



• TOWER CRANE

Tower Crane Operator

QP Code: IES/Q0122

NSQF Level: 4

Infrastructure Equipment Skill Council || Infrastructure Equipment Skill Council, Avik Royale-First Floor
(Next of Vijaya Bank), No.6, 50 feet Main Road, Avalahalli Extension, Girinagar
Bengaluru 560026

Qualification Pack

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Qualification Pack

IES/Q0122: Tower Crane Operator

Brief Job Description

A tower crane operator controls crane movements for loading and unloading of materials, equipment, machines, etc. at different heights on the worksite. They control the crane by responding to hand or radio signals by a supervisor or signalman.

Personal Attributes

The job requires an operator to be physically agile, strong and should have good eye sight and not be color blind, fit to work at heights. He should constantly be alert to the signals from the signalman and multiple concurrent activities during the operations

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [IES/N0164: Carry out pre-operation checks on a tower crane](#)
2. [IES/N0165: Carry out tower crane operations](#)
3. [IES/N0166: Carry out maintenance and troubleshooting of the tower crane](#)
4. [IES/N7601: Comply with worksite health and safety guidelines](#)

Qualification Pack (QP) Parameters

Sector	Infrastructure Equipment
Sub-Sector	Equipment Operations
Occupation	Operator
Country	India
NSQF Level	4
Aligned to NCO/ISCO/ISIC Code	NCO-2015/8343.0700
Minimum Educational Qualification & Experience	8th Class with 2-3 Years of experience as junior tower crane/signalman in tower crane operations
Minimum Level of Education for Training in School	

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Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	20/12/2017
Next Review Date	26/12/2020
NSQC Approval Date	19/12/2018
Version	1.0

Qualification Pack

IES/N0164: Carry out pre-operation checks on a tower crane

Description

This Unit provides insight into activities that are required for conducting prechecks on the tower crane before starting the operations

Scope

This unit/task covers the following: Pre-operation checks Reporting and documentation

Elements and Performance Criteria

Pre- operation checks

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

- PC1.** check the base is free from cracks on which the tower crane is installed
- PC2.** check for bolts and nuts tightening
- PC3.** inspect visually all mast sections for defects and corrosion
- PC4.** inspect operator station components such as seat, instrument panel, crane load chart and communication devices
- PC5.** verify panel board system for enough power supply and the function of switches
- PC6.** check the levels of grease in components such as pulley, rope, trolley and swing gear parts
- PC7.** inspect load bearing structure components such as boom pins, pendant lines, boom hoist reeve or bridle, mast, base and under carriage for any wear and tear
- PC8.** check the hoisting system for smooth movement of the components such as wire rope, fittings, drums, hook, sheaves and winch mount
- PC9.** check for stabilizing system components for levels of counter & ballasted weights
- PC10.** inspect hydraulic system components like hydraulic fluid, filters, lines, pumps and fittings
- PC11.** check the engine oil levels and radiator coolant temperature indicators
- PC12.** ensure that the work site is clear from all personnel and other equipment before starting

Reporting and documentation

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

- PC13.** maintain a pre-operational check logbook to record all activities performed before starting the tower crane
- PC14.** report defects precisely to the supervisor if beyond scope of role

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the organization operations, maintenance and safety related guidelines
- KU2.** the operational standards & procedures followed in the company and timeframe in which the complaint/problem should be resolved
- KU3.** reporting structure of the company

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- KU4.** location of specialized tools and the equipment
- KU5.** location and process for storage and disposal of waste material
- KU6.** overview of the types of cranes and the general applications with respect to each crane
- KU7.** technical specifications, features and performance of different types of cranes
- KU8.** identification of components of a tower crane and its functioning - Operators Cabin - Boom/ Jib - Mast - Trolley - Hoist - Levers/ Joystick - Counterweight - Communication Devices
- KU9.** basics of engine and sub systems; fuel, lubrication and cooling systems
- KU10.** basics of transmission, auto-electrical functioning and repairs
- KU11.** different types of hydraulic mechanisms, and principles of friction
- KU12.** basics of electrical systems including control panel
- KU13.** operator console and its parts
- KU14.** controls, levers and switches in order to operate the tower crane
- KU15.** procedure of topping up fuel, lube oil and coolant in the machine
- KU16.** optimal working parameters- engine oil pressure, hydraulic oil pressure and temperatures
- KU17.** different methods of climbing and lowering tower cranes
- KU18.** manufacturers specifications for tools and supplies

