Qualification Pack

Electrolyzer Manufacturing Plant Supervisor

QP Code: SGJ/Q4305

Version: 1.0

NSQF Level: 5

Skill Council for Green Jobs || 3rd Floor, CBIP Building, Malcha Marg, Chanakyapuri
New Delhi - 110021 || email:sarvesh@sscgj.in

Contents

Qualification Pack

SGJ/Q4305: Electrolyzer Manufacturing Plant Supervisor

Brief Job Description

Electrolyzer manufacturing Plant Supervisor responsibility involves overseeing various aspects of the electrloyzer manufacturing process to ensure efficiency, safety, and quality. Their work is essential to maintaining the manufacturing process and meeting production goals while adhering to safety and environmental standards. He/She plays a vital role in ensuring the efficient and safe production of high-quality electrolyzer for green hydrogen production for various industrial applications. They play a pivotal role in managing the manufacturing process and contributing to the success of the plant.

Personal Attributes

This unit tells about Supervision of Electrolyzer Manufacturing Plant

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. SGJ/N4324: Introduction to the Electrolyzer and its types.
2. SGJ/N5202: Identify Electrolyzer Components and Materials for manufacturing of Electrolyzer
3. SGJ/N5203: Perform Manufacturing Process of Electrolyzer in Electrolyzer manufacturing unit.
4. SGJ/N5205: Perform Production Planning and Resource Management in Electrolyzer manufacturing facility
5. SGJ/N5201: Manufacturing and efficiency principles for the Electrolyzer production unit
6. SGJ/N5204: Maintain Health and safety measures in Electrolyzer manufacturing facility.
7. DGT/VSQ/N0102: Employability Skills (60 Hours)

Qualification Pack (QP) Parameters

Sector	Green Jobs
Sub-Sector	Green Hydrogen
Occupation	Green Hydrogen
Country	India

Qualification Pack

NSQF Level	5
Credits	17
Aligned to NCO/ISCO/ISIC Code	NCO-3122.0601 Assembly Line Supervisor
Minimum Educational Qualification & Experience	12th grade Pass (or equivalent) OR 12th grade pass with 1 year NTC/ NAC OR Completed 3-year diploma (after 10th) OR Previous relevant Qualification of NSQF Level (4.5) OR Previous relevant Qualification of NSQF Level (3)
Minimum Level of Education for Training in School	Not Applicable
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	NA
Next Review Date	31/01/2027
NSQC Approval Date	31/01/2024
Version	1.0
Reference code on NQR	QG-05-ES-02028-2024-V1-SCGJ
NQR Version	1

Remarks:

Total 510 Hours of notional hours: (Theory: 250 hours with Employability Skills+Practical:170 hours+ 90 hours of On-the-Job Training (OJT)

SGJ/N4324: Introduction to the Electrolyzer and its types.

Description

This unit tells about Introduction to the Electrolyzer and its types.

Scope

The scope covers the following :

- Describe Electrolysis Process.
- Explain about Electrolyzer Technology.
- Discuss about different types of Electrolyzer.
- Discuss about applications of Electrolyzers.
- Know about factors affecting electrolysis

Elements and Performance Criteria

Basics of electrolysis and Electrolyzer technology

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

PC1. describe and demonstrate the key details of Electrolysis Process with the help of a small model

PC2. explain and demonstrate laws related to electrolysis

PC3. discuss in brief various terms associated with Electrolysis Process.

PC4. discuss and illustrate about electrolyzer technologies through pictures and videos.

PC5. discuss and illustrate the classification of Electrolyzer through pictures or videos.

PC6. discuss and illustrate about alkaline electrolyzer technology the classification of Electrolyzer with technical specifications through pictures or videos.

PC7. discuss and illustrate about Proton exchange membrane (PEM) electrolyzer with technical specifications

PC8. discuss and illustrate the technical specifications of Solid oxide electrolysis cell (SOEC) electrolyser.

PC9. discuss Anion exchange membrane (AEM) electrolyzer with technical specifications

PC10. discuss Pros and Cons of different Electrolyzer types.

PC11. discuss about advancement in Electrolyzer Technology and Future of Electrolyzers.

PC12. discuss key advantages of Electrolyzer technology.

PC13. discuss key aspects and challenges related to electrolyzer manufacturing in India.

PC14. discuss about the factors affecting electrolysis.

