

QUALIFICATION PACK – OCCUPATIONAL STANDARD FOR INFRASTRUCTURE EQUIPMENT INDUSTRY

What are Occupational Standards(OS)?

- OS describe what individuals need to do, know and understand in order to carry out a particular job role or function
- OS are performance standards that individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding



Contents

1. Introduction and Contacts..... Page no. 1
2. Qualifications Pack.....Page no.2
3. OS Units.....Page no.2
4. Glossary of Key TermsPage no.3

Introduction

Qualification Pack - Junior Operator Crane

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| SECTOR: | INFRASTRUCTURE EQUIPMENT |
| SUB SECTOR: | Equipment Operations |
| OCCUPATION: | Operator |
| REFERENCE ID: | IES/Q0111 |
| ALIGNED TO: | NCO-2004/ NIL |

Brief Job Description:The Junior crane operator helps the main operator in his work. (The crane lifts, moves, positions, and reposition loads). The junior crane operator helps in maintenance of the crane, clearing the area of operation and communicating with the site supervisor. He also learns how to operate the crane On-The-Job.

Personal Attributes:The following attributes are important for Junior crane operator- Strength, multi-limb coordination, oral expression and comprehension, control precision, good eyesight, no colour-blindness, manual dexterity, and arm-hand steadiness and ability to carry out instructions with precision and complying with industry regulations

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|--------------------------|--------------------------|------------------|----------|
| Qualifications Pack Code | IES/Q0111 | | |
| Job Role | Junior Operator Crane | | |
| Credits(NSQF) | TBD | Version number | 1.0 |
| Sector | Infrastructure Equipment | Drafted on | 16/02/15 |
| Sub-sector | Equipment Operations | Last reviewed on | 31/03/15 |
| Occupation | Operator | Next review date | 31/03/17 |
| NSQC clearance on | 31/03/15 | | |

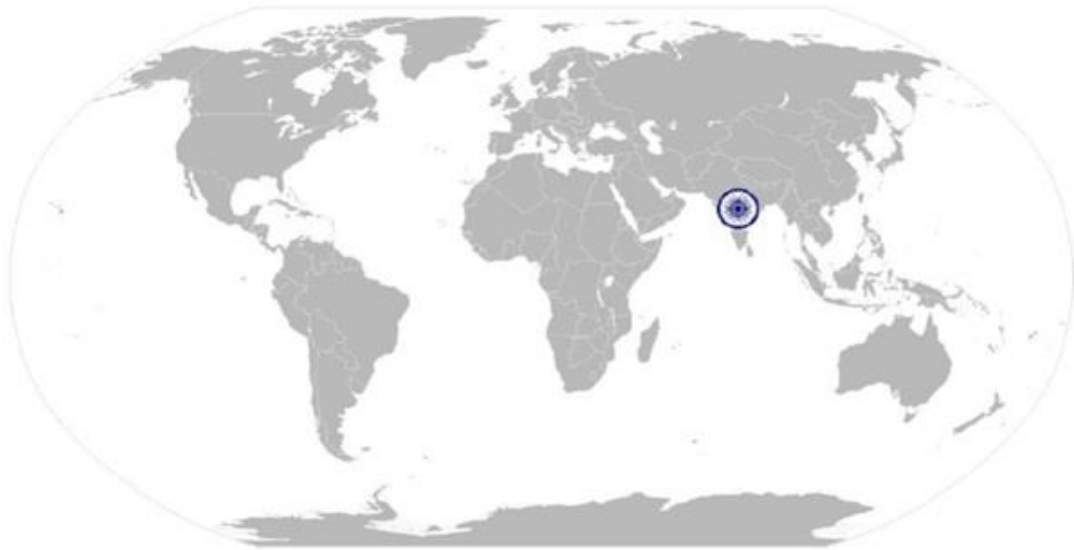
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| Job Role | Junior Operator Crane |
| Role Description | The Junior crane operator helps the main operator in his work. (The crane lifts, moves, positions, and reposition loads). The junior crane operator helps in maintenance of the crane, clearing the area of operation and communicating with the site supervisor. He also learns how to operate the crane On-The-Job. |
| NSQF level | 3 |
| Minimum Educational Qualifications* | Preferably Class VIII |
| Maximum Educational Qualifications* | NA |
| Training (Suggested but not mandatory) | NA |
| Minimum Job Entry Age | Preferably 18 years |
| Experience | NA |
| Applicable National Occupational Standards (NOS) | <p>Compulsory</p> <ol style="list-style-type: none"> 1. IES/N0131 Assist in performing pre-operation checks on the Crane 2. IES/N0132 Assist in operating a crane 3. IES/N0133 Assist in regular maintenance of crane 4. IES/N7601 Comply with worksite health and safety guidelines <p>Optional: N.A.</p> |
| Performance Criteria | As described in the relevant OS units |

| Keywords /Terms | Description |
|---------------------------------------|---|
| Sector | Sector is a conglomeration of different business operations having similar businesses and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests. |
| Sub-sector | Sub-sector is derived from a further breakdown based on the characteristics and interests of its components. |
| Vertical | Vertical may exist within a sub-sector representing different domain areas or the client industries served by the industry. |
| Occupation | Occupation is a set of job roles, which perform similar/related set of functions in an industry. |
| Function | Function is an activity necessary for achieving the key purpose of the sector, occupation, or area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of OS. |
| Sub-functions | Sub-functions are sub-activities essential to fulfil achieving the objectives of the function. |
| Job role | Job role defines a unique set of functions that together form a unique employment opportunity in an organization. |
| Occupational Standards (OS) | OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the knowledge and understanding; he/she needs to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts. |
| Performance Criteria | Performance Criteria are statements that together specify the standard of performance required when carrying out a task. |
| National Occupational Standards (NOS) | NOS are Occupational Standards which apply uniquely in the Indian context. |
| Qualifications Pack Code | Qualifications Pack Code is a unique reference code that identifies a qualifications pack. |
| Qualifications Pack(QP) | Qualifications Pack comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A Qualifications Pack is assigned a unique qualification pack code. |
| Unit Code | Unit Code is a unique identifier for an Occupational Standard, which is denoted by an 'N'. |
| Unit Title | Unit Title gives a clear overall statement about what the incumbent should be able to do. |
| Description | Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to find the required one. |
| Scope | Scope is the set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on the quality of required performance. |
| Knowledge and Understanding | Knowledge and Understanding are statements which together specify the technical, generic, professional and organizational specific knowledge that an individual needs in order to perform up to the required standard. |

Acronyms

| Keywords /Terms | Description |
|-----------------|---|
| OS | Occupational Standard(s) |
| NOS | National Occupational Standard(s) |
| QP | Qualifications Pack |
| NSQF | National Skill Qualifications Framework |
| ITI | Industrial Training Institute |
| HCV | Heavy Commercial Vehicle |
| SHE | Safety Health and Environment |
| SOP | Standard Operating Procedure |
| TBD | To Be Determined |