Generic Skills (GS)

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

- GS1.** record information/observations on activities/incidents as per the prescribed norms Reading Skills
- GS2.** read and comprehend basic signs, symbols, diagrams, charts and decals on the equipment & at work site
- GS3.** read and understand the applicable relevant aspects of the equipment operation & maintenance manuals Oral Communication (Listening and Speaking Skills) The user/ individual on the job needs to know and understand how to
- GS4.** use correct technical terms/phrases while interacting with other coworkers & supervisor
- GS5.** explain/instruct other team members effectively in a clear and concise manner
- GS6.** listen attentively and understand the queries /comments raised by other team members
- GS7.** decide when to escalate and seek assistance if the problem is beyond the scope
- GS8.** prioritize and schedule maintenance activity on equipment to support operational needs
- GS9.** plan and organise the work schedule in coordination with other team members & supervisor
- GS10.** execute the tasks efficiently within the time frame allotted and prescribed quality norms; with minimal supervision
- GS11.** ensure quality service is delivered as committed to achieve high levels of customer satisfaction
- GS12.** evaluate the possible solutions and initiate appropriate remedial measures and actions
- GS13.** apply common sense and reasoning skills to identify the cause of delays and difficulties in execution
- GS14.** apply knowledge and judgement acquired through experience and awareness to execute tasks efficiently

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Pre- operation checks</i>	8	18	-	-
PC1. check the base is free from cracks on which the tower crane is installed	0.5	1	-	-
PC2. check for bolts and nuts tightening	0.5	1	-	-
PC3. inspect visually all mast sections for defects and corrosion	-	1	-	-
PC4. inspect operator station components such as seat, instrument panel, crane load chart and communication devices	1	1	-	-
PC5. verify panel board system for enough power supply and the function of switches	1	2	-	-
PC6. check the levels of grease in components such as pulley, rope, trolley and swing gear parts	0.5	1	-	-
PC7. inspect load bearing structure components such as boom pins, pendant lines, boom hoist reeve or bridle, mast, base and under carriage for any wear and tear	1	2	-	-
PC8. check the hoisting system for smooth movement of the components such as wire rope, fittings, drums, hook, sheaves and winch mount	1	2	-	-
PC9. check for stabilizing system components for levels of counter & ballasted weights	1	2	-	-
PC10. inspect hydraulic system components like hydraulic fluid, filters, lines, pumps and fittings	0.5	2	-	-
PC11. check the engine oil levels and radiator coolant temperature indicators	0.5	2	-	-
PC12. ensure that the work site is clear from all personnel and other equipment before starting	0.5	1	-	-
<i>Reporting and documentation</i>	2	2	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. maintain a pre-operational check logbook to record all activities performed before starting the tower crane	1	1	-	-
PC14. report defects precisely to the supervisor if beyond scope of role	1	1	-	-
NOS Total	10	20	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	IES/N0164
NOS Name	Carry out pre-operation checks on a tower crane
Sector	Infrastructure Equipment
Sub-Sector	Equipment Operations
Occupation	Operator
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	20/12/2017
Next Review Date	26/12/2020
NSQC Clearance Date	19/12/2018

Qualification Pack

IES/N0165: Carry out tower crane operations

Description

This unit provides insight into activities that are required for performing the loading, unloading of materials using tower crane

Scope

This unit/task covers the following:

- Starting the tower crane
- Tower crane operations
- Shut down procedures
- Reporting and documentation

Elements and Performance Criteria

Starting the tower crane

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

- PC1.** inspect site visually for any source of obstruction or for any personnel in the circumference/ check for near high raise natural or Man-made structure / High voltage lines/Wind pattern
- PC2.** test the working condition of the communication device along with the signalman
- PC3.** start the engine and check the controls of operating panel for normal functioning
- PC4.** test the functioning of levers, hoist and trolley gears for proper working condition before lifting the load

