



Model Curriculum

Qualification Name: Advance Rigger

Qualification Code: SSD/Q0302 (SIDH : SSD/VSQ/Q0302)

Qualification Version: 1.0

NSQF Level: 4

Model Curriculum Version: 1.0

Safety Skill Development Foundation

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Training Parameters

Sectors	Hydrocarbon, Iron & steel, Mining, Power, Automotive, Construction, Infrastructure, Chemicals & Petrochemicals, and others.
Sub-Sector	-
Occupation	Lifting & Rigging Engineering & Management
Country	India
NSQF Level	4
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7215.0100
Minimum Educational Qualification and Experience	Completed 12th or Equivalent with science OR Completed 3-year diploma (after 10th) OR Previous relevant Qualification of NSQF Level 3.5 with 1.5 years of relevant experience OR Previous relevant qualification of NSQF level 3 with 3 years of relevant experience
Pre-Requisite License or Training	Nil
Minimum Job Entry Age	18 years
Last Reviewed On	22-10-2024
Next Review Date	22-10-2027
Version	1.0
NSQC Approval Date	22-10-2024
Model Curriculum Creation Date	22-10-2024
Model Curriculum Valid Up to Date	22-10-2027
Model Curriculum Version	1.0
Minimum Duration of the Course	450 Hours



Maximum Duration of the Course	450 Hours
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Program Overview

This section summarizes the end objectives of the program along with its duration.

Training Outcomes

After completing the program, the participant will be able to:-

- Demonstrate a clear understanding of rigging terminology and basic principles.
- Accurately calculate load weight and identify center of gravity for known configurations.
- Select and use appropriate basic rigging equipment and hitches.
- Apply safety standards and regulations to ensure safe rigging practices.
- Communicate effectively with team members using rigging terminology.
- Identify and describe the applicable safety standards and regulations for rigging and lifting activities.
- Recognize and evaluate hazards in rigging environments and implement risk management strategies.
- Ensure compliance with safety protocols, proper use of PPE, and adherence to company-specific safety policies.
- Maintain accurate safety records, complete compliance documentation, and report safety incidents effectively.
- Perform thorough inspections of all rigging equipment, identifying and addressing any defects or non-compliance issues.
- Document inspection results accurately and communicate findings effectively to relevant stakeholders.
- Apply industry-specific standards and guidelines to ensure rigging equipment is safe and compliant for use.
- Recognize the impact of environmental and operational factors on equipment integrity and take appropriate measures to mitigate risks.
- Identify and differentiate between various rigging sling types, ropes, and their properties.
- Select and use the appropriate rigging slings, ropes, knots, and hardware based on load characteristics, safety requirements, and environmental conditions.
- Conduct inspections of rigging equipment, ropes, and knots and perform basic maintenance to ensure safe usage.
- Apply correct rigging configurations, including knot-tying techniques, to maintain load stability and control during lifting operations.
- Identify and understand the properties, applications, and limitations of various lifting devices and below-the-hook lifters.
- Select, use, and operate lifting devices and below-the-hook lifters safely and effectively in accordance with manufacturer specifications and safety standards.
- Conduct thorough inspections of lifting devices and perform necessary maintenance to ensure safe functionality.



- Apply rigging configurations and calculate load dynamics to maintain stability and control during lifting operations.
- Identify, select, and operate manual hoists safely and effectively based on load requirements and environmental conditions.
- Perform pre-use inspections and routine maintenance of manual hoists to ensure equipment safety and compliance with industry standards.
- Handle loads using manual hoists in a controlled and stable manner, applying appropriate lifting techniques and configurations.
- Identify potential hazards during load handling and implement measures to prevent accidents and equipment damage.
- Maintain accurate documentation of inspections, maintenance activities, and safety concerns in accordance with company procedures and regulatory requirements.
- Understand and apply different rigging techniques to maintain load stability during lifting operations.
- Calculate sling angles and assess load dynamics to ensure balanced and controlled lifting.
- Monitor load movement and make necessary adjustments to rigging configurations to maintain stability.
- Identify potential stability-related hazards and implement measures to mitigate risks.
- Communicate load stability issues and corrective actions effectively to ensure safe rigging and lifting operations
- Identify potential emergency scenarios that could arise during rigging operations and assess their impact on safety and equipment.
- Develop effective contingency plans with clear response procedures, roles, and communication protocols.
- Execute emergency response actions in accordance with the contingency plan, ensuring the safety of personnel and equipment.
- Conduct emergency drills and training to test the effectiveness of contingency plans and ensure preparedness.
- Evaluate emergency incidents and update contingency plans based on lessons learned to improve future responses.

Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP:



NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
SSD/N0309 v 1.0: Introduction to Advance Rigging.	15:00 Hours	05:00 Hours	10:00 Hours	00:00 Hours	30:00 Hours
Module 1: Introduction to Training Program, Overview, assessments, role of Basic Rigger, employment opportunities in Industries.	04:00 Hours	00:00 Hours	05:00 Hours	00:00 Hours	09:00 Hours
Module 2: Demonstrate advanced level of proficiency in all the rigger tasks as blind hoists, traveling with a load, working in close quarters, and lift procedures for personnel.	11:00 Hours	05:00 Hours	05:00 Hours	00:00 Hours	21:00 Hours
SSD/N0310 v 1.0: Safety Standards and Regulations in Rigging.	15:00 Hours	15:00 Hours	00:00 Hours	00:00 Hours	30:00 Hours
Module 3: Understanding of the legal obligations, safety protocols, and compliance procedures necessary for safe rigging and load-handling operations.	15:00 Hours	15:00 Hours	00:00 Hours	00:00 Hours	30:00 Hours
SSD/N0311 v 1.0: Rigging Mathematics and Load Calculations.	30:00 Hours	15:00 Hours	15:00 Hours	00:00 Hours	60:00 Hours
Module 4: Mathematical skills needed to accurately estimate load weight, determine the center of gravity (CoG), and calculate load distribution based on hitch configurations and load angles.	30:00 Hours	15:00 Hours	15:00 Hours	00:00 Hours	60:00 Hours
SSD/N0312 v 1.0 : Identifying and Evaluating Lift Points.	15:00 Hours	5:00 Hours	10:00 Hours	00:00 Hours	30:00 Hours



Module 5: Selecting appropriate lift points that can support the weight and characteristics of loads, ensuring stability and safety throughout the lifting process.	15:00 Hours	5:00 Hours	10:00 Hours	00:00 Hours	30:00 Hours
SSD/N0313 v 1.0: Working Load Limit & selection of Rigging component.	15:00 Hours	5:00 Hours	10:00 Hours	00:00 Hours	30:00 Hours
Module 6: Understanding of rigging load capacity, safety factors, and the selection of rigging tools for asymmetrical and complex loads.	15:00 Hours	5:00 Hours	10:00 Hours	00:00 Hours	30:00 Hours
SSD/N0314 v 1.0: Pre-Use Inspection of Rigging and Lift Points.	15:00 Hours	5:00 Hours	10:00 Hours	00:00 Hours	30:00 Hours
Module 7: Equip rigging professionals with the necessary skills to detect potential issues, document findings, and implement corrective measures before using rigging equipment.	15:00 Hours	5:00 Hours	10:00 Hours	00:00 Hours	30:00 Hours
SSD/N0315 v 1.0: Load Dynamics and Associated Hazards.	30:00 Hours	15:00 Hours	15:00 Hours	00:00 Hours	60:00 Hours
Module 8: Equip rigging professionals with the ability to anticipate and respond to changing load dynamics and to implement effective control measures to minimize risk	30:00 Hours	15:00 Hours	15:00 Hours	00:00 Hours	60:00 Hours
SSD/N0316 v 1.0: Advanced Rigging Considerations.	30:00 Hours	20:00 Hours	10:00 Hours	00:00 Hours	60:00 Hours