National Occupational Standard



Overview

This unit provides Performance Criteria, Knowledge & Understanding and Skills & Ability for activities that need to be carried out while assisting the operator to prepare the crane for operation

Assist in performing pre-operation checks on the Crane

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|---|---|
| Unit Code | IES/N0131 |
| Unit Title (Task) | Assist in performing pre-operation checks on the Crane |
| Description | This unit provides Performance Criteria, Knowledge & Understanding and Skills & Ability for activities that need to be carried out while assisting the operator to prepare the crane for operation |
| Scope | <p>This unit/task covers the following:</p> <ul style="list-style-type: none"> Assistance in conducting pre-operation checks |
| Performance Criteria(PC) w.r.t. the Scope | |
| Element | Performance Criteria |
| Assistance in conducting pre-checks of a crane | <p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Adhere to time limits given by operator</p> <p>PC2. Checks that all decals are legible and in place as per operation manual</p> <p>PC3. Check for hydraulic oil leaks and proper oil level as per manufacturer's indicator</p> <p>PC4. Inspect all ground engaging tools to ensure stability</p> <p>PC5. Add oil, on directions from the operator, if needed as per manufacturer's indicator</p> <p>PC6. Check for battery fluid leaks and proper fluid level as per manufacturer's indicator</p> <p>PC7. Add distilled water if needed, on directions from the operator, as per manufacturer's indicator</p> <p>PC8. Check for proper tire pressure and lug nut torque as per manufacturer's indicator</p> <p>PC9. Add air to tires if needed, on directions from the operator as per manufacturer's indicator</p> <p>PC10. Check for engine oil leaks and proper fuel and fluid levels as per manufacturer's indicator</p> <p>PC11. Inspect cables and grappling devices are as per manufacturer's specification</p> <p>PC12. Add fuel and oil if needed as per manufacturer's indicator</p> <p>PC13. Check the following components for damage, improperly installed or missing parts as per the manufacturer's manual:</p> <ul style="list-style-type: none"> Electrical components, wiring and electrical cables Hydraulic power unit, reservoir, hoses, fittings, cylinders and manifolds. Platform, tower, turntable, scissor stack structures, their components and wear pads Tires and wheels Trailer lights and reflectors o Parking brake, and electric braking system (including the breakaway system) Drive wheel and motor <p>PC14. Check the following components as per operation manual:</p> <ul style="list-style-type: none"> Outriggers and Wheels |

Assist in performing pre-operation checks on the Crane

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| | <ul style="list-style-type: none"> Limit switches Pins, nuts, bolts and other fasteners Hitch components Safety chains Engines their fuel systems and related components Axle components Personal protective devices <p>PC15. Check that all structural and other critical components are present as per operation manual</p> <p>PC16. Check all associated fasteners and pins are in place and properly tightened as per operation manual</p> <p>PC17. Check that all compartment covers are in place and latched as per operation manual</p> <p>PC18. Visually inspect entire machine for:</p> <ul style="list-style-type: none"> Cracks in welds or structural components Excessive rust, corrosion or oxidation Dents or damage to machine |
| Knowledge and Understanding (K) | |
| A. Organizational Context (Knowledge of the company / organization and its processes) | <p>The user/individual on the job needs to know and understand:</p> <p>KA1. The organization's procedures and guidelines related to Breakdown & Maintenance services</p> <p>KA2. The performance standards & procedures followed in the company</p> <p>KA3. Reporting structure in the company</p> <p>KA4. Escalation matrix for reporting unresolved problems</p> <p>KA5. Timeframe in which the complaint/problem should be resolved</p> <p>KA6. Work target and review mechanism with supervisor for obtaining/giving feedback related to performance process</p> <p>KA7. Location of tools</p> <p>KA8. Contact person in case of queries on procedure or products</p> <p>KA9. Location and process for storage and disposal of waste material</p> <p>KA10. Safety Policy of the company</p> |
| B. Technical Knowledge | <p>The user/individual on the job needs to know and understand:</p> <p>KB1. Different types of cranes and its use and function</p> <p>KB2. Significance of greasing and oiling parts of crane that need routine lubrication</p> <p>KB3. Instrument panel, their location and operation</p> <p>KB4. Controls, levers and switches in order to operate the crane properly</p> <p>KB5. Engine ,Hydraulic & Electrical functions of a mobile crane</p> <p>KB6. Visual checks</p> |
| Skills (S) | |
| A. Core Skills / Generic Skills | Writing Skills |
| | <p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. Record any deviations/ incidents as per prescribed norms</p> |
| | Reading Skills |
| | <p>The user/ individual on the job needs to know and understand how to:</p> |

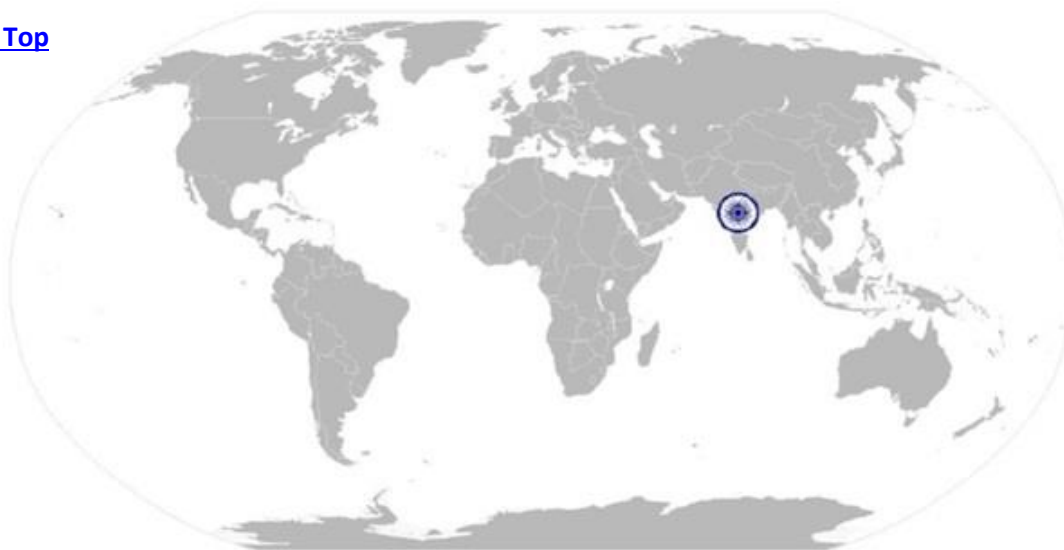
Assist in performing pre-operation checks on the Crane