Tower crane operations

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

- PC5.** direct the trolley to place it over the load as per the directions given by the signalman
- PC6.** control the direction of the boom by controlling the lever movements based on the directions given by the signalman
- PC7.** drop down the rope with appropriate speed towards the load as per the directions of the signalman
- PC8.** perform hoisting operations such as raising and lowering boom with load starting from minimal heights to ascend to greater heights
- PC9.** monitor the load movement indicators and anti-collision sensors while lifting and slewing the load
- PC10.** control the speed of the boom while moving left or right side with using lever/joystick
- PC11.** unload the material at the particular point as per the directions of the signalman

Shut down procedures

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

- PC12.** take trolley to the home position
- PC13.** set in weather- vane position before shutting down the operation
- PC14.** turn off the power supply as per the operational manual

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PC15. climb down the tower crane wearing safety gear following the appropriate methods

PC16. conduct walk around visual inspection to check general condition of equipment

Reporting and documentation

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

PC17. maintain a logbook to record all activities performed

PC18. report defects precisely to the supervisor if beyond scope of his role

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. the organization operations, maintenance and safety related guidelines

KU2. the operational standards & procedures followed in the company in timeframe in which the complaint/problem should be resolved

KU3. reporting structure of the company

KU4. location of specialized tools and the equipment

KU5. location and process for storage and disposal of waste material

KU6. contact person/area in case of emergency

KU7. technical specifications, features and performance of different types of cranes

KU8. load Chart reading and balancing of weight

KU9. radius requirements and set up requirements

KU10. factors that affect equipment stability, such as ground and supporting conditions

KU11. principles of motion, balance and stability such as fulcrum points, leverage, centre of gravity, horizontal and vertical stability, effects of speed, centrifugal force and acceleration

KU12. controls, levers and switches in order to operate the tower crane

KU13. operator aid devices on equipment, such as load movement indicators, anti-collision sensors

KU14. actual and potential hazards, such as overhead utilities and guide wires, other equipment, personnel and vehicular traffic

KU15. impact of wind speed, storms and other weather conditions on equipment

KU16. safety controls and equipment such as automatic limit switches, overload limit devices and fire extinguishers

KU17. safety measures to be followed at time of emergencies to avoid damage

KU18. roles of personnel on site, such as supervisor, signaller and others

Generic Skills (GS)

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

GS1. record information/observations on activities/incidents as per the prescribed norms

GS2. read and comprehend basic signs, symbols, diagrams, charts and decals on the equipment & at work site

GS3. read and understand the applicable relevant aspects of the equipment operation & maintenance manuals

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- GS4.** use correct technical terms/phrases while interacting with other coworkers & supervisor
- GS5.** explain/instruct other team members effectively in a clear and concise manner
- GS6.** listen attentively and understand the queries /comments raised by other team members
- GS7.** prioritize and schedule maintenance activity on equipment to support operational needs
- GS8.** decide when to escalate and seek assistance if the problem is beyond scope
- GS9.** plan and organise the work schedule in coordination with other team members & supervisor
- GS10.** execute the tasks efficiently within the time frame allotted and prescribed quality norms; with minimal supervision
- GS11.** ensure quality service is delivered as committed to achieve high levels of customer satisfaction
- GS12.** evaluate the possible solutions and initiate appropriate remedial measures and actions
- GS13.** apply common sense and reasoning skills to identify the cause of delays and difficulties in execution
- GS14.** apply knowledge and judgement acquired through experience and awareness to execute tasks efficiently

