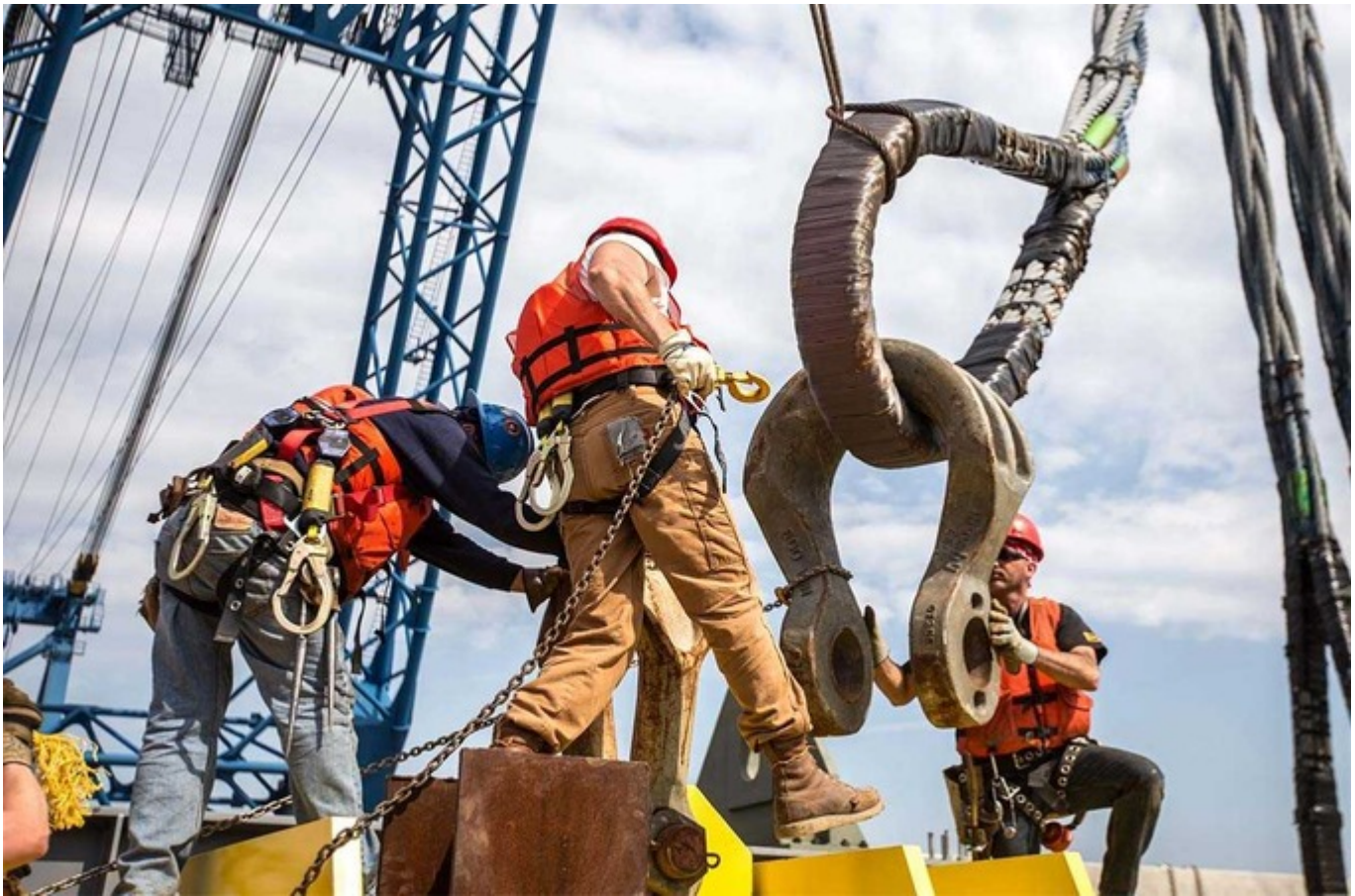




Qualification Pack



Advance Rigger

QP Code: SSD/VSQ/Q0302

Version: 1.0

NSQF Level: 4

Safety Skill Development Foundation || Safety Skill Development Foundation D-507, Light House,
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Qualification Pack

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SSD/VSQ/Q0302: Advance Rigger

Brief Job Description

Advance Rigger is responsible for the use of mechanical load shifting equipment and associated gear to move, place or secure heavy & bulky loads, including plant, equipment or members of a building or structure. He will also be responsible for aligning and anchoring the machinery, attaching loads, controlling the movement of heavy equipment, and ensuring the rigging is safe for use.

Personal Attributes

He should be physically & mentally fit and should be able to ensure compliances required as per safety and health requirements. He should also be able to provide correct & timely advice on safety and health issues of construction workers to the management.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [SSD/VSQ/N0309: Introduction to Advance Rigging.](#)
2. [SSD/VSQ/N0310: Safety Standards and Regulations in Rigging](#)
3. [SSD/VSQ/N0311: Rigging Mathematics and Load Calculation](#)
4. [SSD/VSQ/N0312: Identifying and Evaluating Lift Points](#)
5. [SSD/VSQ/N0313: Working Load Limit & selection of Rigging component](#)
6. [SSD/VSQ/N0314: Pre-Use Inspection of Rigging and Lift Points](#)
7. [SSD/VSQ/N0315: Load Dynamics and Associated Hazards](#)
8. [SSD/VSQ/N0316: Advanced Rigging Considerations](#)
9. [SSD/VSQ/N0317: Emergency Response and Contingency Planning](#)
10. [SSD/VSQ/N0318: Documentation and Reporting](#)
11. [DGT/VSQ/N0102: Employability Skills \(60 Hours\)](#)

Qualification Pack (QP) Parameters

Sector	Cross Sectoral
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Qualification Pack

Sub-Sector	Hydrocarbon, Iron & steel, Mining, Power, Automotive, Construction, Chemicals & Petrochemicals, and others.
Occupation	Lifting & Rigging Engineering & Management
Country	India
NSQF Level	4
Credits	15
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7215.0100
Minimum Educational Qualification & Experience	12th grade Pass (or Equivalent with science) with NA of experience OR Completed 3 year diploma after 10th with NA of experience OR Previous relevant Qualification of NSQF Level (3.5) with 1-2 Years of experience (1.5 Years) OR Previous relevant Qualification of NSQF Level (3) with 3 Years of experience
Minimum Level of Education for Training in School	10th Class
Pre-Requisite License or Training	Nil
Minimum Job Entry Age	18 Years
Last Reviewed On	NA
Next Review Date	22/10/2027
NSQF Approval Date	22/10/2024
Version	1.0
Reference code on NQR	QC-04-CO-03365-2024-V1-SSDF
NQR Version	1

Remarks:

NA



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SSD/VSQ/N0309: Introduction to Advance Rigging.

Description

The NOS deals with rigging techniques, equipment selection, safety & compliances in the complex rigging operations, including planning and preparing, execution of rigging operations, risk management, inspections, equipment maintenance and troubleshooting in diverse environments.

Scope

The scope covers the following :

- Advanced Rigging Techniques: Handling Complex Loads & Precision in Lifting.
- Equipment Selection and Use: Rigging Tools and Gear & Rigging Calculations.
- Safety and Compliance: Health and Safety Legislation & Risk Identification and Control measures.
- Inspection and Maintenance of Rigging Equipment: Pre- and Post-Operation Inspections & Maintenance and Record Keeping.
- Planning and Executing Rigging Operations: Lift Planning, Communication and Coordination.
- Load Dynamics and Environmental Considerations: Understanding Load Behavior & Environmental Factors.
- Reporting and Documentation: Incident Reporting and Investigation & Record Keeping and Compliance Documentation.

Elements and Performance Criteria

Planning and Preparing for Advanced Rigging Operations

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

- PC1.** Evaluate load characteristics, such as weight, shape, and center of gravity, to determine appropriate rigging methods.
- PC2.** Develop a comprehensive rigging plan that considers load handling, movement paths, and potential obstacles.
- PC3.** Select advanced rigging equipment, including specialized slings, rigging hooks, and hoisting devices, based on the operational requirements.
- PC4.** Ensure the rigging site is free of hazards and adheres to safety protocols, including the use of barriers and warning signage.

Execution of Advanced Rigging Operations

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

- PC5.** Utilize advanced rigging techniques such as multiple lift systems, tandem lifts, and complex load balancing methods to safely move loads.
- PC6.** Monitor load movements to ensure alignment and stability throughout the rigging process.
- PC7.** Adjust rigging configurations as necessary to accommodate changes in load dynamics or environmental conditions.
- PC8.** Coordinate with the rigging team and other site personnel to maintain clear communication and ensure adherence to the rigging plan.

Safety Compliance and Risk Management

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



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- PC9.** Conduct risk assessments for each rigging operation, identifying potential hazards and implementing control measures.
- PC10.** Ensure compliance with industry standards, regulations, and best practices for advanced rigging operations.
- PC11.** Use personal protective equipment (PPE) and enforce safety measures for the rigging team and other personnel on-site.
- PC12.** Document and report any incidents, near misses, or safety concerns related to rigging activities.

Equipment Maintenance and Troubleshooting

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

- PC13.** Perform regular inspections and maintenance of rigging equipment to ensure functionality and safety.
- PC14.** Identify and troubleshoot common equipment malfunctions, reporting issues to the supervisor for corrective action.
- PC15.** Maintain records of equipment usage, inspections, and maintenance for compliance and auditing purposes.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** Advanced rigging principles, including load distribution, center of gravity manipulation, and load path considerations.
- KU2.** Comprehensive knowledge of rigging equipment, including specifications, limitations, and appropriate usage scenarios.
- KU3.** Industry standards and regulatory requirements for advanced rigging operations, such as OSHA and ANSI guidelines.
- KU4.** Risk management techniques, including hazard identification, control measures, and emergency response protocols.
- KU5.** Effective communication skills for coordinating complex rigging tasks within a team and with other stakeholders.

Generic Skills (GS)

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

- GS1.** Reading & writing in the language of communication.
- GS2.** Effective verbal communication in local language.
- GS3.** Basic mathematics and calculations.
- GS4.** Understanding & adherence to instructions.
- GS5.** Understanding of safety and adherence to safety related protocols.
- GS6.** Conduct of Professional behavior with co-workers and employees.
- GS7.** Use of personal protective equipment.



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- GS8.** Work site rules & security, fire safety protocols, first aid & procedure under emergency conditions.
- GS9.** Housekeeping and disposal of waste materials.
- GS10.** Organizational hierarchy for availability of tools, equipment & material & its security.



