardware and software	-	-	-	-
<i>Carry out planning for BMS installation</i>	<b>4</b>	<b>8</b>	-	<b>4</b>



### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC11.</b> carry out effective planning using the relevant planning software tools, ensuring time-bound scheduling and implementation of all critical tasks	-	-	-	-
<b>PC12.</b> assess possible risks that may arise during execution and create effective plans to mitigate them, ensuring minimum impact on the project costs and schedule	-	-	-	-
<i>Obtain the regulatory approvals</i>	<b>8</b>	<b>6</b>	-	<b>6</b>
<b>PC13.</b> ensure the necessary documents are prepared in the required format and submitted to the relevant regulatory authority, following the applicable procedures to obtain the necessary permits/ approvals for the project	-	-	-	-
<b>PC14.</b> liaise with the regulatory authority to resolve any issues encountered while obtaining the required permits/ approval	-	-	-	-
<b>PC15.</b> carry out necessary changes to the design as per the regulatory authority's recommendations, ensuring to inform the client	-	-	-	-
<i>Manage the procurement and installation team selection process</i>	<b>2</b>	<b>6</b>	-	<b>4</b>
<b>PC16.</b> carry out quantity take-off process to estimate the requirement of materials and manpower for the delivery of the project	-	-	-	-
<b>PC17.</b> identify the appropriate hardware and software for the installation of BMS through coordination with the procurement team	-	-	-	-
<b>PC18.</b> carry out negotiations with the third-party suppliers and contractors, ensuring various costs are kept within budgets	-	-	-	-
<b>PC19.</b> ensure timely procurement of various resources such as hardware and software in an appropriate number/ quantity for smooth completion of the project and within the agreed budgets	-	-	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC20.</b> check that the procured materials are stored safely as per the manufacturer's instructions	-	-	-	-
<b>PC21.</b> ensure the availability of the necessary tools, equipment and Personal Protective Equipment (PPE) for the installation of BMS	-	-	-	-
<b>PC22.</b> ensure the tools and equipment are compatible with the selected BMS hardware	-	-	-	-
<b>PC23.</b> select a team of skilled and trained BMS engineers and support staff for the installation of BMS, ensuring their availability in an adequate number	-	-	-	-
<b>NOS Total</b>	<b>30</b>	<b>40</b>	<b>-</b>	<b>30</b>



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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ELE/N6103
<b>NOS Name</b>	Manage the BMS tendering, designing and procurement processes
<b>Sector</b>	Electronics
<b>Sub-Sector</b>	Industrial Automation
<b>Occupation</b>	Research and Design-I&A
<b>NSQF Level</b>	6
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	24/02/2022
<b>Next Review Date</b>	03/05/2026
<b>NSQC Clearance Date</b>	03/05/2023

## Qualification Pack

# ELE/N6104: Manage the BMS installation, testing, commissioning and handover processes

## Description

This OS unit is about managing the installation of BMS and its testing, commissioning, and handover to the client.

## Scope

The scope covers the following :

- Manage the BMS installation process
- Manage the testing and commissioning process
- Manage the handover process

## Elements and Performance Criteria

### *Manage the BMS installation process*

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

- PC1.** assign various responsibilities and tasks to the team members according to their expertise
- PC2.** develop and implement the necessary quality control mechanisms such as the deployment of competent personnel to conduct regular quality inspections at the site
- PC3.** conduct regular site visits to ensure the installation of BMS is carried out as per the prepared design and project progresses as per the schedule
- PC4.** coordinate with the third-party vendors/ equipment providers for the installation of necessary equipment such as the Heating, Ventilation and Air-conditioning (HVAC) equipment
- PC5.** ensure the project costs do not exceed the budget during implementation
- PC6.** monitor the project schedule, slippages and their impact using the appropriate project management software tools
- PC7.** investigate any deviations in the project implementation and initiate prompt corrective action
- PC8.** maintain constant communication with the client, ensuring to provide timely resolution to any concerns raised by them
- PC9.** ensure compliance with all the legal, regulatory and quality standards during the installation process
- PC10.** ensure the applicable health, safety and environmental protection practices are followed in compliance with the regulatory requirements
- PC11.** identify and implement various solutions to add value to the project such as enhancing quality while reducing the costs

### *Manage the testing and commissioning process*

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

- PC12.** ensure the BMS is tested for the correct functioning after the installation is complete
- PC13.** manage the commissioning process as per the agreed procedure and client's satisfaction

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**PC14.** arrange for the BMS operator to be trained on the operation of the BMS

*Manage the handover process*

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

**PC15.** compile the necessary documents from the planning, procurement, implementation, commissioning and testing teams for handover to the client

**PC16.** ensure the accuracy of the information given in the documents

**PC17.** perform handover to the client along with the necessary documents such as the software test results, warranty documents, service contract, etc.