PC15. discuss and demonstrate roles of Supervisor in a green Electrolyzer Manufacturing facility

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. procedure to prepare work schedules and duty rosters
KU2. team management procedures
KU3. human resource management process
KU4. conflict management techniques
KU5. how to prepare KRA/KPI for team members
KU6. performance management/review techniques
KU7. organizational documentation and reporting procedures
KU8. processes involved in the manufacturing of Electrolyzers

Generic Skills (GS)

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

GS1. note the information communicated, observations related to the activity
GS2. read and interpret instructions, procedures, and information at the workplace
GS3. write information documents to internal departments/internal teams, operational reports, work schedules and duty rosters
GS4. make timely decisions for efficient utilization of resources
GS5. modify work practices to improve them
GS6. complete tasks efficiently and accurately within stipulated time
GS7. approach relevant authority when required

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Basics of electrolysis and Electrolyzer technology	**30**	**20**	**-**	**-**
PC1. describe and demonstrate the key details of Electrolysis Process with the help of a small model	2	2	-	-
PC2. explain and demonstrate laws related to electrolysis	2	2	-	-
PC3. discuss in brief various terms associated with Electrolysis Process.	2	-	-	-
PC4. discuss and illustrate about electrolyzer technologies through pictures and videos.	2	2	-	-
PC5. discuss and illustrate the classification of Electrolyzer through pictures or videos.	2	3	-	-
PC6. discuss and illustrate about alkaline electrolyzer technology the classification of Electrolyzer with technical specifications through pictures or videos.	2	3	-	-
PC7. discuss and illustrate about Proton exchange membrane (PEM) electrolyzer with technical specifications	2	3	-	-
PC8. discuss and illustrate the technical specifications of Solid oxide electrolysis cell (SOEC) electrolyser.	2	3	-	-
PC9. discuss Anion exchange membrane (AEM) electrolyzer with technical specifications	2	-	-	-
PC10. discuss Pros and Cons of different Electrolyzer types.	2	-	-	-
PC11. discuss about advancement in Electrolyzer Technology and Future of Electrolyzers.	2	-	-	-
PC12. discuss key advantages of Electrolyzer technology.	2	-	-	-
PC13. discuss key aspects and challenges related to electrolyzer manufacturing in India.	2	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. discuss about the factors affecting electrolysis.	2	-	-	-
PC15. discuss and demonstrate roles of Supervisor in a green Electrolyzer Manufacturing facility	2	2	-	-
NOS Total	**30**	**20**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	SGJ/N4324
NOS Name	Introduction to the Electrolyzer and its types.
Sector	Green Jobs
Sub-Sector	Green Hydrogen
Occupation	Supervisor
NSQF Level	5
Credits	1
Version	1.0
Last Reviewed Date	31/01/2024
Next Review Date	31/01/2027
NSQC Clearance Date	31/01/2024

SGJ/N5202: Identify Electrolyzer Components and Materials for manufacturing of Electrolyzer

Description

This unit tells about Electrolyzer Components and Materials for manufacturing of Electrolyzer

Scope

The scope covers the following :

- Discuss the Raw material Required for Electrolyzer Manufacturing.
- Identify Bill of material for materials and components of Electrolyzer manufacturing set up.

Elements and Performance Criteria

Materials and components required for Manufacturing Electrolyzer

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

PC1. explain and illustrate the basic materials and components required for manufacturing Electrolyzer and different types of Materials required for Electrolyzer manufacturing and their key specification through Pictures, videos, product data sheet etc.

PC2. explain the major components required for Alkaline type Electrolyzer. and discuss about each component.

PC3. explain the major components required for PEM type Electrolyzer and discuss about each component.

PC4. explain the major components required for (SOEC) type Electrolyzer and discuss about each component.

PC5. prepare and Identify Bill of material for materials and components of Electrolyzer manufacturing set up and show how to identify Bill of material for materials and components of Electrolyzer manufacturing set up.

PC6. explain the major components required for (AEM) type Electrolyzer and discuss about each component

PC7. outline differences in PEM, AE, Electrolyzer Materials and components.