Module 9: Ensure that advanced rigging professionals are equipped with the skills and knowledge to conduct safe and effective lifting operations, taking into account all critical factors that can influence the success of a lift.	30:00 Hours	20:00 Hours	10:00 Hours	00:00 Hours	60:00 Hours
SSD/N0317 v 1.0: Emergency Response and Contingency Planning.	15:00 Hours	5:00 Hours	10:00 Hours	00:00 Hours	30:00 Hours
Module 10: Knowledge of comprehensive guidelines and benchmarks that define the skills, knowledge, and competencies required for individuals involved in emergency management.	15:00 Hours	5:00 Hours	10:00 Hours	00:00 Hours	30:00 Hours
SSD/N0318 v 1.0: Documentation and Reporting	15:00 Hours	15:00 Hours	00:00 Hours	00:00 Hours	30:00 Hours
Module 11: Maintenance of rigging logbooks, reporting incidents and near-misses, and conducting root cause analyses to identify and address underlying issues in rigging operations.	15:00 Hours	15:00 Hours	00:00 Hours	00:00 Hours	30:00 Hours
DGT/VSQ/N0102: Employability Skills	30:00 Hours	30:00 Hours	00:00 Hours	00:00 Hours	60:00 Hours
Module 12: Understand scope in employment, financial dealing, digital literacy and communication with employer or customer.	30:00 Hours	30:00 Hours	00:00 Hours	00:00 Hours	60:00 Hours
Total Duration	225:00	135:00	90:00	00:00	450:00



	Hours	Hours	Hours	Hours	Hours
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NSQC Approved



Module Details

Module 1: Introduction to Training Program, Overview, assessments, role of Advance Rigger, employment opportunities in Industries.

Mapped to SSD/N0309, v1.0

Terminal Outcomes:

- Discuss role of Advance Rigger role, sectors & industries.
- Employment opportunities, career development & International opportunities.
- Course approach, duration, training & assessment processes.

Duration: 04:00	Duration: 00:00
Theory–Key Learning Outcomes	Practical–Key Learning Outcomes
<ul style="list-style-type: none"> • Role & responsibilities of Advance Rigger. • Career progression in the occupation. • Employment & international opportunities. • Training approach & methodology. • Assessment process & Certification. • The assistance provided by AB/TP/LMIS in employment. 	
Classroom Aids:	
Black/White Board, Computer, Projection Equipment, Power Point Presentation and software, Facilitator’s Guide, Participant’s Handbook.	
Tools, Equipment and Other Requirements	
Nil	



Module 2: Demonstrate advanced level of proficiency in all the rigger tasks as blind hoists, traveling with a load, working in close quarters, and lift procedures for personnel.

Mapped to SSD/N0309, v1.0

Terminal Outcomes:

- Proficiency in Rigging Equipment Identification and Selection.
- Understand Principles of Load Calculation and Weight Distribution.

Duration: 11 Hours	Duration: 5 Hours
Theory–Key Learning Outcomes	Practical–Key Learning Outcomes
<ul style="list-style-type: none"> • Demonstrate a comprehensive understanding of fundamental rigging concepts, terminology, and principles. • Describe various types of rigging equipment, including slings, hooks, chains, and hardware components. • Explain load dynamics, forces involved in rigging operations, and their effects on equipment and structures. • Identify and describe various rigging techniques and methods used in lifting and moving loads. • Recognize common hazards, risks, and potential safety issues associated with rigging operations. • Understand relevant regulatory requirements, standards, and industry guidelines governing rigging operations. • Interpret and analyze rigging plans, specifications, and diagrams to plan and execute rigging tasks. 	<ul style="list-style-type: none"> • Perform hands-on exercises to correctly handle and manipulate rigging equipment, demonstrating proper techniques for securing, attaching, and releasing loads. • Apply rigging techniques to rig and secure loads of different shapes, sizes, and weights using appropriate rigging configurations and methods. • Conduct rigging inspections and pre-use checks to ensure the integrity, functionality, and safety of rigging equipment before use. • Execute rigging plans and procedures safely and efficiently, following established protocols, standards, and safety practices. • Identify potential hazards and risks associated with rigging operations and implement appropriate risk mitigation measures. • Communicate effectively and coordinate rigging activities with team members to

<ul style="list-style-type: none">● Explain load calculations, weight distribution principles, and factors influencing load stability in rigging.● Describe rigging inspection and maintenance practices to ensure equipment integrity and operational readiness.● Discuss environmental factors, site-specific considerations, and external influences affecting rigging operations.	<p>ensure smooth and efficient execution of tasks.</p> <ul style="list-style-type: none">● Demonstrate rigging competency by successfully completing practical rigging tasks and exercises under realistic working conditions.● Adhere to regulatory requirements, safety standards, and best practices governing rigging operations.
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Classroom Aids:

Black/White Board, Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator’s Guide, Participant’s Handbook.

Tools, Equipment and Other Requirements

Personal Protective Equipment (PPE), Wire Rope Slings, Synthetic Slings (Nylon, Polyester), Chain Slings, Shackles (Anchor and Chain), Hooks (Swivel, Grab, Eye, Self-locking), Eye Bolts and Hoist Rings, Turnbuckles, Load Binders, Chain Hoists, Lever Hoists, Come-Alongs, Manual Hoists, Electric Hoists, Air Hoists, Pallet Jacks, Dollies, Roller Skids, Toe Jacks, Hydraulic Jacks, Measuring Tapes, Spirit Levels, Plumb Bobs, Digital Callipers, Load Cells and Dynamometers, Inspection Tools, Wrenches and Spanners, Screwdrivers, Hammers and Mallets, Pliers and Wire Cutters, Socket Sets, Torque Wrenches, First Aid Kits, Fire Extinguishers, Emergency Response Plans, Lockout/Tagout (LOTO) Kits, Rescue Ropes and Equipment.

Module 3: Understanding of the legal obligations, safety protocols, and compliance procedures necessary for safe rigging and load-handling operations

Mapped to SSD/N0310, v1.0

Terminal Outcomes:

- Full legal compliance with regulations governing rigging and load-handling.
- Effective hazard identification and implementation of control measures.
- Proficient equipment use following safety protocols and inspection procedures.
- Safe communication and coordination during operations.
- Emergency preparedness and ability to respond to incidents promptly.
- Commitment to continuous learning and safety improvements.
- Proper use of PPE and ensuring worker safety.



Duration: 15 Hours	Duration:15 Hours
Theory–Key Learning Outcomes	Practical–Key Learning Outcomes
<ul style="list-style-type: none">• Identify and interpret OSHA (Occupational Safety and Health Administration) regulations and other national safety standards relevant to rigging operations.• Apply OSHA guidelines for lifting, securing, and moving loads in compliance with national safety requirements.• Ensure that all rigging equipment and procedures meet the specified national safety standards, conducting regular inspections and audits.• Implement safety measures as required by national regulatory bodies, such as hazard communication, PPE usage, and safe work practices.• Interpret and apply ISO (International Organization for Standardization) standards, such as ISO 4309 (Cranes – Wire Ropes) and ISO 9927 (Cranes – Inspections).• Implement EN (European Norm) regulations for rigging and load-handling, ensuring compliance with international safety protocols.• Maintain an up-to-date understanding of international safety regulations and best practices for lifting and rigging operations.• Adapt rigging procedures to align with both national and international safety standards, ensuring consistency in safety practices.• Identify compliance requirements and legal obligations for rigging operations, including documentation, reporting, and record-keeping.• Develop procedures for reporting safety incidents, near misses, and equipment malfunctions in accordance with regulatory guidelines.• Educate team members on compliance requirements and the consequences of non-compliance, including potential penalties and legal repercussions.	<ul style="list-style-type: none">• Ability to plan and execute rigging and load-handling operations safely by applying risk assessments and equipment selection.• Practical application of pre-operation inspections, ensuring equipment is safe for use.• Proficiency in safe rigging and load-handling techniques, using appropriate configurations and equipment.• Competence in emergency response, demonstrating readiness to handle incidents effectively.• Effective communication and coordination within the rigging team using hand signals, radios, and clear instructions.• Consistent and proper use of PPE and adherence to safety protocols.• Hands-on ability to control loads safely, considering load dynamics and ensuring stability throughout operations.• Active participation in post-operation reviews and continuous improvement efforts.



