Qualification Pack



MEP Executive

Mechanical Systems

QP Code: ICE/CON/Q1501 Instantiated QP Code: ICE/CON/Q1501-SI001

Version: 1.0

NSQF Level: 3

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ICE/CON/Q1501-SI001: MEP Executive

Brief Job Description

The MEP Executive provides essential support in the installation, maintenance and repair of Mechanical, Electrical and Plumbing (MEP) systems. This role involves assisting MEP technicians and engineers with various tasks, including reading blueprints, handling tools, performing basic installations and troubleshooting minor issues in line with sector-specific standards. The individual collaborates with other teams on-site or within facilities to ensure MEP systems operate efficiently, safely and in compliance with industry codes and standards.

Personal Attributes

The individual should be physically fit and mentally alert. The person should have problem-solving, coordination and appropriate verbal and written communication skills.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. ICE/CON/N1523: Identify Tools, Equipment and Materials Relevant to MEP Work at a Construction Site
2. ICE/CON/N1524: Read and interpret MEP system Drawings and Specifications
3. ICE/CON/N9901: Implement Safe Work Practices and Environmental Stewardship at Construction Sites
4. DGT/VSQ/N0101: Employability Skills (30 Hours)

Electives*(mandatory to select at least one):*

Elective : Mechanical Systems

1. ICE/CON/N1517: Assist in Installation of Mechanical Systems and HVAC Ducts
2. ICE/CON/N1518: Assist in Repair, Maintenance and Testing of Mechanical Systems

Qualification Pack (QP) Parameters

Sector	Construction

Qualification Pack

Sub-Sector	Real Estate and Infrastructure Construction
Occupation	MEP (Mechanical, Electrical and Plumbing)
Country	India
NSQF Level	3
Credits	10
Aligned to NCO/ISCO/ISIC Code	NCO-2015/ 7412.0202, NCO-2015/7412.0200, NCO-2015/ 7411.0100, NCO-2015/ 7126.0103, NCO-2015/ 7126.0107
Minimum Educational Qualification & Experience	10th grade pass OR 8th grade pass with 2 Years of experience Relevant Industry OR 5th grade pass with 5 Years of experience Relevant Industry OR Previous relevant Qualification of NSQF Level 2 with 1 Year of experience Relevant Industry OR Previous relevant Qualification of NSQF Level 2.5 with 6 Months of experience Relevant Industry
Minimum Level of Education for Training in School	Not Applicable
Pre-Requisite License or Training	Not Applicable
Minimum Job Entry Age	18 Years
Last Reviewed On	07/10/2025
Next Review Date	07/10/2028
NSQC Approval Date	07/10/2025
Version	1.0
Reference code on NQR	NCVET-QG-03-CO-046422025-V1-ICES
NQR Version	1.0

Remarks:

The Min. Job Entry Age for this Job Role will be as per Government Norms

Qualification Pack

ICE/CON/N1523: Identify Tools, Equipment and Materials Relevant to MEP Work at a Construction Site

Description

This NOS defines the skills and knowledge required to identify, verify and handle tools, equipment and materials used in Mechanical, Electrical and Plumbing (MEP) work at construction sites, ensuring readiness for installation, operation and safe usage under supervision.

Scope

The scope covers the following :

- Identify Tools and Equipment for MEP Task
- Identify Materials Used in MEP Works
- Follow Safety and Storage Procedures for MEP Tools & Materials

Elements and Performance Criteria

Identify Tools and Equipment for MEP Tasks

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

PC1. identify commonly used hand tools for mechanical works such as spanners, pliers, pipe wrenches, threading tools and cutters.

PC2. identify electrical tools including testers, multimeters, screwdrivers, crimping tools, cable cutters, and insulation tools.

PC3. identify plumbing tools such as pipe wrenches, PVC/CPVC cutters, threaders, pipe benders, and jointing equipment.

PC4. identify power tools relevant to MEP works, including drills, grinders, hydraulic benders, and cable pulling machines.

PC5. identify lifting and shifting equipment used for MEP material handling such as chain blocks, trolleys, pulleys and scaffolds.

PC6. verify the suitability of tools and equipment as per the assigned task and work method statements.

PC7. check tools and equipment for damage, defects or missing components before use.

PC8. ensure that tools and equipment are calibrated, labelled and maintained as per manufacturer’s guidelines.

Identify Materials Used in MEP Works

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

PC9. identify commonly used mechanical materials such as ducts, GI sheets, insulation material, fasteners and hangers.

PC10. identify electrical materials including cables, conduits, DBS, switches, sockets, MCCB, and earthing components.

PC11. identify plumbing materials such as pipes (PVC, CPVC, PPR, GI, HDPE), fittings, valves, sealants, and tapes.

PC12. understand the size, type and specification of MEP materials as per drawings and BOQs.

PC13. differentiate between approved materials and rejected/damaged materials.