PC8. showcase the successful case studies of Electrolyzer technology for Green Hydrogen generation in India and overseas.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. importance of effective communication and establishing good working relationships with team members, customers, superiors and other stakeholders

KU2. organizational standards and guidelines on respecting gender and disabilities

KU3. organizational policies and procedures pertaining to written and verbal communication

KU4. escalation matrix and procedures for reporting work

KU5. importance of effective communication in the at electrolyzer manufacturing site
KU6. importance of teamwork in organizational and individual success

Generic Skills (GS)

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

GS1. follow organisation's code of conduct
GS2. follow organization's rule-based decision making process
GS3. record data as per specified process
GS4. make timely decisions for efficient utilization of resources
GS5. approach relevant authority when required
GS6. work constructively and collaboratively with others

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Materials and components required for Manufacturing Electrolyzer	**30**	**20**	**-**	**-**
PC1. explain and illustrate the basic materials and components required for manufacturing Electrolyzer and different types of Materials required for Electrolyzer manufacturing and their key specification through Pictures, videos, product data sheet etc.	5	5	-	-
PC2. explain the major components required for Alkaline type Electrolyzer. and discuss about each component.	5	-	-	-
PC3. explain the major components required for PEM type Electrolyzer and discuss about each component.	5	-	-	-
PC4. explain the major components required for (SOEC) type Electrolyzer and discuss about each component.	5	-	-	-
PC5. prepare and Identify Bill of material for materials and components of Electrolyzer manufacturing set up and show how to identify Bill of material for materials and components of Electrolyzer manufacturing set up.	5	5	-	-
PC6. explain the major components required for (AEM) type Electrolyzer and discuss about each component	5	-	-	-
PC7. outline differences in PEM, AE, Electrolyzer Materials and components.	-	5	-	-
PC8. showcase the successful case studies of Electrolyzer technology for Green Hydrogen generation in India and overseas.	-	5	-	-
NOS Total	**30**	**20**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	SGJ/N5202
NOS Name	Identify Electrolyzer Components and Materials for manufacturing of Electrolyzer
Sector	Green Jobs
Sub-Sector	Green Hydrogen
Occupation	Supervisor
NSQF Level	5
Credits	1
Version	1.0
Last Reviewed Date	31/01/2024
Next Review Date	31/01/2027
NSQC Clearance Date	31/01/2024

SGJ/N5203: Perform Manufacturing Process of Electrolyzer in Electrolyzer manufacturing unit.

Description

This unit tells about Manufacturing Process of Electrolyzer in Electrolyzer manufacturing unit.

Scope

The scope covers the following :

- Introduce different types of materials used in manufacturing electrolyzer
- Process for Formulation of Electrolyte Solutions.
- Explain electrode fabrication techniques of Electrolyzer.
- Membrane Fabrication Techniques of Electrolyzer

Elements and Performance Criteria

Fundamental techniques and process for manufacturing electrolyzers.

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

PC1. identify and show Identify different types of materials used in manufacturing electrolyzer.

PC2. discuss and show them the electrolyzer cell components and its types through pictures and videos.

PC3. discuss the process for Formulation of Electrolyte Solutions.

PC4. discuss about the stacking techniques for electrolyzer manufacturing.

PC5. discuss about Emerging Manufacturing Technologies for Electrolyzer

PC6. explain electrode fabrication techniques of Electrolyzer

PC7. discuss Membrane Fabrication Techniques of Electrolyzer and show how to select appropriate membrane for Electrolyzer manufacturing.

PC8. discuss and show them the scaling up and automation in electrolyzer manufacturing through pictures and videos.

PC9. discuss about the progress and Challenges in Electrolyzer Manufacturing industry.

Assembling and Disassembling of Electrolyzer.

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

PC10. explain and show how to read and interpret drawings of electrolyzer manufacturing facility.

PC11. discuss the Process Integration and Assembly of Electrolyzer.

PC12. discuss step-by-step process for assembly/Installation of Electrolyzer- Bipolar plate, separator(membrane), Porous Transport layer, electrodes, etc.

PC13. explain and show different types of Machining Techniques used in Electrolyzer Manufacturing through pictures or videos.

PC14. discuss and show how to implement the procedure for Electrolyzer stack assembly.

PC15. explain the sealing methods for Electrolyzer

PC16. discuss the importance of Manifold and sealing in Electrolyzer Manufacturing.

PC17. discuss and show how to perform Cleaning and inspection of components of Electrolyzer for wear and tear.

PC18. discuss the Inspection Procedures for electrolyzer manufacturing

PC19. discuss about the progress and Challenges in Electrolyzer Manufacturing industry.

PC20. identify and showcase the key aspects of successful cases studies of Electrolyzer manufacturing plants in India and abroad.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. legislative, organizational, site requirements and related technical procedures

KU2. usage and handling procedure of related system components

KU3. tools involved in manufacturing of electrolyzer

KU4. functioning of different mechanical and electrical equipment, and required precautions to handle them

KU5. obtain relevant authorization

KU6. Correct use of notices and labels.

