

QUALIFICATION PACK

QUALIFICATION
**CRANE
INSPECTOR**



QP Code: SSD/Q0302

Version: 1.0

NSQF Level: 5.5

SAFETY SKILL DEVELOPMENT FOUNDATION

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SSD/Q0302: CRANE INSPECTOR

Brief JOB Description

A Crane Inspector is responsible for ensuring that the lifting equipments are safe to operate and compliant with industry regulations. He will carry out thorough inspection before starting lifting operations and during regular scheduled maintenance to identify any potential hazards or areas of non-compliance. He will also verify the authenticity and completeness of testing reports, maintenance logs, and certificates issued by competent authorities. This role requires a combination of technical expertise, regulatory knowledge, and analytical skills to ensure the safety of workers, equipment, and the surrounding environment.

Personal Attributes

The professional should be mentally and professionally fit to take responsibility of compliances of health and safety standards, rules and meet the health and safety standards at workplace with his/her integrity, objectivity, independency, knowledge of law, expression, and code of ethics.

List of applicable National Occupational Standards

1. SSD/N0327 v 1.0 : Introduction to Lifting and Rigging Operations
2. SSD/N0328 v 1.0 : Crane Operational Mechanisms and Systems
3. SSD/N0329 v 1.0 : Inspection, Maintenance, and Certification of Lifting Equipment
4. SSD/N0330 v 1.0 : Legal and Regulatory Compliance for Lifting Operations
5. SSD/N0331 v 1.0 :Hazard Identification, Risk Assessment, and Incident Reporting in Lifting Operation.
6. SSD/N0332 v 1.0 : Safety of Plant, Machinery and Vehicle in Lifting Operation
7. SSD/N0333 v 1.0 : Planning and Organizing Lifting & Rigging and Emergency Protocols

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8. SSD/N0334 v 1.0 : Load Planning and Stability Control in Lifting Operation.
9. SSD/N0335 v 1.0 : Communication and Team Coordination in Lifting Operations.
10. SSD/N0336 v 1.0 : Health, Hygiene and Environment Protocols for Lifting & Rigging Operations.
11. DGT/VSQ/0102 : Employability Skills

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SSD/Q0302: CRANE INSPECTOR

Qualification Parameters

Developed by	:	Safety Skill Development Foundation
Used by Sectors	:	Hydrocarbon, Iron & steel, Mining, Power, Automotive, Construction, Infrastructure, Chemicals & Petrochemicals, and others.
Occupation	:	Lifting & Rigging Engineering & Management.
Country	:	India
NSQF Level	:	5.5
Aligned to NCO/ISCO/ISIC Code	:	NCO-2015/ 8343.1600

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Minimum Job Entry Age	:	18 years	
Minimum Educational Qualification & Experience	:	Educational Qualification	Experience in Years
		Completed 4-year UG	Nil
		Completed 3-year diploma after 10th	2
		Completed 2-year NTC after 10th	2
		Previous relevant qualification of NSQF level 5.0	1.5
		Previous relevant qualification of NSQF level 4.5	3
Pre-Requisite License	:	Nil	
Training Duration	:	600 hours (75 Days)	
Last Review Date	:		
NSQC Approval Date	:		

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Next Review Date	:	
Version	:	1.0
Reference code on NQR	:	
NQR Version	:	1.0

NATIONAL OCCUPATIONAL STANDARDS

1. SSD/N0327 v1.0 : Introduction to Lifting and Rigging Operations

Overview

This NOS provides a foundational understanding of lifting and rigging operations along with the roles and responsibilities of personnel involved, including Crane Safety Inspectors, Crane Operators, Riggers, and Rigging Supervisors. It equips individuals with the necessary knowledge of lifting operations, personnel coordination, safety procedures, and compliance requirements. This NOS emphasizes the importance of each role in ensuring safe and efficient operations and minimizing risks.

Scope

The professional will be able to:

- Understand the fundamentals of lifting and rigging operations.

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- The roles, responsibilities, and functions of key personnel involved in lifting operations.
- Identify safety requirements and protocols for effective team collaboration.
- Communication and compliance with safety standards.

Elements and Performance Criteria (PC)

The certified professional on this NOS will be able to:

Understand Fundamentals of Lifting and Rigging Operations

PC1: Explain the principles of lifting, rigging, and load handling.

PC2: Identify common tools and equipment used in lifting operations (e.g., cranes, slings, hooks).

PC3: Describe the importance of load stability and correct sling angles for safe lifting.

PC4: Identify the safety hazards associated with lifting and rigging operations.

Identify Roles and Responsibilities of Key Personnel

PC5: Explain the role of the Crane Safety Inspector in ensuring compliance with safety standards.

PC6: Outline the responsibilities of Crane Operators in executing safe lifts.

PC7: Describe the duties of Riggers in load preparation and guiding lifts.

PC8: Identify the role of the Rigging Supervisor in overseeing rigging activities and ensuring team coordination.

Apply Safety Procedures in Lifting Operations

PC9: Demonstrate knowledge of pre-operation safety checks.

PC10: Explain the importance of personal protective equipment (PPE) in lifting operations.

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PC11: Identify common safety protocols such as lockout/tagout procedures and emergency controls.

PC12: Monitor compliance with safety standards during operations to minimize risks.

PC-13: Use appropriate communication tools (e.g., radios, hand signals) to coordinate with team members.

Knowledge and Understanding (KU)

The certified professional on this NOS will be able to know and understand followings:

KU1: Principles of lifting operations and load handling.

KU2: Types of lifting equipment (e.g., mobile cranes, tower cranes) and their applications.

KU3: Duties of Crane Safety Inspectors, Crane Operators, Riggers, and Rigging Supervisors.

KU4: Importance of collaboration among team members during lifting operations.

KU5: National and international safety standards (e.g., OSHA, ISO, LOLER).

KU6: Importance of PPE, lockout/tagout procedures, and emergency controls.

KU7: Use of communication tools such as radios and hand signals.

KU8: Best practices for teamwork and conflict resolution in lifting operations.

KU9: Methods for monitoring and ensuring compliance with safety standards.

KU10: Importance of post-operation debriefs to improve safety and efficiency.

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Generic Skills (GS)

The certified professional on this NOS should know followings for better performance:

GS-1 Reading & writing in the language of communication.

GS-2 Effective verbal communication in local language.

GS-3 Basic mathematics and calculations.

GS-4 Understanding of safety and adherence to safety related protocols.

GS-5 Conduct of Professional behavior with co-workers and employees.

GS-6 Use of personal protective equipment.

GS-7 Work site rules & security, fire safety protocols, first aid & procedure under emergency conditions.

GS-8 Housekeeping and disposal of waste materials.

GS-9. Strong focus on safety standards, ensuring a safe working environment, and implementing preventative measures.

GS-10 Attentive, providing feedback & proposing solutions to operational challenges.

Assessment Criteria : SSD/N0327 v1.0

Performance Criteria	Theory marks	Practical marks	Project Marks	Viva marks	Total marks
Understand Fundamentals of Lifting and Rigging Operations	16	16	-	-	32

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PC1: Explain the principles of lifting, rigging, and load handling.	4	4	-	-	8
PC2: Identify common tools and equipment used in lifting operations (e.g., cranes, slings, hooks).	4	4	-	-	8
PC3: Describe the importance of load stability and correct sling angles for safe lifting.	4	4	-	-	8
PC4: Identify the safety hazards associated with lifting and rigging operations.	4	4	-	-	8
Identify Roles and Responsibilities of Key Personnel	16	16	-	-	32
PC5: Explain the role of the Crane Safety Inspector in ensuring compliance with safety standards.	4	4	-	-	8
PC6: Outline the responsibilities of Crane Operators in executing safe lifts.	4	4	-	-	8
PC7: Describe the duties of Riggers in load preparation and guiding lifts.	4	4	-	-	8
PC8: Identify the role of the Rigging Supervisor in overseeing rigging activities and ensuring team coordination.	4	4	-	-	8

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Apply Safety Procedures in Lifting Operations	18	18	-	-	36
PC9: Demonstrate knowledge of pre-operation safety checks.	4	4	-	-	8
PC10: Explain the importance of personal protective equipment (PPE) in lifting operations.	4	4	-	-	8
PC11: Identify common safety protocols such as lockout/tagout procedures and emergency controls.	4	4	-	-	8
PC12: Monitor compliance with safety standards during operations to minimize risks.	3	3	-	-	6
PC13: Use appropriate communication tools (e.g., radios, hand signals) to coordinate with team members.	3	3	-	-	6
NOS Total Marks	50	50	-	-	100

National Occupational Standards (NOS) Parameters

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NOS Code	:	SSD/N0327 v1.0
NOS Name	:	Introduction to Lifting and Rigging Operations
Training Duration	:	60 Hours
Used by Sectors	:	Hydrocarbon, Iron & steel, Mining, Power, Automotive, Construction, Infrastructure, Chemicals & Petrochemicals, and others.
Sub-Sector	:	-
Occupation	:	Lifting & Rigging Engineering & Management.
NSQF Level	:	5.5
Credits	:	2
Version	:	1.0

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Last Review Date	:	
NSQC Approval Date	:	
Next Review Date	:	

2. SSD/N0328 v1.0 : Crane Operational Mechanisms and Systems

Overview

This NOS provides a detailed understanding of the mechanical, electrical, hydraulic, and operational systems that power different types of cranes. It ensures that personnel involved in crane safety inspections, maintenance, and operations can identify how these systems function, detect malfunctions, and ensure that cranes are operated efficiently and safely. The aim is to equip learners with the technical knowledge required for operating, inspecting, and maintaining cranes to prevent equipment failure and accidents.