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| | SA2. Read and comprehend basic English to read and interpret decals/indicators in the machine/operator's manual |
| | Oral Communication (Listening and Speaking Skills) |
| B. Professional Skills | The user/ individual on the job needs to know and understand how to: |
| | SA3. Interact effectively with operators in order to clarify instructions and other issues |
| | SA4. Use correct technical terms while interacting with operator and other personnel |
| | Decision Making |
| | The user/ individual on the job needs to know and understand how to: |
| | SB1. Decide when to conduct maintenance checks |
| | Plan and Organize |
| | The user/ individual on the job needs to know and understand how to: |
| | SB2. Carry out work tasks in line with instructions of the operator/ other supervisors and as per timelines |
| | SB3. Plan work according to the required schedule and location |
| | SB4. Plan for cleaning and lubricating the crane everyday |
| | Customer Centricity |
| | The user/ individual on the job needs to know and understand how to: |
| | SB5. Provide service of the highest order to ensure customer satisfaction |
| | Problem Solving |
| | The user/ individual on the job needs to know and understand how to: |
| | SB6. Report problems that you cannot resolve to appropriate authority |
| | SB7. Identify sources of support that can be availed for problem solving for various kinds of problems |
| | Analytical Thinking |
| | The user/ individual on the job needs to know and understand how to: |
| | SB8. Identify 'cause and effect' relations in own area of work |
| | Critical Thinking |
| | The user/ individual on the job needs to know and understand how to: |
| | SB9. Apply balanced judgment to different situations |

Assist in performing pre-operation checks on the Crane

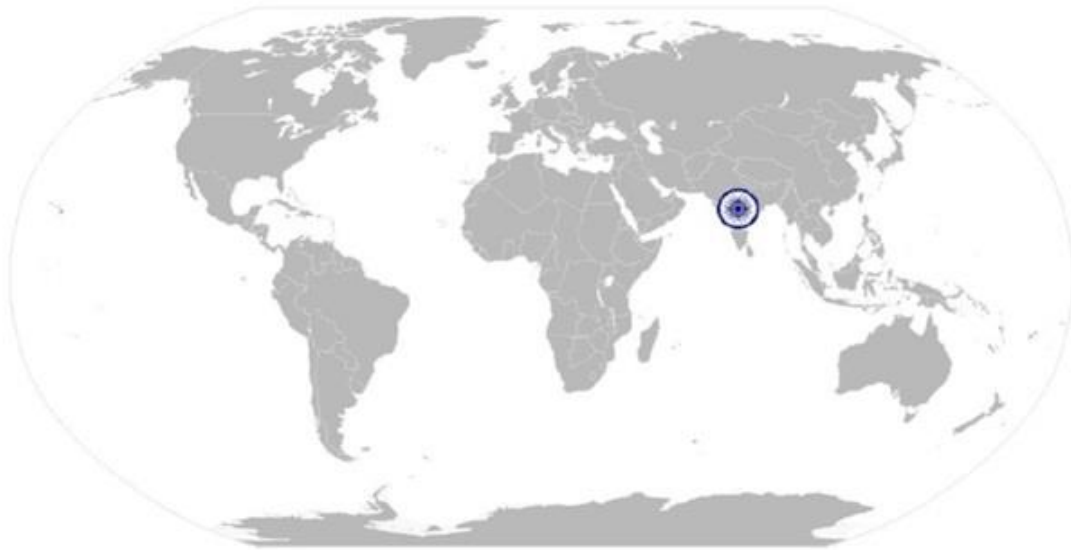
NOS Version Control

| NOS Code | IES/N0131 | | |
|---------------------|--------------------------|------------------|----------|
| Credits(NSQF) | TBD | Version number | 1.0 |
| Sector | Infrastructure Equipment | Drafted on | 16/02/15 |
| Industry Sub-sector | Equipment Operations | Last reviewed on | 31/03/15 |
| Occupation | Operator | Next review date | 31/03/15 |

[Back To Top](#)

Assist in operating a crane

National Occupational Standard



Overview

This unit provides Performance Criteria, Knowledge & Understanding and Skills & Ability for activities that are required for assisting in crane operations

Assist in operating a crane

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|--------------------------------|---|--|
| National Occupational Standard | Unit Code | IES/N0132 |
| | Unit Title (Task) | Assist in operating a crane |
| | Description | This unit provides Performance Criteria, Knowledge & Understanding and Skills & Ability for activities that are required for assisting in crane operations |
| | Scope | This unit/task covers the following: <ul style="list-style-type: none"> Crane operation assistance <ul style="list-style-type: none"> Positioning the crane loading and hauling of the load |
| | Performance Criteria(PC) w.r.t. the Scope | |
| | Element | Performance Criteria |
| | Crane operation assistance | To be competent, the user/individual on the job must be able to: <ul style="list-style-type: none"> PC1. Check that Crane is always assembled/stationed on firm, level ground PC2. Guide the operator to ensure that the crane is assembled near the load on smooth surface PC3. Assist the operator in hooking to attach sling, shackle and chains as per operation's manual PC4. Assist in extending outriggers such that they are as per manufacturer's manual PC5. Check that outriggers are equipped with lock pins per manufacturer's manual PC6. Check the assembly and ensure that relevant safety measures are taken as per safety guidelines taken PC7. Coordinate with the operator for carrying out lifting of load as per the requirement PC8. Guide operator to monitor stability whilst moving a load PC9. Support operator for good visibility of both ends of the crane arm at all times PC10. Check for no obstacles, personnel or other obstructions during lifting operation PC11. Check for people working and hazards such as trenches, potholes and cables PC12. Adhere to time limits given by the operator PC13. Perform in-operation visual checks on critical temperature and pressure gauges as per operator's instructions PC14. Work safely in accordance with operational requirements and associated Safe Systems of Work PC15. Check that no other operators travel on or stand near the Crane PC16. Appropriately uninstall outriggers |
| | Knowledge and Understanding (K) | |
| | A. Organizational Context (Knowledge of the company / organization and its processes) | The user/individual on the job needs to know and understand: <ul style="list-style-type: none"> KA1. The organization's procedures and guidelines related to Breakdown & Maintenance services KA2. The performance standards & procedures followed in the company KA3. Reporting structure in the company KA4. Escalation matrix for reporting unresolved problems |