KU7. statutory requirements relating to electrolyzer manufacturing

Generic Skills (GS)

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

GS1. follow organisation's code of conduct

GS2. approach relevant authority when required

GS3. make timely decisions for efficient utilization of resources

GS4. complete documentation work applicable to the role

GS5. apply domain knowledge, observations and data to select course of action to perform tasks

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Fundamental techniques and process for manufacturing electrolyzers.	**30**	**20**	**-**	**-**
PC1. identify and show Identify different types of materials used in manufacturing electrolyzer.	3	5	-	-
PC2. discuss and show them the electrolyzer cell components and its types through pictures and videos.	3	5	-	-
PC3. discuss the process for Formulation of Electrolyte Solutions.	3	-	-	-
PC4. discuss about the stacking techniques for electrolyzer manufacturing.	3	-	-	-
PC5. discuss about Emerging Manufacturing Technologies for Electrolyzer	3	-	-	-
PC6. explain electrode fabrication techniques of Electrolyzer	3	-	-	-
PC7. discuss Membrane Fabrication Techniques of Electrolyzer and show how to select appropriate membrane for Electrolyzer manufacturing.	3	5	-	-
PC8. discuss and show them the scaling up and automation in electrolyzer manufacturing through pictures and videos.	4	5	-	-
PC9. discuss about the progress and Challenges in Electrolyzer Manufacturing industry.	5	-	-	-
Assembling and Disassembling of Electrolyzer.	**30**	**20**	**-**	**-**
PC10. explain and show how to read and interpret drawings of electrolyzer manufacturing facility.	2	4	-	-
PC11. discuss the Process Integration and Assembly of Electrolyzer.	4	-	-	-
PC12. discuss step-by-step process for assembly/Installation of Electrolyzer- Bipolar plate, separator(membrane), Porous Transport layer, electrodes, etc.	4	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. explain and show different types of Machining Techniques used in Electrolyzer Manufacturing through pictures or videos.	4	4	-	-
PC14. discuss and show how to implement the procedure for Electrolyzer stack assembly.	4	4	-	-
PC15. explain the sealing methods for Electrolyzer	2	-	-	-
PC16. discuss the importance of Manifold and sealing in Electrolyzer Manufacturing.	2	-	-	-
PC17. discuss and show how to perform Cleaning and inspection of components of Electrolyzer for wear and tear.	2	4	-	-
PC18. discuss the Inspection Procedures for electrolyzer manufacturing	2	-	-	-
PC19. discuss about the progress and Challenges in Electrolyzer Manufacturing industry.	2	-	-	-
PC20. identify and showcase the key aspects of successful cases studies of Electrolyzer manufacturing plants in India and abroad.	2	4	-	-
NOS Total	**60**	**40**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	SGJ/N5203
NOS Name	Perform Manufacturing Process of Electrolyzer in Electrolyzer manufacturing unit.
Sector	Green Jobs
Sub-Sector	Green Hydrogen
Occupation	Supervisor
NSQF Level	5
Credits	3
Version	1.0
Last Reviewed Date	31/01/2024
Next Review Date	31/01/2027
NSQC Clearance Date	31/01/2024

SGJ/N5205: Perform Production Planning and Resource Management in Electrolyzer manufacturing facility

Description

This unit tells about Production Planning and Resource Management in Electrolyzer manufacturing facility

Scope

The scope covers the following :

- Production planning in electrolyzer manufacturing
- Objectives of production planning, including efficiency, cost control, and quality maintenance.

Elements and Performance Criteria

Electrolyzer Production Planning and Resource Management.

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

PC1. explain and show how to do production planning in electrolyzer manufacturing

PC2. determining and show how to determine the production capacity of the facility and assess its alignment with market demand.

PC3. discuss and prepare a list of Factors affecting production capacity, including equipment, workforce, and process efficiency in Electrolyzer Manufacturing facility.

PC4. discuss about the procedure to make production schedule that outlines the timing and sequence of tasks and orders of Electrolyzer manufacturing facility and

PC5. discuss about allocation of Resources such as materials, equipment, and labor to meet production targets.

PC6. discuss about Managing resource constraints and resource allocation in electrolyzer manufacturing facility

PC7. discuss about techniques for forecasting demand for electrolyzers, considering market trends, customer orders, and projected growth.