Scope

The professional will be able to:

- Understand the operational mechanisms of different types of cranes (e.g., mobile, tower, overhead cranes).
- Hydraulic, mechanical, and electrical systems involved in crane operation.
- Detect malfunctions and irregularities in crane systems.
- Safety requirements, safety features, braking systems, and load indicators.

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- Equipment maintenance to prevent downtime and accidents.

Elements and Performance Criteria (PC)

The certified professional on this NOS will be able to:

Understand Mechanical and Structural Components

PC1: Identify key mechanical components such as booms, hooks, slings, and gears.

PC2: Explain how boom types (e.g., telescopic, articulated) affect operations.

PC3: Describe the role of counterweights in ensuring crane stability.

Understand Hydraulic and Electrical Systems

PC4: Explain the role of hydraulic systems in crane movements (e.g., lifting, lowering).

PC5: Identify electrical components such as control systems, motors, and sensors.

PC6: Detect common malfunctions in hydraulic and electrical systems.

Apply Knowledge of Safety Mechanisms

PC7: Understand the operation of braking systems to prevent unintended movement.

PC8: Explain the role of safety features such as anti-two-block systems and limit switches.

PC9: Use load indicators and charts to monitor crane capacity.

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Ensure Routine Maintenance and Fault Detection

PC10: Conduct basic troubleshooting for hydraulic, mechanical, and electrical faults.

PC11: Ensure that all systems are maintained according to manufacturer's guidelines.

PC12: Maintain documents and report any faults to the appropriate personnel.

Knowledge and Understanding (KU)

The certified professional on this NOS will be able to know and understand followings:

KU1: Structural components such as booms, hooks, slings, pulleys, and gears.

KU2: Functions of telescopic and articulated booms for different operations.

KU3: Hydraulic cylinders, motors, and their role in crane operation.

KU4: Electrical components such as control panels, motors, sensors, and safety systems.

KU5: Operation of braking systems, anti-two-block systems, and limit switches.

KU6: Use of load indicators and charts to ensure compliance with capacity limits.

KU7: Basic troubleshooting techniques for hydraulic and electrical faults.

KU8: Documentation and reporting procedures for maintenance activities.

KU9: Factors affecting crane operations in construction, industrial, and port environments.

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KU10: Influence of environmental conditions (e.g., wind, uneven surfaces) on operations.

Generic Skills (GS)

The certified professional on this NOS should know followings for better performance:

GS-1 Reading & writing in the language of communication.

GS-2 Effective verbal communication in local language.

GS-3 Basic mathematics and calculations.

GS-4 Understanding of safety and adherence to safety related protocols.

GS-5 Conduct of Professional behavior with co-workers and employees.

GS-6 Use of personal protective equipment.

GS-7 Work site rules & security, fire safety protocols, first aid & procedure under emergency conditions.

GS-8 Housekeeping and disposal of waste materials.

GS-9. Strong focus on safety standards, ensuring a safe working environment, and implementing preventative measures.

GS-10 Attentive, providing feedback & proposing solutions to operational challenges

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Assessment Criteria : SSD/N0328 v1.0

Performance Criteria	Theory marks	Practical marks	Project Marks	Viva marks	Total marks
Understand Mechanical and Structural Components	14	14		-	28
PC1: Identify key mechanical components such as booms, hooks, slings, and gears.	5	5	-	-	10
PC2: Explain how boom types (e.g., telescopic, articulated) affect operations.	5	5	-	-	10
PC3: Describe the role of counterweights in ensuring crane stability.	4	4	-	-	8
Understand Hydraulic and Electrical Systems	12	12		-	24

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PC4: Explain the role of hydraulic systems in crane movements (e.g., lifting, lowering).	4	4	-	-	8
PC5: Identify electrical components such as control systems, motors, and sensors.	4	4	-	-	8
PC6: Detect common malfunctions in hydraulic and electrical systems.	4	4	-	-	8
Apply Knowledge of Safety Mechanisms	12	12		-	24
PC7: Understand the operation of braking systems to prevent unintended movement.	4	4	-	-	8
PC8: Explain the role of safety features such as anti-two-block systems and limit switches.	4	4	-	-	8
PC9: Use load indicators and charts to monitor crane capacity.	4	4	-	-	8
Ensure Routine Maintenance and Fault Detection	12	12		-	24
PC10: Conduct basic troubleshooting for hydraulic, mechanical, and electrical faults.	4	4	-	-	8
PC11: Ensure that all systems are maintained according to manufacturer's guidelines.	4	4	-	-	8

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PC12: Maintain documents and report any faults to the appropriate personnel.	4	4	-	-	8
NOS Total Marks	50	50	-	-	100

National Occupational Standards (NOS) Parameters

NOS Code	:	SSD/N0328 v1.0
NOS Name	:	Crane Operational Mechanisms and Systems
Training Duration	:	60 Hours
Used by Sectors	:	Hydrocarbon, Iron & steel, Mining, Power, Automotive, Construction, Infrastructure, Chemicals & Petrochemicals, and others.
Sub-Sector	:	-
Occupation	:	Lifting & Rigging Engineering & Management.

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NSQF Level	:	5.5
Credits	:	2
Version	:	1.0
Last Review Date		15-10-2024
NSQC Approval Date	:	15-10-2024
Next Review Date	:	15-10-2027

3. SSD/N0329 v1.0 : Inspection, Maintenance, and Certification of Lifting Equipment

Overview

This NOS provides essential knowledge and skills required for the inspection, maintenance, and certification of cranes and other lifting equipment. The focus is on ensuring that all equipment is in optimal working condition, meets safety standards, and complies with regulatory requirements. It emphasizes pre-operation inspections, regular maintenance schedules, identifying faults, and ensuring proper documentation for certification and audits.

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Scope

The professional will be able to:

- Conduct pre-operation and scheduled inspections of lifting equipment.
- Perform maintenance activities according to manufacturer guidelines.
- Identify and report defects, malfunctions, and non-compliance.
- Ensure certification and testing documentation is valid and up-to-date.
- Coordinate with technicians and operators to ensure proper equipment functionality.

Elements and Performance Criteria (PC)

The certified professional on this NOS will be able to perform followings:

Conduct Pre-Operation and Scheduled Inspections

PC1: Perform visual inspections of equipment components for signs of wear and damage.

PC2: Ensure that safety devices and indicators are functional.

PC3: Check the condition of slings, hooks, pulleys, ropes, and other lifting gear.

Perform Routine Maintenance and Repairs

PC4: Conduct maintenance activities according to manufacturer's guidelines.

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PC5: Identify minor faults and perform necessary repairs.

PC6: Coordinate with maintenance teams for major repairs and replacements.

Ensure Certification and Compliance

PC7: Verify that all equipment complies with national and international safety standards (e.g., OSHA, LOLER).

PC8: Ensure that testing certificates and maintenance records are valid and accessible.

PC9: Prepare documentation for audits and certifications as required.

Report Defects and Non-Compliance Issues

PC10: Document any identified defects, faults, or non-compliance issues.

PC11: Report findings to relevant personnel for corrective action.

PC12: Monitor and follow up on corrective actions to ensure compliance.

Knowledge and Understanding (KU)

The certified professional on this NOS will be able to know and understand followings:

KU1: Methods for inspecting hooks, ropes, pulleys, and other components for wear and damage.