- Implement corrective actions and preventive measures to address safety violations or compliance gaps.

Classroom Aids:

Black/White Board, Computer, Projection Equipment, MS office & Design & drafting software, Facilitator's Guide, Participant's Handbook.

Tools, Equipment and Other Requirements

Personal Protective Equipment (PPE), Wire Rope Slings, Synthetic Slings (Nylon, Polyester), Chain Slings, Shackles (Anchor and Chain), Hooks (Swivel, Grab, Eye, Self-locking), Eye Bolts and Hoist Rings, Turnbuckles, Load Binders, Chain Hoists, Lever Hoists, Come-Alongs, Manual Hoists, Electric Hoists, Air Hoists, Pallet Jacks, Dollies, Roller Skids, Toe Jacks, Hydraulic Jacks, Measuring Tapes, Spirit Levels, Plumb Bobs, Digital Callipers, Load Cells and Dynamometers, Inspection Tools, Wrenches and Spanners, Screwdrivers, Hammers and Mallets, Pliers and Wire Cutters, Socket Sets, Torque Wrenches, First Aid Kits, Fire Extinguishers, Emergency Response Plans, Lockout/Tagout (LOTO) Kits, Rescue Ropes and Equipment.

Module 4: Mathematical skills needed to accurately estimate load weight, determine the center of gravity (CoG), and calculate load distribution based on hitch configurations and load angles.

Mapped to SSD/N0311 v1.0

Terminal Outcomes:

- Ability to use mathematical formulas to determine load weights based on dimensions and material properties.
- Ability to identify and adjust lifting points to balance the load effectively.
- Proficiency in calculating how the load weight is distributed across multiple points and adjusting configurations to ensure stability.
- Ability to calculate sling forces and angles, ensuring that lifting equipment is used within its rated capacity.
- Ensuring all operations comply with safety standards by applying safety factors to load and equipment calculations.
- Ability to solve complex load-handling scenarios using trigonometric and geometric principles, ensuring safe and stable operations.
- Proficiency in using tools and software to assist in accurate rigging and load calculations.



Duration: 30 Hours	Duration: 15 Hours
Theory–Key Learning Outcomes	Practical–Key Learning Outcomes
<ul style="list-style-type: none">• Use direct weight measurement methods, such as load cells or scales, to determine the exact weight of a load.• Reference manufacturer’s specifications and product documentation to identify predefined load weights accurately.• Apply volume and density calculations using the formula $\text{Weight} = \text{Volume} \times \text{Density}$ for common materials like concrete, steel, and liquids.• Utilize common density values for frequently rigged materials to estimate weight effectively.• Determine the load’s center of gravity (CoG) using physical measurement techniques, ensuring accurate alignment for safe lifting.• Apply mathematical methods to calculate the CoG, considering factors like load symmetry, shape, and weight distribution.• Adjust lift points to align with the CoG, minimizing the risk of load tipping or instability during lifting operations.• Apply appropriate hitch configurations, such as Straight Hitch, Choker Hitch, and Basket Hitch, based on the specific lifting requirements and load characteristics.• Use a Straight Hitch for vertical lifts where no additional stability or load balancing is required.• Use a Choker Hitch for loads that require a tighter grip, such as cylindrical objects, understanding the reduced load capacity due to increased tension.• Use a Basket Hitch to evenly distribute load weight, preventing damage to delicate materials and ensuring a balanced lift.	<ul style="list-style-type: none">• Accurate load weight estimation using mathematical formulas and measurement tools.• Precise CoG determination for both symmetrical and irregular loads, ensuring safe load balance.• Effective load distribution across multiple lifting points and hitch configurations.• Sling angle and tension calculations to ensure that slings are used within safe working limits.• SWL and safety factor calculations to maintain equipment safety and avoid overloads.• Use of measurement tools such as tape measures, protractors, and rigging calculators for accurate load and angle measurements.• Adjustments to rigging configurations to maintain load stability and balance during lifting.• Post-lift verification of load weight and distribution to confirm that operations were performed safely and correctly.



- Create and interpret diagrams that illustrate how hitch angles affect load distribution and overall load capacity.
- Perform load angle factor calculations using sine and cosine functions to determine the actual load capacity based on the hitch angles.
- Utilize tables for quick reference when calculating load angle factors for different hitch setups, ensuring efficiency and accuracy in load planning.

Classroom Aids:

Black/White Board, Computer, Projection Equipment, MS office & Design & drafting software, Facilitator's Guide, Participant's Handbook.

Tools, Equipment and Other Requirements

Personal Protective Equipment (PPE), Wire Rope Slings, Synthetic Slings (Nylon, Polyester), Chain Slings, Shackles (Anchor and Chain), Hooks (Swivel, Grab, Eye, Self-locking), Eye Bolts and Hoist Rings, Turnbuckles, Load Binders, Chain Hoists, Lever Hoists, Come-Alongs, Manual Hoists, Electric Hoists, Air Hoists, Pallet Jacks, Dollies, Roller Skids, Toe Jacks, Hydraulic Jacks, Measuring Tapes, Spirit Levels, Plumb Bobs, Digital Callipers, Load Cells and Dynamometers, Inspection Tools, Wrenches and Spanners, Screwdrivers, Hammers and Mallets, Pliers and Wire Cutters, Socket Sets, Torque Wrenches, First Aid Kits, Fire Extinguishers, Emergency Response Plans, Lockout/Tagout (LOTO) Kits, Rescue Ropes and Equipment.

Module 5: Selecting appropriate lift points that can support the weight and characteristics of loads, ensuring stability and safety throughout the lifting process.

Mapped to SSD/N0312, v1.0

Terminal Outcomes:

- Ability to evaluate the structure, weight, and balance of the load to select appropriate lift points.
- Ability to locate secure lift points that can support the load without risk of failure.
- Proficiency in selecting lift points that maintain load balance, preventing tipping or shifting.
- Ability to select appropriate rigging equipment for the chosen lift points and ensure compatibility with lifting devices.
- Ability to adjust lift points based on environmental conditions to ensure load stability during lifting.
- Proficiency in selecting lift points that comply with industry safety regulations and SWL limits.
- Ability to inspect lift points and confirm rigging setups before lifting operations.



- Ability to monitor the load during lifting and make necessary adjustments to lift points or rigging if needed.
- Practical ability to inspect and document lift points after the lift to assess performance and ensure safety.

Duration: 15 Hours	Duration: 5 Hours
Theory–Key Learning Outcomes	Practical–Key Learning Outcomes
<ul style="list-style-type: none">• Assess the structural integrity and strength of potential lift points, considering factors like wear, corrosion, and deformation.• Evaluate the reliability of lift points by analyzing their design and construction, ensuring they can withstand the forces exerted during lifting.• Select lift points based on the material composition of the load, considering properties such as tensile strength, ductility, and hardness.• Determine appropriate lift points based on the load's thickness and shape, ensuring the selected points provide balanced support.• Ensure lift points are positioned symmetrically and equidistant from the center of gravity to maintain load stability during lifting operations.• Verify that the chosen lift points comply with relevant safety standards and manufacturer guidelines for rigging and lifting operations.• Apply formulas for calculating the safe lift point capacity based on material strength, load weight, and distribution factors.• Use safety factors to account for uncertainties in load characteristics and lift point conditions, ensuring a safe margin of error.• Determine lift point capacities using established formulas, such as:<ul style="list-style-type: none">• $\text{Safe Load Capacity} = (\text{Material Strength} \times \text{Cross-Sectional Area}) / \text{Safety Factor}$.• $\text{Load Distribution Factor} = \text{Total Load Weight} / \text{Number of Lift Points}$.• Utilize tables and charts that specify the strength and load-bearing capacities of	<ul style="list-style-type: none">• Accurately assess load characteristics to select safe, appropriate lift points.• Identify and avoid weak points on the load, ensuring lift points are structurally sound.• Set up rigging equipment that is compatible with the selected lift points and capable of supporting the load's weight.• Maintain load stability by selecting lift points that balance the load during lifting.• Adhere to SWL limits and safety factors to prevent overloading lift points and equipment.• Inspect and verify the setup before lifting, ensuring all connections and points are secure.• Monitor the load during lifting, making adjustments to the lift points if instability or imbalance occurs.• Evaluate and document the lift after completion, inspecting lift points and rigging for future use.



common materials (e.g., steel, aluminum) for quick reference during lift point calculations.

