

## Qualification Pack



# Excavator Operator

QP Code: IES/Q0103

Version: 2.0

NSQF Level: 4

Infrastructure Equipment Skill Council || Avik Royale - First Floor (Next of Vijaya Bank), No.6, 50 feet  
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## Qualification Pack

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## Qualification Pack

### IES/Q0103: Excavator Operator

#### Brief Job Description

An excavator operator drives and controls the excavator operations the movement and angle of the arm and the equipment. He determines the angle and speed of the movements of the arm and bucket along the vertical axis.

#### Personal Attributes

This job requires the individual to be extremely careful and diligent and have high level of concentration. Hard work and strong work ethics, courteous behavior with co workers are equally desirable. He should also be physically agile, strong, have good eye sight and not suffer from color-blindness.

#### Applicable National Occupational Standards (NOS)

##### Compulsory NOS:

1. [IES/N0107: Carry out pre-operation checks on an excavator](#)
2. [IES/N0108: Operate an excavator](#)
3. [IES/N0109: Perform routine maintenance and troubleshooting of a excavator](#)
4. [IES/N7601: Comply with worksite health and safety guidelines](#)

#### Qualification Pack (QP) Parameters

<b>Sector</b>	Infrastructure Equipment
<b>Sub-Sector</b>	Equipment Operations
<b>Occupation</b>	Operator
<b>Country</b>	India
<b>NSQF Level</b>	4
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2015/ 8342.2001

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<b>Minimum Educational Qualification &amp; Experience</b>	8th Class (OR • 10th Class Pass + ITI (1year after Class 10th) with 1 year of relevant experience • OR • 10th Class Pass + ITI (2years after Class 10th) • OR • 10th Class Pass and pursuing continuous regular schooling • OR • 3 Year Diploma (After 10th)12th Class Pass with 6 months of relevant experience • OR • Previous relevant Qualification of NSQF Level 3 with 2 years of relevant experience) with 2 Years of experience
<b>Minimum Level of Education for Training in School</b>	Not Applicable
<b>Pre-Requisite License or Training</b>	NA
<b>Minimum Job Entry Age</b>	18 Years
<b>Last Reviewed On</b>	26/05/2022
<b>Next Review Date</b>	26/05/2025
<b>NSQC Approval Date</b>	26/05/2022
<b>Version</b>	2.0
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<b>NQR Version</b>	1.0

## Qualification Pack

### IES/N0107: Carry out pre-operation checks on an excavator

#### Description

This unit provides Performance Criteria, Knowledge & Understanding and Skills & Ability for activities that need to be carried out to prepare the excavator for a shift

#### Scope

The scope covers the following :

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

#### Elements and Performance Criteria

##### *Pre Operation Checks*

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

- PC1.** abide with the supervisor's time limitations
- PC2.** check for cracks and wear in the turret and undercarriage
- PC3.** make sure that there is no abnormal wear or cracked teeth in the tracks & sprockets
- PC4.** check for dents and cracks on the welded areas of the boom and the stick
- PC5.** ensure that the oil levels in the engine, radiator coolant, final drive and hydraulic oil and top up, if necessary as per manufacturer's recommendations
- PC6.** check the fan belt tension
- PC7.** set the rear and side mirrors for correct viewing position
- PC8.** check for leaks in the hydraulic hoses and cylinders
- PC9.** carry out inspections to verify that the horn and work lights are in proper working order
- PC10.** check battery electrolyte level and terminal tightness
- PC11.** inspect the different controls, gauges, warning lights, and confirm that all safety and maintenance stickers are present
- PC12.** check and adjust the operator seat, seat belts and set them as per comfort level
- PC13.** check the circle turn gear and clean if required
- PC14.** ensure that the air filter dust bowls are clean, and that the gasket and inner filter are in good condition
- PC15.** check and ensure that all cabin controls including electronic display are functioning properly
- PC16.** drain the water and debris from the fuel tank
- PC17.** make sure that all the pins, bushings and pivot points are properly greased
- PC18.** maintain clean footplates and steps free of mud, dirt and oil
- PC19.** before operation, ensure that no one is beneath or on the machine
- PC20.** maintain a Inspection/maintenance logbook to record all activities performed before starting the excavator
- PC21.** report defects precisely to the supervisor if beyond scope of his role