PC14. follow colour coding, rating and identification markings on electrical and mechanical materials.

Element 3: Follow Safety and Storage Procedures for MEP Tools & Materials

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

PC15. follow safe storage practices for electrical, mechanical and plumbing materials to avoid damage.

PC16. store tools and equipment in designated areas as per site protocols.

PC17. use PPE such as gloves, goggles, helmet, reflective jacket and safety shoes while handling MEP materials.

PC18. follow correct lifting techniques and manual handling procedures.

PC19. report any unsafe conditions, damaged tools, or missing materials to the supervisor.

PC20. ensure compliance with site EHS guidelines while identifying or retrieving tools/materials.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. company policies for tools and material handling.

KU2. standard operating procedures and work method statements for MEP tasks.

KU3. storage guidelines for MEP tools and materials.

KU4. safety protocols and EHS policies at construction sites.

KU5. types of wrenches, spanners, pliers, bolt cutters, threading tools and measurement tools.

KU6. power tools such as drills, grinders, benders and cutting machines.

KU7. use and interpretation of multimeters, testers, crimping tools, soldering guns, etc.

KU8. identification of electrical materials: wires, cables, conduits, DBs, MCBs, earthing strips.

KU9. types of pipe cutters, threaders, PPR welding machines and jointing tools.

KU10. KU10. materials such as pipes, fittings, valves, clamps, sealants and tapes.

KU11. colour codes, ratings, gauge and specification readings.

KU12. lifting and shifting tools such as trolleys, scaffolds, chain pulleys and hoists.

KU13. basic reading of site drawings to identify material specifications.

KU14. manufacturer guidelines for tool usage and maintenance.

Generic Skills (GS)

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

GS1. ability to communicate material and tool requirements to supervisors.

GS2. ability to read basic labels, markings and safety notices.

GS3. ability to understand sizes, dimensions, gauges and ratings.

GS4. ability to compare specifications against drawings/BOQs.

GS5. respond to damaged tools/material issues.

GS6. identify mismatches in tools/material specifications.
GS7. ability to work safely under minimal supervision.
GS8. follow proper PPE and handling guidelines.

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Identify Tools and Equipment for MEP Tasks	**10**	**20**	**-**	**3**
PC1. identify commonly used hand tools for mechanical works such as spanners, pliers, pipe wrenches, threading tools and cutters.	-	-	-	-
PC2. identify electrical tools including testers, multimeters, screwdrivers, crimping tools, cable cutters, and insulation tools.	-	-	-	-
PC3. identify plumbing tools such as pipe wrenches, PVC/CPVC cutters, threaders, pipe benders, and jointing equipment.	-	-	-	-
PC4. identify power tools relevant to MEP works, including drills, grinders, hydraulic benders, and cable pulling machines.	-	-	-	-
PC5. identify lifting and shifting equipment used for MEP material handling such as chain blocks, trolleys, pulleys and scaffolds.	-	-	-	-
PC6. verify the suitability of tools and equipment as per the assigned task and work method statements.	-	-	-	-
PC7. check tools and equipment for damage, defects or missing components before use.	-	-	-	-
PC8. ensure that tools and equipment are calibrated, labelled and maintained as per manufacturer’s guidelines.	-	-	-	-
Identify Materials Used in MEP Works	**10**	**20**	**-**	**4**
PC9. identify commonly used mechanical materials such as ducts, GI sheets, insulation material, fasteners and hangers.	-	-	-	-
PC10. identify electrical materials including cables, conduits, DBS, switches, sockets, MCCB, and earthing components.	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. identify plumbing materials such as pipes (PVC, CPVC, PPR, GI, HDPE), fittings, valves, sealants, and tapes.	-	-	-	-
PC12. understand the size, type and specification of MEP materials as per drawings and BOQs.	-	-	-	-
PC13. differentiate between approved materials and rejected/damaged materials.	-	-	-	-
PC14. follow colour coding, rating and identification markings on electrical and mechanical materials.	-	-	-	-
Element 3: Follow Safety and Storage Procedures for MEP Tools & Materials	**10**	**20**	**-**	**3**
PC15. follow safe storage practices for electrical, mechanical and plumbing materials to avoid damage.	-	-	-	-
PC16. store tools and equipment in designated areas as per site protocols.	-	-	-	-
PC17. use PPE such as gloves, goggles, helmet, reflective jacket and safety shoes while handling MEP materials.	-	-	-	-
PC18. follow correct lifting techniques and manual handling procedures.	-	-	-	-
PC19. report any unsafe conditions, damaged tools, or missing materials to the supervisor.	-	-	-	-
PC20. ensure compliance with site EHS guidelines while identifying or retrieving tools/materials.	-	-	-	-
NOS Total	**30**	**60**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	ICE/CON/N1523
NOS Name	Identify Tools, Equipment and Materials Relevant to MEP Work at a Construction Site
Sector	Construction
Sub-Sector	
Occupation	MEP (Mechanical, Electrical and Plumbing)
NSQF Level	3
Credits	1
Version	1.0
Last Reviewed Date	07/10/2025
Next Review Date	07/10/2028
NSQC Clearance Date	07/10/2025

Qualification Pack

ICE/CON/N1524: Read and interpret MEP system Drawings and Specifications

Description

This NOS covers the ability to read, interpret and apply mechanical, electrical and plumbing (MEP) system drawings, layouts, schematics, legends and technical specifications for installation and site execution work. The job requires strong understanding of MEP symbols, technical standards and interpretation of BOQs, shop drawings, GFC (Good for Construction) drawings and other relevant documentation.