Assist in operating a crane

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| | <p>KA5. Timeframe in which the complaint/problem should be resolved</p> <p>KA6. Work target and review mechanism with supervisor for obtaining/ giving feedback related to performance process</p> <p>KA7. Location of tools</p> <p>KA8. Contact person in case of queries on procedure or products</p> <p>KA9. Location and process for storage and disposal of waste material</p> <p>KA10. Safety Policy of the company</p> |
| B. Technical Knowledge | <p>The user/individual on the job needs to know and understand:</p> <p>KB1. Equipment load capacity limitations</p> <p>KB2. Method of appropriate rigging hardware and slings</p> <p>KB3. Usage of Different types of rigging configurations</p> <p>KB4. Load hook-up points</p> <p>KB5. Types of material, methods and tools involved in the construction or repair of buildings, roads, heavy engineering equipment, oil wells, metro etc. where cranes are used.</p> <p>KB6. Techniques of hoisting operation</p> <p>KB7. Method of safe rigging</p> <p>KB8. Usage of rigging hardware and tool</p> <p>KB9. Multi-crane operations</p> <p>KB10. Conditions and hazards that may impact crane stability</p> <p>KB11. Crane tipping prevention techniques.</p> <p>KB12. Methods to communicate through hand signals</p> <p>KB13. Government rules and other rules prescribed under safety standards related to crane operations</p> <p>KB14. Instruments panel, their location and operation</p> <p>KB15. The signs on the instrument panel and their significance</p> <p>KB16. The various possible alert signs and alarms installed in the crane for safety measures</p> <p>KB17. Optimal engine oil pressure, radiator coolant temperature</p> <p>KB18. Visual checks to identify damage, defects or leaks beforehand</p> <p>KB19. General safety rules vis-à-vis digging and stacking</p> <p>KB20. Usage of All safety signs and other emergency signals</p> <p>KB21. Correct maintenance procedures for cranes</p> <p>KB22. Methods to response to emergencies e.g. correct way to use fire extinguisher</p> |
| Skills (S) | |
| A. Core Skills / Generic Skills | Writing Skills |
| | The user/ individual on the job needs to know and understand how to: |
| | SA1. Record any deviations/ incidents as per prescribed norms |
| | Reading Skills |
| | The user/ individual on the job needs to know and understand how to: |
| | SA2. Read and comprehend basic English to read and interpret decals/indicators in the machine/operator's manual |
| | SA3. Interpret stakes and signage on the road and during worksite operations |
| | SA4. Read instructions, guidelines/procedures/rules related to the worksite and equipment operations |

Assist in operating a crane

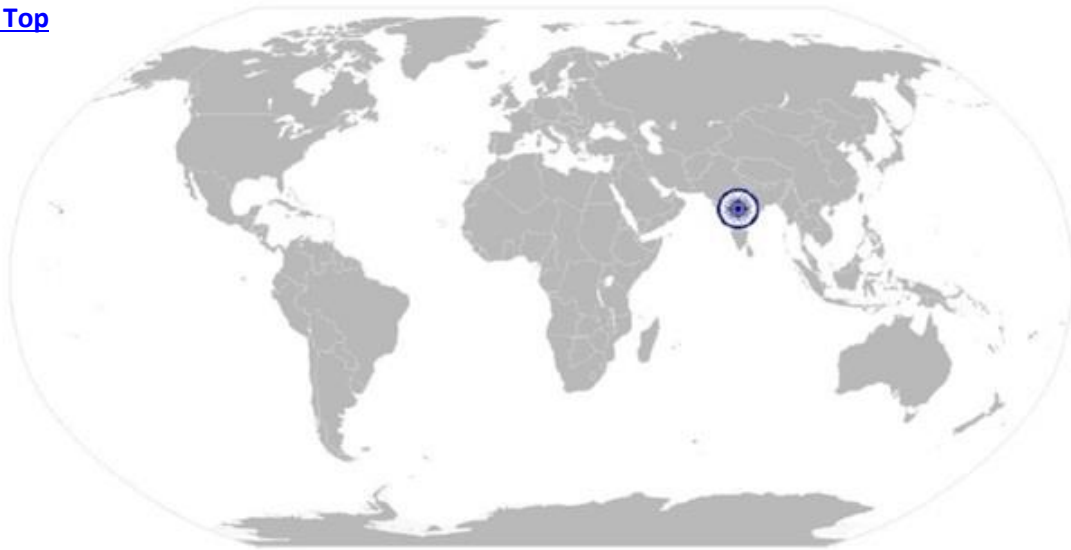
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| B. Professional Skills | Oral Communication (Listening and Speaking Skills) |
| | The user/ individual on the job needs to know and understand how to: |
| | SA5. Interact effectively with operators in order to clarify instructions and other issues |
| | SA6. Use correct technical terms while interacting with operator and other personnel |
| | Decision Making |
| | The user/ individual on the job needs to know and understand how to: |
| | SB1. Assess for any damage/faulty component in the crane and report to the Operator |
| | Plan and Organize |
| | The user/ individual on the job needs to know and understand how to: |
| | SB2. Carry out work tasks in line with instructions of the operator/ other supervisors and as per timelines |
| | SB3. Plan work according to the required schedule and location |
| | Customer Centricity |
| | The user/ individual on the job needs to know and understand how to: |
| | SB4. Provide service of the highest order to ensure customer satisfaction |
| | Problem Solving |
| | The user/ individual on the job needs to know and understand how to: |
| | SB5. Report problems that you cannot resolve to appropriate authority |
| | SB6. Identify sources of support that can be availed for problem solving for various kinds of problems |
| | Analytical Thinking |
| | The user/ individual on the job needs to know and understand how to: |
| | SB7. Evaluate the complexity of the tasks to determine if he/she needs any assistance from the senior |
| | SB8. Assess the situation and support the operator with navigation during driving operations |
| | Critical Thinking |
| | The user/ individual on the job needs to know and understand how to: |
| | SB9. Apply balanced judgment to different situations |

Assist in operating a crane

NOS Version Control

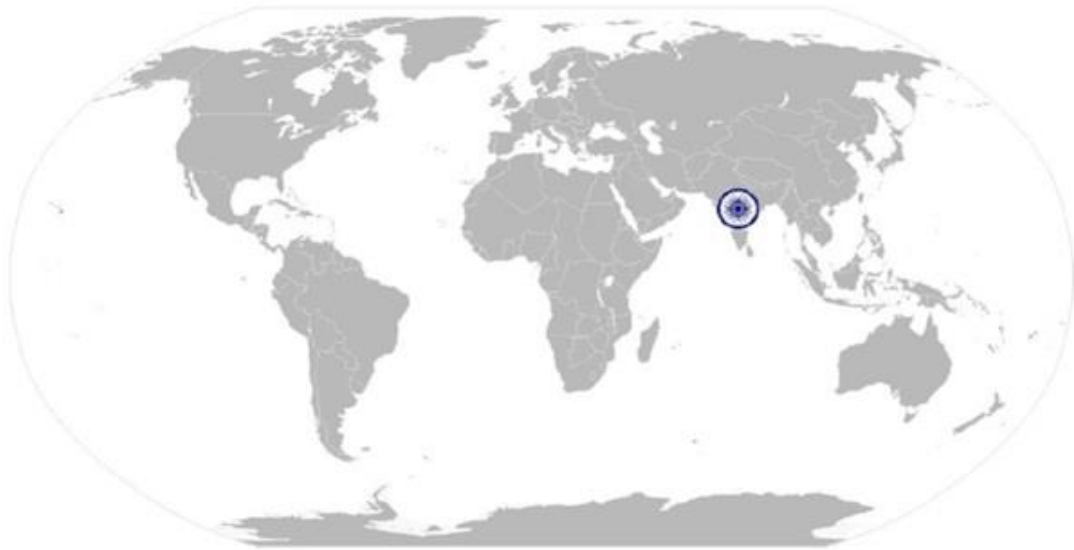
| NOS Code | IES/N0132 | | |
|---------------------|--------------------------|------------------|----------|
| Credits(NSQF) | TBD | Version number | 1.0 |
| Sector | Infrastructure Equipment | Drafted on | 16/02/15 |
| Industry Sub-sector | Equipment Operations | Last reviewed on | 31/03/15 |
| Occupation | Operator | Next review date | 31/03/15 |