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

**KU1.** the importance of assigning various responsibilities and tasks to the team members according to their expertise

**KU2.** the importance of developing and implementing the necessary quality control mechanisms to ensure the quality of the project

**KU3.** the importance of conducting regular site visits to ensure the installation of BMS is carried out as per the prepared design and project progresses as per the schedule

**KU4.** applicable third-party vendors/ providers management practices

**KU5.** various practices to be followed to ensure the project costs do not exceed the budget

**KU6.** how to monitor the project schedule, slippages and their impact using the appropriate project management software tools

**KU7.** the importance of investigating any deviations in the project implementation and initiating prompt corrective action

**KU8.** the importance of conducting regular meetings with the site supervisors and stakeholders to deliberate upon and resolve any issues being experienced

**KU9.** the importance of maintaining constant communication with the client

**KU10.** the importance of ensuring compliance with all the legal, regulatory and quality standards during the installation process

**KU11.** the importance of following the applicable health, safety and environment protection practices

**KU12.** the process of testing, commissioning and handover of BMS to the client

## Generic Skills (GS)

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

**GS1.** maintain work-related records

**GS2.** read and follow the health and safety instructions

**GS3.** listen attentively to understand the information/ instructions being shared by the speaker

**GS4.** communicate clearly and politely with co-workers and clients

**GS5.** plan and prioritise tasks to ensure timely completion

**GS6.** identify possible disruptions to work and take appropriate preventive measures



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- GS7.** take quick decisions to deal with workplace emergencies/ accidents
- GS8.** evaluate all possible solutions to a problem to select the best one
- GS9.** co-ordinate with co-workers to achieve work objectives

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### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Manage the BMS installation process</i>	<b>12</b>	<b>16</b>	-	<b>10</b>
<b>PC1.</b> assign various responsibilities and tasks to the team members according to their expertise	-	-	-	-
<b>PC2.</b> develop and implement the necessary quality control mechanisms such as the deployment of competent personnel to conduct regular quality inspections at the site	-	-	-	-
<b>PC3.</b> conduct regular site visits to ensure the installation of BMS is carried out as per the prepared design and project progresses as per the schedule	-	-	-	-
<b>PC4.</b> coordinate with the third-party vendors/ equipment providers for the installation of necessary equipment such as the Heating, Ventilation and Air-conditioning (HVAC) equipment	-	-	-	-
<b>PC5.</b> ensure the project costs do not exceed the budget during implementation	-	-	-	-
<b>PC6.</b> monitor the project schedule, slippages and their impact using the appropriate project management software tools	-	-	-	-
<b>PC7.</b> investigate any deviations in the project implementation and initiate prompt corrective action	-	-	-	-
<b>PC8.</b> maintain constant communication with the client, ensuring to provide timely resolution to any concerns raised by them	-	-	-	-
<b>PC9.</b> ensure compliance with all the legal, regulatory and quality standards during the installation process	-	-	-	-
<b>PC10.</b> ensure the applicable health, safety and environmental protection practices are followed in compliance with the regulatory requirements	-	-	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC11.</b> identify and implement various solutions to add value to the project such as enhancing quality while reducing the costs	-	-	-	-
<i>Manage the testing and commissioning process</i>	<b>8</b>	<b>10</b>	-	<b>8</b>
<b>PC12.</b> ensure the BMS is tested for the correct functioning after the installation is complete	-	-	-	-
<b>PC13.</b> manage the commissioning process as per the agreed procedure and client's satisfaction	-	-	-	-
<b>PC14.</b> arrange for the BMS operator to be trained on the operation of the BMS	-	-	-	-
<i>Manage the handover process</i>	<b>10</b>	<b>14</b>	-	<b>12</b>
<b>PC15.</b> compile the necessary documents from the planning, procurement, implementation, commissioning and testing teams for handover to the client	-	-	-	-
<b>PC16.</b> ensure the accuracy of the information given in the documents	-	-	-	-
<b>PC17.</b> perform handover to the client along with the necessary documents such as the software test results, warranty documents, service contract, etc.	-	-	-	-
<b>NOS Total</b>	<b>30</b>	<b>40</b>	-	<b>30</b>