Scope

The scope covers the following :

- Interpret Mechanical (HVAC & Fire-Fighting) Drawings
- Interpret Electrical Drawings & Specifications
- Interpret Plumbing & Public Health Engineering Drawings
- Refer to BOQs, Specifications & Standards
- Apply Drawing Interpretation in Site Execution

Elements and Performance Criteria

Interpret Mechanical (HVAC & Fire-Fighting) Drawings

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

PC1. identify symbols, line types and notations used in HVAC, fire-fighting and mechanical drawings.

PC2. interpret duct routing, pipe routing, equipment layout and mounting locations.

PC3. read duct sizes, pipe diameters, insulation details and damper/joint specifications.

PC4. interpret mechanical schedules such as airflows, pump heads, equipment capacities and material specifications.

PC5. interpret coordination drawings including MEP clearance zones and ceiling space planning.

PC6. verify drawing information such as elevations, section IDs and reference levels.

Interpret Electrical Drawings & Specifications

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

PC7. identify symbols for electrical equipment, lighting, wiring, switches, control systems and earthing.

PC8. interpret cable routing, conduit layouts, DB (Distribution Board) schedules and panel diagrams.

PC9. read cable sizes, circuit ratings, breaker capacities and load details.

PC10. interpret SLD (Single Line Diagram) and schematics for power distribution.

PC11. understand electrical layouts such as lighting, power socket, low voltage, CCTV and fire alarm systems.

PC12. verify technical compliance with electrical specifications and codes.

Interpret Plumbing & Public Health Engineering Drawings

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

PC13. identify plumbing symbols for water supply, drainage, stormwater and sanitary systems.

PC14. interpret pipe routing, pipe sizes, slope, invert levels and fixture locations.

PC15. read valve charts, pump schedules, manhole details and plumbing equipment layouts.

PC16. understand water tank details, pump room layouts, STP/ETP system drawings and pipe connections.

Refer to BOQs, Specifications & Standards

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

PC17. interpret BOQ items, material specifications and measurement units.

PC18. verify drawing details with project technical specifications.

PC19. refer to IS/NBC standards where required.

PC20. report discrepancies between drawings and site conditions.

Apply Drawing Interpretation in Site Execution

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

PC21. mark reference points and routing based on drawing interpretation.

PC22. assist in setting out MEP installations as per drawing levels and elevations.

PC23. verify that installed equipment, ducts, cables, conduits and pipes match drawing specifications.

PC24. maintain updated drawing revisions and follow GFC drawings.

PC25. communicate drawing-related issues to supervisors and engineers.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. company policies for document control and drawing management.

KU2. procedures for obtaining latest revisions of drawings.

KU3. work method statements related to MEP installation.

KU4. roles and responsibility of design, QA/QC and site teams.

KU5. HVAC ducting symbols, pipe symbols, diffuser/grille nomenclature.

KU6. firefighting system symbols for sprinklers, hydrants, hose reels, pumps etc.

KU7. duct/pipe sizing concepts, insulation thickness, supports and hangers.

KU8. mechanical equipment: AHUs, FCUs, VRF, pumps, compressors, cooling towers.

KU9. electrical symbols, cable codes, panel diagrams.

KU10. SLD, schematic diagrams, distribution board layouts.

KU11. understanding of lux levels, load distribution and earthing systems.

KU12. PHE system symbols, pipe materials (CPVC, PPR, GI, HDPE).

KU13. drainage slope terminology, invert levels, venting systems.

KU14. pump room and STP/ETP equipment details.

KU15. interpretation of scales, levels, elevations and cross sections.

KU16. reading GFC and As-Built drawings.

KU17. understanding of reference grids and datum levels.