KU2: Techniques for testing safety indicators and devices.

KU3: Routine maintenance tasks as per manufacturer recommendations.

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KU4: Methods for troubleshooting and repairing minor faults in lifting equipment.

KU5: Understanding national and international standards (e.g., OSHA, LOLER, ISO 45001).

KU6: Documentation requirements for audits and certifications.

KU7: Procedures for recording inspection results and maintenance activities.

KU8: Best practices for reporting defects and non-compliance issues.

KU9: Effective communication with maintenance personnel and supervisors.

KU10: Ensuring timely coordination for major repairs and inspections.

Generic Skills (GS)

The certified professional on this NOS should know followings for better performance:

GS-1 Reading & writing in the language of communication.

GS-2 Effective verbal communication in local language.

GS-3 Basic mathematics and calculations.

GS-4 Understanding of safety and adherence to safety related protocols.

GS-5 Conduct of Professional behavior with co-workers and employees.

GS-6 Use of personal protective equipment.

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GS-7 Work site rules & security, fire safety protocols, first aid & procedure under emergency conditions.

GS-8 Housekeeping and disposal of waste materials.

GS-9. Strong focus on safety standards, ensuring a safe working environment, and implementing preventative measures.

GS-10 Attentive, providing feedback & proposing solutions to operational challenges

Assessment Criteria : SSD/N0329 v1.0

Performance Criteria	Theory marks	Practical marks	Project Marks	Viva marks	Total marks
Conduct Pre-Operation and Scheduled Inspections	14	14		-	28
PC1: Perform visual inspections of equipment components for signs of wear and damage.	5	5	-	-	10
PC2: Ensure that safety devices and indicators are functional.	5	5	-	-	10
PC3: Check the condition of slings, hooks, pulleys, ropes, and other lifting gear.	4	4	-	-	8
Perform Routine Maintenance and Repairs	12	12		-	24

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PC4: Conduct maintenance activities according to manufacturer's guidelines.	4	4	-	-	8
PC5: Identify minor faults and perform necessary repairs.	4	4	-	-	8
PC6: Coordinate with maintenance teams for major repairs and replacements.	4	4	-	-	8
Ensure Certification and Compliance	12	12		-	24
PC7: Verify that all equipment complies with national and international safety standards (e.g., OSHA, LOLER).	4	4	-	-	8
PC8: Ensure that testing certificates and maintenance records are valid and accessible.	4	4	-	-	8
PC9: Prepare documentation for audits and certifications as required.	4	4	-	-	8
Report Defects and Non-Compliance Issues	12	12		-	24
PC10: Document any identified defects, faults, or non-compliance issues.	4	4	-	-	8

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PC11: Report findings to relevant personnel for corrective action.	4	4	-	-	8
PC12: Monitor and follow up on corrective actions to ensure compliance.	4	4	-	-	8
NOS Total Marks	50	50	-	-	100

National Occupational Standards (NOS) Parameters

NOS Code	:	SSD/N0329 v1.0
NOS Name	:	Inspection, Maintenance, and Certification of Lifting Equipment
Training Duration	:	60 Hours
Used by Sectors	:	Hydrocarbon, Iron & steel, Mining, Power, Automotive, Construction, Infrastructure, Chemicals & Petrochemicals, and others.
Sub-Sector	:	-

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Occupation	:	Lifting & Rigging Engineering & Management.
NSQF Level	:	5.5
Credits	:	2
Version	:	1.0
Last Review Date	:	
NSQC Approval Date	:	
Next Review Date	:	

4. SSD/N0330 v1.0 : Legal and Regulatory Compliance for Lifting Operations

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Overview

This NOS focuses on the knowledge and skills required to ensure compliance with national and international legal standards governing lifting operations. It aims to equip individuals with the ability to understand statutory regulations, organizational policies, and industry standards such as OSHA, LOLER, and ISO 45001. The goal is to ensure that all lifting operations are performed safely and in accordance with regulatory requirements, minimizing risks, legal liabilities, and operational disruptions.

Scope

The scope covers the following:

- Application of national and international safety standards.
- Compliance with certification and operational guidelines.
- Lifting operations alignment with organizational safety policies.
- Documenting and reporting non-compliance issues.
- Preparation and management of regulatory audits and inspections.

Elements and Performance Criteria (PC)

The certified professional on this NOS will be able to perform followings:

Understand National and International Safety Standards

PC1: Identify and interpret relevant national and international standards (e.g., OSHA, LOLER, ISO 45001).

PC2: Ensure lifting operations align with legal and safety standards.

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PC3: Communicate regulatory requirements to operational teams.

Ensure Compliance with Organizational Safety Policies

PC4: Verify that all procedures comply with organizational safety protocols.

PC5: Actively monitor lifting operations to ensure adherence to established policies and procedures, promoting safe and compliant practices.

PC6: Identify and report any non-compliance issues to the relevant authorities.

Manage Certification and Documentation

PC7: Ensure all equipment certifications and safety inspections are up to date.

PC8: Maintain accurate documentation of audits, inspections, and certifications.

PC9: Prepare documentation for regulatory audits and internal reviews.

Report Non-Compliance and Implement Corrective Actions

PC10: Identify and document any incidents of non-compliance.

PC11: Report non-compliance to appropriate personnel and external authorities.

PC12: Implement corrective actions to address non-compliance and prevent recurrence.

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Knowledge and Understanding (KU)

The certified professional on this NOS will be able to know and understand followings:

KU1: Key regulations such as OSHA, LOLER, ISO 45001, and national safety guidelines.

KU2: Legal requirements for equipment certification, inspections, and reporting.

KU3: Understanding of company-specific safety protocols.

KU4: Procedures for monitoring and ensuring compliance with policies.

KU5: Best practices for maintaining accurate records of inspections and certifications.

KU6: Preparing documentation for regulatory audits and compliance reviews.

KU7: Methods for reporting non-compliance incidents and violations.

KU8: Procedures for conducting root-cause analysis and implementing corrective actions.

KU9: Preparing for regulatory audits and inspections.

KU10: Collaborating with external inspectors and auditors during reviews.

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Generic Skills (GS)

The certified professional on this NOS should know followings for better performance:

GS-1 Reading & writing in the language of communication.

GS-2 Effective verbal communication in local language.

GS-3 Basic mathematics and calculations.

GS-4 Understanding of safety and adherence to safety related protocols.

GS-5 Conduct of Professional behavior with co-workers and employees.

GS-6 Use of personal protective equipment.

GS-7 Work site rules & security, fire safety protocols, first aid & procedure under emergency conditions.

GS-8 Housekeeping and disposal of waste materials.

GS-9. Strong focus on safety standards, ensuring a safe working environment, and implementing preventative measures.

GS-10 Attentive, providing feedback & proposing solutions to operational challenges.

Assessment Criteria : SSD/N0330 v1.0

Performance Criteria	Theory marks	Practical marks	Project Marks	Viva marks	Total marks
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Understand National and International Safety Standards	14	14	-	-	28
PC1: Identify and interpret relevant national and international standards (e.g., OSHA, LOLER, ISO 45001).	5	5	-	-	10
PC2: Ensure lifting operations align with legal and safety standards.	5	5	-	-	10
PC3: Communicate regulatory requirements to operational teams.	4	4	-	-	8
Ensure Compliance with Organizational Safety Policies	12	12		-	24
PC4: Verify that all procedures comply with organizational safety protocols.	4	4	-	-	8
PC5: Monitor lifting operations to ensure adherence to policies and procedures.	4	4	-	-	8
PC6: Identify and report any non-compliance issues to the relevant authorities.	4	4	-	-	8
Manage Certification and Documentation	12	12		-	24

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PC7: Ensure all equipment certifications and safety inspections are up to date.	4	4	-	-	8
PC8: Maintain accurate documentation of audits, inspections, and certifications.	4	4	-	-	8
PC9: Prepare documentation for regulatory audits and internal reviews.	4	4	-	-	8
Report Non-Compliance and Implement Corrective Actions	12	12		-	24
PC10: Identify and document any incidents of non-compliance.	4	4	-	-	8
PC11: Report non-compliance to appropriate personnel and external authorities.	4	4	-	-	8
PC12: Implement corrective actions to address non-compliance and prevent recurrence.	4	4	-	-	8
NOS Total Marks	50	50	-	-	100

National Occupational Standards (NOS) Parameters

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NOS Code	:	SSD/N0330 v1.0
NOS Name	:	Legal and Regulatory Compliance for Lifting Operations
Training Duration	:	60 Hours
Used by Sectors	:	Hydrocarbon, Iron & steel, Mining, Power, Automotive, Construction, Infrastructure, Chemicals & Petrochemicals, and others.
Sub-Sector	:	-
Occupation	:	Lifting & Rigging Engineering & Management.
NSQF Level	:	5.5
Credits	:	2
Version	:	1.0
Last Review Date	:	
NSQC Approval Date	:	
Next Review Date	:	

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SSD/N0331 v1.0 : Hazard Identification, Risk Assessment, and Incident Reporting in Lifting Operation

Overview

This NOS focuses on the essential skills required for identifying hazards, conducting risk assessments, and reporting incidents to ensure safe operations in crane and lifting activities. The aim is to equip learners with the ability to proactively detect risks, mitigate hazards, and follow proper incident reporting procedures to prevent accidents. This NOS is crucial for maintaining safety standards, reducing downtime, and promoting continuous improvement in workplace operations.