- Adjust calculations based on the specific conditions of the lift, such as temperature, environmental factors, and potential dynamic loads.
- Document lift point evaluation and calculation results, ensuring transparency and traceability in rigging operations.

Classroom Aids:

Black/White Board, Computer, Projection Equipment, MS office & Design & drafting software, Facilitator's Guide, Participant's Handbook.

Tools, Equipment and Other Requirements

Personal Protective Equipment (PPE), Wire Rope Slings, Synthetic Slings (Nylon, Polyester), Chain Slings, Shackles (Anchor and Chain), Hooks (Swivel, Grab, Eye, Self-locking), Eye Bolts and Hoist Rings, Turnbuckles, Load Binders, Chain Hoists, Lever Hoists, Come-Alongs, Manual Hoists, Electric Hoists, Air Hoists, Pallet Jacks, Dollies, Roller Skids, Toe Jacks, Hydraulic Jacks, Measuring Tapes, Spirit Levels, Plumb Bobs, Digital Callipers, Load Cells and Dynamometers, Inspection Tools, Wrenches and Spanners, Screwdrivers, Hammers and Mallets, Pliers and Wire Cutters, Socket Sets, Torque Wrenches, First Aid Kits, Fire Extinguishers, Emergency Response Plans, Lockout/Tagout (LOTO) Kits, Rescue Ropes and Equipment.

Module 6: Understanding of rigging load capacity, safety factors, and the selection of rigging tools for asymmetrical and complex loads.

Mapped to SSD/N0313, v1.0

Terminal Outcomes:

- Accurately calculate load weight and understand distribution for asymmetrical and complex loads.
- Determine safe working loads (SWL) and apply appropriate safety factors in rigging calculations.
- Select appropriate rigging tools based on load characteristics, ensuring safe and effective lifting.
- Identify challenges associated with asymmetrical loads and apply techniques to maintain balance and stability.
- Conduct pre-lift assessments to evaluate load condition and site factors, developing comprehensive lift plans.
- Ensure compliance with industry safety standards and implement safety protocols during rigging operations.



Duration: 15 Hours	Duration: 5 Hours
Theory–Key Learning Outcomes	Practical–Key Learning Outcomes
<ul style="list-style-type: none">• Define the working load limit (WLL) of rigging components such as slings, shackles, hooks, and lifting devices based on their material properties and design specifications.• Explain the concept of breaking strength and how it differs from WLL, understanding the significance of not exceeding the breaking strength during lifting operations.• 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:<ul style="list-style-type: none">• General Rigging: 5:1 (Load Weight: Rigging Capacity)• Critical Lifts: 10:1 or higher, depending on the complexity and risks involved.• Use formulas to calculate the safe working load (SWL) of rigging components based on their WLL and safety factor:<ul style="list-style-type: none">• Safe Working Load (SWL) = Breaking Strength / Safety Factor• Select rigging components based on their load capacity, ensuring they are rated for the specific weights and load characteristics of the lifting operation.• Verify the load capacity of rigging equipment through inspections and documentation review, ensuring compliance with manufacturer guidelines and safety standards.• Evaluate the load's shape, weight distribution, and center of gravity to determine the appropriate rigging configuration.• Use spreader bars to distribute load weight evenly across multiple lift points when handling wide or long loads.	<ul style="list-style-type: none">• Accurately calculate load weight and assess distribution for complex and asymmetrical loads.• Implement safety factors in rigging setups to ensure equipment is used within safe limits.• Select and utilize appropriate rigging tools for specific load characteristics effectively.• Set up and adjust rigging configurations to maintain load stability during lifting operations.• Conduct thorough pre-lift evaluations and develop comprehensive lift plans for safe rigging.• Follow safety protocols and monitor operations to ensure safe rigging practices.• Perform post-lift inspections and document lifting outcomes for ongoing improvement.



- Utilize load equalizing beams for lifting asymmetrical loads to balance weight distribution and maintain stability.
- 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.
- Adjust the sling angles and lengths to achieve a balanced lift, minimizing the risk of load tipping or shifting.
- Implement specialized rigging tools like adjustable spreader beams, rotating hooks, or swivel hoists to accommodate complex lifting scenarios.
- Ensure all rigging components are compliant with relevant industry standards and safety regulations, such as OSHA, ASME, and ISO guidelines.
- Document the selection and evaluation of rigging components, including calculations, load capacity verifications, and compliance checks.
- Maintain records of rigging inspections, certifications, and usage to ensure traceability and adherence to safety protocols.
- Report any discrepancies or non-compliance issues with rigging components to the supervisor for corrective action.

Classroom Aids:

Black/White Board, Computer, Projection Equipment, MS office & Design & drafting software, Facilitator’s Guide, Participant’s Handbook.

Tools, Equipment and Other Requirements

Personal Protective Equipment (PPE), Wire Rope Slings, Synthetic Slings (Nylon, Polyester), Chain Slings, Shackles (Anchor and Chain), Hooks (Swivel, Grab, Eye, Self-locking), Eye Bolts and Hoist Rings, Turnbuckles, Load Binders, Chain Hoists, Lever Hoists, Come-Alongs, Manual Hoists, Electric Hoists, Air Hoists, Pallet Jacks, Dollies, Roller Skids, Toe Jacks, Hydraulic Jacks, Measuring Tapes, Spirit Levels, Plumb Bobs, Digital Callipers, Load Cells and Dynamometers, Inspection Tools, Wrenches and Spanners, Screwdrivers, Hammers and Mallets, Pliers and Wire Cutters, Socket Sets, Torque Wrenches, First Aid Kits, Fire Extinguishers, Emergency Response Plans, Lockout/Tagout (LOTO) Kits, Rescue Ropes and Equipment.



Module 7: Equip rigging professionals with the necessary skills to detect potential issues, document findings, and implement corrective measures before using rigging equipment.

Mapped to SSD/N0314, v1.0

Terminal Outcomes:

- Conduct comprehensive inspections of rigging equipment to identify wear, damage, and hazards.
- Document inspection findings accurately and report issues according to procedures.
- Identify and implement corrective measures for identified rigging equipment issues.
- Understand and apply safety standards related to rigging equipment and inspections.
- Engage in ongoing training to remain knowledgeable about best practices and technologies in rigging.
- Perform risk assessments and implement strategies to manage identified risks.
- Communicate findings and collaborate with team members to enhance safety practices.

Duration: 15 Hours	Duration: 5 Hours
Theory–Key Learning Outcomes	Practical–Key Learning Outcomes
<ul style="list-style-type: none"> • Perform a visual inspection of rigging components, checking for signs of wear, deformation, corrosion, cracks, and other visible damage. • Conduct a tactile inspection by feeling for irregularities such as cuts, abrasions, or fraying on slings, wires, or ropes. • Inspect hooks and shackles for any signs of stretching, bending, or improper alignment that could affect their load-bearing capacity. • Verify that all identification tags, markings, and manufacturer labels are legible and correspond to the component’s specifications. • 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. • Document all findings from the inspection, noting any deficiencies or damage, and report them to the supervisor for further evaluation. 	<ul style="list-style-type: none"> • Conduct thorough hands-on inspections of rigging equipment, identifying defects and wear. • Utilize standardized inspection checklists to ensure comprehensive evaluations. • Recognize common equipment failures and assess environmental factors that may create hazards. • Document inspection findings accurately and maintain organized records for compliance. • Identify and execute corrective actions to ensure rigging equipment is safe for use. • Apply regulatory standards and adhere to safety protocols in practical scenarios. • Perform practical risk assessments and develop strategies to mitigate identified risks. • Effectively communicate findings and collaborate with team members for safety improvements.