Generic Skills (GS)

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

GS1. ability to communicate material and tool requirements to supervisors.
GS2. ability to read basic labels, markings and safety notices.
GS3. ability to understand sizes, dimensions, gauges and ratings.
GS4. ability to compare specifications against drawings/BOQs.
GS5. respond to damaged tools/material issues.
GS6. identify mismatches in tools/material specifications.
GS7. ability to work safely under minimal supervision.
GS8. follow proper PPE and Handling guidelines

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Interpret Mechanical (HVAC & Fire-Fighting) Drawings	**6**	**12**	**-**	**2**
PC1. identify symbols, line types and notations used in HVAC, fire-fighting and mechanical drawings.	-	-	-	-
PC2. interpret duct routing, pipe routing, equipment layout and mounting locations.	-	-	-	-
PC3. read duct sizes, pipe diameters, insulation details and damper/joint specifications.	-	-	-	-
PC4. interpret mechanical schedules such as airflows, pump heads, equipment capacities and material specifications.	-	-	-	-
PC5. interpret coordination drawings including MEP clearance zones and ceiling space planning.	-	-	-	-
PC6. verify drawing information such as elevations, section IDs and reference levels.	-	-	-	-
Interpret Electrical Drawings & Specifications	**6**	**12**	**-**	**2**
PC7. identify symbols for electrical equipment, lighting, wiring, switches, control systems and earthing.	-	-	-	-
PC8. interpret cable routing, conduit layouts, DB (Distribution Board) schedules and panel diagrams.	-	-	-	-
PC9. read cable sizes, circuit ratings, breaker capacities and load details.	-	-	-	-
PC10. interpret SLD (Single Line Diagram) and schematics for power distribution.	-	-	-	-
PC11. understand electrical layouts such as lighting, power socket, low voltage, CCTV and fire alarm systems.	-	-	-	-
PC12. verify technical compliance with electrical specifications and codes.	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Interpret Plumbing & Public Health Engineering Drawings	**6**	**12**	**-**	**2**
PC13. identify plumbing symbols for water supply, drainage, stormwater and sanitary systems.	-	-	-	-
PC14. interpret pipe routing, pipe sizes, slope, invert levels and fixture locations.	-	-	-	-
PC15. read valve charts, pump schedules, manhole details and plumbing equipment layouts.	-	-	-	-
PC16. understand water tank details, pump room layouts, STP/ETP system drawings and pipe connections.	-	-	-	-
Refer to BOQs, Specifications & Standards	**6**	**12**	**-**	**2**
PC17. interpret BOQ items, material specifications and measurement units.	-	-	-	-
PC18. verify drawing details with project technical specifications.	-	-	-	-
PC19. refer to IS/NBC standards where required.	-	-	-	-
PC20. report discrepancies between drawings and site conditions.	-	-	-	-
Apply Drawing Interpretation in Site Execution	**6**	**12**	**-**	**2**
PC21. mark reference points and routing based on drawing interpretation.	-	-	-	-
PC22. assist in setting out MEP installations as per drawing levels and elevations.	-	-	-	-
PC23. verify that installed equipment, ducts, cables, conduits and pipes match drawing specifications.	-	-	-	-
PC24. maintain updated drawing revisions and follow GFC drawings.	-	-	-	-
PC25. communicate drawing-related issues to supervisors and engineers.	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
NOS Total	**30**	**60**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	ICE/CON/N1524
NOS Name	Read and interpret MEP system Drawings and Specifications
Sector	Construction
Sub-Sector	
Occupation	MEP (Mechanical, Electrical and Plumbing)
NSQF Level	3
Credits	1
Version	1.0
Last Reviewed Date	07/10/2025
Next Review Date	07/10/2028
NSQC Clearance Date	07/10/2025

Qualification Pack

ICE/CON/N9901: Implement Safe Work Practices and Environmental Stewardship at Construction Sites

Description

This NOS focuses on enabling construction workers and supervisors to actively adopt safe work practices, promote environmental stewardship and ensure a hazard-free workplace through proactive risk management, sustainable resource usage and timely emergency response.

Scope

The scope covers the following :

- Conduct workplace safety inspections
- Apply safe operational practices
- Promote health, hygiene, and well-being
- Implement sustainability and environmental conservation measures
- Respond effectively to onsite emergencies

Elements and Performance Criteria

Conduct Workplace Safety Inspections

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

PC1. identify unsafe conditions such as improper scaffolding, poor lighting, open edges or obstructed pathways

PC2. assess task-specific risks involving tools, machinery, and hazardous materials

PC3. document safety observations and communicate them to the safety lead or supervisor

PC4. verify that safety controls such as guard rails, signages and access controls are in place

Apply Safe Operational Practices

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

PC5. use appropriate PPE and ensure correct fit before beginning any activity

PC6. follow safe operation procedures for cutting, lifting, mixing and power tools

PC7. implement ergonomic practices to reduce fatigue and prevent musculoskeletal injuries

PC8. maintain housekeeping standards by ensuring clean and clutter-free work areas

Promote Health, Hygiene and Well-Being

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

PC9. follow personal hygiene practices such as handwashing, clean clothing and proper hydration

PC10. identify signs of health issues such as heat stress, dehydration and respiratory discomfort

PC11. ensure availability and safe usage of sanitation facilities, drinking water and resting zones

PC12. report workplace illnesses or physical discomfort to the assigned authority