Scope

The professional will be able to:

- Identify hazards related to crane and lifting operations.
- Conduct risk assessments to evaluate and prioritize risks.
- Implement preventive and corrective actions to reduce risks.
- Report incidents, near-misses, and safety violations effectively.
- Maintain incident records and ensuring corrective actions are documented.

Elements and Performance Criteria (PC)

The certified professional on this NOS will be able to:

Identify Hazards in Lifting Operations

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PC1: Identify potential hazards associated with cranes, equipment, and site conditions.

PC2: Recognize environmental factors (e.g., high winds, uneven surfaces) that could impact operations.

PC3: Monitor equipment for wear, defects, or malfunctions that may cause risks.

Conduct Risk Assessments and Mitigate Hazards

PC4: Perform risk assessments to determine the likelihood and impact of identified hazards.

PC5: Develop and implement preventive measures to mitigate risks.

PC6: Communicate identified risks and control measures to team members.

Report Incidents and Near-Misses

PC7: Document and report incidents, near-misses, and safety violations promptly.

PC8: Ensure incident reports are aligned with organizational procedures and standards.

PC9: Conduct root-cause analysis to determine underlying factors for incidents.

Maintain Records and Follow Corrective Actions

PC10: Maintain detailed records of incidents and corrective actions taken.

PC11: Monitor and verify the implementation of corrective measures.

PC12: Participate in safety audits and provide input for continuous improvement.

Knowledge and Understanding (KU)

The certified professional on this NOS will be able to know and understand followings:

KU1: Common hazards associated with crane operations and lifting activities.

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KU2: Environmental factors (e.g., weather conditions) affecting safety.

KU3: Techniques for conducting risk assessments using risk matrices and scoring.

KU4: Methods for prioritizing risks and implementing control measures.

KU5: Best practices for documenting and reporting incidents and near-misses.

KU6: Importance of root-cause analysis for incident prevention.

KU7: Procedures for following up on corrective actions to prevent future risks.

KU8: Role of safety audits in identifying gaps and ensuring continuous improvement.

KU9: Effective communication of risks and safety measures to team members.

KU10: Documentation requirements for incident records and compliance audits.

Generic Skills (GS)

The certified professional on this NOS should know followings for better performance:

GS-1 Reading & writing in the language of communication.

GS-2 Effective verbal communication in local language.

GS-3 Basic mathematics and calculations.

GS-4 Understanding of safety and adherence to safety related protocols.

GS-5 Conduct of Professional behavior with co-workers and employees.

GS-6 Use of personal protective equipment.

GS-7 Work site rules & security, fire safety protocols, first aid & procedure under emergency conditions.

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GS-8 Housekeeping and disposal of waste materials.

GS-9. Strong focus on safety standards, ensuring a safe working environment, and implementing preventative measures.

GS-10 Attentive, providing feedback & proposing solutions to operational challenges.

Assessment Criteria : SSD/N0331 v1.0

Performance Criteria	Theory marks	Practical marks	Project Marks	Viva marks	Total marks
Identify Hazards in Lifting Operations	14	14		-	28
PC1: Identify potential hazards associated with cranes, equipment, and site conditions.	5	5	-	-	10
PC2: Recognize environmental factors (e.g., high winds, uneven surfaces) that could impact operations.	5	5	-	-	10
PC3: Monitor equipment for wear, defects, or malfunctions that may cause risks.	4	4	-	-	8
Conduct Risk Assessments and Mitigate Hazards	12	12		-	24

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PC4: Perform risk assessments to determine the likelihood and impact of identified hazards.	4	4	-	-	8
PC5: Develop and implement preventive measures to mitigate risks.	4	4	-	-	8
PC6: Communicate identified risks and control measures to team members.	4	4	-	-	8
Report Incidents and Near-Misses	12	12		-	24
PC7: Document and report incidents, near-misses, and safety violations promptly.	4	4	-	-	8
PC8: Ensure incident reports are aligned with organizational procedures and standards.	4	4	-	-	8
PC9: Conduct root-cause analysis to determine underlying factors for incidents.	4	4	-	-	8
Maintain Records and Follow Corrective Actions	12	12		-	24
PC10: Maintain detailed records of incidents and corrective actions taken.	4	4	-	-	8

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PC11: Monitor and verify the implementation of corrective measures.	4	4	-	-	8
PC12: Participate in safety audits and provide input for continuous improvement.	4	4	-	-	8
NOS Total Marks	50	50	-	-	100

National Occupational Standards (NOS) Parameters

NOS Code	:	SSD/N0331 v1.0
NOS Name	:	Hazard Identification, Risk Assessment, and Incident Reporting in Lifting Operation
Training Duration	:	60 Hours
Used by Sectors	:	Hydrocarbon, Iron & steel, Mining, Power, Automotive, Construction, Infrastructure, Chemicals & Petrochemicals, and others.
Sub-Sector	:	-

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Occupation	:	Lifting & Rigging Engineering & Management.
NSQF Level	:	5.5
Credits	:	2
Version	:	1.0
Last Review Date	:	
NSQC Approval Date	:	
Next Review Date	:	

SSD/N0332 v1.0 : Safety of Plant, Machinery, and Vehicle in Lifting Operation

Overview

This NOS provides essential knowledge and skills required to ensure the safe operation of plant, machinery, and vehicles at work sites, including those involved in lifting and rigging operations. The focus is on identifying potential risks, following safety protocols, conducting inspections, and

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ensuring that operations are carried out in accordance with safety standards to prevent accidents, equipment damage, and operational delays. This NOS aims to promote a safe working environment for all personnel working with or near machinery and vehicles.

Scope

The professional will be able to:

- Ensure safe operation of machinery, plant, and vehicles at work sites.
- Conduct inspections and maintenance to detect faults and malfunctions.
- Implement and monitor safety protocols to prevent accidents.
- Coordinate with operators, supervisors, and safety teams to ensure compliance.
- Manage vehicles, personnel, and equipment in dynamic environments.

Elements and Performance Criteria (PC)

The certified professional on this NOS will be able to:

Ensure Safe Operations of Plant, Machinery, and Vehicles

PC1: Monitor the safe handling and operation of plant, machinery, and vehicles at work sites.

PC2: Ensure operators follow manufacturer's instructions and safety guidelines.

PC3: Verify that all personnel are using the appropriate personal protective equipment (PPE).

Conduct Inspections and Fault Detection

PC4: Perform pre-operation inspections of machinery, plant, and vehicles to identify faults.

PC5: Detect any wear, damage, or malfunctions and report them to the maintenance team.

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PC6: Document inspection results and ensure that any faults are addressed promptly.

Implement Safety Protocols to Prevent Accidents

PC7: Ensure that safety protocols, such as lockout/tagout procedures, are followed during maintenance.

PC8: Monitor the interaction of vehicles and personnel to prevent accidents.

PC9: Identify and mitigate environmental risks, such as uneven surfaces or weather conditions.

Coordinate with Teams and Ensure Compliance

PC10: Collaborate with machine operators, supervisors, and safety officers to ensure compliance.

PC11: Ensure compliance with statutory and organizational safety standards.

PC12: Participate in safety briefings and provide input for continuous improvement.

Knowledge and Understanding (KU)

The certified professional on this NOS will be able to know and understand followings:

KU1: Types of machinery and vehicles used at construction and industrial sites.

KU2: Safe operating procedures for cranes, forklifts, and other equipment.

KU3: Methods for conducting pre-operation inspections and identifying faults.