PC8. explain inventory control methods to minimize excess stock and stockouts

PC9. explain the procedure for developing maintenance schedules and Show how to prepare procedures to make production schedule that outlines the timing and sequence of tasks and orders of Electrolyzer manufacturing facility

PC10. discuss the Importance of regular equipment maintenance and preventive measures to avoid unplanned downtime.

PC11. discuss about implementing technological advancements to improve production.

PC12. discuss about reports on production progress, resource utilization, and key performance indicators (KPIs).

PC13. discuss how to develop a culture of continuous improvement within the electrolyzer production facility.

PC14. examining successful electrolyzer production cases and best practices in the industry

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. inspection procedure for manufacturing activities in a electrolyzer manufacturing plant.
KU2. how to handle emergency failures of the machine or equipment
KU3. causes of various issues/faults in the machine or equipment and their solutions
KU4. inventory management procedures
KU5. inspection procedure for various supplies, material, spare parts etc.
KU6. organizational document and reporting SOP
KU7. relevant standards and regulations to be followed across electrolyzer manufacturing industry

Generic Skills (GS)

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

GS1. follow organisation's code of conduct
GS2. note the information communicated, observations related to the activity
GS3. read and interpret instructions, procedures, and information at the workplace
GS4. write information documents to internal departments/internal teams, operational reports, work schedules and duty rosters
GS5. complete tasks efficiently and accurately within stipulated time
GS6. approach relevant authority when required

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Electrolyzer Production Planning and Resource Management.	**35**	**15**	**-**	**-**
PC1. explain and show how to do production planning in electrolyzer manufacturing	2	5	-	-
PC2. determining and show how to determine the production capacity of the facility and assess its alignment with market demand.	2	5	-	-
PC3. discuss and prepare a list of Factors affecting production capacity, including equipment, workforce, and process efficiency in Electrolyzer Manufacturing facility.	2	5	-	-
PC4. discuss about the procedure to make production schedule that outlines the timing and sequence of tasks and orders of Electrolyzer manufacturing facility and	3	-	-	-
PC5. discuss about allocation of Resources such as materials, equipment, and labor to meet production targets.	3	-	-	-
PC6. discuss about Managing resource constraints and resource allocation in electrolyzer manufacturing facility	3	-	-	-
PC7. discuss about techniques for forecasting demand for electrolyzers, considering market trends, customer orders, and projected growth.	3	-	-	-
PC8. explain inventory control methods to minimize excess stock and stockouts	3	-	-	-
PC9. explain the procedure for developing maintenance schedules and Show how to prepare procedures to make production schedule that outlines the timing and sequence of tasks and orders of Electrolyzer manufacturing facility	3	-	-	-
PC10. discuss the Importance of regular equipment maintenance and preventive measures to avoid unplanned downtime.	3	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. discuss about implementing technological advancements to improve production.	2	-	-	-
PC12. discuss about reports on production progress, resource utilization, and key performance indicators (KPIs).	2	-	-	-
PC13. discuss how to develop a culture of continuous improvement within the electrolyzer production facility.	2	-	-	-
PC14. examining successful electrolyzer production cases and best practices in the industry	2	-	-	-
NOS Total	**35**	**15**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	SGJ/N5205
NOS Name	Perform Production Planning and Resource Management in Electrolyzer manufacturing facility
Sector	Green Jobs
Sub-Sector	Green Hydrogen
Occupation	Supervisor
NSQF Level	5
Credits	2
Version	1.0
Last Reviewed Date	31/01/2024
Next Review Date	31/01/2027
NSQC Clearance Date	31/01/2024

SGJ/N5201: Manufacturing and efficiency principles for the Electrolyzer production unit

Description

This unit tells about Manufacturing and efficiency principles for the Electrolyzer production unit

Scope

The scope covers the following :

- operating conditions of Electrolyzer
- Process of Electrolyzer unit operation
- Show how required activities are performed as per the supplier operation manual document.
- Maintenance of Electrolyzer
- Show replaces and removal of components
- Process mapping and Process optimization.
- Compliances and Regulations relevant to Electrolyzer Manufacturing facility.
- Optimize the procurement of materials and components.

Elements and Performance Criteria

Quality assurance and product testing of Electrolyzer manufacturing facility

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

PC1. discuss the document outlining the overall quality assurance strategy, including objectives, standards, and responsibilities in electrolyzer manufacturing facility and illustrate the schematic of Electrolyzer manufacturing Unit

PC2. explain the Detailed processes for inspecting, monitoring, and verifying the quality of materials, components, and assemblies at various stages of production and perform the Quality Assurance Processes in Electrolyzer Manufacturing unit.