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Starting the tower crane</i>	2	7	-	-
PC1. inspect site visually for any source of obstruction or for any personnel in the circumference/ check for near high raise natural or Man-made structure / High voltage lines/Wind pattern	1	2	-	-
PC2. test the working condition of the communication device along with the signalman	1	1	-	-
PC3. start the engine and check the controls of operating panel for normal functioning	-	2	-	-
PC4. test the functioning of levers, hoist and trolley gears for proper working condition before lifting the load	-	2	-	-
<i>Tower crane operations</i>	5	11	-	-
PC5. direct the trolley to place it over the load as per the directions given by the signalman	1	2	-	-
PC6. control the direction of the boom by controlling the lever movements based on the directions given by the signalman	1	2	-	-
PC7. drop down the rope with appropriate speed towards the load as per the directions of the signalman	1	1	-	-
PC8. perform hoisting operations such as raising and lowering boom with load starting from minimal heights to ascend to greater heights	-	1	-	-
PC9. monitor the load movement indicators and anti-collision sensors while lifting and slewing the load	1	2	-	-
PC10. control the speed of the boom while moving left or right side with using lever/joystick	1	2	-	-
PC11. unload the material at the particular point as per the directions of the signalman	-	1	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Shut down procedures</i>	3	4	-	-
PC12. take trolley to the home position	-	0.5	-	-
PC13. set in weather- vane position before shutting down the operation	1	1	-	-
PC14. turn off the power supply as per the operational manual	-	1	-	-
PC15. climb down the tower crane wearing safety gear following the appropriate methods	1	1	-	-
PC16. conduct walk around visual inspection to check general condition of equipment	1	0.5	-	-
<i>Reporting and documentation</i>	2	1	-	-
PC17. maintain a logbook to record all activities performed	1	0.5	-	-
PC18. report defects precisely to the supervisor if beyond scope of his role	1	0.5	-	-
NOS Total	12	23	-	-

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National Occupational Standards (NOS) Parameters

NOS Code	IES/N0165
NOS Name	Carry out tower crane operations
Sector	Infrastructure Equipment
Sub-Sector	Equipment Operations
Occupation	Operator
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	20/12/2017
Next Review Date	16/12/2020
NSQF Clearance Date	19/12/2018

Qualification Pack

IES/N0166: Carry out maintenance and troubleshooting of the tower crane

Description

This unit provides insight into activities that are required for performing routine maintenance and troubleshooting of a tower crane

Scope

This unit/task covers the following:

- Preventive maintenance
- Repair and troubleshooting
- Reporting and documentation

Elements and Performance Criteria

Preventive maintenance

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

- PC1.** determine the service requirement for the equipment as per the scheduled maintenance
- PC2.** replenish coolants, lubricants and fluids as per the running of the machine or as per the operational manual
- PC3.** grease all greasing pins, trolley pins, hoist and rope and slewing bolts regularly as per the usage of the machine
- PC4.** service lubrications system, electrical service system, hoisting system and stabilizing system of the tower crane
- PC5.** service jib/boom and mast as per the usage of the equipment
- PC6.** check battery levels and condition of the terminals and carry out minor adjustments if required
- PC7.** ensure all the tools are kept in the designated place after usage as per the organizational guidelines

Repair and troubleshooting

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

- PC8.** ensure the main power is turned off from panel completely before carrying out maintenance work
- PC9.** ensure that appropriate tools are used while troubleshooting
- PC10.** diagnose the problem and identify appropriate repair procedures
- PC11.** report defects precisely to the supervisor if beyond scope of his role
- PC12.** dispose waste as per the guidelines of the site/ organization

Reporting and documentation

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

- PC13.** follow reporting procedures as laid down by the employer
- PC14.** complete all documentation in the prescribed standards in a timely manner

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Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the organization operations, maintenance and safety related guidelines
- KU2.** the operational standards & procedures followed in the company in timeframe in which the complaint/problem should be resolved
- KU3.** reporting structure of the company
- KU4.** location of specialized tools and the equipment
- KU5.** location and process for storage and disposal of waste material
- KU6.** maintenance schedule of the equipment .
- KU7.** basics of engine and sub systems; fuel, lubrication and cooling systems
- KU8.** basics of transmission, auto-electrical functioning and repairs
- KU9.** different types of hydraulic mechanisms, and principles of friction
- KU10.** basics of electrical systems including control panel
- KU11.** control and switches needed to operate the tower crane appropriately
- KU12.** common defects and general causes of breakdown
- KU13.** spill kit procedures

Generic Skills (GS)