Implement Sustainability and Environmental Conservation Measures

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

PC13. follow procedures for safe storage and controlled use of chemicals, fuels and hazardous substances

PC14. practice material conservation by preventing spillage, wastage and improper handling
PC15. undertake waste segregation for recyclable, non-recyclable and hazardous waste
PC16. support measures for dust suppression, noise control and energy/water conservation

Respond Effectively to Onsite Emergencies

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

PC17. identify emergency alarms, muster points and evacuation routes
PC18. use basic firefighting equipment such as extinguishers, fire blankets and sand buckets where appropriate
PC19. assist in basic first-aid procedures including bleeding control, CPR and heat-stroke management
PC20. support emergency communication protocols and follow command instructions

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. workplace safety policies, EHS manuals and site-specific procedures
KU2. roles of safety personnel, supervisors and emergency response teams
KU3. documentation formats for safety reporting and compliance
KU4. internal escalation protocols for hazardous conditions or incidents
KU5. legal obligations related to occupational safety and environmental protection
KU6. types of workplace hazards chemical, physical, electrical, ergonomic and environmental
KU7. safe handling techniques for construction materials, tools and machinery
KU8. principles of PPE selection, inspection and maintenance
KU9. basics of first aid, CPR and firefighting methods
KU10. environmental management practices including waste reduction and pollution control
KU11. measures for heat-stress prevention, hydration management and fatigue control
KU12. ergonomics and safe manual handling techniques

Generic Skills (GS)

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

GS1. read and interpret safety signage, manuals and instructions
GS2. communicate safety findings and concerns clearly to team members
GS3. maintain basic documentation and reports for safety audits
GS4. use problem-solving skills to manage minor hazards or disruptions
GS5. collaborate effectively during drills, emergency situations and environmental initiatives
GS6. demonstrate awareness and discipline in following safe work practices consistently

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Conduct Workplace Safety Inspections	**6**	**12**	**-**	**2**
PC1. identify unsafe conditions such as improper scaffolding, poor lighting, open edges or obstructed pathways	-	-	-	-
PC2. assess task-specific risks involving tools, machinery, and hazardous materials	-	-	-	-
PC3. document safety observations and communicate them to the safety lead or supervisor	-	-	-	-
PC4. verify that safety controls such as guard rails, signages and access controls are in place	-	-	-	-
Apply Safe Operational Practices	**6**	**12**	**-**	**2**
PC5. use appropriate PPE and ensure correct fit before beginning any activity	-	-	-	-
PC6. follow safe operation procedures for cutting, lifting, mixing and power tools	-	-	-	-
PC7. implement ergonomic practices to reduce fatigue and prevent musculoskeletal injuries	-	-	-	-
PC8. maintain housekeeping standards by ensuring clean and clutter-free work areas	-	-	-	-
Promote Health, Hygiene and Well-Being	**6**	**12**	**-**	**2**
PC9. follow personal hygiene practices such as handwashing, clean clothing and proper hydration	-	-	-	-
PC10. identify signs of health issues such as heat stress, dehydration and respiratory discomfort	-	-	-	-
PC11. ensure availability and safe usage of sanitation facilities, drinking water and resting zones	-	-	-	-
PC12. report workplace illnesses or physical discomfort to the assigned authority	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Implement Sustainability and Environmental Conservation Measures	**6**	**12**	**-**	**2**
PC13. follow procedures for safe storage and controlled use of chemicals, fuels and hazardous substances	-	-	-	-
PC14. practice material conservation by preventing spillage, wastage and improper handling	-	-	-	-
PC15. undertake waste segregation for recyclable, non-recyclable and hazardous waste	-	-	-	-
PC16. support measures for dust suppression, noise control and energy/water conservation	-	-	-	-
Respond Effectively to Onsite Emergencies	**6**	**12**	**-**	**2**
PC17. identify emergency alarms, muster points and evacuation routes	-	-	-	-
PC18. use basic firefighting equipment such as extinguishers, fire blankets and sand buckets where appropriate	-	-	-	-
PC19. assist in basic first-aid procedures including bleeding control, CPR and heat-stroke management	-	-	-	-
PC20. support emergency communication protocols and follow command instructions	-	-	-	-
NOS Total	**30**	**60**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	ICE/CON/N9901
NOS Name	Implement Safe Work Practices and Environmental Stewardship at Construction Sites
Sector	Construction
Sub-Sector	
Occupation	Generic
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	07/10/2025
Next Review Date	07/10/2028
NSQC Clearance Date	07/10/2025

DGT/VSQ/N0101: Employability Skills (30 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
- 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. understand the significance of employability skills in meeting the job requirements

Constitutional values – Citizenship

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

PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices

Becoming a Professional in the 21st Century

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

PC3. explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.