KU4: Understanding of lockout/tagout procedures and their importance.

KU5: Knowledge of national and international safety standards (e.g., OSHA, ISO 45001).

KU6: Company policies for the safe operation of machinery and vehicles.

KU7: Identifying potential risks associated with machinery and vehicle operations.

KU8: Strategies for mitigating risks, such as managing environmental conditions.

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KU9: Effective communication with operators, supervisors, and safety teams.

KU10: Importance of participating in safety briefings and reporting issues promptly.

Generic Skills (GS)

The certified professional on this NOS should know followings for better performance:

The certified professional on this NOS should know followings for better performance:

GS-1 Reading & writing in the language of communication.

GS-2 Effective verbal communication in local language.

GS-3 Basic mathematics and calculations.

GS-4 Understanding of safety and adherence to safety related protocols.

GS-5 Conduct of Professional behavior with co-workers and employees.

GS-6 Use of personal protective equipment.

GS-7 Work site rules & security, fire safety protocols, first aid & procedure under emergency conditions.

GS-8 Housekeeping and disposal of waste materials.

GS-9. Strong focus on safety standards, ensuring a safe working environment, and implementing preventative measures.

GS-10 Attentive, providing feedback & proposing solutions to operational challenges

Assessment Criteria : SSD/N0332 v1.0

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Performance Criteria	Theory marks	Practical marks	Project Marks	Viva marks	Total marks
Ensure Safe Operations of Plant, Machinery, and Vehicles	14	14	-	-	28
PC1: Monitor the safe handling and operation of plant, machinery, and vehicles at work sites.	5	5	-	-	10
PC2: Ensure operators follow manufacturer's instructions and safety guidelines.	5	5	-	-	10
PC3: Verify that all personnel are using the appropriate personal protective equipment (PPE).	4	4	-	-	8
Conduct Inspections and Fault Detection	12	12		-	24
PC4: Perform pre-operation inspections of machinery, plant, and vehicles to identify faults.	4	4	-	-	8
PC5: Detect any wear, damage, or malfunctions and report them to the maintenance team.	4	4	-	-	8

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PC6: Document inspection results and ensure that any faults are addressed promptly.	4	4	-	-	8
Implement Safety Protocols to Prevent Accidents	12	12		-	24
PC7: Ensure that safety protocols, such as lockout/tagout procedures, are followed during maintenance.	4	4	-	-	8
PC8: Monitor the interaction of vehicles and personnel to prevent accidents.	4	4	-	-	8
PC9: Identify and mitigate environmental risks, such as uneven surfaces or weather conditions.	4	4	-	-	8
Coordinate with Teams and Ensure Compliance	12	12		-	24
PC10: Collaborate with machine operators, supervisors, and safety officers to ensure compliance.	4	4	-	-	8
PC11: Ensure compliance with statutory and organizational safety standards.	4	4	-	-	8
PC12: Participate in safety briefings and provide input for continuous improvement.	4	4	-	-	8

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NOS Total Marks	50	50	-	-	100
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National Occupational Standards (NOS) Parameters

NOS Code	:	SSD/N0332 v1.0
NOS Name	:	Safety of Plant, Machinery, and Vehicle in Lifting Operation
Training Duration	:	60 Hours
Used by Sectors	:	Hydrocarbon, Iron & steel, Mining, Power, Automotive, Construction, Infrastructure, Chemicals & Petrochemicals, and others.
Sub-Sector	:	-
Occupation	:	Lifting & Rigging Engineering & Management.
NSQF Level	:	5.5

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Credits	:	2
Version	:	1.0
Last Review Date	:	
NSQC Approval Date	:	
Next Review Date	:	

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SSD/N0333 v1.0 : Planning and Organizing Lifting and Rigging Emergency Protocols

Overview

This NOS focuses on developing skills required to plan, organize, and manage emergency protocols during lifting and rigging operations. It equips individuals with the knowledge to anticipate potential emergencies, coordinate team actions, and implement emergency response procedures effectively. The goal is to ensure that all personnel are prepared to respond swiftly to equipment failures, accidents, or hazardous situations, minimizing risks and preventing injuries or damage.

Scope

The professional will be able to:

- Identify potential emergencies and risks during lifting and rigging operations.
- Develop and implement emergency response plans.
- Coordinate with operators, riggers, supervisors, and safety personnel.
- Conduct emergency drills and simulations to improve preparedness.
- Ensure compliance with emergency management policies and regulations.

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Elements and Performance Criteria (PC)

The certified professional on this NOS will be able to:

Identify Potential Emergencies and Risks

PC1: Identify common emergencies such as equipment failures, load slippage, or environmental hazards.

PC2: Assess site conditions and risks that could lead to emergencies.

PC3: Monitor equipment and team activities to detect early signs of potential emergencies.

Develop and Implement Emergency Response Plans

PC4: Prepare detailed emergency response plans aligned with organizational policies.

PC5: Define the roles and responsibilities of team members during emergencies.

PC6: Ensure the availability and functionality of emergency equipment, such as alarms, fire extinguishers, and rescue kits.

Coordinate Emergency Protocols and Team Actions

PC7: Coordinate with crane operators, riggers, and supervisors to ensure smooth execution of emergency protocols.

PC8: Establish clear lines of communication and designate emergency leaders.

PC9: Monitor compliance with emergency procedures during lifting operations.

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Conduct Drills, Simulations, and Post-Incident Reviews

PC10: Organize regular emergency drills and simulations to enhance team preparedness.

PC11: Document and evaluate the effectiveness of drills and protocols.

PC12: Conduct post-incident reviews to identify gaps and improve future responses.

Knowledge and Understanding (KU)

The certified professional on this NOS will be able to know and understand followings:

KU1: Knowledge of emergency situations in lifting operations, such as load instability, crane malfunctions, and environmental hazards.

KU2: Procedures for quick load detachment and shutdown of equipment.

KU3: Methods for developing emergency response plans aligned with company policies.

KU4: Procedures for documenting incidents and emergency drills.

KU5: Importance of assigning clear roles and responsibilities during emergencies.

KU6: Techniques for coordinating actions and communication between team members.

KU7: Understanding of safety regulations and emergency protocols applicable to lifting operations (e.g., OSHA, ISO 45001).

KU8: Methods for evaluating drills and post-incident reviews to improve response times and team readiness.

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Generic Skills (GS)

The certified professional on this NOS should know followings for better performance:

GS-1 Reading & writing in the language of communication.

GS-2 Effective verbal communication in local language.

GS-3 Basic mathematics and calculations.

GS-4 Understanding of safety and adherence to safety related protocols.

GS-5 Conduct of Professional behavior with co-workers and employees.

GS-6 Use of personal protective equipment.

GS-7 Work site rules & security, fire safety protocols, first aid & procedure under emergency conditions.

GS-8 Housekeeping and disposal of waste materials.

GS-9. Strong focus on safety standards, ensuring a safe working environment, and implementing preventative measures.

GS-10 Attentive, providing feedback & proposing solutions to operational challenges

Assessment Criteria : SSD/N0333 v1.0

Performance Criteria	Theory marks	Practical marks	Project Marks	Viva marks	Total marks
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Identify Potential Emergencies and Risks	14	14		-	28
PC1: Identify common emergencies such as equipment failures, load slippage, or environmental hazards.	5	5	-	-	10
PC2: Assess site conditions and risks that could lead to emergencies.	5	5	-	-	10
PC3: Monitor equipment and team activities to detect early signs of potential emergencies.	4	4	-	-	8
Develop and Implement Emergency Response Plans	12	12		-	24
PC4: Prepare detailed emergency response plans aligned with organizational policies.	4	4	-	-	8
PC5: Define the roles and responsibilities of team members during emergencies.	4	4	-	-	8
PC6: Ensure the availability and functionality of emergency equipment, such as alarms, fire extinguishers, and rescue kits.	4	4	-	-	8
Coordinate Emergency Protocols and Team Actions	12	12		-	24

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PC7: Coordinate with crane operators, riggers, and supervisors to ensure smooth execution of emergency protocols.	4	4	-	-	8
PC8: Establish clear lines of communication and designate emergency leaders.	4	4	-	-	8
PC9: Monitor compliance with emergency procedures during lifting operations.	4	4	-	-	8
Conduct Drills, Simulations, and Post-Incident Reviews	12	12		-	24
PC10: Organize regular emergency drills and simulations to enhance team preparedness.	4	4	-	-	8
PC11: Document and evaluate the effectiveness of drills and protocols.	4	4	-	-	8
PC12: Conduct post-incident reviews to identify gaps and improve future responses.	4	4	-	-	8
NOS Total Marks	50	50	-	-	100