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

- GS1.** record information/observations on activities/incidents as per the prescribed norms
- GS2.** read and comprehend basic signs, symbols, diagrams, charts and decals on the equipment & at work site
- GS3.** read the applicable relevant aspects of the equipment operation & maintenance manuals
- GS4.** use correct technical terms/phrases while interacting with other coworkers & supervisor
- GS5.** explain/instruct other team members effectively in a clear and concise manner SA6. listen attentively and understand the queries /comments raised by other team memberS
- GS6.** listen attentively and understand the queries /comments raised by other team members
- GS7.** decide when to escalate and seek assistance if the problem is beyond scope
- GS8.** prioritize and schedule maintenance activity on equipment to support operational needs
- GS9.** plan and organise the work schedule in coordination with other team members & supervisor
- GS10.** execute the tasks efficiently within the time frame allotted and prescribed quality norms; with minimal supervision
- GS11.** ensure quality service is delivered as committed to achieve high levels of customer satisfaction
- GS12.** evaluate the possible solutions and initiate appropriate remedial measures and actions
- GS13.** apply common sense and reasoning skills to identify the cause of delays and difficulties in execution
- GS14.** apply knowledge and judgement acquired through experience and awareness to execute tasks efficiently

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Preventive maintenance</i>	3.5	7	-	-
PC1. determine the service requirement for the equipment as per the scheduled maintenance	0.5	1	-	-
PC2. replenish coolants, lubricants and fluids as per the running of the machine or as per the operational manual	0.5	1	-	-
PC3. grease all greasing pins, trolley pins, hoist and rope and slewing bolts regularly as per the usage of the machine	0.5	1	-	-
PC4. service lubrications system, electrical service system, hoisting system and stabilizing system of the tower crane	0.5	1	-	-
PC5. service Jib/boom and mast as per the usage of the equipment	0.5	1	-	-
PC6. check battery levels and condition of the terminals and carry out minor adjustments if required	0.5	1	-	-
PC7. ensure all the tools are kept in the designated place after usage as per the organizational guidelines	0.5	1	-	-
<i>Repair and troubleshooting</i>	2.5	5	-	-
PC8. ensure the main power is turned off from panel completely before carrying out maintenance work	0.5	1	-	-
PC9. ensure that appropriate tools are used while troubleshooting	0.5	1	-	-
PC10. diagnose the problem and identify appropriate repair procedures	0.5	1	-	-
PC11. report defects precisely to the supervisor if beyond scope of his role	0.5	1	-	-
PC12. dispose waste as per the guidelines of the site/ organization	0.5	1	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Reporting and documentation</i>	1	1	-	-
PC13. follow reporting procedures as laid down by the employer	0.5	0.5	-	-
PC14. complete all documentation in the prescribed standards in a timely manner	0.5	0.5	-	-
NOS Total	7	13	-	-

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National Occupational Standards (NOS) Parameters

NOS Code	IES/N0166
NOS Name	Carry out maintenance and troubleshooting of the tower crane
Sector	Infrastructure Equipment
Sub-Sector	Equipment Operations
Occupation	Operator
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	20/12/2017
Next Review Date	26/12/2020
NSQC Clearance Date	19/12/2018

Qualification Pack

IES/N7601: 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: Worksite health and safety

Elements and Performance Criteria

Worksite health and safety

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

- PC1.** comply with safety, health, security and environment related regulations/ guidelines at the work site
- 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
- 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
- PC4.** carry out operations as per the manufacturers and worksite related health and safety guidelines
- PC5.** handle the transport, storage and disposal of hazardous materials and waste in compliance with worksite health, safety and environmental guidelines
- PC6.** follow safety regulations and procedures with regard to worksite hazards and risks
- PC7.** operate various grades of fire extinguishers, as applicable
- PC8.** support in administering basic first aid and report to concerned team members, as required, in case of an accident
- PC9.** respond promptly and appropriately to an accident/ incident or emergency situation, within limits of your role and responsibility

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** health, safety, environmental (hse) and security related policies/ guidelines of the organization and the worksite
- KU2.** the importance of complying with health, safety, environmental and security guidelines at the worksite and during operations
- KU3.** contact details of personnel responsible for health, safety and environment (hse) related matters
- KU4.** location of worksite storage, site team and safe assembly points
- KU5.** concerned personnel to reach out in case of emergencies and accidents/ incidents
- KU6.** reporting and documentation procedures for hse and security matters
- KU7.** manufacturers guidelines related to health and safety requirements