Basic English Skills

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

PC4. speak with others using some basic English phrases or sentences

Communication Skills

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

PC5. follow good manners while communicating with others

PC6. work with others in a team

Diversity & Inclusion

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

PC7. communicate and behave appropriately with all genders and PwD

PC8. report any issues related to sexual harassment

Financial and Legal Literacy

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

PC9. use various financial products and services safely and securely

PC10. calculate income, expenses, savings etc.

PC11. approach the concerned authorities for any exploitation as per legal rights and laws

Essential Digital Skills

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

PC12. operate digital devices and use its features and applications securely and safely

PC13. use internet and social media platforms securely and safely

Entrepreneurship

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

PC14. identify and assess opportunities for potential business

PC15. identify sources for arranging money and associated financial and legal challenges

Customer Service

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

PC16. identify different types of customers

PC17. identify customer needs and address them appropriately

PC18. follow appropriate hygiene and grooming standards

Getting ready for apprenticeship & Jobs

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

PC19. create a basic biodata

PC20. search for suitable jobs and apply

PC21. identify and register apprenticeship opportunities as per requirement

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. need for employability skills

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 basic spoken English language

KU6. Do and dont of effective communication

KU7. inclusivity and its importance

KU8. different types of disabilities and appropriate communication and behaviour towards PwD

KU9. different types of financial products and services

KU10. how to compute income and expenses
KU11. importance of maintaining safety and security in financial transactions
KU12. different legal rights and laws
KU13. how to operate digital devices and applications safely and securely
KU14. ways to identify business opportunities
KU15. types of customers and their needs
KU16. how to apply for a job and prepare for an interview
KU17. apprenticeship scheme and the process of registering on apprenticeship portal

Generic Skills (GS)

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

GS1. communicate effectively using appropriate language
GS2. behave politely and appropriately with all
GS3. perform basic calculations
GS4. solve problems effectively
GS5. be careful and attentive at work
GS6. use time effectively
GS7. maintain hygiene and sanitisation to avoid infection

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Introduction to Employability Skills	**1**	**1**	**-**	**-**
PC1. understand the significance of employability skills in meeting the job requirements	-	-	-	-
Constitutional values – Citizenship	**1**	**1**	**-**	**-**
PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices	-	-	-	-
Becoming a Professional in the 21st Century	**1**	**3**	**-**	**-**
PC3. explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.	-	-	-	-
Basic English Skills	**2**	**3**	**-**	**-**
PC4. speak with others using some basic English phrases or sentences	-	-	-	-
Communication Skills	**1**	**1**	**-**	**-**
PC5. follow good manners while communicating with others	-	-	-	-
PC6. work with others in a team	-	-	-	-
Diversity & Inclusion	**1**	**1**	**-**	**-**
PC7. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC8. report any issues related to sexual harassment	-	-	-	-
Financial and Legal Literacy	**3**	**4**	**-**	**-**
PC9. use various financial products and services safely and securely	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. calculate income, expenses, savings etc.	-	-	-	-
PC11. approach the concerned authorities for any exploitation as per legal rights and laws	-	-	-	-
Essential Digital Skills	**4**	**6**	**-**	**-**
PC12. operate digital devices and use its features and applications securely and safely	-	-	-	-
PC13. use internet and social media platforms securely and safely	-	-	-	-
Entrepreneurship	**3**	**5**	**-**	**-**
PC14. identify and assess opportunities for potential business	-	-	-	-
PC15. identify sources for arranging money and associated financial and legal challenges	-	-	-	-
Customer Service	**2**	**2**	**-**	**-**
PC16. identify different types of customers	-	-	-	-
PC17. identify customer needs and address them appropriately	-	-	-	-
PC18. follow appropriate hygiene and grooming standards	-	-	-	-
Getting ready for apprenticeship & Jobs	**1**	**3**	**-**	**-**
PC19. create a basic biodata	-	-	-	-
PC20. search for suitable jobs and apply	-	-	-	-
PC21. identify and register apprenticeship opportunities as per requirement	-	-	-	-
NOS Total	**20**	**30**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	DGT/VSQ/N0101
NOS Name	Employability Skills (30 Hours)
Sector	Cross Sectoral
Sub-Sector	Professional Skills
Occupation	Employability
NSQF Level	2
Credits	1
Version	1.0
Last Reviewed Date	22/07/2026
Next Review Date	22/07/2029
NSQC Clearance Date	22/07/2026

ICE/CON/N1517: Assist in Installation of Mechanical Systems and HVAC Ducts

Description

This unit specifies the competencies required to assist in installing mechanical systems such as HVAC units, ducts, pumps, and motors. It focuses on laying out, aligning, and securing mechanical components under supervision.