National Occupational Standards (NOS) Parameters

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NOS Code	:	SSD/N0333 v1.0
NOS Name	:	Planning and Organizing Lifting & Rigging and Emergency Protocols
Training Duration	:	60 Hours
Used by Sectors	:	Hydrocarbon, Iron & steel, Mining, Power, Automotive, Construction, Infrastructure, Chemicals & Petrochemicals, and others.
Sub-Sector	:	-
Occupation	:	Lifting & Rigging Engineering & Management.
NSQF Level	:	5.5
Credits	:	2
Version	:	1.0

QUALIFICATION PACK

Last Review Date	:	
NSQC Approval Date	:	
Next Review Date	:	

SSD/N0334 v1.0 : Load Planning and Stability Control in Lifting Operation

Overview

This NOS provides essential knowledge and skills required for accurate load planning, weight calculations, and stability control during lifting and rigging operations. The focus is on ensuring that loads are properly balanced and within equipment limits, preventing accidents such as equipment

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tipping or load slippage. It equips individuals with the ability to assess loads, calculate weight distribution, and apply stability control measures to ensure safe and efficient lifting operations.

Scope

The professional will be able to:

- Plan and prepare for load-lifting operations.
- Conduct accurate weight and load distribution calculations.
- Implement stability control measures to prevent equipment tipping.
- Verify that equipment capacity and load limits are not exceeded.
- Collaborate with crane operators, rigging supervisors, and safety personnel to ensure safe operations.

Elements and Performance Criteria (PC)

The certified professional on this NOS will be able to:

Plan and Prepare for Load Lifting Operations

PC1: Assess the site conditions and determine the feasibility of lifting operations.

PC2: Identify the type and weight of loads to be lifted.

PC3: Verify that the lifting equipment and accessories are suitable for the operation.

Calculate Weight, Load Distribution, and Sling Angles

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PC4: Calculate the total weight of loads, including attachments and accessories.

PC5: Determine center of gravity and load distribution for safe lifting.

PC6: Calculate sling angles and pressure points to ensure load stability.

Implement Stability Control Measures

PC7: Ensure that counterweights are correctly placed for balance.

PC8: Monitor crane stability indicators and load charts during lifting operations.

PC9: Adjust the boom angle, sling length, and load position as necessary to maintain stability.

Verify Equipment Capacity and Load Limits

PC10: Confirm that the load weight does not exceed the equipment's capacity.

PC11: Ensure that load charts and equipment manuals are accessible and followed.

PC12: Verify compliance with regulatory standards and safety protocols.

Knowledge and Understanding (KU)

The certified professional on this NOS will be able to know and understand followings:

KU1: Procedures for assessing site conditions and planning lifting operations.

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KU2: Knowledge of different types of loads and their characteristics.

KU3: Techniques for calculating total load weight, including accessories.

KU4: Methods for identifying the center of gravity and load distribution.

KU5: Calculation of sling angles and pressure points to maintain load stability.

KU6: Use of counterweights to balance the crane and prevent tipping.

KU7: Monitoring load indicators and charts for maintaining crane stability.

KU8: Importance of operating within equipment load limits and capacities.

KU9: Compliance with safety protocols, load charts, and regulatory standards (e.g., OSHA, LOLER).

KU10: Collaborating with crane operators, rigging supervisors, and safety teams.

KU11: Communicating adjustments during operations to maintain stability.

Generic Skills (GS)

The certified professional on this NOS should know followings for better performance:

GS-1 Reading & writing in the language of communication.

GS-2 Effective verbal communication in local language.

GS-3 Basic mathematics and calculations.

GS-4 Understanding of safety and adherence to safety related protocols.

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GS-5 Conduct of Professional behavior with co-workers and employees.

GS-6 Use of personal protective equipment.

GS-7 Work site rules & security, fire safety protocols, first aid & procedure under emergency conditions.

GS-8 Housekeeping and disposal of waste materials.

GS-9. Strong focus on safety standards, ensuring a safe working environment, and implementing preventative measures.

GS-10 Attentive, providing feedback & proposing solutions to operational challenges

Assessment Criteria : SSD/N0334 v1.0

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Performance Criteria	Theory marks	Practical marks	Project Marks	Viva marks	Total marks
Plan and Prepare for Load Lifting Operations	14	14	-	-	28
PC1: Assess the site conditions and determine the feasibility of lifting operations.	5	5	-	-	10
PC2: Identify the type and weight of loads to be lifted.	5	5	-	-	10
PC3: Verify that the lifting equipment and accessories are suitable for the operation.	4	4	-	-	8
Calculate Weight, Load Distribution, and Sling Angles	12	12	-	-	24
PC4: Calculate the total weight of loads, including attachments and accessories.	4	4	-	-	8
PC5: Determine center of gravity and load distribution for safe lifting.	4	4	-	-	8
PC6: Calculate sling angles and pressure points to ensure load stability.	4	4	-	-	8

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Implement Stability Control Measures	12	12		-	24
PC7: Ensure that counterweights are correctly placed for balance.	4	4	-	-	8
PC8: Monitor crane stability indicators and load charts during lifting operations.	4	4	-	-	8
PC9: Adjust the boom angle, sling length, and load position as necessary to maintain stability.	4	4	-	-	8
Verify Equipment Capacity and Load Limits	12	12		-	24
PC10: Confirm that the load weight does not exceed the equipment's capacity.	4	4	-	-	8
PC11: Ensure that load charts and equipment manuals are accessible and followed.	4	4	-	-	8
PC12: Verify compliance with regulatory standards and safety protocols.	4	4	-	-	8
NOS Total Marks	50	50	-	-	100

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National Occupational Standards (NOS) Parameters

NOS Code	:	SSD/N0334 v1.0
NOS Name	:	Load Planning and Stability Control in Lifting Operation.
Training Duration	:	60 Hours
Used by Sectors	:	Hydrocarbon, Iron & steel, Mining, Power, Automotive, Construction, Infrastructure, Chemicals & Petrochemicals, and others.
Sub-Sector	:	-
Occupation	:	Lifting & Rigging Engineering & Management.
NSQF Level	:	5.5
Credits	:	2

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Version	:	1.0
Last Review Date	:	
NSQC Approval Date	:	
Next Review Date	:	

SSD/N0335 v1.0 : Communication and Team Coordination in Lifting Operations

Overview

This NOS focuses on the essential skills required for effective communication and seamless team coordination during lifting and rigging operations. It equips individuals with the ability to communicate clearly using verbal and non-verbal methods, ensure teamwork, and foster coordination between operators, riggers, and supervisors to prevent accidents, delays, or misunderstandings. The goal is to ensure that all team members are aligned during lifting operations, enhancing safety and operational efficiency.

Scope

The professional will be able to:

- Communicate clearly using hand signals, radios, and verbal instructions.

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- Ensure smooth coordination among crane operators, riggers, and supervisors.
- Manage conflicts and maintain effective teamwork.
- Conduct pre- and post-operation briefings to align team members.
- Promote a culture of open communication and safety compliance.

Elements and Performance Criteria (PC)

The certified professional on this NOS will be able to:

Use Effective Communication Tools and Techniques

PC1: Use appropriate hand signals, radios, or verbal instructions during operations.

PC2: Ensure that all instructions are understood and acknowledged by the team.

PC3: Communicate any changes or risks immediately to relevant personnel.

Coordinate Team Actions to Ensure Smooth Operations

PC4: Ensure clear coordination between crane operators, riggers, and supervisors.

PC5: Monitor team actions to ensure they align with the lifting plan.

PC6: Adjust team coordination based on environmental conditions or operational challenges.

Manage Team Conflicts and Promote Collaboration

PC7: Identify potential conflicts within the team and resolve them proactively.

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PC8: Encourage collaboration and open communication to enhance teamwork.

PC9: Provide constructive feedback to improve team coordination.

Conduct Pre- and Post-Operation Briefings

PC10: Lead pre-operation briefings to align team members with the lifting plan.

PC11: Conduct post-operation debriefs to review performance and identify areas for improvement.

PC12: Prepare documents and communicate lessons learned from operations to the team.

Knowledge and Understanding (KU)

The certified professional on this NOS will be able to know and understand followings:

KU1: Use of hand signals, radios, and verbal instructions for safe operations.