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- KU8.** common types of health, safety, environment and security risks related to the worksite and operations
- KU9.** types, use and importance of personal protective equipment (ppe) and other safety gear
- KU10.** safe working practices to avoid common hazards and risks
- KU11.** guidelines for transport, storage and disposal of hazardous materials and waste
- KU12.** types of common hazards and risks at the worksite including fire, electrical, gas emergencies, accidents, incidents, structure collapse, machine breakdown
- KU13.** knowledge of safe lockdown/ stop of machinery use in case of emergencies and incidents/ accidents
- KU14.** types of fire extinguishers and their use
- KU15.** common injuries and appropriate basic first aid treatment eg. electrical shock, bleeding, wounds, fractures, minor burns, eye injuries

Generic Skills (GS)

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

- GS1.** document and report any health and safety related incidents/ accidents
- GS2.** read and comprehend basic english to read manuals of operations
- GS3.** read all organizational and equipment related health and safety manuals and documents
- GS4.** read instructions, guidelines/procedures/rules related to the worksite and equipment operations
- GS5.** give clear instructions to co-workers, subordinates and other personnel
- GS6.** use correct technical terms while interacting with supervisor
- GS7.** make an appropriate timely decision in responding to emergencies/accidents in line with organizational/ worksite guidelines
- GS8.** use correct ppe and other safety gear while at the worksite
- GS9.** work with supervisors/ team mates to carry out work related tasks
- GS10.** plan work according to the required schedule and location
- GS11.** build and maintain positive and effective relationships with colleagues and customers
- GS12.** seek appropriate assistance from other sources to resolve problems
- GS13.** assess the intensity of the fire accident and operate fire extinguishers
- GS14.** analyse, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently
- GS15.** document and report any health and safety related incidents/ accidents
- GS16.** read and comprehend basic english to read manuals of operations
- GS17.** read all organizational and equipment related health and safety manuals and documents
- GS18.** read instructions, guidelines/procedures/rules related to the worksite and equipment operations
- GS19.** give clear instructions to co-workers, subordinates and other personnel
- GS20.** use correct technical terms while interacting with supervisor
- GS21.** make an appropriate timely decision in responding to emergencies/accidents in line with organizational/ worksite guidelines

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- GS22.** use correct ppe and other safety gear while at the worksite
- GS23.** work with supervisors/ team mates to carry out work related tasks
- GS24.** plan work according to the required schedule and location
- GS25.** build and maintain positive and effective relationships with colleagues and customers
- GS26.** seek appropriate assistance from other sources to resolve problems
- GS27.** assess the intensity of the fire accident and operate fire extinguishers
- GS28.** analyse, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Worksite health and safety</i>	6	24	-	-
PC1. comply with safety, health, security and environment related regulations/ guidelines at the work site	-	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	1	3	-	-
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	1	3	-	-
PC4. carry out operations as per the manufacturers and worksite related health and safety guidelines	1	2	-	-
PC5. handle the transport, storage and disposal of hazardous materials and waste in compliance with worksite health, safety and environmental guidelines	1	3	-	-
PC6. follow safety regulations and procedures with regard to worksite hazards and risks	1	2	-	-
PC7. operate various grades of fire extinguishers, as applicable	-	3	-	-
PC8. support in administering basic first aid and report to concerned team members, as required, in case of an accident	1	3	-	-
PC9. respond promptly and appropriately to an accident/ incident or emergency situation, within limits of your role and responsibility	-	3	-	-
NOS Total	6	24	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	IES/N7601
NOS Name	Comply with worksite health and safety guidelines
Sector	Infrastructure Equipment
Sub-Sector	Equipment Operations
Occupation	Operator
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	31/03/2015
Next Review Date	31/03/2017
NSQC Clearance Date	18/06/2015

Qualification Pack

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) (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 these criteria.
5. In case of successfully passing only certain number of NOSs, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.
6. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack

Recommended Pass % : 70

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
IES/N0164.Carry out pre-operation checks on a tower crane	10	20	-	-	30	26
IES/N0165.Carry out tower crane operations	12	23	-	-	35	31
IES/N0166.Carry out maintenance and troubleshooting of the tower crane	7	13	-	-	20	17
IES/N7601.Comply with worksite health and safety guidelines	6	24	-	-	30	26
Total	35	80	-	-	115	100

Acronyms

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

Qualification Pack

Glossary

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

Qualification Pack

Knowledge and Understanding (KU)	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.
Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/ Generic Skills (GS)	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
Electives	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
Options	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.