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### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the organization's breakdown and maintenance procedures and guidelines
- KU2.** the company's performance criteria and processes
- KU3.** reporting structure in the company
- KU4.** escalation matrix for reporting unresolved problems
- KU5.** schedule for resolving the complaint / problem
- KU6.** work goal and review mechanism with supervisor for obtaining/giving feedback on performance process
- KU7.** location of tools
- KU8.** contact person in case of queries on procedure or products
- KU9.** location and process for storage and disposal of waste material
- KU10.** safety policy of the company
- KU11.** various types of excavators and their uses and functions
- KU12.** introduction to the engine, hydraulic pump and motors as well as their use and purpose
- KU13.** different types of hydraulic mechanisms
- KU14.** principles of friction
- KU15.** steering mechanisms and correct way of steering on slopes
- KU16.** the relevance of greasing and oiling excavator components that require routine lubrication
- KU17.** instrument panel / cabin controls, their location and operation
- KU18.** controls, levers and switches in order to operate the excavator properly
- KU19.** excavator components, such as the engine, hydraulic pump, drive & swing motors, track chain, rollers, sprockets, boom, stick, bucket and other attachments, must be in good operating order
- KU20.** optimal engine oil pressure, radiator coolant temperature
- KU21.** visual checks to identify damage, defects, cracks or leaks beforehand

### Generic Skills (GS)

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

- GS1.** record any deviations/ incidents as per prescribed norms
- GS2.** read and comprehend basic english to read manuals of operations
- GS3.** read instructions, guidelines/procedures/rules related to the worksite and equipment operations
- GS4.** give clear instructions to co-workers, subordinates and other personnel
- GS5.** when talking with your supervisor, utilize the right technical words
- GS6.** decide when to conduct maintenance checks
- GS7.** work with supervisors/ team mates to carry out work related tasks
- GS8.** plan work according to the required schedule and location

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- GS9.** plan for cleaning and lubricating the every day
- GS10.** deliver first-rate service to ensure client satisfaction
- GS11.** identify immediate or temporary solutions to resolve mechanical issues
- GS12.** judge when to seek assistance from supervisor
- GS13.** determine cause and effect relationships in his field of employment
- GS14.** examine, evaluate, and apply knowledge acquired from observation, experience, logic, or communication in order to act efficiently

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### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Pre Operation Checks</i>	<b>10</b>	<b>60</b>	-	-
<b>PC1.</b> abide with the supervisor's time limitations	1	1	-	-
<b>PC2.</b> check for cracks and wear in the turret and undercarriage	-	4	-	-
<b>PC3.</b> make sure that there is no abnormal wear or cracked teeth in the tracks & sprockets	-	3	-	-
<b>PC4.</b> check for dents and cracks on the welded areas of the boom and the stick	1	3	-	-
<b>PC5.</b> ensure that the oil levels in the engine, radiator coolant, final drive and hydraulic oil and top up, if necessary as per manufacturer's recommendations	-	4	-	-
<b>PC6.</b> check the fan belt tension	-	3	-	-
<b>PC7.</b> set the rear and side mirrors for correct viewing position	-	2	-	-
<b>PC8.</b> check for leaks in the hydraulic hoses and cylinders	1	3	-	-
<b>PC9.</b> carry out inspections to verify that the horn and work lights are in proper working order	1	2	-	-
<b>PC10.</b> check battery electrolyte level and terminal tightness	1	3	-	-
<b>PC11.</b> inspect the different controls, gauges, warning lights, and confirm that all safety and maintenance stickers are present	1	3	-	-
<b>PC12.</b> check and adjust the operator seat, seat belts and set them as per comfort level	1	2	-	-
<b>PC13.</b> check the circle turn gear and clean if required	-	3	-	-
<b>PC14.</b> ensure that the air filter dust bowls are clean, and that the gasket and inner filter are in good condition	-	4	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC15.</b> check and ensure that all cabin controls including electronic display are functioning properly	-	4	-	-
<b>PC16.</b> drain the water and debris from the fuel tank	1	3	-	-
<b>PC17.</b> make sure that all the pins, bushings and pivot points are properly greased	-	4	-	-
<b>PC18.</b> maintain clean footplates and steps free of mud, dirt and oil	-	3	-	-
<b>PC19.</b> before operation, ensure that no one is beneath or on the machine	-	2	-	-
<b>PC20.</b> maintain a Inspection/maintenance logbook to record all activities performed before starting the excavator	1	2	-	-
<b>PC21.</b> report defects precisely to the supervisor if beyond scope of his role	1	2	-	-
<b>NOS Total</b>	<b>10</b>	<b>60</b>	-	-