- Ensure that defective or damaged rigging components are tagged as "Out of Service" and removed from the rigging area to prevent accidental use.
- 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.
- 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.
- Verify that bolts and other fasteners at lift points are properly tightened and free from corrosion or wear.
- Ensure that all lift points are positioned and aligned correctly to maintain load balance and stability.
- Establish criteria for rejecting or approving lift points based on observed conditions, using industry standards and manufacturer recommendations as references.
- Record lift point inspection results, including any corrective actions taken or recommendations for further evaluation by a certified inspector.
- Develop a standardized checklist for pre-use inspections of rigging components and lift points, ensuring consistency and completeness in the inspection process.
- Maintain an organized record-keeping system that includes inspection dates, findings, corrective actions, and the inspector's signature.
- Implement procedures for regularly reviewing and updating inspection records to ensure compliance with safety standards and audit requirements.
- Establish a protocol for reporting severe defects or non-compliance issues that require



immediate attention or equipment replacement.	
Classroom Aids:	
Black/White Board, Computer, Projection Equipment, MS office & Design & drafting software, Facilitator’s Guide, Participant’s Handbook.	
Tools, Equipment and Other Requirements	
Personal Protective Equipment (PPE), Wire Rope Slings, Synthetic Slings (Nylon, Polyester), Chain Slings, Shackles (Anchor and Chain), Hooks (Swivel, Grab, Eye, Self-locking), Eye Bolts and Hoist Rings, Turnbuckles, Load Binders, Chain Hoists, Lever Hoists, Come-Alongs, Manual Hoists, Electric Hoists, Air Hoists, Pallet Jacks, Dollies, Roller Skids, Toe Jacks, Hydraulic Jacks, Measuring Tapes, Spirit Levels, Plumb Bobs, Digital Callipers, Load Cells and Dynamometers, Inspection Tools, Wrenches and Spanners, Screwdrivers, Hammers and Mallets, Pliers and Wire Cutters, Socket Sets, Torque Wrenches, First Aid Kits, Fire Extinguishers, Emergency Response Plans, Lockout/Tagout (LOTO) Kits, Rescue Ropes and Equipment.	

Module 8: Equip rigging professionals with the ability to anticipate and respond to changing load dynamics and to implement effective control measures to minimize risk.

Mapped to SSD/N0315, v1.0

Terminal Outcomes:

- Recognize and understand load behavior, anticipating changes during lifting operations.
- Establish and implement control measures to manage load dynamics effectively.
- Conduct real-time risk assessments and implement strategies to mitigate potential hazards.
- Communicate changes in load conditions effectively to team members and collaborate in executing safe lifts.
- Utilize technology and monitoring equipment to assess load dynamics in real-time.
- Adapt rigging practices based on environmental conditions that may affect load stability.
- Evaluate lift performance post-operation and apply lessons learned to future practices.

Duration: 30 Hours	Duration: 15 Hours
Theory–Key Learning Outcomes	Practical–Key Learning Outcomes
<ul style="list-style-type: none"> • Explain the basic principles of load dynamics, including inertia and momentum, and their impact on lifting stability and control. • Analyze how load dynamics can change during lifting operations due to external factors such 	<ul style="list-style-type: none"> • Conduct load dynamics evaluations and use monitoring equipment to assess real-time load conditions. • Develop and implement control measures to manage load dynamics effectively.

as wind, vibration, and sudden or abrupt movements.

- Assess how inertia affects the starting and stopping phases of lifting operations, and implement measures to control load movement.
- Identify potential instability scenarios where load momentum could lead to uncontrolled swinging or tipping, and establish guidelines for managing these situations.
- Demonstrate the ability to anticipate and respond to dynamic load changes by adjusting lift speed, rigging angles, and load configurations.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.

- Perform real-time risk assessments and apply strategies to mitigate identified risks.
- Communicate changes in load dynamics effectively and collaborate with team members for safety.
- Assess environmental conditions that may impact load stability and adapt practices accordingly.
- Conduct post-operation evaluations and document lessons learned for continuous improvement.
- Adhere to established safety protocols and participate in safety briefings before operations.



- Demonstrate how to establish safety zones and barriers to protect personnel from identified hazards during rigging operations.
- Develop a risk assessment checklist for identifying hazards and documenting mitigation strategies before commencing any rigging operation.
- Use taglines to control load movement and prevent swinging or rotation during lifting and lowering operations.
- Apply proper rigging alignment techniques to ensure that the load remains balanced and stable throughout the lifting process.
- 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.
- Implement safety protocols such as lowering lift speeds, using spotters, and establishing visual cues to minimize the impact of dynamic forces on the load.
- Monitor environmental conditions, such as wind speed and ground stability, to identify potential changes in load dynamics and adjust lifting procedures accordingly.

Classroom Aids:

Black/White Board, Computer, Projection Equipment, MS office & Design & drafting software, Facilitator's Guide, Participant's Handbook.

Tools, Equipment and Other Requirements

Personal Protective Equipment (PPE), Wire Rope Slings, Synthetic Slings (Nylon, Polyester), Chain Slings, Shackles (Anchor and Chain), Hooks (Swivel, Grab, Eye, Self-locking), Eye Bolts and Hoist Rings, Turnbuckles, Load Binders, Chain Hoists, Lever Hoists, Come-Alongs, Manual Hoists, Electric Hoists, Air Hoists, Pallet Jacks, Dollies, Roller Skids, Toe Jacks, Hydraulic Jacks, Measuring Tapes, Spirit Levels, Plumb Bobs, Digital Callipers, Load Cells and Dynamometers, Inspection Tools, Wrenches and Spanners, Screwdrivers, Hammers and Mallets, Pliers and Wire Cutters, Socket Sets, Torque Wrenches, First Aid Kits, Fire Extinguishers, Emergency Response Plans, Lockout/Tagout (LOTO) Kits, Rescue Ropes and Equipment.



Module 9: Ensure that advanced rigging professionals are equipped with the skills and knowledge to conduct safe and effective lifting operations, taking into account all critical factors that can influence the success of a lift

Mapped to SSD/N0316, v1.0

Terminal Outcomes:

- Demonstrate knowledge of rigging equipment and their appropriate applications in lifting operations.
- Assess critical factors influencing lifts, including environmental conditions and regulatory requirements.
- Develop comprehensive lift plans that address all critical factors for successful lifting operations.
- Conduct thorough risk assessments and implement effective risk mitigation strategies.
- Execute safe lifting techniques while continuously monitoring load dynamics during operations.
- Communicate effectively with team members and collaborate on lifting operations.
- Conduct post-operation evaluations and document lessons learned for continuous improvement.
- Commit to ongoing training and development in advanced rigging practices and promote a culture of safety.

Duration: 30 Hours	Duration: 20 Hours
Theory–Key Learning Outcomes	Practical–Key Learning Outcomes
<ul style="list-style-type: none"> • Conduct a detailed evaluation of load characteristics, including weight, center of gravity, shape, and material properties, to develop an appropriate lift plan. • Identify the optimal rigging configuration based on load characteristics, ensuring that all rigging components are appropriately rated for the intended load and lift. • Assess environmental conditions such as wind, ground stability, and proximity to other structures, and factor these into the lift plan. • Establish a step-by-step lift plan, including equipment requirements, rigging setup, load handling procedures, and contingency measures. 	<ul style="list-style-type: none"> • Set up rigging configurations for various load types and handle advanced rigging tools proficiently. • Estimate load weight and center of gravity accurately and conduct load stability checks. • Evaluate worksite conditions and adapt rigging practices to changing environmental factors. • Develop detailed lift plans and conduct pre-lift safety briefings with the team. • Perform real-time risk assessments and implement effective control measures during operations. • Coordinate and communicate effectively with team members throughout lifting operations. • Conduct post-lift evaluations and document findings to improve future practices.