PC3. discuss about the specifications for electrolyzer components, materials, and finished products, including tolerances and acceptance criteria

PC4. discuss about the Specific procedures and protocols for product testing, including in-process testing and final product testing and illustrate Product Testing Procedures in Electrolyzer manufacturing facility.

PC5. explain Test Requirements and Specifications for electrolyzer manufacturing facility and

PC6. explain Guidelines for the calibration and testing of equipment to ensure accurate and reliable results.

PC7. discuss the list of certifications and compliance requirements specific to electrolyzer manufacturing, such as ISO standards and industry-specific regulations.

PC8. discuss about In-process testing and final product testing of Electrolyzer.

PC9. discuss how to evaluate and manage the quality of materials and components supplied by external vendors.

PC10. showcase Future Trends in Quality Assurance and Product Testing in Electrolyzer Manufacturing facility

Electrolyzer manufacturing process optimization and Understanding Regulatory compliances.

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

PC11. discuss about the process mapping and identify areas for improvement in our manufacturing process and Prepare the list of Regulatory Requirements for Product Testing in Electrolyzer manufacturing facility.

PC12. discuss Overview of Regulatory Landscape of Electrolyzer manufacturing facility and illustrate Objectives of Process Optimization in Electrolyzer Manufacturing

PC13. discuss how to optimize the workflow in Electrolyzer manufacturing facility, and what tools or methods have been employed to streamline processes and showcase Optimization Strategies for Electrolyzer Manufacturing facility

PC14. explain steps taken to minimize excess inventory and waste in materials and components

PC15. discuss about the developing a system to track and ensure compliance with relevant regulations.

PC16. explain Compliance Requirements for Electrolyzer Manufacturing facility.

PC17. discuss how to Optimize the procurement of materials and components and prepare list of Performance Improvement Techniques in Electrolyzer manufacturing facility.

PC18. discuss and show an Overview of national and international regulatory standards and certifications relevant to electrolyzer manufacturing through pictures and videos.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. importance of effective communication and establishing good working relationships with team embers, customers, superiors and other stakeholders

KU2. organizational standards and guidelines on respecting gender and disabilities

KU3. organizational policies and procedures pertaining to written and verbal communication

KU4. escalation matrix and procedures for reporting work

KU5. importance of effective communication in the at project site

Generic Skills (GS)

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

GS1. make timely decisions for efficient utilization of resources

GS2. modify work practices to improve them

GS3. work with supervisors/team members to carry out work related tasks

GS4. complete tasks efficiently and accurately within stipulated time

GS5. read instructions/guidelines/procedures

GS6. approach relevant authority when required

GS7. analyze, review and decide on approval / rejection based on quality standards of the organization

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Quality assurance and product testing of Electrolyzer manufacturing facility	**30**	**20**	**-**	**-**
PC1. discuss the document outlining the overall quality assurance strategy, including objectives, standards, and responsibilities in electrolyzer manufacturing facility and illustrate the schematic of Electrolyzer manufacturing Unit	2	5	-	-
PC2. explain the Detailed processes for inspecting, monitoring, and verifying the quality of materials, components, and assemblies at various stages of production and perform the Quality Assurance Processes in Electrolyzer Manufacturing unit.	2	5	-	-
PC3. discuss about the specifications for electrolyzer components, materials, and finished products, including tolerances and acceptance criteria	4	-	-	-
PC4. discuss about the Specific procedures and protocols for product testing, including in-process testing and final product testing and illustrate Product Testing Procedures in Electrolyzer manufacturing facility.	3	5	-	-
PC5. explain Test Requirements and Specifications for electrolyzer manufacturing facility and	3	-	-	-
PC6. explain Guidelines for the calibration and testing of equipment to ensure accurate and reliable results.	4	-	-	-
PC7. discuss the list of certifications and compliance requirements specific to electrolyzer manufacturing, such as ISO standards and industry-specific regulations.	4	-	-	-
PC8. discuss about In-process testing and final product testing of Electrolyzer.	4	-	-	-
PC9. discuss how to evaluate and manage the quality of materials and components supplied by external vendors.	4	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. showcase Future Trends in Quality Assurance and Product Testing in Electrolyzer Manufacturing facility	-	5	-	-
Electrolyzer manufacturing process optimization and Understanding Regulatory compliances.	**30**	**20**	**-**	**-**
PC11. discuss about the process mapping and identify areas for improvement in our manufacturing process and Prepare the list of Regulatory Requirements for Product Testing in Electrolyzer manufacturing facility.	3	5	-	-
PC12. discuss Overview of Regulatory Landscape of Electrolyzer manufacturing facility and illustrate Objectives of Process Optimization in Electrolyzer Manufacturing	3	5	-	-
PC13. discuss how to optimize the workflow in Electrolyzer manufacturing facility, and what tools or methods have been employed to streamline processes and showcase Optimization Strategies for Electrolyzer Manufacturing facility	3	5	-	-
PC14. explain steps taken to minimize excess inventory and waste in materials and components	4	-	-	-
PC15. discuss about the developing a system to track and ensure compliance with relevant regulations.	5	-	-	-
PC16. explain Compliance Requirements for Electrolyzer Manufacturing facility.	4	-	-	-
PC17. discuss how to Optimize the procurement of materials and components and prepare list of Performance Improvement Techniques in Electrolyzer manufacturing facility.	3	5	-	-
PC18. discuss and show an Overview of national and international regulatory standards and certifications relevant to electrolyzer manufacturing through pictures and videos.	5	-	-	-
NOS Total	**60**	**40**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	SGJ/N5201
NOS Name	Manufacturing and efficiency principles for the Electrolyzer production unit
Sector	Green Jobs
Sub-Sector	Green Hydrogen
Occupation	Supervisor
NSQF Level	5
Credits	4
Version	1.0
Last Reviewed Date	31/01/2024
Next Review Date	31/01/2027
NSQC Clearance Date	31/01/2024