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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Planning and Preparing for Advanced Rigging Operations</i>	16	16	-	-
PC1. Evaluate load characteristics, such as weight, shape, and center of gravity, to determine appropriate rigging methods.	4	4	-	-
PC2. Develop a comprehensive rigging plan that considers load handling, movement paths, and potential obstacles.	4	4	-	-
PC3. Select advanced rigging equipment, including specialized slings, rigging hooks, and hoisting devices, based on the operational requirements.	4	4	-	-
PC4. Ensure the rigging site is free of hazards and adheres to safety protocols, including the use of barriers and warning signage.	4	4	-	-
<i>Execution of Advanced Rigging Operations</i>	13	13	-	-
PC5. Utilize advanced rigging techniques such as multiple lift systems, tandem lifts, and complex load balancing methods to safely move loads.	4	4	-	-
PC6. Monitor load movements to ensure alignment and stability throughout the rigging process.	3	3	-	-
PC7. Adjust rigging configurations as necessary to accommodate changes in load dynamics or environmental conditions.	3	3	-	-
PC8. Coordinate with the rigging team and other site personnel to maintain clear communication and ensure adherence to the rigging plan.	3	3	-	-
<i>Safety Compliance and Risk Management</i>	12	12	-	-
PC9. Conduct risk assessments for each rigging operation, identifying potential hazards and implementing control measures.	3	3	-	-
PC10. Ensure compliance with industry standards, regulations, and best practices for advanced rigging operations.	3	3	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. Use personal protective equipment (PPE) and enforce safety measures for the rigging team and other personnel on-site.	3	3	-	-
PC12. Document and report any incidents, near misses, or safety concerns related to rigging activities.	3	3	-	-
<i>Equipment Maintenance and Troubleshooting</i>	9	9	-	-
PC13. Perform regular inspections and maintenance of rigging equipment to ensure functionality and safety.	3	3	-	-
PC14. Identify and troubleshoot common equipment malfunctions, reporting issues to the supervisor for corrective action.	3	3	-	-
PC15. Maintain records of equipment usage, inspections, and maintenance for compliance and auditing purposes.	3	3	-	-
NOS Total	50	50	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	SSD/VSQ/N0309
NOS Name	Introduction to Advance Rigging.
Sector	Cross Sectoral
Sub-Sector	
Occupation	Lifting & Rigging Engineering & Management
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	22/10/2024
Next Review Date	22/10/2027
NSQC Clearance Date	22/10/2024



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SSD/VSQ/N0310: Safety Standards and Regulations in Rigging

Description

The NOS for Safety Standards and Regulations in Rigging provides a structured framework to ensure that rigging operations are conducted safely and efficiently. This involves understanding the legal and regulatory requirements, following strict safety protocols, ensuring proper equipment usage and maintenance, and maintaining clear communication during operations. The NOS also emphasizes risk assessment, emergency response planning, and continuous professional development to equip rigging professionals with the knowledge and skills needed to perform their tasks safely in high-risk environments.

Scope

The scope covers the following :

- Legal and Regulatory Compliance: Adherence to health, safety, and industry-specific regulations.
- Risk Management: Identification and mitigation of hazards through effective planning and safety protocols.
- Safe Rigging Operations: Ensuring safe equipment use, pre-operation checks, and secure load handling practices.
- Equipment Maintenance: Regular inspections and maintenance of rigging tools and equipment.
- Communication: Clear, effective communication and coordination between rigging teams and other stakeholders.
- Emergency Response: Preparedness for emergencies and accidents, with protocols for first aid and evacuation.
- Training and Documentation: Continuous training, certification, and meticulous record-keeping of incidents, equipment maintenance, and inspections.

Elements and Performance Criteria

Familiarization with National Safety Standards

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

- PC1.** Identify and interpret OSHA (Occupational Safety and Health Administration) regulations and other national safety standards relevant to rigging operations.
- PC2.** Apply OSHA guidelines for lifting, securing, and moving loads in compliance with national safety requirements.
- PC3.** Ensure that all rigging equipment and procedures meet the specified national safety standards, conducting regular inspections and audits.
- PC4.** Implement safety measures as required by national regulatory bodies, such as hazard communication, PPE usage, and safe work practices.

Understanding International Safety Standards

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

- PC5.** Interpret and apply ISO (International Organization for Standardization) standards, such as ISO 4309 (Cranes – Wire Ropes) and ISO 9927 (Cranes – Inspections).
- PC6.** Implement EN (European Norm) regulations for rigging and load-handling, ensuring compliance with international safety protocols.



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- PC7.** Maintain an up-to-date understanding of international safety regulations and best practices for lifting and rigging operations.
- PC8.** Adapt rigging procedures to align with both national and international safety standards, ensuring consistency in safety practices.

Compliance and Legal Obligations

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

- PC9.** Identify compliance requirements and legal obligations for rigging operations, including documentation, reporting, and record-keeping.
- PC10.** Develop procedures for reporting safety incidents, near misses, and equipment malfunctions in accordance with regulatory guidelines.
- PC11.** Educate team members on compliance requirements and the consequences of non-compliance, including potential penalties and legal repercussions.
- PC12.** Implement corrective actions and preventive measures to address safety violations or compliance gaps.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** In-depth knowledge of OSHA regulations and national safety standards for rigging, lifting, and load-handling operations.
- KU2.** ISO standards, such as ISO 4309 and ISO 9927, and their application to rigging and crane operations.
- KU3.** EN regulations related to rigging, lifting equipment, and safety procedures.
- KU4.** Awareness of compliance requirements, legal obligations, and reporting procedures for rigging operations.
- KU5.** Potential penalties, fines, and legal implications of non-compliance with safety standards.

Generic Skills (GS)

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

- GS1.** Reading & writing in the language of communication.
- GS2.** Effective verbal communication in local language.
- GS3.** Basic mathematics and calculations.
- GS4.** Understanding & adherence to instructions.
- GS5.** Understanding of safety and adherence to safety related protocols.
- GS6.** Conduct of Professional behavior with co-workers and employees.
- GS7.** Use of personal protective equipment.
- GS8.** Work site rules & security, fire safety protocols, first aid & procedure under emergency conditions.
- GS9.** Housekeeping and disposal of waste materials.
- GS10.** Organizational hierarchy for availability of tools, equipment & material & its security.



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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Familiarization with National Safety Standards</i>	18	18	-	-
PC1. Identify and interpret OSHA (Occupational Safety and Health Administration) regulations and other national safety standards relevant to rigging operations.	5	5	-	-
PC2. Apply OSHA guidelines for lifting, securing, and moving loads in compliance with national safety requirements.	5	5	-	-
PC3. Ensure that all rigging equipment and procedures meet the specified national safety standards, conducting regular inspections and audits.	4	4	-	-
PC4. Implement safety measures as required by national regulatory bodies, such as hazard communication, PPE usage, and safe work practices.	4	4	-	-
<i>Understanding International Safety Standards</i>	16	16	-	-
PC5. Interpret and apply ISO (International Organization for Standardization) standards, such as ISO 4309 (Cranes – Wire Ropes) and ISO 9927 (Cranes – Inspections).	4	4	-	-
PC6. Implement EN (European Norm) regulations for rigging and load-handling, ensuring compliance with international safety protocols.	4	4	-	-
PC7. Maintain an up-to-date understanding of international safety regulations and best practices for lifting and rigging operations.	4	4	-	-
PC8. Adapt rigging procedures to align with both national and international safety standards, ensuring consistency in safety practices.	4	4	-	-
<i>Compliance and Legal Obligations</i>	16	16	-	-
PC9. Identify compliance requirements and legal obligations for rigging operations, including documentation, reporting, and record-keeping.	4	4	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. Develop procedures for reporting safety incidents, near misses, and equipment malfunctions in accordance with regulatory guidelines.	4	4	-	-
PC11. Educate team members on compliance requirements and the consequences of non-compliance, including potential penalties and legal repercussions.	4	4	-	-
PC12. Implement corrective actions and preventive measures to address safety violations or compliance gaps.	4	4	-	-
NOS Total	50	50	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	SSD/VSQ/N0310
NOS Name	Safety Standards and Regulations in Rigging
Sector	Cross Sectoral
Sub-Sector	
Occupation	Lifting & Rigging Engineering & Management
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	22/10/2024
Next Review Date	22/10/2027
NSQC Clearance Date	22/10/2024



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SSD/VSQ/N0311: Rigging Mathematics and Load Calculation

Description

The NOS provides a framework for rigging professionals to develop the mathematical skills needed to safely handle loads of various sizes and complexities, including load weight calculation, center of gravity determination, load capacity of equipment, load distribution, sling tension calculation & factor of safety applicability.

Scope

The scope covers the following :

- Accurately estimate load weights and determine the center of gravity.
- Calculate safe sling angles, tension forces, and load distribution.
- Select appropriate rigging gear based on the loads complexity and weight.
- Apply safety factors and follow legal guidelines to prevent overloading and equipment failure.
- Factor in environmental influences and operational dynamics.
- Utilize modern tools, technology, and software to enhance the precision and safety of rigging operations.
- Keep records of all calculations and inspections to ensure compliance and accountability.

Elements and Performance Criteria

Estimation of Load Weight and Center of Gravity

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

- PC1.** Use direct weight measurement methods, such as load cells or scales, to determine the exact weight of a load.
- PC2.** Reference manufacturer's specifications and product documentation to identify predefined load weights accurately.
- PC3.** Apply volume and density calculations using the formula $\text{Weight} = \text{Volume} \times \text{Density}$ for common materials like concrete, steel, and liquids.
- PC4.** Utilize common density values for frequently rigged materials to estimate weight effectively.
- PC5.** Determine the load's center of gravity (CoG) using physical measurement techniques, ensuring accurate alignment for safe lifting.
- PC6.** Apply mathematical methods to calculate the CoG, considering factors like load symmetry, shape, and weight distribution.
- PC7.** Adjust lift points to align with the CoG, minimizing the risk of load tipping or instability during lifting operations.

Attaching Rigging with Knowledge of Hitch Configurations and Load Angle Factors

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

- PC8.** Apply appropriate hitch configurations, such as Straight Hitch, Choker Hitch, and Basket Hitch, based on the specific lifting requirements and load characteristics.
- PC9.** Use a Straight Hitch for vertical lifts where no additional stability or load balancing is required.



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- PC10.** Use a Choker Hitch for loads that require a tighter grip, such as cylindrical objects, understanding the reduced load capacity due to increased tension.
- PC11.** Use a Basket Hitch to evenly distribute load weight, preventing damage to delicate materials and ensuring a balanced lift.
- PC12.** Create and interpret diagrams that illustrate how hitch angles affect load distribution and overall load capacity.
- PC13.** Perform load angle factor calculations using sine and cosine functions to determine the actual load capacity based on the hitch angles.
- PC14.** Utilize tables for quick reference when calculating load angle factors for different hitch setups, ensuring efficiency and accuracy in load planning.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** Direct weight measurement techniques, such as using load cells and scales, and the importance of accuracy in load determination.
- KU2.** Familiarity with common density values for frequently rigged materials, including concrete, steel, wood, and liquids.
- KU3.** Mathematical principles and formulas for estimating load weight using volume and density calculations.
- KU4.** Concept of center of gravity (CoG) and its impact on load stability during rigging operations.
- KU5.** Proficiency in different hitch configurations, including their appropriate use cases and impact on load distribution.
- KU6.** Ability to calculate load angle factors using trigonometric functions, and understanding the relationship between hitch angles and actual load capacity.