[Back To Top](#)



Assist in regular maintenance of crane

National Occupational Standard



Overview

This unit provides Performance Criteria, Knowledge & Understanding and Skills & Ability for activities that are required for performing routine maintenance on the cranes

Assist in regular maintenance of crane

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| National Occupational Standard | Unit Code | IES/N0133 |
| | Unit Title (Task) | Assist in regular maintenance of crane |
| | Description | This unit provides Performance Criteria, Knowledge & Understanding and Skills & Ability for activities that are required for performing routine maintenance on the cranes |
| | Scope | <p>This unit/task covers the following:</p> <ul style="list-style-type: none"> • Routine Maintenance assistance • Documentation and Reporting |
| | Performance Criteria(PC) w.r.t. the Scope | |
| | Element | Performance Criteria |
| | Routine Maintenance assistance | <p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Check Crane structure for deformed, cracked or corroded members in the structure and boom.</p> <ul style="list-style-type: none"> • Loose bolts or rivets. • Excessive wear on brake and clutch system parts. • Deformed wedges. • Defective cotter keys, pins and guardrails. <p>PC2. Check for the following in hydraulic system of Crane as per operation & maintenance manual:</p> <ul style="list-style-type: none"> • Deterioration or leakage in air or hydraulic systems • Safe and effective operation on hoses, pumps and motors • Levels of fluid • Air cleaners for replacement or cleaning <p>PC3. Check wire ropes for wear and tear</p> <p>PC4. Check the following in the main boom as per operation manual</p> <ul style="list-style-type: none"> • lift cylinder(s) • telescoping cylinder(s) • hydraulic hoses / tubing & fittings • holding device • boom sections alignment • auxiliary boom head & structure <p>PC5. Check the following in the Lattice boom extension</p> <ul style="list-style-type: none"> • Boom • extension alignment • cords • lattices • end connections <p>PC6. Replenish coolants, lubricants and fluids as per operator's instructions</p> <p>PC7. Grease all greasing pins and pivot points as per operator's instructions</p> <p>PC8. Check battery levels and condition of the terminals and carry out minor adjustments as per manufacturer's indicators</p> <p>PC9. Check and maintain the tire rims, air pressure, wheel nits and treads as per manufacturer's indicators</p> <p>PC10. Follow reporting procedures as laid down by the employer</p> |
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Assist in regular maintenance of crane

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| | PC11. Report and escalate problems/ incidents as required in a timely manner PC12. Report defects precisely to the operator if beyond scope of his role PC13. Handle and dispose waste based on environmental guidelines at the work place |
| Documentation and Reporting | PC14. Follow reporting procedures as laid down by the employer PC15. Report defects precisely to the operator if beyond scope of his role PC16. Report defects precisely to the operator and supervisor if beyond scope of his role |
| Knowledge and Understanding (K) | |
| A. Organizational Context (Knowledge of the company / organization and its processes) | The user/individual on the job needs to know and understand: KA1. The organization's procedures and guidelines related to Breakdown & Maintenance services KA2. The performance standards & procedures followed in the company KA3. Reporting structure in the company KA4. Escalation matrix for reporting unresolved problems KA5. Timeframe in which the complaint/problem should be resolved KA6. Work target and review mechanism with supervisor for obtaining/ giving feedback related to performance process KA7. Location of tools KA8. Contact person in case of queries on procedure or products KA9. Location and process for storage and disposal of waste material KA10. Safety Policy of the company |
| B. Technical Knowledge | The user/individual on the job needs to know and understand: KB1. Various components of the equipment and their functions KB2. Control and switches needed to operate the tire mounted crane properly KB3. Basic physics and mechanics involved in various functions of the tire mounted crane KB4. Common defects and general causes of breakdown KB5. Response to emergency situations KB6. The optimal levels of control indicators e.g. fuel gauge, engine oil pressure and temperature KB7. Possible sources of any unusual sound emanating from the engine and other parts |
| Skills (S) | |
| A. Core Skills / Generic Skills | Writing Skills |
| | The user/ individual on the job needs to know and understand how to: SA1. Record any deviations/ incidents as per prescribed norms |
| | Reading Skills |
| | The user/ individual on the job needs to know and understand how to: SA2. Read instructions, guidelines/procedures/rules related to the worksite and equipment operations |
| | Oral Communication (Listening and Speaking Skills) |
| | The user/ individual on the job needs to know and understand how to: SA3. Interact effectively with operators in order to clarify instructions and other issues |

Assist in regular maintenance of crane

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| | SA4. Use correct technical terms while interacting with operator and other personnel |
| B. Professional Skills | Decision Making |
| | The user/ individual on the job needs to know and understand how to: |
| | SB1. Decide when to conduct maintenance checks |
| | SB2. Evaluate the decision and conduct basic trouble shooting |
| | Plan and Organize |
| | The user/ individual on the job needs to know and understand how to: |
| | SB3. Carry out work tasks in line with instructions of the operator/ other supervisors and as per timelines |
| | SB4. Plan work according to the required schedule and location |
| | SB5. Plan for regular maintenance on a daily basis before machine operations |
| | Customer Centricity |
| | The user/ individual on the job needs to know and understand how to: |
| | SB6. Provide service of the highest order to ensure customer satisfaction |
| | Problem Solving |
| | The user/ individual on the job needs to know and understand how to: |
| | SB7. Report problems that you cannot resolve to appropriate authority |
| | SB8. Identify sources of support that can be availed for problem solving for various kinds of problems |
| | Analytical Thinking |
| | The user/ individual on the job needs to know and understand how to: |
| | SB9. Evaluate the complexity of the tasks to determine if he/she needs any assistance from the senior |
| | SB10. Check for damages and diagnose common problems in the backhoe operator and report to appropriate authority |
| | Critical Thinking |
| | The user/ individual on the job needs to know and understand how to: |
| | SB11. Apply balanced judgment to different situations |