- Develop a comprehensive risk assessment for each rigging operation, identifying potential hazards and categorizing them based on likelihood and severity.
 - Implement mitigation strategies to address identified hazards, such as load stabilization measures, the use of specialized rigging equipment, and enhanced safety protocols.
 - Review and update lift plans and risk assessments regularly to reflect changes in load conditions, environmental factors, or equipment availability.
 - Conduct pre-lift inspections and functional tests of all rigging equipment to ensure they meet operational and safety standards.
 - Perform load tests using calibrated equipment to verify that the rigging configuration can safely support the designated load.
 - 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.
 - Document load test results, including the load weight, test duration, equipment used, and any observations made during the test.
 - Obtain load test certification from a qualified authority, ensuring that all rigging equipment and configurations are approved for use.
 - Maintain a record of load test certifications, inspection reports, and any corrective actions taken to ensure traceability and compliance with regulatory requirements.
 - Establish a schedule for regular load tests and re-certifications to maintain the integrity of rigging equipment and adherence to safety standards.
 - Submit lift plans, risk assessments, and load test results for review and approval by a qualified supervisor or safety officer.
- Engage in ongoing training and promote a culture of safety within the rigging profession.



- Implement any recommendations or corrective actions provided during the review process to enhance the safety and effectiveness of the lift.
- Ensure that all documentation, including lift plans, risk assessments, and load test certifications, is readily accessible for audits or inspections by regulatory bodies.

Classroom Aids:

Black/White Board, Computer, Projection Equipment, MS office & Design & drafting software, Facilitator's Guide, Participant's Handbook.

Tools, Equipment and Other Requirements

Personal Protective Equipment (PPE), Wire Rope Slings, Synthetic Slings (Nylon, Polyester), Chain Slings, Shackles (Anchor and Chain), Hooks (Swivel, Grab, Eye, Self-locking), Eye Bolts and Hoist Rings, Turnbuckles, Load Binders, Chain Hoists, Lever Hoists, Come-Alongs, Manual Hoists, Electric Hoists, Air Hoists, Pallet Jacks, Dollies, Roller Skids, Toe Jacks, Hydraulic Jacks, Measuring Tapes, Spirit Levels, Plumb Bobs, Digital Callipers, Load Cells and Dynamometers, Inspection Tools, Wrenches and Spanners, Screwdrivers, Hammers and Mallets, Pliers and Wire Cutters, Socket Sets, Torque Wrenches, First Aid Kits, Fire Extinguishers, Emergency Response Plans, Lockout/Tagout (LOTO) Kits, Rescue Ropes and Equipment.

Module 10: Knowledge of comprehensive guidelines and benchmarks that define the skills, knowledge, and competencies required for individuals involved in emergency management.

Mapped to SSD/N0317, v1.0

Terminal Outcomes:

- 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.



- Skill sets 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.
- Regulatory and Policy Frameworks: National Disaster Management Policies; International Guidelines; Industry-Specific Regulations.

Duration:15 Hours	Duration: 5 Hours
Theory–Key Learning Outcomes	Practical–Key Learning Outcomes
<ul style="list-style-type: none"> • Demonstrates a thorough understanding of emergency response procedures related to rigging and lifting operations. • Knows and follows site-specific emergency protocols, including emergency contact numbers, assembly points, and evacuation routes. • Proactively conducts risk assessments before and during lifting operations, identifying potential hazards that could lead to an emergency. • Can anticipate high-risk situations such as inclement weather, unstable ground, dynamic load shifts, or equipment malfunction. • Demonstrates proficiency in using emergency response equipment, such as fire extinguishers, first aid kits, emergency stop buttons, and personal protective equipment (PPE). • Ensures all emergency response tools are properly maintained, inspected, and readily accessible during operations. • Develops and implements comprehensive contingency plans for critical or high-risk lifts. • Ensures that backup rigging gear, additional personnel, or alternative lifting plans are in place in case of unforeseen circumstances. • Communicates clearly and effectively with the rigging team, crane operators, and site supervisors during emergency situations. • Ensures that all personnel understand emergency protocols and contingency plans, 	<ul style="list-style-type: none"> • Identify and explain key emergency management frameworks and apply industry standards to scenarios. • Define and assess core competencies required for emergency management professionals. • Develop comprehensive emergency plans and conduct vulnerability assessments. • Participate in emergency drills and facilitate training sessions to promote preparedness. • Implement effective communication protocols and utilize tools for crisis communication. • Collaborate with stakeholders and engage in multi-agency exercises for coordinated responses. • Conduct post-incident evaluations and document lessons learned to improve future practices. • Engage in ongoing professional development and stay informed about best practices in emergency management.



conducting regular drills to reinforce understanding.

- Takes immediate, decisive action in response to rigging-related emergencies such as load failure, equipment malfunction, or crane instability.
- Ensures the safety of the team and surrounding personnel by following emergency shutdown procedures.
- Conducts a thorough post-incident investigation to determine the root cause of the emergency or near-miss.
- Submits detailed reports of the incident, including the timeline of events, actions taken, and recommendations for preventing future incidents.
- Adheres to all applicable safety regulations, including OSHA and ANSI standards, regarding emergency response and contingency planning.
- Ensures proper documentation of emergency response drills, incident reports, and contingency plans.
- Continuously seeks ways to improve emergency response protocols and contingency plans based on lessons learned from drills or actual incidents.
- Engages in ongoing training to stay updated on the latest emergency response techniques and safety practices.

Classroom Aids:

Black/White Board, Computer, Projection Equipment, MS office & Design & drafting software, Facilitator’s Guide, Participant’s Handbook.

Tools, Equipment and Other Requirements

Personal Protective Equipment (PPE), Wire Rope Slings, Synthetic Slings (Nylon, Polyester), Chain Slings, Shackles (Anchor and Chain), Hooks (Swivel, Grab, Eye, Self-locking), Eye Bolts and Hoist Rings, Turnbuckles, Load Binders, Chain Hoists, Lever Hoists, Come-Alongs, Manual Hoists, Electric Hoists, Air Hoists, Pallet Jacks, Dollies, Roller Skids, Toe Jacks, Hydraulic Jacks, Measuring Tapes, Spirit Levels, Plumb Bobs, Digital Callipers, Load Cells and Dynamometers, Inspection Tools, Wrenches and Spanners, Screwdrivers, Hammers and Mallets, Pliers and Wire Cutters, Socket Sets, Torque Wrenches, First Aid Kits, Fire Extinguishers, Emergency Response Plans, Lockout/Tagout (LOTO) Kits, Rescue Ropes and Equipment.



Module 11: Maintenance of rigging logbooks, reporting incidents and near-misses, and conducting root cause analyses to identify and address underlying issues in rigging operation.

Mapped to SSD/N0318, v1.0

Terminal Outcomes:

- Maintain comprehensive rigging logbooks that accurately document all rigging activities and comply with regulations.
- Identify and report incidents and near-misses using established reporting protocols to ensure thorough documentation.
- Conduct structured root cause analyses to identify underlying causes of incidents and document contributing factors.
- Develop actionable corrective measures based on root cause findings and assign responsibilities for implementation.
- Monitor the implementation of corrective actions and evaluate their effectiveness in mitigating risks.
- Provide training on documentation practices and foster a culture of safety within the rigging team.
- Analyze logbook data for trends and revise procedures based on insights to enhance safety.
- Communicate findings and corrective actions to relevant stakeholders and provide management with updates on safety improvements.