SGJ/N5204: Maintain Health and safety measures in Electrolyzer manufacturing facility.

Description

This unit tells about how to Maintain Health and safety measures in Electrolyzer manufacturing facility.

Scope

The scope covers the following :

- Requirements for safe work area at Electrolyzer in hydrogen generation project site.
- Identify the hazards associated with Electrolyzer in a hydrogen generation system and their mitigation measures

Elements and Performance Criteria

Maintain Health and safety measures in Electrolyzer manufacturing facility.

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

PC1. explain the requirements for safe work area at Electrolyzer in Manufacturing facility.

PC2. explain the importance of Occupational health & Safety standards and regulations for Basic considerations for the safety of Electrolyzer Manufacturing plant facility.

PC3. describe potential causes of emergency such as gas leaks, fire, explosion, bomb threatening, natural calamities etc.

PC4. discuss importance of different detectors and safety tools used in Electrolyzer Manufacturing facility

PC5. review the Material Safety Data Sheet and labels of chemicals contained in cylinders in order to be aware of their hazards and precautionary measures

PC6. explain and demonstrate how to administer first aid and the importance of first aid.

PC7. identify and demonstrate the usage of personal protective equipment for ensuring safety during manufacturing of Electrolyzer.

PC8. identify the hazards associated with Electrolyzer Manufacturing and demonstrate how to follow necessary and adequate safety measures including personal protective equipment and precautions to avoid any accident at electrolyzer manufacturing site.

PC9. identify work safety procedures and instructions for working at Electrolyzer Manufacturing facility

PC10. discuss Mock testing of firefighting system and demonstrate the use of fire extinguishers, fire detection and alarm system.

PC11. discuss all applicable statutory requirements along with safety regulations in terms of fire protection and show how to comply with all applicable statutory requirements along with safety regulations in terms of fire protection.

PC12. Incorporate and demonstrate good housekeeping practices and infection control guidelines.

PC13. identify and showcase best practices for implementing health and safety measures in manufacturing of Electrolyzer in India and overseas.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. organizational health and safety related practices applicable at the workplace

KU2. SOP to demonstrate safe and accepted practices for personal protection to the team, ensure compliance to emergency, rescue and first-aid procedures, organize and attend fire drills and workplace safety workshops, clean and disinfect of all material, tools and supplies

KU3. safety signs, labels and charts are displayed at appropriate places

KU4. PPE and how to use them

KU5. organizational procedures for safe handling of equipment and manufacturing operations

KU6. methods to minimize accidental risks

KU7. emergency procedures to be followed in case of a mishappening

Generic Skills (GS)

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

GS1. read statutory documents relevant to health and safety

GS2. communicate effectively with team regarding the significance of health and safety at the workplace

GS3. fill in relevant forms, formats and checklist accurately

GS4. analyze the impact of not adhering to the health and safety procedures

GS5. • analyze, review and decide on approval / rejection based on quality standards of the
• organization