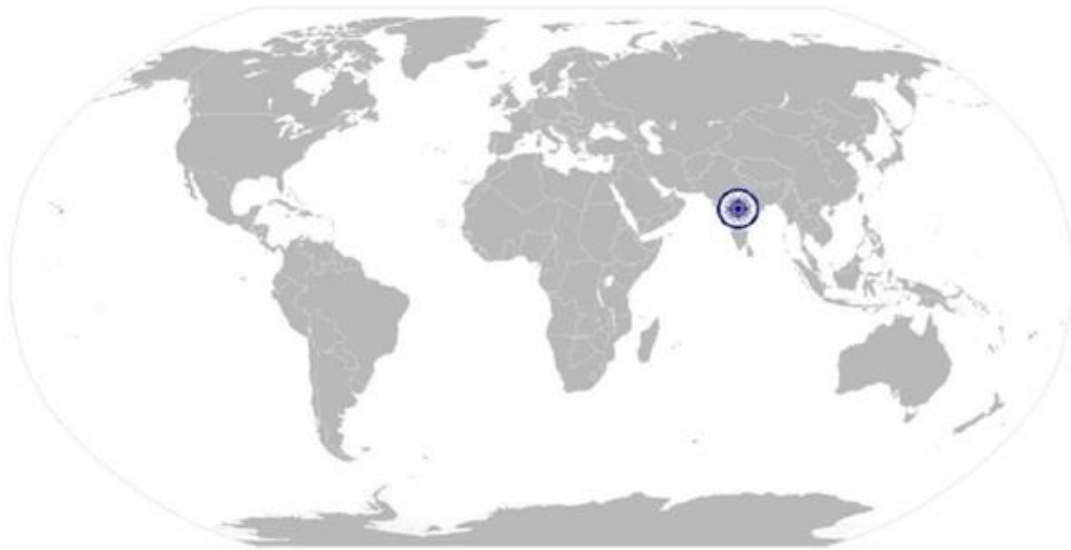
NOS Version Control

| NOS Code | IES/N0133 | | |
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| Credits(NSQF) | TBD | Version number | 1.0 |
| Sector | Infrastructure Equipment | Drafted on | 16/02/15 |
| Industry Sub-sector | Equipment Operations | Last reviewed on | 31/03/15 |
| Occupation | Operator | Next review date | 31/03/15 |

[Back To Top](#)

Comply with worksite health and safety guidelines

National Occupational Standard



Overview

This unit is about adhering to health and safety requirements at the worksite during equipment operations.

Comply with worksite health and safety guidelines

| | | |
|--------------------------------|---|--|
| National Occupational Standard | Unit Code | IES/N7601 |
| | Unit Title (Task) | Comply with worksite health and safety guidelines |
| | Description | This unit is about adhering to health and safety requirements at the worksite during equipment operations. |
| | Scope | This unit/task covers the following: <ul style="list-style-type: none"> • Worksite health and safety |
| | Performance Criteria(PC) w.r.t. the Scope | |
| | Element | Performance Criteria |
| | Worksite health and safety | <p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Comply with safety, health, security and environment related regulations/ guidelines at the work site</p> <p>PC2. Use Personal Protective Equipment (PPE) and other safety gear such as seat belt, body protection, respiratory protection, eye protection, ear protection and hand protection</p> <p>PC3. Follow safety measures during operations to ensure that the health and safety of self or others (including members of the public) is not at risk</p> <p>PC4. Carry out operations as per the manufacturer's and worksite related health and safety guidelines</p> <p>PC5. Handle the transport, storage and disposal of hazardous materials and waste in compliance with worksite health, safety and environmental guidelines</p> <p>PC6. Follow safety regulations and procedures with regard to worksite hazards and risks</p> <p>PC7. Operate various grades of fire extinguishers, as applicable</p> <p>PC8. Support in administering basic first aid and report to concerned team members, as required, in case of an accident</p> <p>PC9. Respond promptly and appropriately to an accident/ incident or emergency situation, within limits of your role and responsibility</p> <p>PC10. Record and report details related to operations, incidents or accidents, as applicable</p> |
| | Knowledge and Understanding (K) | |
| | A. Organizational Context (Knowledge of the company / organization and its processes) | <p>The user/individual on the job needs to know and understand:</p> <p>KA1. Health, safety, environmental(HSE) and security related policies/ guidelines of the organization and the worksite</p> <p>KA2. The importance of complying with health, safety, environmental and security guidelines at the worksite and during operations</p> <p>KA3. Contact details of personnel responsible for Health, Safety and environment (HSE) related matters</p> <p>KA4. Location of worksite storage, SHE team and safe assembly points</p> <p>KA5. Concerned personnel to reach out in case of emergencies and accidents/ incidents</p> <p>KA6. Reporting and documentation procedures for HSE and security matters</p> |
| | B. Technical Knowledge | <p>The user/individual on the job needs to know and understand:</p> <p>KB1. Manufacturer's guidelines related to health and safety requirements</p> <p>KB2. Common types of health, safety, environment and security risks related</p> |

Comply with worksite health and safety guidelines

| | |
|--|---|
| | <p>to the worksite and operations</p> <p>KB3. Types, use and importance of Personal Protective Equipment (PPE) and other safety gear</p> <p>KB4. Safe working practices to avoid common hazards and risks</p> <p>KB5. Guidelines for transport, storage and disposal of hazardous materials and waste</p> <p>KB6. Types of common hazards and risks at the worksite including fire, electrical, gas emergencies, accidents, incidents, structure collapse, machine breakdown</p> <p>KB7. Knowledge of safe lockdown/ stop of machinery use in case of emergencies and incidents/ accidents</p> <p>KB8. Types of fire extinguishers and their use</p> <p>KB9. Common injuries and appropriate basic first aid treatment eg. electrical shock, bleeding, wounds, fractures, minor burns, eye injuries</p> |
| Skills (S) | |
| A. Core Skills / Generic Skills | Writing Skills |
| | The user/ individual on the job needs to know and understand how to: |
| | SA1. Document and report any health and safety related incidents/ accidents |
| | Reading Skills |
| | The user/ individual on the job needs to know and understand how to: |
| B. Professional Skills | SA2. Read and comprehend basic English to read and interpret decals/indicators in the machine/operator's manual |
| | SA3. Read instructions, guidelines/procedures/rules related to the worksite and equipment operations |
| | Oral Communication (Listening and Speaking Skills) |
| | The user/ individual on the job needs to know and understand how to: |
| | SA4. Interact effectively with operators in order to clarify instructions and other issues |
| C. Professional Skills | SA5. Use correct technical terms while interacting with operator and other personnel |
| | Decision Making |
| | The user/ individual on the job needs to know and understand how to: |
| | SB1. Make an appropriate timely decision in responding to emergencies/accidents in line with organizational/ worksite guidelines |
| | SB2. Use correct PPE and other safety gear while at the worksite |
| C. Professional Skills | Plan and Organize |
| | The user/ individual on the job needs to know and understand how to: |
| | SB3. Carry out work tasks in line with instructions of the operator/ other supervisors and as per timelines |
| | SB4. Plan work according to the required schedule and location |
| | Customer Centricity |
| C. Professional Skills | The user/ individual on the job needs to know and understand how to: |
| | SB5. Build and maintain positive and effective relationships with colleagues and customers |
| | Problem Solving |
| | The user/ individual on the job needs to know and understand how to: |