Generic Skills (GS)

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

- GS1.** Reading & writing in the language of communication.
- GS2.** Effective verbal communication in local language.
- GS3.** Basic mathematics and calculations.
- GS4.** Understanding & adherence to instructions.
- GS5.** Understanding of safety and adherence to safety related protocols.
- GS6.** Conduct of Professional behavior with co-workers and employees.
- GS7.** Use of personal protective equipment.
- GS8.** Work site rules & security, fire safety protocols, first aid & procedure under emergency conditions.
- GS9.** Housekeeping and disposal of waste materials.
- GS10.** Organizational hierarchy for availability of tools, equipment & material & its security.



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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Estimation of Load Weight and Center of Gravity</i>	28	28	-	-
PC1. Use direct weight measurement methods, such as load cells or scales, to determine the exact weight of a load.	4	4	-	-
PC2. Reference manufacturer's specifications and product documentation to identify predefined load weights accurately.	4	4	-	-
PC3. Apply volume and density calculations using the formula $\text{Weight} = \text{Volume} \times \text{Density}$ for common materials like concrete, steel, and liquids.	4	4	-	-
PC4. Utilize common density values for frequently rigged materials to estimate weight effectively.	4	4	-	-
PC5. Determine the load's center of gravity (CoG) using physical measurement techniques, ensuring accurate alignment for safe lifting.	4	4	-	-
PC6. Apply mathematical methods to calculate the CoG, considering factors like load symmetry, shape, and weight distribution.	4	4	-	-
PC7. Adjust lift points to align with the CoG, minimizing the risk of load tipping or instability during lifting operations.	4	4	-	-
<i>Attaching Rigging with Knowledge of Hitch Configurations and Load Angle Factors</i>	22	22	-	-
PC8. Apply appropriate hitch configurations, such as Straight Hitch, Choker Hitch, and Basket Hitch, based on the specific lifting requirements and load characteristics.	4	4	-	-
PC9. Use a Straight Hitch for vertical lifts where no additional stability or load balancing is required.	3	3	-	-
PC10. Use a Choker Hitch for loads that require a tighter grip, such as cylindrical objects, understanding the reduced load capacity due to increased tension.	3	3	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. Use a Basket Hitch to evenly distribute load weight, preventing damage to delicate materials and ensuring a balanced lift.	3	3	-	-
PC12. Create and interpret diagrams that illustrate how hitch angles affect load distribution and overall load capacity.	3	3	-	-
PC13. Perform load angle factor calculations using sine and cosine functions to determine the actual load capacity based on the hitch angles.	3	3	-	-
PC14. Utilize tables for quick reference when calculating load angle factors for different hitch setups, ensuring efficiency and accuracy in load planning.	3	3	-	-
NOS Total	50	50	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	SSD/VSQ/N0311
NOS Name	Rigging Mathematics and Load Calculation
Sector	Cross Sectoral
Sub-Sector	
Occupation	Lifting & Rigging Engineering & Management
NSQF Level	4
Credits	2
Version	1.0
Last Reviewed Date	22/10/2024
Next Review Date	22/10/2027
NSQC Clearance Date	22/10/2024



Qualification Pack

SSD/VSQ/N0312: Identifying and Evaluating Lift Points

Description

The NOS on Identifying and Evaluating Lift Points deals with understanding of load characteristics, including shape, size, weight, load-bearing capacity and stability of lift points, selection of lift points, risk assessments and inspections to identify potential hazards, forces exerted at lift points, industry standards and regulations related to lift points & documentation on lift point decisions.

Scope

The scope covers the following :

- Understand load characteristics and their influence on lift point selection.
- Accurately identify and evaluate lift points for structural integrity and stability.
- Calculate the forces acting on lift points and ensure they remain within safe working limits.
- Select appropriate rigging equipment based on load and lift point characteristics.
- Conduct thorough inspections and risk assessments of lift points.
- Comply with industry safety standards and legal requirements.
- Maintain accurate records and documentation related to lift point evaluations.
- Continuously train and update their knowledge of best practices and evolving standards.

Elements and Performance Criteria

Criteria for Lift Point Identification

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

- PC1.** Assess the structural integrity and strength of potential lift points, considering factors like wear, corrosion, and deformation.
- PC2.** Evaluate the reliability of lift points by analyzing their design and construction, ensuring they can withstand the forces exerted during lifting.
- PC3.** Select lift points based on the material composition of the load, considering properties such as tensile strength, ductility, and hardness.
- PC4.** Determine appropriate lift points based on the load's thickness and shape, ensuring the selected points provide balanced support.
- PC5.** Ensure lift points are positioned symmetrically and equidistant from the center of gravity to maintain load stability during lifting operations.
- PC6.** Verify that the chosen lift points comply with relevant safety standards and manufacturer guidelines for rigging and lifting operations.

Lift Point Calculation

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

- PC7.** Apply formulas for calculating the safe lift point capacity based on material strength, load weight, and distribution factors.
- PC8.** Use safety factors to account for uncertainties in load characteristics and lift point conditions, ensuring a safe margin of error.



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- PC9.**
- Determine lift point capacities using established formulas, such as:
 - ● Safe Load Capacity = (Material Strength x Cross-Sectional Area) / Safety Factor.
 - ● Load Distribution Factor = Total Load Weight / Number of Lift Points.
- PC10.** Utilize tables and charts that specify the strength and load-bearing capacities of common materials (e.g., steel, aluminum) for quick reference during lift point calculations.
- PC11.** Adjust calculations based on the specific conditions of the lift, such as temperature, environmental factors, and potential dynamic loads.
- PC12.** Document lift point evaluation and calculation results, ensuring transparency and traceability in rigging operations.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** Material properties, including tensile strength, compressive strength, and elasticity, as they relate to lift point evaluation.
- KU2.** Structural design principles and how they affect the selection and positioning of lift points.
- KU3.** Familiarity with common formulas and calculations used to determine safe lift point capacities and load distribution factors.
- KU4.** Awareness of safety standards and regulations governing lift point selection, such as OSHA and ANSI guidelines.
- KU5.** Ability to interpret tables and charts that provide material strength values and load-bearing capacities for commonly used rigging materials.
- KU6.** Impact of environmental and operational factors on lift point integrity and safety.

Generic Skills (GS)

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

- GS1.** Reading & writing in the language of communication.
- GS2.** Effective verbal communication in local language.
- GS3.** Basic mathematics and calculating tools.
- GS4.** Understanding & adherence to instructions.
- GS5.** Understanding of safety and adherence to safety related protocols.
- GS6.** Conduct of Professional behavior with co-workers and employees.
- GS7.** Use of personal protective equipment.
- GS8.** Work site rules & security, fire safety protocols, first aid & procedure under emergency conditions.
- GS9.** Housekeeping and disposal of waste materials.
- GS10.** Organizational hierarchy for availability of tools, equipment and material & its security.



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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Criteria for Lift Point Identification</i>	26	26	-	-
PC1. Assess the structural integrity and strength of potential lift points, considering factors like wear, corrosion, and deformation.	5	5	-	-
PC2. Evaluate the reliability of lift points by analyzing their design and construction, ensuring they can withstand the forces exerted during lifting.	5	5	-	-
PC3. Select lift points based on the material composition of the load, considering properties such as tensile strength, ductility, and hardness.	4	4	-	-
PC4. Determine appropriate lift points based on the load's thickness and shape, ensuring the selected points provide balanced support.	4	4	-	-
PC5. Ensure lift points are positioned symmetrically and equidistant from the center of gravity to maintain load stability during lifting operations.	4	4	-	-
PC6. Verify that the chosen lift points comply with relevant safety standards and manufacturer guidelines for rigging and lifting operations.	4	4	-	-
<i>Lift Point Calculation</i>	24	24	-	-
PC7. Apply formulas for calculating the safe lift point capacity based on material strength, load weight, and distribution factors.	4	4	-	-
PC8. Use safety factors to account for uncertainties in load characteristics and lift point conditions, ensuring a safe margin of error.	4	4	-	-
PC9. - Determine lift point capacities using established formulas, such as: ● Safe Load Capacity = (Material Strength x Cross-Sectional Area) / Safety Factor. ● Load Distribution Factor = Total Load Weight / Number of Lift Points.	4	4	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. Utilize tables and charts that specify the strength and load-bearing capacities of common materials (e.g., steel, aluminum) for quick reference during lift point calculations.	4	4	-	-
PC11. Adjust calculations based on the specific conditions of the lift, such as temperature, environmental factors, and potential dynamic loads.	4	4	-	-
PC12. Document lift point evaluation and calculation results, ensuring transparency and traceability in rigging operations.	4	4	-	-
NOS Total	50	50	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	SSD/VSQ/N0312
NOS Name	Identifying and Evaluating Lift Points
Sector	Cross Sectoral
Sub-Sector	
Occupation	Lifting & Rigging Engineering & Management
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	22/10/2024
Next Review Date	22/10/2027
NSQC Clearance Date	22/10/2024



Qualification Pack

SSD/VSQ/N0313: Working Load Limit & selection of Rigging component

Description

The NOS on Working Load Limit (WLL) & Selection of Rigging Components is designed to ensure rigging professionals are proficient in safely selecting and using rigging equipment. This NOS focuses on understanding the working load limits of rigging components, which is critical for preventing overloading and ensuring the safety of lifting operations. Rigging professionals are expected to have the knowledge and skills to accurately assess load requirements and select rigging components that meet or exceed the necessary strength and capacity, based on the Working Load Limit of each piece of equipment.

Scope

The scope covers the following :

- A thorough understanding of Working Load Limits and how they influence safe lifting operations.
- The ability to select appropriate rigging components based on load characteristics and WLL.
- Knowledge of various rigging configurations and their implications for safety and effectiveness.
- Skills to assess dynamic and static load conditions, including calculating forces and applying safety margins.
- Protocols for inspecting and maintaining rigging equipment to ensure reliability and safety.
- Emphasis on documentation, regulatory compliance, and risk assessment to mitigate hazards.
- A commitment to training and continuous learning to maintain competency in rigging practices.