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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	IES/N0107
<b>NOS Name</b>	Carry out pre-operation checks on an excavator
<b>Sector</b>	Infrastructure Equipment
<b>Sub-Sector</b>	Equipment Operations
<b>Occupation</b>	Operator
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	2.0
<b>Last Reviewed Date</b>	26/05/2022
<b>Next Review Date</b>	26/05/2025
<b>NSQC Clearance Date</b>	26/05/2022

## Qualification Pack

### IES/N0108: Operate an excavator

#### Description

This unit provides Performance Criteria, Knowledge & Understanding and Skills & Ability for activities that are required for operating an excavator.

#### Scope

The scope covers the following :

- This unit / task covers the following: Excavator operations, loading and Load dumping

#### Elements and Performance Criteria

##### *Excavator operations*

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

- PC1.** plan and arrange the work in accordance with the instructions
- PC2.** examine the jobsite for loose soil, concealed deep ditches, or marshy spots where the excavator might become trapped
- PC3.** using the ignition switch, start the engine
- PC4.** in cold season, use the priming pump and pre-heater to start the engine
- PC5.** identify and choose the proper attachment to be required for the task at hand on the job site
- PC6.** use the emergency stop button to disable all power to the excavator in case of a crisis, as per operator manual
- PC7.** report any issues/problems encountered while operating the excavator to the supervisor

##### *Loading*

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

- PC8.** assure that the excavator load and operating speed are within the manufacturer's specifications
- PC9.** keep a close eye out for workers and dangers such as trenches, potholes, and wires
- PC10.** make visual inspections on essential temperature and pressure gauges while they are in operation
- PC11.** abide with the supervisor's time limitations
- PC12.** make sure that no other operators travel on or near the excavator
- PC13.** ensure that walkway rules e.g. operating the excavator within the permissible/ allocated areas are followed
- PC14.** use the excavator's signaling equipment wisely, such as the turn signal, parking indication and air horn
- PC15.** before tipping over an edge, stay a safe distance from it and utilize an authorized stop block
- PC16.** maintain a safe distance from other plants and vehicles
- PC17.** judge the grade of the excavator travel limitation and operate accordingly

##### *Load Dumping*

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

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- PC18.** ensure that excavator is always parked on firm, level ground; with handbrake applied and drive and controls disengaged
- PC19.** operate the body hoist control handle to maneuver the hydraulic ram that tips the dump
- PC20.** release the load securely in the place and manner specified by the supervisor