Comply with worksite health and safety guidelines

| | |
|--|---|
| | SB6. Identify immediate or temporary solutions to resolve delays |
| | SB7. Seek appropriate assistance from other sources to resolve problems |
| | Analytical Thinking |
| | The user/ individual on the job needs to know and understand how to: |
| | SB8. Identify 'cause and effect' relations in own area of work |
| | Critical Thinking |
| | The user/ individual on the job needs to know and understand how to: |
| | SB9. Apply balanced judgment to different situations |

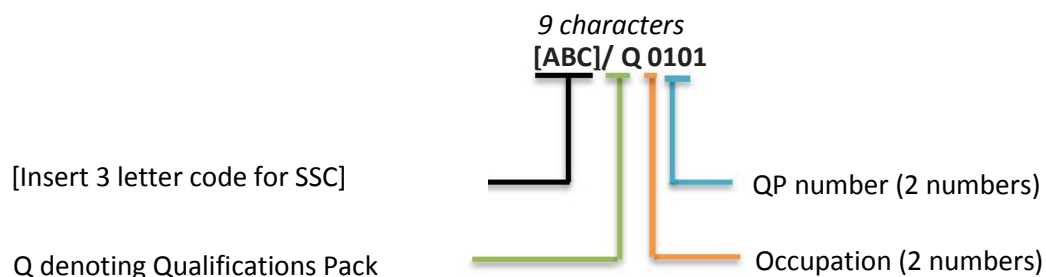
NOS Version Control

| NOS Code | IES/N7601 | | |
|---------------------|-----------------------------|------------------|----------|
| Credits(NSQF) | TBD | Version number | 1.0 |
| Sector | INFRASTRUCTURE EQUIPMENT | Drafted on | 16/02/15 |
| Industry Sub-sector | Equipment Operations | Last reviewed on | 31/03/15 |
| Occupation | Operator | Next review date | 31/03/15 |

[Back To Top](#)

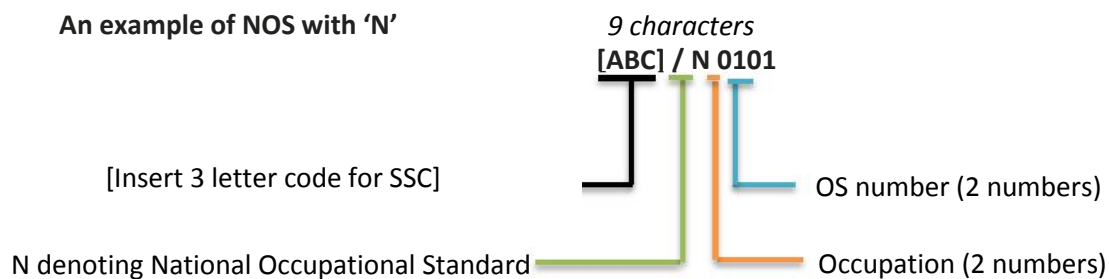
Nomenclature for QP and NOS units

Qualifications Pack



Occupational Standard

An example of NOS with 'N'



Nomenclature for QP and NOS units

The following acronyms/codes have been used in the nomenclature above:

| Sub-sector | Range of Occupation numbers |
|------------------------------|-----------------------------|
| Equipment Operations | 1 to 10 |
| Equipment Service and spares | 11 to 20 |
| Equipment Production | 21 to 40 |
| Equipment Sales | 41 to 50 |
| Equipment Financing | 51 to 55 |
| Core Enablers | 56 to 65 |
| Other Enablers | 66 to 75 |
| Common Occupations | 76 to 85 |

| Sequence | Description | Example |
|------------------|-------------------|---------|
| Three letters | Industry name | IES |
| Slash | / | / |
| Next letter | Whether QP or NOS | N |
| Next two numbers | Occupation code | 01 |
| Next two numbers | OS number | 01 |

CRITERIA FOR ASSESSMENT OF TRAINEES**Job Role** Junior Operator Crane**Qualification Pack** IES/Q0111**Sector Skill Council** Infrastructure Equipment**Guidelines for Assessment**

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC
3. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below)
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criteria
5. To pass the Qualification Pack, every trainee should score a minimum of 70% aggregate
6. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack

| NOS | Performance Criteria | Total Mark | Out Of | Marks Allocation | |
|---|--|------------|--------|------------------|------------------|
| | | | | Theory | Skills Practical |
| 1. IES/N0131 Assist in performing pre-operation checks on the Crane | PC1. Adhere to time limits given by operator | 55 | 3 | 1 | 2 |
| | PC2. Checks that all decals are legible and in place as per operation manual | | 3 | 1 | 2 |
| | PC3. Check for hydraulic oil leaks and proper oil level as per manufacturer's indicator | | 3 | 0 | 3 |
| | PC4. Inspect all ground engaging tools to ensure stability | | 4 | 1 | 3 |
| | PC5. Add oil, on directions from the operator, if needed as per manufacturer's indicator | | 2 | 0 | 2 |

| | | | | | |
|--|---|--|---|---|---|
| | PC6. Check for battery fluid leaks and proper fluid level as per manufacturer's indicator | | 2 | 0 | 2 |
| | PC7. Add distilled water if needed, on directions from the operator, as per manufacturer's indicator | | 2 | 0 | 2 |
| | PC8. Check for proper tire pressure and lug nut torque as per manufacturer's indicator | | 2 | 0 | 2 |
| | PC9. Add air to tires if needed, on directions from the operator as per manufacturer's indicator | | 2 | 0 | 2 |
| | PC10. Check for engine oil leaks and proper fuel and fluid levels as per manufacturer's indicator | | 2 | 0 | 2 |
| | PC11. Inspect cables and grappling devices are as per manufacturer's specification | | 2 | 0 | 2 |
| | PC12. Add fuel and oil if needed as per manufacturer's indicator | | 2 | 0 | 2 |
| | PC13. Check the following components for damage, improperly installed or missing parts as per the manufacturer's manual: <ul style="list-style-type: none"> · Electrical components, wiring and electrical cables · Hydraulic power unit, reservoir, hoses, fittings, cylinders and manifolds. · Platform, tower, turntable, scissor stack structures, their components and wear pads · Tires and wheels · Trailer lights and reflectors o Parking brake, and electric braking system (including the breakaway system) <ul style="list-style-type: none"> · Drive wheel and motor | | 7 | 1 | 6 |
| | PC14. Check the following components as per operation manual: <ul style="list-style-type: none"> · Outriggers and Wheels · Limit switches · Pins, nuts, bolts and other fasteners · Hitch components · Safety chains · Engines their fuel systems and related components · Axle components · Personal protective devices | | 7 | 1 | 6 |