Elements and Performance Criteria

Understanding Rigging Load Capacity

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

- PC1.** Working load limit (WLL) of rigging components such as slings, shackles, hooks, and lifting devices based on their material properties and design specifications.
- PC2.** Explain the concept of breaking strength and how it differs from WLL, understanding the significance of not exceeding the breaking strength during lifting operations.
- PC3.**
 - Apply the concept of safety factor in load capacity calculations to account for uncertainties in load characteristics and dynamic forces. Common safety factor ratios include:
 - ● General Rigging: 5:1 (Load Weight: Rigging Capacity)
 - ● Critical Lifts: 10:1 or higher, depending on the complexity and risks involved.
- PC4.**
 - Use formulas to calculate the safe working load (SWL) of rigging components based on their WLL and safety factor:
 - ● Safe Working Load (SWL) = Breaking Strength / Safety Factor.
- PC5.** Select rigging components based on their load capacity, ensuring they are rated for the specific weights and load characteristics of the lifting operation.
- PC6.** Verify the load capacity of rigging equipment through inspections and documentation review, ensuring compliance with manufacturer guidelines and safety standards.

Selecting Rigging for Asymmetrical and Complex Loads

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

- PC7.** Evaluate the load's shape, weight distribution, and center of gravity to determine the appropriate rigging configuration.



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- PC8.** Use spreader bars to distribute load weight evenly across multiple lift points when handling wide or long loads.
- PC9.** Utilize load equalizing beams for lifting asymmetrical loads to balance weight distribution and maintain stability.
- PC10.** Select multi-leg slings for loads with unbalanced or shifting centers of gravity, ensuring each sling leg is appropriately rated for the load it will carry.
- PC11.** Adjust the sling angles and lengths to achieve a balanced lift, minimizing the risk of load tipping or shifting.
- PC12.** Implement specialized rigging tools like adjustable spreader beams, rotating hooks, or swivel hoists to accommodate complex lifting scenarios.

Compliance and Documentation

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

- PC13.** Ensure all rigging components are compliant with relevant industry standards and safety regulations, such as OSHA, ASME, and ISO guidelines.
- PC14.** Document the selection and evaluation of rigging components, including calculations, load capacity verifications, and compliance checks.
- PC15.** Maintain records of rigging inspections, certifications, and usage to ensure traceability and adherence to safety protocols.
- PC16.** Report any discrepancies or non-compliance issues with rigging components to the supervisor for corrective action.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** Rigging load capacity concepts, including working load limit (WLL), breaking strength, and safe working load (SWL).
- KU2.** Safety factor concept and its application in load capacity calculations for various rigging scenarios.
- KU3.** Familiarity with different rigging components, such as slings, shackles, spreader bars, and load equalizing beams, and their specific uses.
- KU4.** Ability to evaluate complex loads based on shape, size, weight distribution, and center of gravity, and select appropriate rigging configurations.
- KU5.** Industry standards and regulations related to rigging component selection, such as OSHA, ASME, and ISO guidelines.
- KU6.** Awareness of documentation and record-keeping practices for compliance with safety protocols and industry standards.

Generic Skills (GS)

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

- GS1.** Reading & writing in the language of communication.
- GS2.** Effective verbal communication in local language.
- GS3.** Basic mathematics and calculating tools.



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- GS4.** Understanding & adherence to instructions.
- GS5.** Understanding of safety and adherence to safety related protocols.
- GS6.** Conduct of Professional behavior with co-workers and employees.
- GS7.** Use of personal protective equipment.
- GS8.** Work site rules & security, fire safety protocols, first aid & procedure under emergency conditions.
- GS9.** Housekeeping and disposal of waste materials.
- GS10.** Organizational hierarchy for availability of tools, equipment and material & its security.



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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Understanding Rigging Load Capacity</i>	20	20	-	-
PC1. Working load limit (WLL) of rigging components such as slings, shackles, hooks, and lifting devices based on their material properties and design specifications.	4	4	-	-
PC2. Explain the concept of breaking strength and how it differs from WLL, understanding the significance of not exceeding the breaking strength during lifting operations.	4	4	-	-
PC3. - Apply the concept of safety factor in load capacity calculations to account for uncertainties in load characteristics and dynamic forces. Common safety factor ratios include: ● General Rigging: 5:1 (Load Weight: Rigging Capacity) ● Critical Lifts: 10:1 or higher, depending on the complexity and risks involved.	3	3	-	-
PC4. - Use formulas to calculate the safe working load (SWL) of rigging components based on their WLL and safety factor: ● Safe Working Load (SWL) = Breaking Strength / Safety Factor.	3	3	-	-
PC5. Select rigging components based on their load capacity, ensuring they are rated for the specific weights and load characteristics of the lifting operation.	3	3	-	-
PC6. Verify the load capacity of rigging equipment through inspections and documentation review, ensuring compliance with manufacturer guidelines and safety standards.	3	3	-	-
<i>Selecting Rigging for Asymmetrical and Complex Loads</i>	18	18	-	-
PC7. Evaluate the load's shape, weight distribution, and center of gravity to determine the appropriate rigging configuration.	3	3	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC8. Use spreader bars to distribute load weight evenly across multiple lift points when handling wide or long loads.	3	3	-	-
PC9. Utilize load equalizing beams for lifting asymmetrical loads to balance weight distribution and maintain stability.	3	3	-	-
PC10. Select multi-leg slings for loads with unbalanced or shifting centers of gravity, ensuring each sling leg is appropriately rated for the load it will carry.	3	3	-	-
PC11. Adjust the sling angles and lengths to achieve a balanced lift, minimizing the risk of load tipping or shifting.	3	3	-	-
PC12. Implement specialized rigging tools like adjustable spreader beams, rotating hooks, or swivel hoists to accommodate complex lifting scenarios.	3	3	-	-
<i>Compliance and Documentation</i>	12	12	-	-
PC13. Ensure all rigging components are compliant with relevant industry standards and safety regulations, such as OSHA, ASME, and ISO guidelines.	3	3	-	-
PC14. Document the selection and evaluation of rigging components, including calculations, load capacity verifications, and compliance checks.	3	3	-	-
PC15. Maintain records of rigging inspections, certifications, and usage to ensure traceability and adherence to safety protocols.	3	3	-	-
PC16. Report any discrepancies or non-compliance issues with rigging components to the supervisor for corrective action.	3	3	-	-
NOS Total	50	50	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	SSD/VSQ/N0313
NOS Name	Working Load Limit & selection of Rigging component
Sector	Cross Sectoral
Sub-Sector	
Occupation	Lifting & Rigging Engineering & Management
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	22/10/2024
Next Review Date	22/10/2027
NSQF Clearance Date	22/10/2024



Qualification Pack

SSD/VSQ/N0314: Pre-Use Inspection of Rigging and Lift Points

Description

The NOS on Pre-Use Inspection of Rigging and Lift Points deals with thorough pre-use inspections of rigging equipment and lift points, identification of structurally sound points, proper load distribution, stability during lifting operation.

Scope

The scope covers the following :

- Conduct of pre-use inspections of rigging equipment and lift points to ensure safety and compliance.
- Comprehensive inspection protocols for various types of rigging equipment.
- Identification of lift points, including structural integrity and load distribution.
- Compliance with industry regulations and standards to uphold safety and operational integrity.
- Maintain detailed inspection records and report any issues identified during inspections.

Elements and Performance Criteria

Inspection Procedures for Rigging Components

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

- PC1.** Perform a visual inspection of rigging components, checking for signs of wear, deformation, corrosion, cracks, and other visible damage.
- PC2.** Conduct a tactile inspection by feeling for irregularities such as cuts, abrasions, or fraying on slings, wires, or ropes.
- PC3.** Inspect hooks and shackles for any signs of stretching, bending, or improper alignment that could affect their load-bearing capacity.
- PC4.** Verify that all identification tags, markings, and manufacturer labels are legible and correspond to the component's specifications.
- PC5.** Check for any loose or missing parts, such as pins or bolts, on multi-leg slings or spreader bars that could compromise the integrity of the rigging setup.
- PC6.** Document all findings from the inspection, noting any deficiencies or damage, and report them to the supervisor for further evaluation.
- PC7.** Ensure that defective or damaged rigging components are tagged as "Out of Service" and removed from the rigging area to prevent accidental use.

Lift Point Inspection

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

- PC8.** Inspect lift points, such as welds, bolts, and other attachment points, for cracks, rust, or other signs of fatigue that could compromise their structural integrity.
- PC9.** Assess the condition of welds at lift points, looking for signs of cracking, porosity, or poor workmanship that may lead to failure during lifting operations.
- PC10.** Verify that bolts and other fasteners at lift points are properly tightened and free from corrosion or wear.



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- PC11.** Ensure that all lift points are positioned and aligned correctly to maintain load balance and stability.
- PC12.** Establish criteria for rejecting or approving lift points based on observed conditions, using industry standards and manufacturer recommendations as references.
- PC13.** Record lift point inspection results, including any corrective actions taken or recommendations for further evaluation by a certified inspector.

Documentation and Record-Keeping

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

- PC14.** Develop a standardized checklist for pre-use inspections of rigging components and lift points, ensuring consistency and completeness in the inspection process.
- PC15.** Maintain an organized record-keeping system that includes inspection dates, findings, corrective actions, and the inspector's signature.
- PC16.** Implement procedures for regularly reviewing and updating inspection records to ensure compliance with safety standards and audit requirements.
- PC17.** Establish a protocol for reporting severe defects or non-compliance issues that require immediate attention or equipment replacement.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** Common rigging defects and failure modes, such as wire rope fraying, chain stretching, hook deformation, and sling cuts.
- KU2.** Lift point integrity assessment, including criteria for evaluating the condition of welds, bolts, and other attachment points.
- KU3.** Familiarity with inspection standards and guidelines, such as OSHA, ASME, and ISO requirements for rigging component and lift point inspections.
- KU4.** Awareness of the consequences of using defective or non-compliant rigging equipment, including the potential for accidents, equipment failure, and legal repercussions.
- KU5.** Documentation and record-keeping practices for maintaining accurate and traceable inspection records.
- KU6.** Out of Service tagging process and procedures for handling defective or damaged rigging components.

Generic Skills (GS)

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

- GS1.** Reading & writing in the language of communication.
- GS2.** Effective verbal communication in local language.
- GS3.** Basic mathematics and calculating tools.
- GS4.** Understanding & adherence to instructions.
- GS5.** Understanding of safety and adherence to safety related protocols.
- GS6.** Conduct of Professional behavior with co-workers and employees.



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- GS7.** Use of personal protective equipment.
- GS8.** Work site rules & security, fire safety protocols, first aid & procedure under emergency conditions.
- GS9.** Housekeeping and disposal of waste materials.
- GS10.** Organizational hierarchy for availability of tools, equipment and material & its security.