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Maintain Health and safety measures in Electrolyzer manufacturing facility.	**24**	**26**	**-**	**-**
PC1. explain the requirements for safe work area at Electrolyzer in Manufacturing facility.	2	-	-	-
PC2. explain the importance of Occupational health & Safety standards and regulations for Basic considerations for the safety of Electrolyzer Manufacturing plant facility.	2	-	-	-
PC3. describe potential causes of emergency such as gas leaks, fire, explosion, bomb threatening, natural calamities etc.	2	-	-	-
PC4. discuss importance of different detectors and safety tools used in Electrolyzer Manufacturing facility	2	-	-	-
PC5. review the Material Safety Data Sheet and labels of chemicals contained in cylinders in order to be aware of their hazards and precautionary measures	2	-	-	-
PC6. explain and demonstrate how to administer first aid and the importance of first aid.	-	4	-	-
PC7. identify and demonstrate the usage of personal protective equipment for ensuring safety during manufacturing of Electrolyzer.	2	4	-	-
PC8. identify the hazards associated with Electrolyzer Manufacturing and demonstrate how to follow necessary and adequate safety measures including personal protective equipment and precautions to avoid any accident at electrolyzer manufacturing site.	2	4	-	-
PC9. identify work safety procedures and instructions for working at Electrolyzer Manufacturing facility	2	-	-	-
PC10. discuss Mock testing of firefighting system and demonstrate the use of fire extinguishers, fire detection and alarm system.	2	4	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. discuss all applicable statutory requirements along with safety regulations in terms of fire protection and show how to comply with all applicable statutory requirements along with safety regulations in terms of fire protection.	2	4	-	-
PC12. Incorporate and demonstrate good housekeeping practices and infection control guidelines.	2	4	-	-
PC13. identify and showcase best practices for implementing health and safety measures in manufacturing of Electrolyzer in India and overseas.	2	2	-	-
NOS Total	**24**	**26**	**-**	**-**

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	SGJ/N5204
NOS Name	Maintain Health and safety measures in Electrolyzer manufacturing facility.
Sector	Green Jobs
Sub-Sector	Green Hydrogen
Occupation	Supervisor
NSQF Level	5
Credits	1
Version	1.0
Last Reviewed Date	31/01/2024
Next Review Date	31/01/2027
NSQC Clearance Date	31/01/2024

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:

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.

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

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

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Introduction to Employability Skills	**1**	**1**	**-**	**-**
PC1. identify employability skills required for jobs in various industries	-	-	-	-
PC2. identify and explore learning and employability portals	-	-	-	-
Constitutional values – Citizenship	**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	-	-	-	-
Becoming a Professional in the 21st Century	**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	-	-	-	-
Basic English Skills	**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	-	-	-	-
Career Development & Goal Setting	**1**	**2**	**-**	**-**

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	-	-	-	-
Communication Skills	**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	-	-	-	-
Diversity & Inclusion	**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	-	-	-	-
Financial and Legal Literacy	**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	-	-	-	-
Essential Digital Skills	**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	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Entrepreneurship	**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	-	-	-	-
Customer Service	**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	-	-	-	-
Getting ready for apprenticeship & Jobs	**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**	**-**	**-**

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	18/11/2025
Next Review Date	18/11/2028
NSQC Clearance Date	18/11/2025

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification will be created by the Sector Skill Council/Awarding Body. Each Element/ Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC/AB 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/AB.

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 assessment, every trainee should score the Recommended Pass % aggregate for the Qualification.

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

Minimum Aggregate Passing % at QP Level : 70

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

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
SGJ/N4324.Introduction to the Electrolyzer and its types.	30	20	0	0	50	15
SGJ/N5202.Identify Electrolyzer Components and Materials for manufacturing of Electrolyzer	30	20	0	0	50	15
SGJ/N5203.Perform Manufacturing Process of Electrolyzer in Electrolyzer manufacturing unit.	60	40	0	0	100	15
SGJ/N5205.Perform Production Planning and Resource Management in Electrolyzer manufacturing facility	35	15	0	0	50	15
SGJ/N5201.Manufacturing and efficiency principles for the Electrolyzer production unit	60	40	0	0	100	15
SGJ/N5204.Maintain Health and safety measures in Electrolyzer manufacturing facility.	24	26	0	0	50	15
DGT/VSQ/N0102.Employability Skills (60 Hours)	20	30	-	-	50	10
Total	**259**	**191**	**-**	**-**	**450**	**100**

Acronyms

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

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.

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.