Scope

The scope covers the following :

- Assist in installing mechanical systems
- Assist with HVAC duct and ventilation installations

Elements and Performance Criteria

Assist in installation of mechanical systems

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

PC1. identify and arrange required tools, equipment and materials at the construction site

PC2. assist in assembling HVAC units as per design specifications

PC3. support the alignment and installation of HVAC units, ensuring they are level and securely mounted

PC4. lay out pipework and duct connections as per supervisor’s instructions

PC5. handle basic fittings such as fasteners, brackets and connectors

PC6. carry out proper sealing of joints and insulation

PC7. follow manufacturer guidelines and supervisor’s instructions during the installation

PC8. report any discrepancies or missing components to the supervisor

Assist in installation of HVAC duct and ventilation systems

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

PC9. measure and mark locations for duct installations based on blueprints or layouts

PC10. assist in cutting and assembling duct sections using the relevant tools like snips and crimpers

PC11. secure ducts to ceilings or walls using hangers or brackets

PC12. ensure proper alignment and sealing of duct connections

PC13. apply insulation to ducts where required to minimize energy loss

PC14. check for obstructions in the airflow and report findings to the supervisor

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. basics of mechanical systems and components

KU2. tools and equipment used in mechanical system installations
KU3. terminologies related to HVAC and ducts
KU4. standard safety practices for handling mechanical systems
KU5. importance of sealing and insulating HVAC ducts
KU6. duct layouts and connection methods
KU7. process of marking and measuring for installations
KU8. methods for the disposal of waste materials generated during installations

Generic Skills (GS)

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

GS1. communicate effectively with team members and supervisors
GS2. read and interpret technical documents and blueprints
GS3. maintain accurate documentation of installation tasks
GS4. solve minor issues related to alignment or fittings
GS5. manage time effectively to complete tasks efficiently
GS6. follow workplace safety protocols consistently

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Assist in installation of mechanical systems	**15**	**30**	**-**	**5**
PC1. identify and arrange required tools, equipment and materials at the construction site	-	-	-	-
PC2. assist in assembling HVAC units as per design specifications	-	-	-	-
PC3. support the alignment and installation of HVAC units, ensuring they are level and securely mounted	-	-	-	-
PC4. lay out pipework and duct connections as per supervisor's instructions	-	-	-	-
PC5. handle basic fittings such as fasteners, brackets and connectors	-	-	-	-
PC6. carry out proper sealing of joints and insulation	-	-	-	-
PC7. follow manufacturer guidelines and supervisor's instructions during the installation	-	-	-	-
PC8. report any discrepancies or missing components to the supervisor	-	-	-	-
Assist in installation of HVAC duct and ventilation systems	**15**	**30**	**-**	**5**
PC9. measure and mark locations for duct installations based on blueprints or layouts	-	-	-	-
PC10. assist in cutting and assembling duct sections using the relevant tools like snips and crimpers	-	-	-	-
PC11. secure ducts to ceilings or walls using hangers or brackets	-	-	-	-
PC12. ensure proper alignment and sealing of duct connections	-	-	-	-
PC13. apply insulation to ducts where required to minimize energy loss	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. check for obstructions in the airflow and report findings to the supervisor	-	-	-	-
NOS Total	**30**	**60**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	ICE/CON/N1517
NOS Name	Assist in Installation of Mechanical Systems and HVAC Ducts
Sector	Construction
Sub-Sector	
Occupation	MEP (Mechanical, Electrical and Plumbing)
NSQF Level	3
Credits	3
Version	1.0
Last Reviewed Date	07/10/2025
Next Review Date	07/10/2028
NSQC Clearance Date	07/10/2025

ICE/CON/N1518: Assist in Repair, Maintenance and Testing of Mechanical Systems

Description

This unit specifies the competencies required to conduct basic repair and maintenance of mechanical systems and assist with system start-up and shutdown processes under supervision.

Scope

The scope covers the following :

- Conduct basic mechanical maintenance
- Assist in in installing pump and motor
- Assist in mechanical system start-up and shutdown

Elements and Performance Criteria

Conduct basic mechanical maintenance

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

PC1. perform visual inspections of mechanical systems for leaks, damage, or wear

PC2. clean components such as filters, grilles, and duct surfaces

PC3. replace basic components such as air filters, belts, and fasteners as instructed

PC4. carry out lubrication of mechanical parts as per operational needs

PC5. report unusual noises or system irregularities to the supervisor

PC6. assist in maintaining the logs of maintenance activities

Assist in repair and maintenance of pump and motor

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

PC7. identify the construction site and prepare it for repair and maintenance

PC8. assist in the positioning and alignment of pumps and motors using appropriate tools

PC9. secure pumps and motors to their foundations or mounts

PC10. connect basic electrical or mechanical couplings as instructed

PC11. check for leaks or misalignments after installation and report them to the technician