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the organization's breakdown and maintenance procedures and guidelines
- KU2.** the company's performance criteria and processes
- KU3.** reporting structure in the company
- KU4.** escalation matrix for reporting unresolved problems
- KU5.** schedule for resolving the complaint/problem
- KU6.** work goal and review mechanism with supervisor for obtaining/giving feedback on performance process
- KU7.** location of tools
- KU8.** contact person in case of queries on procedure or products
- KU9.** location and process for storage and disposal of waste material
- KU10.** safety policy of the company
- KU11.** various excavators and their uses and functions
- KU12.** proper use of different accessories such as excavation buckets, skeleton buckets, ditch cleaning buckets, tiltable ditch cleaning buckets, trapezoidal buckets, fast couplers, pin grabbers, and quick coupler hammers Contractor grapples, demolition and sorting grapples, orange peel grapples, and so on
- KU13.** differentiate between several attachment types
- KU14.** introduction to the engine and transmission, as well as their use and purpose
- KU15.** different types of hydraulic mechanisms
- KU16.** principles of friction
- KU17.** steering techniques and the proper technique to steer on a slope
- KU18.** the relevance of greasing and oiling excavator components that require routine lubrication
- KU19.** instrument panel / cabin controls, their location and operation
- KU20.** controls, levers and switches in order to operate the excavator properly
- KU21.** excavator components, such as the hoist, propel system, power train, hoist, boom & stick, and other attachments, must be in good operating order
- KU22.** optimal engine oil pressure, radiator coolant temperature
- KU23.** visual inspections are performed ahead of time to detect damage, flaws, cracks, or leaks
- KU24.** the risks of excavating in the vicinity of misfired shots
- KU25.** all safety signs and other emergency signals
- KU26.** correct maintenance procedures for excavator
- KU27.** the location and procedure of using the emergency stop button
- KU28.** response to emergencies e.g. correct way to use fire extinguisher

## Qualification Pack

### Generic Skills (GS)

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

- GS1.** keep a record of any deviations or occurrences that do not conform to the specified standards
- GS2.** read and comprehend basic english to read manuals of operations
- GS3.** understand stakes and signs on the road and on the job site
- 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.** when talking with your supervisor, utilize the right technical words
- GS7.** examine the excavator for any damage or defective components and take appropriate measures
- GS8.** decide when to conduct suitable driving actions, such as forward, reverse, 'u' turn, and tight spot
- GS9.** work with supervisors/ team mates to carry out work related tasks
- GS10.** plan work according to the required schedule and location
- GS11.** deliver first-rate service to ensure client satisfaction
- GS12.** identify immediate or temporary solutions to resolve mechanical issues
- GS13.** judge when to seek assistance from supervisor
- GS14.** investigate possible methods to enhance operational efficiency
- GS15.** propose ways to avoid accidents/errors when running the equipment
- GS16.** examine, evaluate, and apply knowledge acquired from observation, experience, logic, or communication in order to act efficiently

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Excavator operations</i>	<b>3</b>	<b>20</b>	-	-
<b>PC1.</b> plan and arrange the work in accordance with the instructions	-	3	-	-
<b>PC2.</b> examine the jobsite for loose soil, concealed deep ditches, or marshy spots where the excavator might become trapped	-	3	-	-
<b>PC3.</b> using the ignition switch, start the engine	-	3	-	-
<b>PC4.</b> in cold season, use the priming pump and pre-heater to start the engine	1	3	-	-
<b>PC5.</b> identify and choose the proper attachment to be required for the task at hand on the job site	1	3	-	-
<b>PC6.</b> use the emergency stop button to disable all power to the excavator in case of a crisis, as per operator manual	-	3	-	-
<b>PC7.</b> report any issues/problems encountered while operating the excavator to the supervisor	1	2	-	-
<i>Loading</i>	<b>2</b>	<b>26</b>	-	-
<b>PC8.</b> assure that the excavator load and operating speed are within the manufacturer's specifications	-	3	-	-
<b>PC9.</b> keep a close eye out for workers and dangers such as trenches, potholes, and wires	-	3	-	-
<b>PC10.</b> make visual inspections on essential temperature and pressure gauges while they are in operation	-	2	-	-
<b>PC11.</b> abide with the supervisor's time limitations	-	3	-	-
<b>PC12.</b> make sure that no other operators travel on or near the excavator	1	2	-	-
<b>PC13.</b> ensure that walkway rules e.g. operating the excavator within the permissible/ allocated areas are followed	-	3	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC14.</b> use the excavator's signaling equipment wisely, such as the turn signal, parking indication and air horn	-	3	-	-
<b>PC15.</b> before tipping over an edge, stay a safe distance from it and utilize an authorized stop block	-	3	-	-
<b>PC16.</b> maintain a safe distance from other plants and vehicles	1	2	-	-
<b>PC17.</b> judge the grade of the excavator travel limitation and operate accordingly	-	2	-	-
<i>Load Dumping</i>	<b>1</b>	<b>8</b>	-	-
<b>PC18.</b> ensure that excavator is always parked on firm, level ground; with handbrake applied and drive and controls disengaged	-	3	-	-
<b>PC19.</b> operate the body hoist control handle to maneuver the hydraulic ram that tips the dump	-	3	-	-
<b>PC20.</b> release the load securely in the place and manner specified by the supervisor	1	2	-	-
<b>NOS Total</b>	<b>6</b>	<b>54</b>	-	-