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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ELE/N6104
<b>NOS Name</b>	Manage the BMS installation, testing, commissioning and handover processes
<b>Sector</b>	Electronics
<b>Sub-Sector</b>	Industrial Automation
<b>Occupation</b>	Research and Design-I&A
<b>NSQF Level</b>	6
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	24/02/2022
<b>Next Review Date</b>	03/05/2026
<b>NSQC Clearance Date</b>	03/05/2023

## Qualification Pack

### 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, 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, 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

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Deal with workplace hazards</i>	<b>20</b>	<b>31</b>	-	-
<b>PC1.</b> identify job-site hazards and possible causes of accident in the workplace	2	3	-	-
<b>PC2.</b> 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	-	-
<b>PC3.</b> 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	-	-
<b>PC4.</b> follow standard safety procedures while handling tool/ ,equipment, hazardous substances and while working in hazardous environments	3	4	-	-
<b>PC5.</b> 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	-	-
<b>PC6.</b> avoid damage of components due to negligence in electrostatic discharge (ESD) procedures	2	3	-	-
<b>PC7.</b> 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	-	-
<b>PC8.</b> maintain appropriate posture while handling heavy objects	1	3	-	-
<b>PC9.</b> apply good housekeeping practices at all times	2	3	-	-
<i>Apply fire safety practices</i>	<b>4</b>	<b>9</b>	-	-
<b>PC10.</b> take preventive measures to prevent fire hazards	2	3	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<p><b>PC11.</b></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	-	-
<p><b>PC12.</b> exhibit rescue and first-aid techniques in case of fire or electrocution</p>	1	3	-	-
<p><i>Follow emergencies, rescue and first-aid procedures</i></p>	<b>6</b>	<b>13</b>	-	-
<p><b>PC13.</b> administer appropriate first aid to victims in case of bleeding, burns, choking, electric shock, poisoning etc.</p>	1	3	-	-
<p><b>PC14.</b> administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock,</p>	1	2	-	-
<p><b>PC15.</b> 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</p>	2	4	-	-
<p><b>PC16.</b> use correct method to move injured people and others during an emergency</p>	2	4	-	-
<p><i>Effective waste management/recycling practices</i></p>	<b>5</b>	<b>12</b>	-	-
<p><b>PC17.</b> identify recyclable and non-recyclable, and hazardous waste generated</p>	1	3	-	-
<p><b>PC18.</b> segregate waste into different categories</p>	1	2	-	-
<p><b>PC19.</b> ensure disposal of non-recyclable waste appropriately</p>	1	2	-	-
<p><b>PC20.</b> deposit non-recyclable and reusable material at identified location</p>	1	3	-	-



### Qualification Pack

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 Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ELE/N1002
<b>NOS Name</b>	Apply health and safety practices at the workplace
<b>Sector</b>	Electronics
<b>Sub-Sector</b>	Generic
<b>Occupation</b>	Generic - Health Safety
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	3.0
<b>Last Reviewed Date</b>	24/02/2022
<b>Next Review Date</b>	03/05/2026
<b>NSQC Clearance Date</b>	03/05/2023



## 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:

## Qualification Pack

- 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.