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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Inspection Procedures for Rigging Components</i>	21	21	-	-
PC1. Perform a visual inspection of rigging components, checking for signs of wear, deformation, corrosion, cracks, and other visible damage.	3	3	-	-
PC2. Conduct a tactile inspection by feeling for irregularities such as cuts, abrasions, or fraying on slings, wires, or ropes.	3	3	-	-
PC3. Inspect hooks and shackles for any signs of stretching, bending, or improper alignment that could affect their load-bearing capacity.	3	3	-	-
PC4. Verify that all identification tags, markings, and manufacturer labels are legible and correspond to the component's specifications.	3	3	-	-
PC5. Check for any loose or missing parts, such as pins or bolts, on multi-leg slings or spreader bars that could compromise the integrity of the rigging setup.	3	3	-	-
PC6. Document all findings from the inspection, noting any deficiencies or damage, and report them to the supervisor for further evaluation.	3	3	-	-
PC7. Ensure that defective or damaged rigging components are tagged as "Out of Service" and removed from the rigging area to prevent accidental use.	3	3	-	-
<i>Lift Point Inspection</i>	18	18	-	-
PC8. Inspect lift points, such as welds, bolts, and other attachment points, for cracks, rust, or other signs of fatigue that could compromise their structural integrity.	3	3	-	-
PC9. Assess the condition of welds at lift points, looking for signs of cracking, porosity, or poor workmanship that may lead to failure during lifting operations.	3	3	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. Verify that bolts and other fasteners at lift points are properly tightened and free from corrosion or wear.	3	3	-	-
PC11. Ensure that all lift points are positioned and aligned correctly to maintain load balance and stability.	3	3	-	-
PC12. Establish criteria for rejecting or approving lift points based on observed conditions, using industry standards and manufacturer recommendations as references.	3	3	-	-
PC13. Record lift point inspection results, including any corrective actions taken or recommendations for further evaluation by a certified inspector.	3	3	-	-
<i>Documentation and Record-Keeping</i>	11	11	-	-
PC14. Develop a standardized checklist for pre-use inspections of rigging components and lift points, ensuring consistency and completeness in the inspection process.	3	3	-	-
PC15. Maintain an organized record-keeping system that includes inspection dates, findings, corrective actions, and the inspector's signature.	3	3	-	-
PC16. Implement procedures for regularly reviewing and updating inspection records to ensure compliance with safety standards and audit requirements.	3	3	-	-
PC17. Establish a protocol for reporting severe defects or non-compliance issues that require immediate attention or equipment replacement.	2	2	-	-
NOS Total	50	50	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	SSD/VSQ/N0314
NOS Name	Pre-Use Inspection of Rigging and Lift Points
Sector	Cross Sectoral
Sub-Sector	
Occupation	Lifting & Rigging Engineering & Management
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	22/10/2024
Next Review Date	22/10/2027
NSQC Clearance Date	22/10/2024



Qualification Pack

SSD/VSQ/N0315: Load Dynamics and Associated Hazards

Description

The NOS on Load Dynamics and Associated Hazards provide a comprehensive framework for understanding the principles of load dynamics in rigging and lifting operations. This framework provides about the behavior of loads under various conditions and the hazards that may arise during lifting operations and effective risk mitigation.

Scope

The scope covers the following :

- Objectives aimed at enhancing safety and managing risks associated with lifting operations.
- In-depth understanding of load dynamics, including different types of loads and their behaviors.
- Assessment of the various forces acting on loads and their implications for safety.
- Identification of potential hazards linked to load dynamics and procedures for risk assessment.
- Implementation of effective mitigation strategies to reduce risks during lifting operations.
- Development of operational guidelines that promote safe rigging practices and teamwork.
- Compliance with relevant industry regulations and standards to ensure safe and effective rigging practices.

Elements and Performance Criteria

Understanding the Impact of Load Dynamics

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

- PC1.** Explain the basic principles of load dynamics, including inertia and momentum, and their impact on lifting stability and control.
- PC2.** Analyze how load dynamics can change during lifting operations due to external factors such as wind, vibration, and sudden or abrupt movements.
- PC3.** Assess how inertia affects the starting and stopping phases of lifting operations, and implement measures to control load movement.
- PC4.** Identify potential instability scenarios where load momentum could lead to uncontrolled swinging or tipping, and establish guidelines for managing these situations.
- PC5.** Demonstrate the ability to anticipate and respond to dynamic load changes by adjusting lift speed, rigging angles, and load configurations.
- PC6.** Use simulations or case studies to illustrate scenarios where changes in load dynamics have led to rigging accidents or equipment failures, and discuss preventive strategies.

Hazard Identification and Mitigation

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

- PC7.** Identify pinch points and crush zones, which are areas where riggers can be caught between the load and a fixed object, and outline methods to avoid these hazards.
- PC8.** Recognize the risk of overloading and structural failure when load capacities are exceeded or when faulty rigging equipment is used, and implement safe load calculations to prevent such occurrences.



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- PC9.** Identify swing hazards caused by improper center of gravity (CoG) alignment, unexpected load movement, or abrupt environmental changes, and establish control measures to mitigate these risks.
- PC10.** Expand on other common hazards in rigging operations, such as load shifting, falling objects, or proximity to energized equipment, and discuss their potential impact on safety.
- PC11.** Introduce hazard control measures such as using taglines to control load movement, implementing proper rigging alignment, and maintaining clear communication among team members during lifting operations.
- PC12.** Demonstrate how to establish safety zones and barriers to protect personnel from identified hazards during rigging operations.
- PC13.** Develop a risk assessment checklist for identifying hazards and documenting mitigation strategies before commencing any rigging operation.

Implementing Control Measures

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

- PC14.** Use taglines to control load movement and prevent swinging or rotation during lifting and lowering operations.
- PC15.** Apply proper rigging alignment techniques to ensure that the load remains balanced and stable throughout the lifting process.
- PC16.** Establish clear communication channels, including the use of hand signals, radios, or other communication devices, to maintain situational awareness and coordinate actions among the rigging team.
- PC17.** Implement safety protocols such as lowering lift speeds, using spotters, and establishing visual cues to minimize the impact of dynamic forces on the load.
- PC18.** Monitor environmental conditions, such as wind speed and ground stability, to identify potential changes in load dynamics and adjust lifting procedures accordingly.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** Comprehensive understanding of load dynamics, including inertia, momentum, and their effects on load stability and control during lifting operations.
- KU2.** External factors, such as wind, vibration, and ground conditions, that can alter load dynamics and create hazards during rigging.
- KU3.** Common rigging hazards, including pinch points, overloading, structural failure, and swing hazards, and the associated consequences.
- KU4.** Familiarity with hazard identification techniques, risk assessment methods, and the development of hazard mitigation strategies.
- KU5.** Awareness of safety protocols, communication methods, and control measures used to manage load dynamics and minimize hazards during rigging operations.
- KU6.** Impact of load configuration, CoG alignment, and rigging angles on load stability, and the ability to apply this knowledge in complex lifting scenarios.

Generic Skills (GS)

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



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- GS1.** Reading & writing in the language of communication.
- GS2.** Effective verbal communication in local language.
- GS3.** Basic mathematics and calculating tools.
- GS4.** Understanding & adherence to instructions.
- GS5.** Understanding of safety and adherence to safety related protocols.
- GS6.** Conduct of Professional behavior with co-workers and employees.
- GS7.** Use of personal protective equipment.
- GS8.** Work site rules & security, fire safety protocols, first aid & procedure under emergency conditions.
- GS9.** Housekeeping and disposal of waste materials.
- GS10.** Organizational hierarchy for availability of tools, equipment and material & its security.



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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Understanding the Impact of Load Dynamics</i>	18	18	-	-
PC1. Explain the basic principles of load dynamics, including inertia and momentum, and their impact on lifting stability and control.	3	3	-	-
PC2. Analyze how load dynamics can change during lifting operations due to external factors such as wind, vibration, and sudden or abrupt movements.	3	3	-	-
PC3. Assess how inertia affects the starting and stopping phases of lifting operations, and implement measures to control load movement.	3	3	-	-
PC4. Identify potential instability scenarios where load momentum could lead to uncontrolled swinging or tipping, and establish guidelines for managing these situations.	3	3	-	-
PC5. Demonstrate the ability to anticipate and respond to dynamic load changes by adjusting lift speed, rigging angles, and load configurations.	3	3	-	-
PC6. Use simulations or case studies to illustrate scenarios where changes in load dynamics have led to rigging accidents or equipment failures, and discuss preventive strategies.	3	3	-	-
<i>Hazard Identification and Mitigation</i>	21	21	-	-
PC7. Identify pinch points and crush zones, which are areas where riggers can be caught between the load and a fixed object, and outline methods to avoid these hazards.	3	3	-	-
PC8. Recognize the risk of overloading and structural failure when load capacities are exceeded or when faulty rigging equipment is used, and implement safe load calculations to prevent such occurrences.	3	3	-	-
PC9. Identify swing hazards caused by improper center of gravity (CoG) alignment, unexpected load movement, or abrupt environmental changes, and establish control measures to mitigate these risks.	3	3	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. Expand on other common hazards in rigging operations, such as load shifting, falling objects, or proximity to energized equipment, and discuss their potential impact on safety.	3	3	-	-
PC11. Introduce hazard control measures such as using taglines to control load movement, implementing proper rigging alignment, and maintaining clear communication among team members during lifting operations.	3	3	-	-
PC12. Demonstrate how to establish safety zones and barriers to protect personnel from identified hazards during rigging operations.	3	3	-	-
PC13. Develop a risk assessment checklist for identifying hazards and documenting mitigation strategies before commencing any rigging operation.	3	3	-	-
<i>Implementing Control Measures</i>	11	11	-	-
PC14. Use taglines to control load movement and prevent swinging or rotation during lifting and lowering operations.	3	3	-	-
PC15. Apply proper rigging alignment techniques to ensure that the load remains balanced and stable throughout the lifting process.	2	2	-	-
PC16. Establish clear communication channels, including the use of hand signals, radios, or other communication devices, to maintain situational awareness and coordinate actions among the rigging team.	2	2	-	-
PC17. Implement safety protocols such as lowering lift speeds, using spotters, and establishing visual cues to minimize the impact of dynamic forces on the load.	2	2	-	-
PC18. Monitor environmental conditions, such as wind speed and ground stability, to identify potential changes in load dynamics and adjust lifting procedures accordingly.	2	2	-	-
NOS Total	50	50	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	SSD/VSQ/N0315
NOS Name	Load Dynamics and Associated Hazards
Sector	Cross Sectoral
Sub-Sector	
Occupation	Lifting & Rigging Engineering & Management
NSQF Level	4
Credits	2
Version	1.0
Last Reviewed Date	22/10/2024
Next Review Date	22/10/2027
NSQC Clearance Date	22/10/2024



Qualification Pack

SSD/VSQ/N0316: Advanced Rigging Considerations

Description

The NOS on Advanced Rigging Considerations provide a detailed framework aimed at the skills and knowledge involved in complex lifting operations including advanced rigging techniques, characteristics of complex loads and appropriate handling techniques, factors impacting rigging operations, analysis of rigging system design, identification of hazards associated with advanced rigging and implementation of risk management strategies.