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	IES/N0108
<b>NOS Name</b>	Operate an excavator
<b>Sector</b>	Infrastructure Equipment
<b>Sub-Sector</b>	Equipment Operations
<b>Occupation</b>	Operator
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	2.0
<b>Last Reviewed Date</b>	26/05/2022
<b>Next Review Date</b>	26/05/2025
<b>NSQC Clearance Date</b>	26/05/2022



## Qualification Pack

# IES/N0109: Perform routine maintenance and troubleshooting of a excavator

## Description

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

## Scope

The scope covers the following :

- This unit / task covers the following: Routine maintenance Basic diagnostics and troubleshooting
- Documentation and Reporting

## Elements and Performance Criteria

### *Routine maintenance*

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

- PC1.** monitoring machine working hours allows you to determine the best service plan
- PC2.** at regular intervals, clean the dust bowls of air filter
- PC3.** at regular intervals, clean the footplates, pedals, and stairs of mud, grime, ice, and snow
- PC4.** everyday drain the water and debris from the fuel tank
- PC5.** check and top up coolants, lubricants and all fluids everyday
- PC6.** grease all pins and bushings of pivot points everyday
- PC7.** check battery acid levels and terminal condition, and do minor adjustments as needed
- PC8.** if a fault is found that is outside the scope of his duty, notify the supervisor immediately

### *Basic diagnostics and troubleshooting*

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

- PC9.** before performing any repair, be certain that the machine is on firm and level ground
- PC10.** timely completion of daily / weekly maintenance sheets as provided by the company
- PC11.** while doing maintenance, be sure that appropriate props/support devices are utilized and that the bucket is not lifted
- PC12.** make sure that no engine repair is conducted while the engine is running or remains hot
- PC13.** troubleshoot and analyze the problem
- PC14.** handle and dispose waste based on environmental guidelines at the work place
- PC15.** adhere to the reporting procedures established by the employer
- PC16.** complete all documents in accordance with the required standards in a timely way

### *Documentation and Reporting*

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

- PC17.** report and escalate problems/ incidents as required in a timely manner

## Knowledge and Understanding (KU)

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The individual on the job needs to know and understand:

- KU1.** the organization's breakdown and repair processes and guidelines
- KU2.** the company's performance criteria and processes
- KU3.** reporting structure in the company
- KU4.** escalation matrix for reporting unresolved problems
- KU5.** schedule for resolving the complaint/problem
- KU6.** work goal and review mechanism with supervisor for obtaining/giving feedback on performance process
- KU7.** location of special tools and their use
- KU8.** contact person in case of queries on procedure or products
- KU9.** location and process for storage and disposal of waste material
- KU10.** safety policy of the company