Duration: 15 Hours	Duration: 15 Hours
Theory–Key Learning Outcomes	Practical–Key Learning Outcomes
<ul style="list-style-type: none"> • Maintain a detailed logbook for all rigging activities, including equipment inspections, maintenance, and usage records, as well as daily lift operations. • Record all rigging inspections, noting the condition of equipment, any observed defects, and corrective actions taken. • Document lift plans for each lifting operation, including load characteristics, rigging configurations, environmental conditions, and safety measures. • Use standardized templates for recording rigging inspections, incident reports, and lift 	<ul style="list-style-type: none"> • Maintain accurate rigging logbooks documenting rigging operations and equipment maintenance. • Recognize and report incidents and near-misses using standardized procedures for documentation. • Conduct root cause analyses to identify underlying issues and document findings. • Develop and implement corrective action plans to address identified issues in rigging operations. • Train personnel on reporting procedures and promote a culture of safety.



plans to ensure consistency and completeness in documentation.

- Include relevant details in documentation, such as equipment serial numbers, dates of inspection, names of inspectors, and observations made during the inspection.
- Store logbooks and documentation in an organized manner, ensuring easy access for reviews, audits, and inspections by internal and external stakeholders.
- Implement a documentation review process to regularly update records, ensuring they reflect the current status of rigging operations and equipment.
- Establish a formal procedure for reporting incidents, near-misses, and safety concerns during rigging operations.
- Encourage all personnel to report incidents and safety concerns promptly, without fear of retribution, to promote a culture of safety and transparency.
- Use incident reporting templates to capture essential information, including the date and time of the incident, location, involved personnel, and a description of events.
- Document corrective and preventive actions taken in response to reported incidents, and ensure follow-up to verify their effectiveness.
- 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.
- Develop and implement action plans to address identified root causes, preventing recurrence of similar incidents in future rigging operations.
- Share findings from incident investigations and root cause analyses with relevant personnel to enhance learning and improve overall safety awareness.

- Review logbooks and incident reports for trends and use findings to inform continuous improvement.
- Communicate findings and corrective actions with the team and provide feedback to management.



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

Classroom Aids:

Black/White Board, Computer, Projection Equipment, MS office & Design & drafting software, Facilitator's Guide, Participant's Handbook.

Tools, Equipment and Other Requirements

Personal Protective Equipment (PPE), Wire Rope Slings, Synthetic Slings (Nylon, Polyester), Chain Slings, Shackles (Anchor and Chain), Hooks (Swivel, Grab, Eye, Self-locking), Eye Bolts and Hoist Rings, Turnbuckles, Load Binders, Chain Hoists, Lever Hoists, Come-Alongs, Manual Hoists, Electric Hoists, Air Hoists, Pallet Jacks, Dollies, Roller Skids, Toe Jacks, Hydraulic Jacks, Measuring Tapes, Spirit Levels, Plumb Bobs, Digital Callipers, Load Cells and Dynamometers, Inspection Tools, Wrenches and Spanners, Screwdrivers, Hammers and Mallets, Pliers and Wire Cutters, Socket Sets, Torque Wrenches, First Aid Kits, Fire Extinguishers, Emergency Response Plans, Lockout/Tagout (LOTO) Kits, Rescue Ropes and Equipment.

Module 12: Understand scope in employment, financial dealing, digital literacy and communication with employer or customer.

Mapped to DGT/VSQ/N0102

Terminal Outcomes:

- Describe the traits of an individual at the workplace.
- Demonstrate apply employability and entrepreneurship skills at workplace.



Duration: 30:00	Duration: 30:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none">• Discuss the importance of Employability Skills in meeting the job requirements.• Explain constitutional values, civic rights, duties, citizenship, responsibility towards society etc. that are required to be followed to become a responsible citizen.• Discuss 21st century skills.• Display positive attitude, self -motivation, problem solving, time management skills and continuous learning mindset in different situations.• Discuss the significance of reporting sexual harassment issues in time.• Discuss the significance of using financial products and services safely and securely.• Explain the significance of approaching the concerned authorities in time for any exploitation as per legal rights and laws.• Explain the importance of managing expenses, income, and savings.• Discuss the significance of using the internet for browsing and accessing social media platforms, safely and securely.• Discuss the need for identifying opportunities for potential business, sources for arranging money and potential legal and financial challenges.• Differentiate between types of customers.• Explain the significance of identifying customer needs and addressing them.• Discuss the significance of maintaining hygiene and dressing appropriately.• Discuss the significance of dressing up neatly and maintaining hygiene for an interview.• Discuss how to search and register for apprenticeship opportunities.	<ul style="list-style-type: none">• Show how to practice different environmentally sustainable practices.• Use appropriate basic English sentences/phrases while speaking.• Demonstrate how to communicate in a well -mannered way with others.• Demonstrate working with others in a team.• Show how to conduct oneself appropriately with all genders and PW.• Show how to operate digital devices and use the associated applications and features, safely and securely.• Create biodata.• Use various sources to search and apply for jobs
Classroom Aids:	



Black/White Board, Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook.

Tools, Equipment and Other Requirements

Laptop/computer, internet, mobile

On The Job Training Plan: Advance Rigger

SSD/N0309 - Introduction to Advance Rigging:10 Hours

Key Learning Outcomes

- Weight estimation, center of gravity, load control.
- Application of Regulations and standards (OSHA, ASME B30).
- Safety briefing and job site safety.
- Application of slings, hitches, shackles, and hooks.
- Inspection of rigging equipment (pre-use inspection criteria).
- Sling angle calculations and tension forces.
- Prepare Load charts, rigging plans, calculate load weights and tensions for basic lifts.
- Inspection and rejection criteria for slings.
- Sling hitches (vertical, choker, and basket hitches) and rigging configurations.
- Controlling the load (balancing, tilt control, tag lines).
- Load distribution and rigging arrangements for multi-leg lifts.
- Creating rigging plans for intermediate loads.
- Planning and performing multi-leg lifts.
- Multi-crane lifts and synchronized lifting.
- Rigging with spreader bars and lifting beams.
- Complex rigging geometry (unequal leg lengths, off-center loads).
- Load drift and dynamic loads.
- Calculating forces and tensions for complex rigging scenarios.
- Critical lift planning and risk assessment.
- Conducting pre-lift meetings and safety briefings.

SSD/N0311 - Rigging Mathematics and Load Calculations: 15 Hours

Key Learning Outcomes

- Use of weights, volumes, and capacities in rigging.
- Calculate areas and volumes of simple shapes (rectangles, cylinders).
- Calculate sling tension based on the angle of slings (trigonometry-based approach).
- Calculate sling tensions for various lifting setups with different angles.
- Load distribution in 2-leg, 3-leg, and 4-leg lifts.
- Practical calculations for load sharing in multiple-leg lifting arrangements.



- Estimate the weight of different materials and objects.
- Determine the center of gravity for irregular loads.
- Estimate the weight and center of gravity of sample loads.

SSD/N0312 - Identifying and Evaluating Lift Points.:10 Hours

Key Learning Outcomes

- Rigging operations and identifying proper lift points, types of loads (standard, irregular, cylindrical, etc.), load stability.
- Find theoretical lift points on standard-shaped loads.
- Read technical drawings and load specifications.
- Evaluate load characteristics and how they impact lift point choices.
- Identify damage or weaknesses in lift points (corrosion, fatigue, poor welds).
- Inspect and evaluate the integrity of lift points on real-world equipment.
- Use rigging gear (slings, shackles, beams) to create safe lift points on loads without built-in attachment points.
- Use of synthetic and wire rope slings for creating lift points.
- Evaluate sling angles, tension forces, and stability when using temporary lift points.
- Apply rigging techniques for temporary lift points on irregular loads.

SSD/N0313- Working Load Limit & selection of Rigging component:10 Hours

Key Learning Outcomes

- Inspect and identify different types of rigging equipment.
- Assess load size, shape, weight, and center of gravity.
- Determine the structural integrity of the load and lift points.
- Calculate load stability and the impact on rigging gear selection.
- Evaluate sample loads and determining critical load characteristics.
- Calculate the load on each sling in a multi-leg lift and find effects of unequal load distribution on rigging equipment.
- Perform load distribution calculations for multi-leg lifts and selecting appropriate rigging gear.
- Select rigging gear for non-uniform loads (irregular shapes, off-center loads).
- Use spreader bars, lifting beams, and load equalizers.
- Rigging exercises for uneven and irregular loads using specialized rigging gear.