Scope

The scope covers the following :

- Comprehensive understanding of complex load management and advanced rigging techniques.
- Evaluation of environmental factors influencing rigging operations and strategies for adaptation.
- Knowledge of rigging system design, load analysis, and component selection.
- Identification of hazards and development of effective risk management strategies.
- Importance of communication and clearly defined roles within rigging teams.
- Compliance with industry standards and adoption of best practices for safe and effective rigging.

Elements and Performance Criteria

Lift Planning and Risk Assessment

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

- PC1.** Conduct a detailed evaluation of load characteristics, including weight, center of gravity, shape, and material properties, to develop an appropriate lift plan.
- PC2.** Identify the optimal rigging configuration based on load characteristics, ensuring that all rigging components are appropriately rated for the intended load and lift.
- PC3.** Assess environmental conditions such as wind, ground stability, and proximity to other structures, and factor these into the lift plan.
- PC4.** Establish a step-by-step lift plan, including equipment requirements, rigging setup, load handling procedures, and contingency measures.
- PC5.** Develop a comprehensive risk assessment for each rigging operation, identifying potential hazards and categorizing them based on likelihood and severity.
- PC6.** Implement mitigation strategies to address identified hazards, such as load stabilization measures, the use of specialized rigging equipment, and enhanced safety protocols.
- PC7.** Review and update lift plans and risk assessments regularly to reflect changes in load conditions, environmental factors, or equipment availability.

Load Test and Certification

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

- PC8.** Conduct pre-lift inspections and functional tests of all rigging equipment to ensure they meet operational and safety standards.
- PC9.** Perform load tests using calibrated equipment to verify that the rigging configuration can safely support the designated load.



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- PC10.** Follow load testing procedures as outlined by relevant standards, such as ASME (American Society of Mechanical Engineers) and OSHA (Occupational Safety and Health Administration), to ensure compliance and safety.
- PC11.** Document load test results, including the load weight, test duration, equipment used, and any observations made during the test.
- PC12.** Obtain load test certification from a qualified authority, ensuring that all rigging equipment and configurations are approved for use.
- PC13.** Maintain a record of load test certifications, inspection reports, and any corrective actions taken to ensure traceability and compliance with regulatory requirements.
- PC14.** Establish a schedule for regular load tests and re-certifications to maintain the integrity of rigging equipment and adherence to safety standards.

Review and Approval Processes

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

- PC15.** Submit lift plans, risk assessments, and load test results for review and approval by a qualified supervisor or safety officer.
- PC16.** Implement any recommendations or corrective actions provided during the review process to enhance the safety and effectiveness of the lift.
- PC17.** Ensure that all documentation, including lift plans, risk assessments, and load test certifications, is readily accessible for audits or inspections by regulatory bodies.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** In-depth knowledge of advanced lift planning techniques, including the evaluation of load characteristics, environmental conditions, and rigging configurations.
- KU2.** Risk assessment methodologies, including the identification of hazards, likelihood and severity analysis, and development of mitigation strategies.
- KU3.** Load test procedures, including how to conduct tests safely and interpret results.
- KU4.** Familiarity with load test certification standards, such as ASME and OSHA guidelines, and the documentation required to obtain and maintain certifications.
- KU5.** Awareness of the impact of environmental conditions, such as wind and ground stability, on lifting operations and the measures required to mitigate associated risks.
- KU6.** Review and approval processes for lift plans and certifications, including how to implement corrective actions based on review feedback.

Generic Skills (GS)

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

- GS1.** Analytical skills to evaluate complex lift scenarios, develop effective lift plans, and conduct thorough risk assessments.
- GS2.** Problem-solving skills to identify and mitigate potential hazards in advanced rigging operations.
- GS3.** Technical skills to perform load tests and interpret test results accurately.



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- GS4.** Communication skills to present lift plans, risk assessments, and load test results to supervisors and safety officers for review.
- GS5.** Documentation and record-keeping skills to maintain comprehensive and accurate records of lift planning, risk assessments, load tests, and certifications.



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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Lift Planning and Risk Assessment</i>	21	21	-	-
PC1. Conduct a detailed evaluation of load characteristics, including weight, center of gravity, shape, and material properties, to develop an appropriate lift plan.	3	3	-	-
PC2. Identify the optimal rigging configuration based on load characteristics, ensuring that all rigging components are appropriately rated for the intended load and lift.	3	3	-	-
PC3. Assess environmental conditions such as wind, ground stability, and proximity to other structures, and factor these into the lift plan.	3	3	-	-
PC4. Establish a step-by-step lift plan, including equipment requirements, rigging setup, load handling procedures, and contingency measures.	3	3	-	-
PC5. Develop a comprehensive risk assessment for each rigging operation, identifying potential hazards and categorizing them based on likelihood and severity.	3	3	-	-
PC6. Implement mitigation strategies to address identified hazards, such as load stabilization measures, the use of specialized rigging equipment, and enhanced safety protocols.	3	3	-	-
PC7. Review and update lift plans and risk assessments regularly to reflect changes in load conditions, environmental factors, or equipment availability.	3	3	-	-
<i>Load Test and Certification</i>	21	21	-	-
PC8. Conduct pre-lift inspections and functional tests of all rigging equipment to ensure they meet operational and safety standards.	3	3	-	-
PC9. Perform load tests using calibrated equipment to verify that the rigging configuration can safely support the designated load.	3	3	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. Follow load testing procedures as outlined by relevant standards, such as ASME (American Society of Mechanical Engineers) and OSHA (Occupational Safety and Health Administration), to ensure compliance and safety.	3	3	-	-
PC11. Document load test results, including the load weight, test duration, equipment used, and any observations made during the test.	3	3	-	-
PC12. Obtain load test certification from a qualified authority, ensuring that all rigging equipment and configurations are approved for use.	3	3	-	-
PC13. Maintain a record of load test certifications, inspection reports, and any corrective actions taken to ensure traceability and compliance with regulatory requirements.	3	3	-	-
PC14. Establish a schedule for regular load tests and re-certifications to maintain the integrity of rigging equipment and adherence to safety standards.	3	3	-	-
<i>Review and Approval Processes</i>	8	8	-	-
PC15. Submit lift plans, risk assessments, and load test results for review and approval by a qualified supervisor or safety officer.	3	3	-	-
PC16. Implement any recommendations or corrective actions provided during the review process to enhance the safety and effectiveness of the lift.	3	3	-	-
PC17. Ensure that all documentation, including lift plans, risk assessments, and load test certifications, is readily accessible for audits or inspections by regulatory bodies.	2	2	-	-
NOS Total	50	50	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	SSD/VSQ/N0316
NOS Name	Advanced Rigging Considerations
Sector	Cross Sectoral
Sub-Sector	
Occupation	Lifting & Rigging Engineering & Management
NSQF Level	4
Credits	2
Version	1.0
Last Reviewed Date	22/10/2024
Next Review Date	22/10/2027
NSQC Clearance Date	22/10/2024



Qualification Pack

SSD/VSQ/N0317: Emergency Response and Contingency Planning

Description

The NOS for Emergency Response and Contingency Planning are comprehensive guidelines and benchmarks that define the skills, knowledge, and competencies required for individuals involved in emergency management. These standards are crucial for ensuring that professionals across various sectors are well-prepared to handle emergencies, disasters, and contingency situations effectively and efficiently.

Scope

The scope covers the following :

- Industries and Sectors Covered - Public Safety and Emergency Services, Healthcare and Public Health, Critical Infrastructure, Government and Public Administration, Private Sector and Corporate Entities, and Non-Governmental Organizations (NGOs).
- Types of Emergencies Addressed- Natural Disasters, Technological and Industrial Accidents, Public Health Emergencies, Terrorism and Security Incidents, Transportation Incidents, Environmental Hazards, and Civil Unrest and Social Disruptions.
- Levels of Emergency Management- Prevention and Mitigation, Preparedness, Response, and Recovery.
- Roles and Responsibilities- Emergency Responders, Contingency Planners, Incident Commanders, Crisis Communication Specialists, Business Continuity Planners, and Health and Safety Officers.
- Skillsets and Competencies- Risk Assessment and Analysis, Crisis Management, Communication Skills, Resource Coordination and Logistics, Legal and Ethical Awareness, and Post-incident Analysis and Continuous Improvement.

Elements and Performance Criteria

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

- PC1.** Demonstrates a thorough understanding of emergency response procedures related to rigging and lifting operations.
- PC2.** Knows and follows site-specific emergency protocols, including emergency contact numbers, assembly points, and evacuation routes.
- PC3.** Proactively conducts risk assessments before and during lifting operations, identifying potential hazards that could lead to an emergency.
- PC4.** Can anticipate high-risk situations such as inclement weather, unstable ground, dynamic load shifts, or equipment malfunction.
- PC5.** Demonstrates proficiency in using emergency response equipment, such as fire extinguishers, first aid kits, emergency stop buttons, and personal protective equipment (PPE).
- PC6.** Ensures all emergency response tools are properly maintained, inspected, and readily accessible during operations.
- PC7.** Develops and implements comprehensive contingency plans for critical or high-risk lifts.



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- PC8.** Ensures that backup rigging gear, additional personnel, or alternative lifting plans are in place in case of unforeseen circumstances.
- PC9.** Communicates clearly and effectively with the rigging team, crane operators, and site supervisors during emergency situations.
- PC10.** Ensures that all personnel understand emergency protocols and contingency plans, conducting regular drills to reinforce understanding.
- PC11.** Takes immediate, decisive action in response to rigging-related emergencies such as load failure, equipment malfunction, or crane instability.
- PC12.** Ensures the safety of the team and surrounding personnel by following emergency shutdown procedures.
- PC13.** Conducts a thorough post-incident investigation to determine the root cause of the emergency or near-miss.
- PC14.** Submits detailed reports of the incident, including the timeline of events, actions taken, and recommendations for preventing future incidents.
- PC15.** Adheres to all applicable safety regulations, including OSHA and ANSI standards, regarding emergency response and contingency planning.
- PC16.** Ensures proper documentation of emergency response drills, incident reports, and contingency plans.
- PC17.** Continuously seeks ways to improve emergency response protocols and contingency plans based on lessons learned from drills or actual incidents.
- PC18.** Engages in ongoing training to stay updated on the latest emergency response techniques and safety practices.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** In-depth knowledge of advanced lift rigging Regulatory Frameworks and Legal Requirements.
- KU2.** Types of Emergencies and Hazards involved.
- KU3.** Risk Assessment and Hazard Identification methods.
- KU4.** Familiarity with Emergency Planning and Preparedness measures.
- KU5.** Awareness of Incident Command Systems and Coordination modes.
- KU6.** Communication and Information Management and Resource Management and Logistics involved.
- KU7.** Health, Safety, and Welfare methods & protocols, Recovery and Resilience Building, and Post-incident Analysis and Continuous Improvement methods.