## Generic Skills (GS)

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

- GS1.** keep a record of any deviations or occurrences that do not conform to the specified standards
- GS2.** read and comprehend basic english to read manuals of operations
- GS3.** read instructions, guidelines/procedures/rules related to the worksite and equipment operations
- GS4.** give clear instructions to co-workers, subordinates and other personnel
- GS5.** when talking with your supervisor, utilize the right technical words
- GS6.** decide when to conduct maintenance checks
- GS7.** evaluate the decision and conduct basic trouble shooting
- GS8.** work with supervisors/ team mates to carry out work related tasks
- GS9.** plan work according to the required schedule and location
- GS10.** plan for regular maintenance on a daily basis before machine operations
- GS11.** deliver first-rate service to ensure client satisfaction
- GS12.** identify immediate or temporary solutions to resolve mechanical issues
- GS13.** discover when to seek assistance from supervisor
- GS14.** investigate possible methods to enhance operational efficiency
- GS15.** check for damages and diagnose common problems in the excavator and take relevant action
- GS16.** examine, evaluate, and apply knowledge acquired from observation, experience, logic, or communication in order to act efficiently

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### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Routine maintenance</i>	<b>3</b>	<b>21</b>	-	-
<b>PC1.</b> monitoring machine working hours allows you to determine the best service plan	-	3	-	-
<b>PC2.</b> at regular intervals, clean the dust bowls of air filter	1	2	-	-
<b>PC3.</b> at regular intervals, clean the footplates, pedals, and stairs of mud, grime, ice, and snow	-	3	-	-
<b>PC4.</b> everyday drain the water and debris from the fuel tank	-	3	-	-
<b>PC5.</b> check and top up coolants, lubricants and all fluids everyday	-	3	-	-
<b>PC6.</b> grease all pins and bushings of pivot points everyday	-	3	-	-
<b>PC7.</b> check battery acid levels and terminal condition, and do minor adjustments as needed	1	3	-	-
<b>PC8.</b> if a fault is found that is outside the scope of his duty, notify the supervisor immediately	1	1	-	-
<i>Basic diagnostics and troubleshooting</i>	<b>4</b>	<b>20</b>	-	-
<b>PC9.</b> before performing any repair, be certain that the machine is on firm and level ground	-	3	-	-
<b>PC10.</b> timely completion of daily / weekly maintenance sheets as provided by the company	2	1	-	-
<b>PC11.</b> while doing maintenance, be sure that appropriate props/support devices are utilized and that the bucket is not lifted	-	3	-	-
<b>PC12.</b> make sure that no engine repair is conducted while the engine is running or remains hot	-	3	-	-
<b>PC13.</b> troubleshoot and analyze the problem	-	3	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC14.</b> handle and dispose waste based on environmental guidelines at the work place	1	2	-	-
<b>PC15.</b> adhere to the reporting procedures established by the employer	-	3	-	-
<b>PC16.</b> complete all documents in accordance with the required standards in a timely way	1	2	-	-
<i>Documentation and Reporting</i>	-	2	-	-
<b>PC17.</b> report and escalate problems/ incidents as required in a timely manner	-	2	-	-
<b>NOS Total</b>	<b>7</b>	<b>43</b>	-	-

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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	IES/N0109
<b>NOS Name</b>	Perform routine maintenance and troubleshooting of a excavator
<b>Sector</b>	Infrastructure Equipment
<b>Sub-Sector</b>	Equipment Operations
<b>Occupation</b>	Operator
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	2.0
<b>Last Reviewed Date</b>	26/05/2022
<b>Next Review Date</b>	26/05/2025
<b>NSQC Clearance Date</b>	26/05/2022

## 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

The scope 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 as applicable to the equipment and the worksite
- 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 manufacturer's 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.** operate various grades of fire extinguishers, as applicable
- PC7.** support in administering basic first aid and report to concerned team members, as required, in case of an accident
- PC8.** respond promptly and appropriately to an accident/ incident or emergency, within limits of your role and responsibility
- PC9.** record and report details related to operations, incidents or accidents, as applicable

#### 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 and its importance
- KU2.** personnel responsible for health, safety and environment (HSE) related matters and their contact details
- KU3.** location of worksite storage, she team and safe assembly points
- KU4.** reporting and documentation procedures for HSE and security matters
- KU5.** manufacturers guidelines related to health and safety requirements