KU2: Importance of clarity and consistency in communication.

KU3: Best practices for coordinating team actions during lifting operations.

KU4: Methods to align actions with the lifting plan and operational goals.

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KU5: Techniques for identifying and resolving conflicts within the team.

KU6: Importance of open communication and collaboration in lifting operations.

KU7: Procedures for conducting pre- and post-operation briefings.

KU8: Importance of reviewing performance and sharing lessons learned.

KU9: Communicating safety protocols and compliance requirements to the team.

KU10: Role of communication in maintaining safety and preventing incidents.

Generic Skills (GS)

The certified professional on this NOS should know followings for better performance:

GS-1 Reading & writing in the language of communication.

GS-2 Effective verbal communication in local language.

GS-3 Basic mathematics and calculations.

GS-4 Understanding of safety and adherence to safety related protocols.

GS-5 Conduct of Professional behavior with co-workers and employees.

GS-6 Use of personal protective equipment.

GS-7 Work site rules & security, fire safety protocols, first aid & procedure under emergency conditions.

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GS-8 Housekeeping and disposal of waste materials.

GS-9. Strong focus on safety standards, ensuring a safe working environment, and implementing preventative measures.

GS-10 Attentive, providing feedback & proposing solutions to operational challenges.

Assessment Criteria : SSD/N0335 v1.0

Performance Criteria	Theory marks	Practical marks	Project Marks	Viva marks	Total marks
Use Effective Communication Tools and Techniques	14	14	-	-	28
PC1: Use appropriate hand signals, radios, or verbal instructions during operations.	5	5	-	-	10
PC2: Ensure that all instructions are understood and acknowledged by the team.	5	5	-	-	10
PC3: Communicate any changes or risks immediately to relevant personnel.	4	4	-	-	8
Coordinate Team Actions to Ensure Smooth Operations	12	12		-	24

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PC4: Ensure clear coordination between crane operators, riggers, and supervisors.	4	4	-	-	8
PC5: Monitor team actions to ensure they align with the lifting plan.	4	4	-	-	8
PC6: Adjust team coordination based on environmental conditions or operational challenges.	4	4	-	-	8
Manage Team Conflicts and Promote Collaboration	12	12		-	24
PC7: Identify potential conflicts within the team and resolve them proactively.	4	4	-	-	8
PC8: Encourage collaboration and open communication to enhance teamwork.	4	4	-	-	8
PC9: Provide constructive feedback to improve team coordination.	4	4	-	-	8
Conduct Pre- and Post-Operation Briefings	12	12		-	24
PC10: Lead pre-operation briefings to align team members with the lifting plan.	4	4	-	-	8

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PC11: Conduct post-operation debriefs to review performance and identify areas for improvement.	4	4	-	-	8
PC12: Prepare documents and communicate lessons learned from operations to the team.	4	4	-	-	8
NOS Total Marks	50	50	-	-	100

National Occupational Standards (NOS) Parameters

NOS Code	:	SSD/N0335 v1.0
NOS Name	:	Communication and Team Coordination in Lifting Operations
Training Duration	:	30 Hours
Used by Sectors	:	Hydrocarbon, Iron & steel, Mining, Power, Automotive, Construction, Infrastructure, Chemicals & Petrochemicals, and others.

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Sub-Sector	:	-
Occupation	:	Lifting & Rigging Engineering & Management.
NSQF Level	:	5.5
Credits	:	1
Version	:	1.0
Last Review Date	:	
NSQC Approval Date	:	
Next Review Date	:	

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Overview

This NOS emphasizes the importance of health, hygiene, environmental safety, and psychological well-being in lifting and rigging operations. It equips individuals with knowledge of personal and environmental health protocols, promoting a safe and healthy work environment. The NOS also addresses the need for mental well-being to ensure personnel maintain focus, productivity, and safety during physically and mentally demanding operations.

Scope

The professional will be able to:

- Promote personal hygiene, health practices, and PPE usage.
- Ensure compliance with environmental health protocols to reduce hazards.
- Manage psychological health through stress management and work-life balance.
- Identify and mitigate environmental risks (e.g., weather conditions, noise, and pollution).
- Conduct health assessments and safety briefings to maintain readiness.

Elements and Performance Criteria (PC)

The certified professional on this NOS will be able to:

Promote Personal Health, Hygiene, and PPE Usage

PC1: Ensure workers follow personal hygiene protocols at the worksite.

PC2: Monitor compliance with PPE requirements for lifting and rigging operations.

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PC3: Conduct regular health assessments to ensure fitness for duty.

Manage Environmental Health and Safety Protocols

PC4: Identify environmental hazards such as heat, noise, and air pollution.

PC5: Implement controls to mitigate environmental risks during operations.

PC6: Monitor compliance with waste management and pollution control procedures.

Ensure Psychological Health and Stress Management

PC7: Identify early signs of stress, fatigue, and burnout in workers.

PC8: Provide access to mental health support and counseling services.

PC9: Promote a work-life balance to maintain mental well-being.

Conduct Health and Safety Briefings

PC10: Organize regular health and safety briefings to raise awareness.

PC11: Provide training on handling emergencies related to health and environmental risks.

PC12: Prepare documents and review health-related incidents to improve future protocols.

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Knowledge and Understanding (KU)

The certified professional on this NOS will be able to know and understand followings:

KU1: Best practices for personal hygiene and health management at the worksite.

KU2: Importance of PPE usage to prevent injuries and illnesses.

KU3: Techniques for identifying and mitigating environmental hazards (e.g., noise, pollution).

KU4: Compliance with waste management and environmental protection regulations.

KU5: Strategies for managing stress and fatigue during high-pressure operations.

KU6: Importance of mental health support and promoting work-life balance.

KU7: Methods for conducting health briefings and safety training.

KU8: Procedures for reporting and reviewing health-related incidents.

KU9: Techniques for handling health emergencies and environmental risks at the site.

KU10: Coordination with medical personnel and safety officers during health-related incidents.

QUALIFICATION PACK

Generic Skills (GS)

The certified professional on this NOS should know followings for better performance:

GS-1 Reading & writing in the language of communication.

GS-2 Effective verbal communication in local language.

GS-3 Basic mathematics and calculations.

GS-4 Understanding of safety and adherence to safety related protocols.

GS-5 Conduct of Professional behavior with co-workers and employees.

GS-6 Use of personal protective equipment.

GS-7 Work site rules & security, fire safety protocols, first aid & procedure under emergency conditions.

GS-8 Housekeeping and disposal of waste materials.

GS-9. Strong focus on safety standards, ensuring a safe working environment, and implementing preventative measures.

GS-10 Attentive, providing feedback & proposing solutions to operational challenges

Assessment Criteria : SSD/N0336 v1.0

QUALIFICATION PACK

Performance Criteria	Theory marks	Practical marks	Project Marks	Viva marks	Total marks
Promote Personal Health, Hygiene, and PPE Usage	14	14	-	-	28
PC1: Ensure workers follow personal hygiene protocols at the worksite.	5	5	-	-	10
PC2: Monitor compliance with PPE requirements for lifting and rigging operations.	5	5	-	-	10
PC3: Conduct regular health assessments to ensure fitness for duty.	4	4	-	-	8
Manage Environmental Health and Safety Protocols	12	12	-	-	24
PC4: Identify environmental hazards such as heat, noise, and air pollution.	4	4	-	-	8
PC5: Implement controls to mitigate environmental risks during operations.	4	4	-	-	8
PC6: Monitor compliance with waste management and pollution control procedures.	4	4	-	-	8

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Ensure Psychological Health and Stress Management	12	12		-	24
PC7: Identify early signs of stress, fatigue, and burnout in workers.	4	4	-	-	8
PC8: Provide access to mental health support and counseling services.	4	4	-	-	8
PC9: Promote a work-life balance to maintain mental well-being.	4	4	-	-	8
Conduct Health and Safety Briefings	12	12		-	24
PC10: Organize regular health and safety briefings to raise awareness.	4	4	-	-	8
PC11: Provide training on handling emergencies related to health and environmental risks.	4	4	-	-	8
PC12: Prepare documents and review health-related incidents to improve future protocols.	4	4	-	-	8
NOS Total Marks	50	50	-	-	100

QUALIFICATION PACK

National Occupational Standards (NOS) Parameters

NOS Code	:	SSD/N0336 v1.0
NOS Name	:	Health, Hygiene and Environment Protocols for Lifting & Rigging Operations.
Training Duration	:	30 Hours
Used by Sectors	:	Hydrocarbon, Iron & steel, Mining, Power, Automotive, Construction, Infrastructure, Chemicals & Petrochemicals, and others.
Sub-Sector	:	-
Occupation	:	Lifting & Rigging Engineering & Management.
NSQF Level	:	5.5
Credits	:	1
Version	:	1.0
Last Review Date	:	
NSQC Approval Date	:	

QUALIFICATION PACK

Next Review Date	:	
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11. Employability Skills

Overview

The NOS describes the knowledge & skills required by the professionals to generic skill in getting employment, financial dealing, digital literacy and communication with employer or customer.