Generic Skills (GS)

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

- GS1.** Analytical skills to evaluate complex lift scenarios, develop effective lift plans, and conduct thorough risk assessments.
- GS2.** Problem-solving skills to identify and mitigate potential hazards in advanced rigging operations.



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- GS3.** Technical skills to perform load tests and interpret test results accurately.
- GS4.** Communication skills to present lift plans, risk assessments, and load test results to supervisors and safety officers for review.
- GS5.** Documentation and record-keeping skills to maintain comprehensive and accurate records of lift planning, risk assessments, load tests, and certifications.



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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
	50	50	-	-
PC1. Demonstrates a thorough understanding of emergency response procedures related to rigging and lifting operations.	3	3	-	-
PC2. Knows and follows site-specific emergency protocols, including emergency contact numbers, assembly points, and evacuation routes.	3	3	-	-
PC3. Proactively conducts risk assessments before and during lifting operations, identifying potential hazards that could lead to an emergency.	3	3	-	-
PC4. Can anticipate high-risk situations such as inclement weather, unstable ground, dynamic load shifts, or equipment malfunction.	3	3	-	-
PC5. Demonstrates proficiency in using emergency response equipment, such as fire extinguishers, first aid kits, emergency stop buttons, and personal protective equipment (PPE).	3	3	-	-
PC6. Ensures all emergency response tools are properly maintained, inspected, and readily accessible during operations.	3	3	-	-
PC7. Develops and implements comprehensive contingency plans for critical or high-risk lifts.	3	3	-	-
PC8. Ensures that backup rigging gear, additional personnel, or alternative lifting plans are in place in case of unforeseen circumstances.	3	3	-	-
PC9. Communicates clearly and effectively with the rigging team, crane operators, and site supervisors during emergency situations.	3	3	-	-
PC10. Ensures that all personnel understand emergency protocols and contingency plans, conducting regular drills to reinforce understanding.	3	3	-	-
PC11. Takes immediate, decisive action in response to rigging-related emergencies such as load failure, equipment malfunction, or crane instability.	3	3	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. Ensures the safety of the team and surrounding personnel by following emergency shutdown procedures.	3	3	-	-
PC13. Conducts a thorough post-incident investigation to determine the root cause of the emergency or near-miss.	3	3	-	-
PC14. Submits detailed reports of the incident, including the timeline of events, actions taken, and recommendations for preventing future incidents.	3	3	-	-
PC15. Adheres to all applicable safety regulations, including OSHA and ANSI standards, regarding emergency response and contingency planning.	2	2	-	-
PC16. Ensures proper documentation of emergency response drills, incident reports, and contingency plans.	2	2	-	-
PC17. Continuously seeks ways to improve emergency response protocols and contingency plans based on lessons learned from drills or actual incidents.	2	2	-	-
PC18. Engages in ongoing training to stay updated on the latest emergency response techniques and safety practices.	2	2	-	-
NOS Total	50	50	-	-



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National Occupational Standards (NOS) Parameters

NOS Code	SSD/VSQ/N0317
NOS Name	Emergency Response and Contingency Planning
Sector	Cross Sectoral
Sub-Sector	
Occupation	Lifting & Rigging Engineering & Management
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	22/10/2024
Next Review Date	22/10/2027
NSQC Clearance Date	22/10/2024



Qualification Pack

SSD/VSQ/N0318: Documentation and Reporting

Description

The NOS on Documentation and Reporting provide a comprehensive framework of documentation of records and effective communication in professional settings. The NOS empowers the professionals in ensuring accountability, compliance with regulations, and the smooth operation of processes across industries.

Scope

The scope covers the following :

- Objectives focused on accountability, compliance, and communication through effective documentation practices.
- Detailed coverage of the types of documentation required in various operational contexts.
- Established documentation standards that prioritize accuracy, timeliness, clarity, and consistency.
- Structured reporting procedures with emphasis on effective communication and feedback mechanisms.
- Integration of technology to streamline documentation processes and enhance data management.
- Training and competency development to ensure personnel are equipped with necessary skills.
- Awareness of regulatory requirements and promotion of best practices in documentation and reporting.

Elements and Performance Criteria

Rigging Logbook and Documentation

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

- PC1.** Maintain a detailed logbook for all rigging activities, including equipment inspections, maintenance, and usage records, as well as daily lift operations.
- PC2.** Record all rigging inspections, noting the condition of equipment, any observed defects, and corrective actions taken.
- PC3.** Document lift plans for each lifting operation, including load characteristics, rigging configurations, environmental conditions, and safety measures.
- PC4.** Use standardized templates for recording rigging inspections, incident reports, and lift plans to ensure consistency and completeness in documentation.
- PC5.** Include relevant details in documentation, such as equipment serial numbers, dates of inspection, names of inspectors, and observations made during the inspection.
- PC6.** Store logbooks and documentation in an organized manner, ensuring easy access for reviews, audits, and inspections by internal and external stakeholders.
- PC7.** Implement a documentation review process to regularly update records, ensuring they reflect the current status of rigging operations and equipment.

Incident Reporting and Root Cause Analysis

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

- PC8.** Establish a formal procedure for reporting incidents, near-misses, and safety concerns during rigging operations.



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- PC9.** Encourage all personnel to report incidents and safety concerns promptly, without fear of retribution, to promote a culture of safety and transparency.
- PC10.** Use incident reporting templates to capture essential information, including the date and time of the incident, location, involved personnel, and a description of events.
- PC11.** Document corrective and preventive actions taken in response to reported incidents, and ensure follow-up to verify their effectiveness.
- PC12.** Conduct root cause analysis for all reported incidents and near-misses, using techniques such as the "5 Whys" or Fishbone Diagram to identify contributing factors and underlying causes.
- PC13.** Develop and implement action plans to address identified root causes, preventing recurrence of similar incidents in future rigging operations.
- PC14.** Share findings from incident investigations and root cause analyses with relevant personnel to enhance learning and improve overall safety awareness.

Compliance and Continuous Improvement

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

- PC15.** Ensure that all documentation and reporting procedures comply with relevant industry standards and regulatory requirements, such as OSHA, ASME, and ISO guidelines.
- PC16.** Conduct regular audits of documentation and reporting processes to verify accuracy, completeness, and compliance.
- PC17.** Implement continuous improvement initiatives based on documentation reviews and incident analysis, aiming to enhance the effectiveness of rigging operations and safety practices.
- PC18.** Use documented findings to develop training and awareness programs that address recurring issues and promote safe rigging practices across the organization.
- PC19.** Establish key performance indicators (KPIs) for documentation and reporting processes, monitoring them to evaluate performance and identify areas for improvement.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** Importance of maintaining accurate and detailed documentation for rigging activities, including inspections, equipment usage, and lift operations.
- KU2.** Familiarity with standardized templates and forms for recording rigging inspections, incident reports, and lift plans.
- KU3.** Incident reporting procedures, including the steps involved in documenting, reporting, and following up on safety concerns or near-misses.
- KU4.** Awareness of root cause analysis techniques, such as the- 5 Whys, Fishbone Diagram, and Failure Mode and Effects Analysis (FMEA), used to identify and address underlying issues.
- KU5.** Compliance requirements and industry standards for documentation and reporting, including OSHA, ASME, and ISO guidelines.
- KU6.** Continuous improvement methodologies and how to apply them to enhance documentation and reporting practices in rigging operations.

Generic Skills (GS)



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

- GS1.** Documentation skills to accurately record rigging activities, inspections, and incidents using standardized templates.
- GS2.** Analytical skills to perform root cause analyses and identify underlying factors contributing to incidents and safety concerns.
- GS3.** Problem-solving skills to develop and implement corrective and preventive actions based on root cause analysis findings.
- GS4.** Communication skills to present documentation findings, incident reports, and root cause analysis results to supervisors and team members.
- GS5.** Organizational skills to maintain well-structured and accessible records for audits, reviews, and compliance checks.
- GS6.** Leadership skills to promote a culture of safety, transparency, and continuous improvement in documentation and reporting practices.



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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Rigging Logbook and Documentation</i>	21	21	-	-
PC1. Maintain a detailed logbook for all rigging activities, including equipment inspections, maintenance, and usage records, as well as daily lift operations.	3	3	-	-
PC2. Record all rigging inspections, noting the condition of equipment, any observed defects, and corrective actions taken.	3	3	-	-
PC3. Document lift plans for each lifting operation, including load characteristics, rigging configurations, environmental conditions, and safety measures.	3	3	-	-
PC4. Use standardized templates for recording rigging inspections, incident reports, and lift plans to ensure consistency and completeness in documentation.	3	3	-	-
PC5. Include relevant details in documentation, such as equipment serial numbers, dates of inspection, names of inspectors, and observations made during the inspection.	3	3	-	-
PC6. Store logbooks and documentation in an organized manner, ensuring easy access for reviews, audits, and inspections by internal and external stakeholders.	3	3	-	-
PC7. Implement a documentation review process to regularly update records, ensuring they reflect the current status of rigging operations and equipment.	3	3	-	-
<i>Incident Reporting and Root Cause Analysis</i>	19	19	-	-
PC8. Establish a formal procedure for reporting incidents, near-misses, and safety concerns during rigging operations.	3	3	-	-
PC9. Encourage all personnel to report incidents and safety concerns promptly, without fear of retribution, to promote a culture of safety and transparency.	3	3	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. Use incident reporting templates to capture essential information, including the date and time of the incident, location, involved personnel, and a description of events.	3	3	-	-
PC11. Document corrective and preventive actions taken in response to reported incidents, and ensure follow-up to verify their effectiveness.	2	2	-	-
PC12. Conduct root cause analysis for all reported incidents and near-misses, using techniques such as the "5 Whys" or Fishbone Diagram to identify contributing factors and underlying causes.	3	3	-	-
PC13. Develop and implement action plans to address identified root causes, preventing recurrence of similar incidents in future rigging operations.	3	3	-	-
PC14. Share findings from incident investigations and root cause analyses with relevant personnel to enhance learning and improve overall safety awareness.	2	2	-	-
<i>Compliance and Continuous Improvement</i>	10	10	-	-
PC15. Ensure that all documentation and reporting procedures comply with relevant industry standards and regulatory requirements, such as OSHA, ASME, and ISO guidelines.	2	2	-	-
PC16. Conduct regular audits of documentation and reporting processes to verify accuracy, completeness, and compliance.	2	2	-	-
PC17. Implement continuous improvement initiatives based on documentation reviews and incident analysis, aiming to enhance the effectiveness of rigging operations and safety practices.	2	2	-	-
PC18. Use documented findings to develop training and awareness programs that address recurring issues and promote safe rigging practices across the organization.	2	2	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC19. Establish key performance indicators (KPIs) for documentation and reporting processes, monitoring them to evaluate performance and identify areas for improvement.	2	2	-	-
NOS Total	50	50	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	SSD/VSQ/N0318
NOS Name	Documentation and Reporting
Sector	Cross Sectoral
Sub-Sector	
Occupation	Lifting & Rigging Engineering & Management
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	22/10/2024
Next Review Date	22/10/2027
NSQC Clearance Date	22/10/2024



Qualification Pack

DGT/VSQ/N0102: Employability Skills (60 Hours)

Description

This unit is about employability skills, Constitutional values, becoming a professional in the 21st Century, digital, financial, and legal literacy, diversity and Inclusion, English and communication skills, customer service, entrepreneurship, and apprenticeship, getting ready for jobs and career development.