Assist in mechanical system start-up and shutdown

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

PC12. assist in verifying system connections before start-up

PC13. follow the applicable safety protocols during the start-up process

PC14. record system parameters such as pressure, temperature and flow rates

PC15. report anomalies such as irregular noise, vibration or system errors

PC16. assist in shutdown procedures by following step-by-step instructions

PC17. clean and store tools and materials after tasks

PC18. assist in preparing handover documentation or reports

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. basics of mechanical systems maintenance
KU2. components of pumps and motors (e.g., impellers, bearings)
KU3. methods of alignment and mounting pumps and motors
KU4. importance of lubrication and cleaning in maintenance
KU5. standard procedures for system start-up and shutdown
KU6. parameters to monitor during system operations (e.g. pressure, flow)
KU7. techniques for identifying system anomalies like noise or vibration
KU8. safety measures for handling pumps, motors, and other mechanical components

Generic Skills (GS)

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

GS1. communicate effectively to report maintenance issues and anomalies
GS2. maintain clear and accurate maintenance logs
GS3. coordinate with technicians to ensure task efficiency
GS4. identify and address minor problems during maintenance
GS5. adhere to safety guidelines during start-up and shutdown processes

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Conduct basic mechanical maintenance	**10**	**20**	**-**	**3**
PC1. perform visual inspections of mechanical systems for leaks, damage, or wear	-	-	-	-
PC2. clean components such as filters, grilles, and duct surfaces	-	-	-	-
PC3. replace basic components such as air filters, belts, and fasteners as instructed	-	-	-	-
PC4. carry out lubrication of mechanical parts as per operational needs	-	-	-	-
PC5. report unusual noises or system irregularities to the supervisor	-	-	-	-
PC6. assist in maintaining the logs of maintenance activities	-	-	-	-
Assist in repair and maintenance of pump and motor	**10**	**20**	**-**	**4**
PC7. identify the construction site and prepare it for repair and maintenance	-	-	-	-
PC8. assist in the positioning and alignment of pumps and motors using appropriate tools	-	-	-	-
PC9. secure pumps and motors to their foundations or mounts	-	-	-	-
PC10. connect basic electrical or mechanical couplings as instructed	-	-	-	-
PC11. check for leaks or misalignments after installation and report them to the technician	-	-	-	-
Assist in mechanical system start-up and shutdown	**10**	**20**	**-**	**3**
PC12. assist in verifying system connections before start-up	-	-	-	-
PC13. follow the applicable safety protocols during the start-up process	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. record system parameters such as pressure, temperature and flow rates	-	-	-	-
PC15. report anomalies such as irregular noise, vibration or system errors	-	-	-	-
PC16. assist in shutdown procedures by following step-by-step instructions	-	-	-	-
PC17. clean and store tools and materials after tasks	-	-	-	-
PC18. assist in preparing handover documentation or reports	-	-	-	-
NOS Total	**30**	**60**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	ICE/CON/N1518
NOS Name	Assist in Repair, Maintenance and Testing of Mechanical Systems
Sector	Construction
Sub-Sector	
Occupation	MEP (Mechanical, Electrical and Plumbing)
NSQF Level	3
Credits	3
Version	1.0
Last Reviewed Date	07/10/2025
Next Review Date	07/10/2028
NSQC Clearance Date	07/10/2025

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Awarding Body. Each Performance Criteria (PC)/ Element will be assigned marks proportional to its importance in NOS. AB will also lay down proportion of marks for Theory and Practical Skills for each PC/ Element.

2. The assessment of the knowledge part will be based on knowledge bank of questions created by Assessment Bodies subject to approval by AB.

3. Individual assessment agencies will create unique question papers for knowledge/theory part for assessment of candidates as per assessment criteria given below.

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

5. To pass the Qualification Pack, every trainee must score 70% on overall QP.

6. The Assessor shall check the outcome of the practices while evaluating the steps performed to achieve the outcome.

7. The trainee shall be provided with a chance to repeat the test to correct his procedures in case of

improper performance, with a deduction of marks for each iteration.

8. After the certain number of iterations as decided by AB the trainee is marked as fail, scoring zero marks for the procedure for the practical activity.

9. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack within the specified time frame set by AB.

10. Minimum duration of Assessment of each QP shall be 8hrs/batch (max. 30 candidates).

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
ICE/CON/N1523.Identify Tools, Equipment and Materials Relevant to MEP Work at a Construction Site	30	60	0	10	100	15
ICE/CON/N1524.Read and interpret MEP system Drawings and Specifications	30	60	0	10	100	20
ICE/CON/N9901.Implement Safe Work Practices and Environmental Stewardship at Construction Sites	30	60	-	10	100	10
DGT/VSQ/N0101.Employability Skills (30 Hours)	20	30	-	-	50	5
Total	**110**	**210**	**-**	**30**	**350**	**50**

Elective: 1 Mechanical Systems

Qualification Pack

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
ICE/CON/N1517.Assist in Installation of Mechanical Systems and HVAC Ducts	30	60	0	10	100	25
ICE/CON/N1518.Assist in Repair, Maintenance and Testing of Mechanical Systems	30	60	0	10	100	25
Total	**60**	**120**	**-**	**20**	**200**	**50**