Elements and Performance Criteria (PC)

The certified professional on this NOS will be able to perform followings:

Introduction to Employability Skills

PC- 1 Identify employability skills required for jobs in various industries.

PC- 2 Identify and explore learning and employability portals.

Constitutional values – Citizenship

PC- 3 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.

PC- 4 Follow environmentally sustainable practices.

Becoming a Professional in the 21st Century

PC- 5 Recognize the significance of 21st Century Skills for employment.

PC- 6 Practice the 21st Century Skills such as Self-Awareness, Behavior 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

PC- 7 Use basic English for everyday conversation in different contexts, in person and over the telephone.

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PC- 8 Read and understand routine information, notes, instructions, mails, letters etc. written in English.

PC- 9 Write short messages, notes, letters, e-mails etc. in English.

Career Development & Goal Setting

PC- 10 Understand the difference between job and career.

PC- 11 Prepare a career development plan with short- and long-term goals, based on aptitude.

Communication Skills

PC- 12 Follow verbal and non-verbal communication etiquette and active listening techniques in various settings.

PC- 13 Work collaboratively with others in a team.

Diversity & Inclusion

PC- 14 Communicate and behave appropriately with all genders and PwD.

PC- 15 Escalate any issues related to sexual harassment at workplace according to POSH Act

Financial and Legal Literacy

PC- 16 Select financial institutions, products, and services as per requirement.

PC- 17 Carry out offline and online financial transactions, safely and securely.

PC- 18 Identify common components of salary and compute income, expenses, taxes, investments etc.

PC- 19 Identify relevant rights and laws and use legal aids to fight against legal exploitation.

Essential Digital Skills

PC- 20 Operate digital devices and carry out basic internet operations securely and safely.

PC- 21 Use e- mail and social media platforms and virtual collaboration tools to work effectively.

PC- 22 Use basic features of word processor, spreadsheets, and presentations

Entrepreneurship

PC- 23 Identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research.

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PC- 24 Develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion

PC- 25 Identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity.

Customer Service

PC- 26 Identify different types of customers.

PC- 27 Identify and respond to customer requests and needs in a professional manner.

PC- 28 Follow appropriate hygiene and grooming standards.

Getting ready for apprenticeship & Jobs

PC- 29 Create a professional Curriculum vitae (Résumé)

PC- 30 Search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively.

PC- 31 Apply to identified job openings using offline /online methods as per requirement.

PC- 32 Answer questions politely, with clarity and confidence, during recruitment and selection.

PC- 33 Identify apprenticeship opportunities and register for it as per guidelines and requirement.

Module Summary

<u>Module</u>	<u>Duration (Hours)</u>	<u>Assessment Marks</u>
Introduction to employability skills	1.5	2

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Constitutional values- citizenship	1.5	2
Becoming a professional in the 21st century	3	6
Basic English skills	10	6
Career development & goal setting	2	3
Communication skills	5	4
Diversity & inclusion	2	2
Financial and legal literacy	5	5
Essential digital skills	10	8
Entrepreneurship	10	6

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Customer service	5	3
Getting ready for apprenticeship & jobs	5	3
Total	60	50
Means of Assessment 1	Written/Viva examinations	
Means of Assessment 2	Practical	
Assessment	Theory – 50% Practical – 50%	

National Occupational Standards (NOS) Parameters

NOS Code	:	DGT/VSQ/0102
NOS Name	:	Employability Skills

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Training Duration	:	60 Hours
Used by Sectors	:	Hydrocarbon, Iron & steel, Mining, Power, Automotive, Chemicals & Petrochemicals and others.
Sub-Sector	:	-
Occupation	:	Generic.
NSQF Level	:	4
Credits	:	2
Version	:	1.0

QUALIFICATION PACK

Last Review Date	:	15-10-2024
NSQC Approval Date	:	15-10-2024
Next Review Date	:	15-10-2027

Guidelines for Assessment

1. The assessment criteria given in Qualification Pack “Crane Inspector” by the SSDF.
2. Assessments can be conducted 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.

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7. The assessment for the practical part will be based on practical conducted for trainees. In case of remote/on-line assessments, the practicals 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.
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 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 an additional chance to appear in re-assessment for improvements, based on a decision by SSDF.
10. In case 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. The minimum overall duration of assessment will be six hours.

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WEIGHTAGE

S.No.	National Occupational Standards (NOS)	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage (In %)
1	SSD/N0307 v 1.0: Introduction to Lifting and Rigging Operations	50	50	-	-	100	10.0%
2	SSD/N0308 v 1.0:Crane Operational Mechanisms and Systems	50	50	-	-	100	10.0%
3	SSD/N0309 v 1.0: Inspection, Maintenance, and Certification of Lifting Equipment	50	50	-	-	100	10.0%

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4	SSD/N0310 v 1.0: Legal and Regulatory Compliance for Lifting Operations	50	50	-	-	100	10.0%
5	SSD/N0311 v 1.0: Hazard Identification, Risk Assessment, and Incident Reporting in Lifting Operation.	50	50	-	-	100	10.0%
6	SSD/N0336 v 1.0: Safety of Plant, Machinery, and Vehicle in Lifting Operation.	50	50	-	-	100	10.0%
7	SSD/N0337 v 1.0: Planning and Organizing Lifting & Rigging and Emergency Protocols.	50	50	-	-	100	10.0%
8	SSD/N0338 v 1.0: Load Planning and Stability Control in Lifting Operation.	50	50	-	-	100	10.0%
9	SSD/N0339 v 1.0: Communication and Team Coordination in Lifting Operations	50	50	-	-	100	5.0%
10	SSD/N0340 v 1.0: Health, Hygiene and Environmental Protocols for Lifting & Rigging Operations.	50	50	-	-	100	5.0%
11	DGT/VSQ/N0102 – Employability Skills	25	25	-	-	50	10.0%
Total		525	525	-	-	1050	100%

QUALIFICATION PACK

Means of Assessments (Online/Offline)	Written - Class room/System based. Practical – Classroom / Field/Training Centre/ Simulator
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Acronyms

SSDF	Safety Skill Development Foundation
NCVET	National Council for Vocational Education and Training
NSQF	National Skill Qualifications Framework
NOS	National Occupational Standards
QP	Qualification Pack

Glossary

Key Words	Description
Safety Skill Development Foundation (SSDF)	An Awarding Body recognized by NCVET, Ministry of Skill Development & Entrepreneurship, Government of India.

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NCVET (National Council for Vocational Education and Training)	Regulatory Authority of Government of India for Vocational Education and Training.
NSQF (National Skill Qualifications Framework)	National Skill Qualifications Framework is a framework under which skills are categorized from level 1 to 10.
Sector	Sector is conglomeration of different business operations having similar business and interests.
Sub-Sector	Sub-Sector is further breakdown of Sector based on the characteristics and business components.
Occupation	Occupation is a set of job roles requiring similar/related competencies in the industry.
Job role	Job role is a set of functions required to get an employment opportunity in the industry and perform a task as per industry norms.
Qualifications Pack (QP)	Qualifications Pack comprises the set of Occupational Standard, required to perform a job role and is assigned a unique qualification pack code.
Performance Criteria (PC)	Performance Criteria are statements specifying the standard of performance required when carrying out a task.
Knowledge and Understanding (KU)	Knowledge and Understanding (KU) are statements which together specify the technical, professional, and organizational specific knowledge that an individual, needs to perform to the required standard.
Generic Skills (GK)	Generic Skills are a group of skills typically needed to perform the task are needed in general to perform the task.

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Occupational Standards (OS)	OS is the standards of performance an individual must achieve when carrying out a function in the workplace.
National Occupational Standards (NOS)	NOS are Occupational Standards in the Indian context and approved by NCVET.
NOS Code	NOS code is a unique identifier for an Occupational Standard, which is denoted by an 'N'