## Qualification Pack

**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>	<b>1</b>	<b>1</b>	-	-
<b>PC1.</b> identify employability skills required for jobs in various industries	-	-	-	-
<b>PC2.</b> identify and explore learning and employability portals	-	-	-	-
<i>Constitutional values - Citizenship</i>	<b>1</b>	<b>1</b>	-	-
<b>PC3.</b> 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.	-	-	-	-
<b>PC4.</b> follow environmentally sustainable practices	-	-	-	-
<i>Becoming a Professional in the 21st Century</i>	<b>2</b>	<b>4</b>	-	-
<b>PC5.</b> recognize the significance of 21st Century Skills for employment	-	-	-	-
<b>PC6.</b> 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>	<b>2</b>	<b>3</b>	-	-
<b>PC7.</b> use basic English for everyday conversation in different contexts, in person and over the telephone	-	-	-	-
<b>PC8.</b> read and understand routine information, notes, instructions, mails, letters etc. written in English	-	-	-	-
<b>PC9.</b> write short messages, notes, letters, e-mails etc. in English	-	-	-	-
<i>Career Development &amp; Goal Setting</i>	<b>1</b>	<b>2</b>	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC10.</b> understand the difference between job and career	-	-	-	-
<b>PC11.</b> prepare a career development plan with short- and long-term goals, based on aptitude	-	-	-	-
<i>Communication Skills</i>	<b>2</b>	<b>2</b>	-	-
<b>PC12.</b> follow verbal and non-verbal communication etiquette and active listening techniques in various settings	-	-	-	-
<b>PC13.</b> work collaboratively with others in a team	-	-	-	-
<i>Diversity &amp; Inclusion</i>	<b>1</b>	<b>2</b>	-	-
<b>PC14.</b> communicate and behave appropriately with all genders and PwD	-	-	-	-
<b>PC15.</b> escalate any issues related to sexual harassment at workplace according to POSH Act	-	-	-	-
<i>Financial and Legal Literacy</i>	<b>2</b>	<b>3</b>	-	-
<b>PC16.</b> select financial institutions, products and services as per requirement	-	-	-	-
<b>PC17.</b> carry out offline and online financial transactions, safely and securely	-	-	-	-
<b>PC18.</b> identify common components of salary and compute income, expenses, taxes, investments etc	-	-	-	-
<b>PC19.</b> identify relevant rights and laws and use legal aids to fight against legal exploitation	-	-	-	-
<i>Essential Digital Skills</i>	<b>3</b>	<b>4</b>	-	-
<b>PC20.</b> operate digital devices and carry out basic internet operations securely and safely	-	-	-	-
<b>PC21.</b> use e- mail and social media platforms and virtual collaboration tools to work effectively	-	-	-	-
<b>PC22.</b> 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>	<b>2</b>	<b>3</b>	-	-
<b>PC23.</b> identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research	-	-	-	-
<b>PC24.</b> develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion	-	-	-	-
<b>PC25.</b> identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity	-	-	-	-
<i>Customer Service</i>	<b>1</b>	<b>2</b>	-	-
<b>PC26.</b> identify different types of customers	-	-	-	-
<b>PC27.</b> identify and respond to customer requests and needs in a professional manner.	-	-	-	-
<b>PC28.</b> follow appropriate hygiene and grooming standards	-	-	-	-
<i>Getting ready for apprenticeship &amp; Jobs</i>	<b>2</b>	<b>3</b>	-	-
<b>PC29.</b> create a professional Curriculum vitae (Résumé)	-	-	-	-
<b>PC30.</b> search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively	-	-	-	-
<b>PC31.</b> apply to identified job openings using offline /online methods as per requirement	-	-	-	-
<b>PC32.</b> answer questions politely, with clarity and confidence, during recruitment and selection	-	-	-	-
<b>PC33.</b> identify apprenticeship opportunities and register for it as per guidelines and requirements	-	-	-	-
<b>NOS Total</b>	<b>20</b>	<b>30</b>	-	-



## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	DGT/VSQ/N0102
<b>NOS Name</b>	Employability Skills (60 Hours)
<b>Sector</b>	Cross Sectoral
<b>Sub-Sector</b>	Professional Skills
<b>Occupation</b>	Employability
<b>NSQF Level</b>	4
<b>Credits</b>	2
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	27/05/2024
<b>NSQC Clearance Date</b>	27/05/2021

## Assessment Guidelines and Assessment Weightage

### Assessment Guidelines

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. The assessment for the theory part will be based on the knowledge bank of questions created by the assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.

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).

Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.

To pass the Qualification Pack assessment, every trainee should score a minimum of 70% of % aggregate marks to successfully clear the assessment.

In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

**Minimum Aggregate Passing % at QP Level : 70**

## Qualification Pack

(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/N6103.Manage the BMS tendering, designing and procurement processes	30	40	-	30	100	40
ELE/N6104.Manage the BMS installation, testing, commissioning and handover processes	30	40	-	30	100	40
ELE/N1002.Apply health and safety practices at the workplace	35	65	-	-	100	10
DGT/VSQ/N0102.Employability Skills (60 Hours)	20	30	0	0	50	10
<b>Total</b>	<b>115</b>	<b>175</b>	<b>-</b>	<b>60</b>	<b>350</b>	<b>100</b>



## Qualification Pack

### 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

## Qualification Pack

### 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 Pack

<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.