SSD/N0314-Pre-Use Inspection of Rigging and Lift Points:10 Hours

Key Learning Outcomes

- Apply OSHA and ASME requirements for pre-use inspections.
- Find common causes of rigging failures due to insufficient inspections.
- Inspect for broken wires, kinks, corrosion, and wear, cuts, abrasions, punctures, and UV damage.
- Check for elongation, wear, and damage to links.
- Shackles: Check for deformation, wear, and proper pin alignment.



- Hooks: Inspecting for throat opening, wear, and cracks.
- Lifting beams and spreader bars: Examine welds, pins, and overall structural integrity.
- Turnbuckles and eyebolts: Inspect for thread integrity, wear, and alignment.
- Pre-engineered lift points: Inspect pad eyes, lifting lugs, and welded attachment points.
- Temporary lift points: Inspect slings and rigging gear used to create lift points.
- Assess wear, corrosion, and signs of fatigue in lift points.
- Review inspection procedures for slings, hardware, and lift points, compliance with safety standards and inspection criteria.
- Role of periodic inspections and maintenance in addition to pre-use checks.

SSD/N0315-Load Dynamics and Associated Hazards: 15 Hours

Key Learning Outcomes

- Experience forces acting on a load: static, dynamic, centrifugal, and impact forces.
- Effects of acceleration, deceleration, and sudden movement on load stability.
- Observe the behavior of loads under different types of forces.
- Experience forces during load movement (swinging, stopping, and shifting).
- Case studies of lifting failures due to uncontrolled dynamic forces.
- Effects of wind on suspended loads, especially large or irregular loads.
- Wind forces and their impact on load movement and crane stability.
- Experience lifting operations in a controlled environment with wind effects.
- Plan and executing a simulated multi-crane lift, focusing on controlling dynamic forces.
- Identify potential hazards related to dynamic loads in lifting operations.
- Develop risk mitigation strategies (proper planning, crane positioning, rigging techniques).
- Perform risk assessments for complex lifting operations.

SSD/N0316 -Advanced Rigging Considerations- 10 Hours

Key Learning Outcomes

- Use load angles and their effect on tension, center of gravity and load balance.
- Apply various types of slings as per their applications and use rigging hardware (shackles, hooks, eyebolts).
- Rigging safety checks (daily and pre-lift inspections) & prepare heavy lifting strategies and considerations.
- Practice rigging of odd-shaped or awkward loads.
- Aligning lifting points for stability, considering wind, ground stability, and environmental factors.
- Use of spreader bars, load equalizing devices, multi-leg slings and bridles, mechanical advantage systems (pulleys and blocks).
- Prepare lift plan.
- Communicate roles and responsibilities for lift supervisors, signalers, and riggers.

SSD/N0317- Emergency Response and Contingency Planning- 10 Hours



Key Learning Outcomes

- The role of rigging personnel in emergency situations in rigging (load shifts, equipment failure, personnel injury, etc.) & safety regulations and industry standards for emergency preparedness.
- Communication and coordination during emergencies.
- Identify hazards & risks: environmental, equipment, and human factors & develop control measures to mitigate identified risks & contingency plan.
- Use personal protective equipment (PPE) for rigging emergencies, firefighting and first aid equipment usage.
- Use of rescue slings, harnesses, and fall arrest systems.
- Securing unstable loads and preventing further hazards.
- Incident Command System (ICS) for rigging emergencies.
- Apply communication protocols during emergencies: Radio, hand signals, and visual cues.
- Coordinating with external emergency services (fire department, paramedics, etc.).
- Decision-making during emergencies: Prioritizing actions and delegating tasks
- Prepare documenting of incidents: reporting and post-incident analysis.
- Real-time decision-making and emergency response under simulated stress.
- Plan for contingencies: Handling multiple emergencies simultaneously.
- Debriefing and lessons learned from simulation exercises.

Total Duration of OJT – 90 Hours (1 .5 weeks)



Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
ITI/12 th Pass	Any domain	8	Safety Domain	0	-	
Graduate in any discipline / Diploma in Engineering	Graduate in Civil, Mechanical, Automobile, Electrical Engineering. Graduate with Science	4	Safety Domain	0	-	
M. Tech/ B. Tech	Graduate in Civil, Mechanical, Automobile, Electrical Engineering. Graduate with Science	2	Safety Domain	0	-	

Trainer Certification	
Domain Certification	Platform Certification
Certified as Trainer for the Qualification “SSD/Q302: Advance Rigger” or higher qualification as per career progression by SSDF.	Recommended that the Trainer is certified for the Job Role: “Trainer (VET and Skills),” mapped to the Qualification Pack: “MEP/Q2601 v2.0”. The minimum score of 80%.



Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training/Assessment Experience		Remarks
		Years	Specialization	Years	Specialization	
ITI/12 th Pass	Any domain	8	Safety Domain	0	-	
Graduate in any discipline / Diploma in Engineering	Graduate in Civil, Mechanical, Automobile, Electrical Engineering. Graduate with Science	4	Safety Domain	0	-	
M. Tech/ B. Tech	Graduate in Civil, Mechanical, Automobile, Electrical Engineering. Graduate with Science	2	Safety Domain	0	-	

Assessor Certification	
Domain Certification	Platform Certification
Certified as assessor for the Qualification “SSD/Q302: Advance Rigger” or higher qualification as per career progression by SSDF.	Recommended that the Assessor is certified for the Job Role: “Assessor (VET and Skills)”, mapped to the Qualification Pack: “MEP/Q2701 v2.0”. The minimum accepted score is 80%.



Assessment Strategy

The assessment will be based on the concept of third-party assessments through certified assessors with empaneled Assessment Agencies of NCVET. The certification of each assessor will be done by SSDF through a process of selection, training, assessment & certification through training of assessor's program.

The assessments will include both formative & summative. The progressive assessments will be through the trainer during the progress of the training. The summative assessments will be carried out by an assessor through assessment agencies.

The assessment process will find whether the candidate or professional is competent or not to perform the job as per expected performance criteria. The assessment plan contains the following information:

- Assessment elements – Competencies based on performance criteria of each NOS.
- Methods of assessment – Written test (online/offline), viva and practical/ field exercises.
- Time of assessment – The assessment will be done both formative and summative (post orientation/training) of candidates.
- Place i.e., context of the assessment - The assessment will be conducted through theory, viva voice and practical/ field exercises, on simulators and will be both online and offline modes.
- The criteria for decision making– It will be based on assessment criteria & guidelines as given in the qualification pack.
- Questions – The written questions, viva & practical questions will be set to cover all aspect of performance criteria and would have been validated from experts in the subject matter.

Glossary

Term	Description
Declarative Knowledge	Declarative knowledge refers to facts, concepts and principles that need to be known and/or understood to accomplish or to solve a problem.
Key Learning Outcome	Key learning outcome is the statement of what a learner needs to know, understand and be able to do to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training Outcome is specified in terms of knowledge, understanding(theory)and skills (practical application).
OJT(M)	On-the-job training (Mandatory); trainees are mandated to complete specified hours of training on site



OJT(R)	On-the-job training (Recommended); trainees are recommended the specified hours of training on Site.
Procedural Knowledge	Procedural knowledge addresses how to do something, or how to perform a task. It is the ability to work or produce a tangible work output by applying, cognitive, affective, or psycho motor skills.
Training Outcome	Training outcome is a statement of what a learner will know, understand and be able to do upon the completion of the training.
Terminal Outcome	Terminal outcome is a statement of what a learner will know, understand and be able to do upon the completion of a module. A set of terminal outcomes help to achieve the training outcome.

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Acronyms and Abbreviations

Term	Description
QP	Qualification Pack
NSQF	National Skills Qualification Framework
NSQC	National Skills Qualification Committee
NOS	National Occupational Standard
AB	Awarding Body
AA	Assessment Agency
TP	Training Partner

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