Scope

The scope covers the following :

- Introduction to Employability Skills
- Constitutional values - Citizenship
- Becoming a Professional in the 21st Century
- Basic English Skills
- Career Development & Goal Setting
- Communication Skills
- Diversity & Inclusion
- Financial and Legal Literacy
- Essential Digital Skills
- Entrepreneurship
- Customer Service
- Getting ready for Apprenticeship & Jobs

Elements and Performance Criteria

Introduction to Employability Skills

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

- PC1.** identify employability skills required for jobs in various industries
- PC2.** identify and explore learning and employability portals

Constitutional values – Citizenship

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

- PC3.** recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.
- PC4.** follow environmentally sustainable practices

Becoming a Professional in the 21st Century

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

- PC5.** recognize the significance of 21st Century Skills for employment
- PC6.** practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life

Basic English Skills

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



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- PC7.** use basic English for everyday conversation in different contexts, in person and over the telephone
- PC8.** read and understand routine information, notes, instructions, mails, letters etc. written in English
- PC9.** write short messages, notes, letters, e-mails etc. in English

Career Development & Goal Setting

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

- PC10.** understand the difference between job and career
- PC11.** prepare a career development plan with short- and long-term goals, based on aptitude

Communication Skills

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

- PC12.** follow verbal and non-verbal communication etiquette and active listening techniques in various settings
- PC13.** work collaboratively with others in a team

Diversity & Inclusion

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

- PC14.** communicate and behave appropriately with all genders and PwD
- PC15.** escalate any issues related to sexual harassment at workplace according to POSH Act

Financial and Legal Literacy

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

- PC16.** select financial institutions, products and services as per requirement
- PC17.** carry out offline and online financial transactions, safely and securely
- PC18.** identify common components of salary and compute income, expenses, taxes, investments etc
- PC19.** identify relevant rights and laws and use legal aids to fight against legal exploitation

Essential Digital Skills

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

- PC20.** operate digital devices and carry out basic internet operations securely and safely
- PC21.** use e- mail and social media platforms and virtual collaboration tools to work effectively
- PC22.** use basic features of word processor, spreadsheets, and presentations

Entrepreneurship

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

- PC23.** identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research
- PC24.** develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion
- PC25.** identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity

Customer Service

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

- PC26.** identify different types of customers
- PC27.** identify and respond to customer requests and needs in a professional manner.



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PC28. follow appropriate hygiene and grooming standards

Getting ready for apprenticeship & Jobs

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

PC29. create a professional Curriculum vitae (Résumé)

PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively

PC31. apply to identified job openings using offline /online methods as per requirement

PC32. answer questions politely, with clarity and confidence, during recruitment and selection

PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. need for employability skills and different learning and employability related portals

KU2. various constitutional and personal values

KU3. different environmentally sustainable practices and their importance

KU4. Twenty first (21st) century skills and their importance

KU5. how to use English language for effective verbal (face to face and telephonic) and written communication in formal and informal set up

KU6. importance of career development and setting long- and short-term goals

KU7. about effective communication

KU8. POSH Act

KU9. Gender sensitivity and inclusivity

KU10. different types of financial institutes, products, and services

KU11. how to compute income and expenditure

KU12. importance of maintaining safety and security in offline and online financial transactions

KU13. different legal rights and laws

KU14. different types of digital devices and the procedure to operate them safely and securely

KU15. how to create and operate an e- mail account and use applications such as word processors, spreadsheets etc.

KU16. how to identify business opportunities

KU17. types and needs of customers

KU18. how to apply for a job and prepare for an interview

KU19. apprenticeship scheme and the process of registering on apprenticeship portal

Generic Skills (GS)

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

GS1. read and write different types of documents/instructions/correspondence

GS2. communicate effectively using appropriate language in formal and informal settings



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- 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



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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Introduction to Employability Skills</i>	1	1	-	-
PC1. identify employability skills required for jobs in various industries	-	-	-	-
PC2. identify and explore learning and employability portals	-	-	-	-
<i>Constitutional values – Citizenship</i>	1	1	-	-
PC3. recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.	-	-	-	-
PC4. follow environmentally sustainable practices	-	-	-	-
<i>Becoming a Professional in the 21st Century</i>	2	4	-	-
PC5. recognize the significance of 21st Century Skills for employment	-	-	-	-
PC6. practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life	-	-	-	-
<i>Basic English Skills</i>	2	3	-	-
PC7. use basic English for everyday conversation in different contexts, in person and over the telephone	-	-	-	-
PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English	-	-	-	-
PC9. write short messages, notes, letters, e-mails etc. in English	-	-	-	-
<i>Career Development & Goal Setting</i>	1	2	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. understand the difference between job and career	-	-	-	-
PC11. prepare a career development plan with short- and long-term goals, based on aptitude	-	-	-	-
<i>Communication Skills</i>	2	2	-	-
PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings	-	-	-	-
PC13. work collaboratively with others in a team	-	-	-	-
<i>Diversity & Inclusion</i>	1	2	-	-
PC14. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC15. escalate any issues related to sexual harassment at workplace according to POSH Act	-	-	-	-
<i>Financial and Legal Literacy</i>	2	3	-	-
PC16. select financial institutions, products and services as per requirement	-	-	-	-
PC17. carry out offline and online financial transactions, safely and securely	-	-	-	-
PC18. identify common components of salary and compute income, expenses, taxes, investments etc	-	-	-	-
PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation	-	-	-	-
<i>Essential Digital Skills</i>	3	4	-	-
PC20. operate digital devices and carry out basic internet operations securely and safely	-	-	-	-
PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively	-	-	-	-
PC22. use basic features of word processor, spreadsheets, and presentations	-	-	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Entrepreneurship</i>	2	3	-	-
PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research	-	-	-	-
PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion	-	-	-	-
PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity	-	-	-	-
<i>Customer Service</i>	1	2	-	-
PC26. identify different types of customers	-	-	-	-
PC27. identify and respond to customer requests and needs in a professional manner.	-	-	-	-
PC28. follow appropriate hygiene and grooming standards	-	-	-	-
<i>Getting ready for apprenticeship & Jobs</i>	2	3	-	-
PC29. create a professional Curriculum vitae (Résumé)	-	-	-	-
PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively	-	-	-	-
PC31. apply to identified job openings using offline /online methods as per requirement	-	-	-	-
PC32. answer questions politely, with clarity and confidence, during recruitment and selection	-	-	-	-
PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements	-	-	-	-
NOS Total	20	30	-	-



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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	29/09/2022
Next Review Date	29/09/2027
NSQF Clearance Date	29/09/2022

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. The assessment criteria given in the Qualification Pack Advance Rigger by the SSDF.
2. Assessments can be carried out with pen-paper as well as online.
3. Assessment will be carried by certified assessor and affiliated Assessment Agency only.
4. Each NOS for its Performance Criteria (PC) has been assigned marks proportional to its importance. Proportion of marks for Theory and Practical has been marked NOS wise.
5. Questions on practical & theory will be formed in such a way as to provide outcome on maximum Performance Criteria and in proportional way within the NOS.
6. The assessment for the theory part will be based on written questions (short question, multiple choice & viva, or a combination of them) created/approved by the SSDF.
7. The assessment for the practical part will be based on practical conducted for trainees. In case of remote/on-line assessments, the practical's can be carried through proctors or practical questions formulated based on pictorially represented logical questions (based on pictures of practical & logical steps) created/approved by the SSDF.



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8. The passing and grading criteria of each NOS & cumulative for QP will be as follows:-

a. 70% or more than 70% - Grade A

b. 60% or more than 60% but less than 70% - Grade B

c. 50% or more than 50% but less than 60% - Grade C

d. Less than 50% - Grade Fail

e. If an individual gets less than 50% and 35% or more in one NOS and; overall, 50% or more; individual will be considered pass with grade "C" irrespective of overall marks.

f. Individuals getting less than 50% in more than one NOS and getting overall marks 50% or more in QP will be put in grade Fail.

9. Assessment will be for complete QP and the trainees can be given additional chance to appear in re-assessment for improvements, based on decision by SSDF.

10. In case a trainee fails in one or two NOSs, re-assessments in the failing NOSs can be allowed in the next 3 months from the date of publication of results. Otherwise, the failed candidate will have to re-appear in all NOSs.

11. Minimum overall duration of assessment will be six hours.

Minimum Aggregate Passing % at QP Level : 50

(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
SSD/VSQ/N0309.Introduction to Advance Rigging.	50	50	0	0	100	7
SSD/VSQ/N0310.Safety Standards and Regulations in Rigging	50	50	0	0	100	7



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National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
SSD/VSQ/N0311.Rigging Mathematics and Load Calculation	50	50	0	0	100	13
SSD/VSQ/N0312.Identifying and Evaluating Lift Points	50	50	0	0	100	7
SSD/VSQ/N0313.Working Load Limit & selection of Rigging component	50	50	0	0	100	7
SSD/VSQ/N0314.Pre-Use Inspection of Rigging and Lift Points	50	50	0	0	100	7
SSD/VSQ/N0315.Load Dynamics and Associated Hazards	50	50	0	0	100	13
SSD/VSQ/N0316.Advanced Rigging Considerations	50	50	0	0	100	13
SSD/VSQ/N0317.Emergency Response and Contingency Planning	50	50	0	0	100	7
SSD/VSQ/N0318.Documentation and Reporting	50	50	0	0	100	7
DGT/VSQ/N0102.Employability Skills (60 Hours)	20	30	-	-	50	12
Total	520	530	-	-	1050	100



Qualification Pack

Acronyms

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



Qualification Pack

Glossary

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



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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.