| | | | | | |
|--|--|--------------|-----------|----------|-----------|
| | PC15. Check that all structural and other critical components are present as per operation manual | | 3 | 0 | 3 |
| | PC16. Check all associated fasteners and pins are in place and properly tightened as per operation manual | | 3 | 1 | 2 |
| | PC17. Check that all compartment covers are in place and latched as per operation manual | | 2 | 0 | 2 |
| | PC18. Visually inspect entire machine for: · Cracks in welds or structural components · Excessive rust, corrosion or oxidation · Dents or damage to machine | | 4 | 1 | 3 |
| | | Total | 55 | 7 | 48 |
| 2. IES/N0132 Assist in operating a crane | PC1. Check that Crane is always assembled/stationed on firm, level ground | | 4 | 1 | 3 |
| | PC2. Guide the operator to ensure that the crane is assembled near the load on smooth surface | | 3 | 1 | 2 |
| | PC3. Assist the operator in hooking to attach sling, shackle and chains as per operation's manual | | 4 | 1 | 3 |
| | PC4. Assist in extending outriggers such that they are as per manufacturer's manual | | 3 | 0 | 3 |
| | PC5. Check that outriggers are equipped with lock pins per manufacturer's manual | | 3 | 0 | 3 |
| | PC6. Check the assembly and ensure that relevant safety measures are taken as per safety guidelines taken | | 4 | 1 | 3 |
| | PC7. Coordinate with the operator for carrying out lifting of load as per the requirement | | 3 | 0 | 3 |
| | PC8. Guide operator to monitor stability whilst moving a load | | 3 | 0 | 3 |
| | PC9. Support operator for good visibility of both ends of the crane arm at all times | | 4 | 1 | 3 |
| | PC10. Check for no obstacles, personnel or other obstructions during lifting operation | | 2 | 0 | 2 |
| | | 50 | | | |

| | | | | | |
|---|--|----|-----------|----------|-----------|
| | PC11. Check for people working and hazards such as trenches, potholes and cables | | 3 | 1 | 2 |
| | PC12. Adhere to time limits given by the operator | | 3 | 0 | 3 |
| | PC13. Perform in-operation visual checks on critical temperature and pressure gauges as per operator's instructions | | 3 | 0 | 3 |
| | PC14. Work safely in accordance with operational requirements and associated Safe Systems of Work | | 3 | 0 | 3 |
| | PC15. Check that no other operators travel on or stand near the Crane | | 2 | 0 | 2 |
| | PC16. Appropriately uninstall outriggers | | 3 | 0 | 3 |
| | | | 50 | 6 | 35 |
| 3. IES/N0133 Assist in regular maintenance of crane | PC1. Check Crane structure for deformed, cracked or corroded members in the structure and boom. · Loose bolts or rivets. · Excessive wear on brake and clutch system parts. · Deformed wedges. · Defective cotter keys, pins and guardrails. | | 4 | 0 | 4 |
| | PC2. Check for the following in hydraulic system of Crane as per operation & maintenance manual: · Deterioration or leakage in air or hydraulic systems · Safe and effective operation on hoses, pumps and motors · Levels of fluid · Air cleaners for replacement or cleaning | 50 | 4 | 0 | 4 |
| | PC3. Check wire ropes for wear and tear | | 3 | 0 | 3 |
| | PC4. Check the following in the main boom as per operation manual · lift cylinder(s) · telescoping cylinder(s) · hydraulic hoses / tubing & fittings · holding device · boom sections alignment · auxiliary boom head & structure | | 4 | 0 | 4 |

| | | | | | |
|---|---|--------------|-----------|----------|-----------|
| | PC5. Check the following in the Lattice boom extension · Boom · extension alignment · cords · lattices · end connections | | 4 | 0 | 4 |
| | PC6. Replenish coolants, lubricants and fluids as per operator's instructions | | 4 | 1 | 3 |
| | PC7. Grease all greasing pins and pivot points as per operator's instructions | | 4 | 1 | 3 |
| | PC8. Check battery levels and condition of the terminals and carry out minor adjustments as per manufacturer's indicators | | 3 | 0 | 3 |
| | PC9. Check and maintain the tire rims, air pressure, wheel nits and treads as per manufacturer's indicators | | 3 | 0 | 3 |
| | PC10. Follow reporting procedures as laid down by the employer | | 4 | 1 | 3 |
| | PC11. Report and escalate problems/ incidents as required in a timely manner | | 3 | 1 | 2 |
| | PC12. Report defects precisely to the operator if beyond scope of his role | | 2 | 0 | 2 |
| | PC13. Handle and dispose waste based on environmental guidelines at the work place | | 4 | 1 | 3 |
| | PC14. Follow reporting procedures as laid down by the employer | | 1 | 0 | 1 |
| | PC15. Report defects precisely to the operator if beyond scope of his role | | 1 | 0 | 1 |
| | PC16. Report defects precisely to the operator and supervisor if beyond scope of his role | | 2 | 1 | 1 |
| | | Total | 50 | 6 | 44 |
| 4. IES/N6701 Comply with worksite health and safety guidelines | PC1. Comply with safety, health, security and environment related regulations/ guidelines at the work site | 45 | 3 | 1 | 2 |
| | PC2. Use Personal Protective Equipment (PPE) and other safety gear such as seat belt, body protection, respiratory protection, eye protection, ear protection and hand protection | | 6 | 1 | 5 |

| | | | | | |
|--|--|--|-----------|----------|-----------|
| | PC3. Follow safety measures during operations to ensure that the health and safety of self or others (including members of the public) is not at risk | | 5 | 0 | 5 |
| | PC4. Carry out operations as per the manufacturer's and worksite related health and safety guidelines | | 4 | 1 | 3 |
| | PC5. Handle the transport, storage and disposal of hazardous materials and waste in compliance with worksite health, safety and environmental guidelines | | 6 | 1 | 5 |
| | PC6. Follow safety regulations and procedures with regard to worksite hazards and risks | | 4 | 1 | 3 |
| | PC7. Operate various grades of fire extinguishers, as applicable | | 5 | 0 | 5 |
| | PC8. Support in administering basic first aid and report to concerned team members, as required, in case of an accident | | 4 | 1 | 3 |
| | PC9. Respond promptly and appropriately to an accident/ incident or emergency situation, within limits of your role and responsibility | | 3 | 0 | 3 |
| | PC10. Record and report details related to operations, incidents or accidents, as applicable | | 5 | 0 | 5 |
| | | | 45 | 6 | 39 |