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- KU6.** common types of health, safety, environment and security risks related to the worksite and operations
- KU7.** types, use and importance of personal protective equipment (PPE) and other safety gear
- KU8.** safe working practices to avoid common hazards and risks
- KU9.** guidelines for transport, storage and disposal of hazardous materials and waste
- KU10.** types of common hazards and risks at the worksite including fire, electrical, gas emergencies, accidents, incidents, structure collapse, machine breakdown
- KU11.** knowledge of safe lockdown/stop of machinery use in case of emergencies and incidents/accidents
- KU12.** types of fire extinguishers and their use
- KU13.** common injuries and appropriate basic first aid treatment e.g. 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

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Worksite health and safety</i>	<b>5</b>	<b>10</b>	-	-
<b>PC1.</b> Comply with safety, health, security and environment related regulations/guidelines at the work site	0.5	1	-	-
<b>PC2.</b> use personal protective equipment (ppe) and other safety gear as applicable to the equipment and the worksite	0.5	1	-	-
<b>PC3.</b> 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	0.5	1	-	-
<b>PC4.</b> Carry out operations as per the manufacturer's and worksite related health and safety guidelines	0.5	1	-	-
<b>PC5.</b> Handle the transport, storage and disposal of hazardous materials and waste in compliance with worksite health, safety and environmental guidelines	1	1	-	-
<b>PC6.</b> operate various grades of fire extinguishers, as applicable	0.5	2	-	-
<b>PC7.</b> support in administering basic first aid and report to concerned team members, as required, in case of an accident	0.5	1	-	-
<b>PC8.</b> respond promptly and appropriately to an accident/ incident or emergency, within limits of your role and responsibility	0.5	1	-	-
<b>PC9.</b> record and report details related to operations, incidents or accidents, as applicable	0.5	1	-	-
<b>NOS Total</b>	<b>5</b>	<b>10</b>	-	-



## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	IES/N7601
<b>NOS Name</b>	Comply with worksite health and safety guidelines
<b>Sector</b>	Infrastructure Equipment
<b>Sub-Sector</b>	Equipment Operations
<b>Occupation</b>	Operator
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	2.0
<b>Last Reviewed Date</b>	26/05/2022
<b>Next Review Date</b>	31/05/2025
<b>NSQC Clearance Date</b>	26/05/2022

## Assessment Guidelines and Assessment Weightage

### Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Element/ 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 Element/ PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.
6. To pass the Qualification Pack assessment, every trainee should score the Recommended Pass % aggregate for the QP.
7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

## Qualification Pack

### Minimum Aggregate Passing % at QP Level : 70

(Please note: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

### Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
IES/N0107.Carry out pre-operation checks on an excavator	10	60	0	0	70	35
IES/N0108.Operate an excavator	6	54	0	0	60	30
IES/N0109.Perform routine maintenance and troubleshooting of a excavator	7	43	0	0	50	25
IES/N7601.Comply with worksite health and safety guidelines	5	10	0	0	15	10
<b>Total</b>	<b>28</b>	<b>167</b>	<b>0</b>	<b>0</b>	<b>195</b>	<b>100</b>

## Qualification Pack

### Acronyms

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

## Qualification Pack

### Glossary

<b>Sector</b>	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.
<b>Sub-sector</b>	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
<b>Occupation</b>	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
<b>Job role</b>	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
<b>Occupational Standards (OS)</b>	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.
<b>Performance Criteria (PC)</b>	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
<b>National Occupational Standards (NOS)</b>	NOS are occupational standards which apply uniquely in the Indian context.
<b>Qualifications Pack (QP)</b>	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.
<b>Unit Code</b>	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
<b>Unit Title</b>	Unit title gives a clear overall statement about what the incumbent should be able to do.
<b>Description</b>	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.
<b>Scope</b>	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

<b>Knowledge and Understanding (KU)</b>	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.
<b>Organisational Context</b>	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.
<b>Technical Knowledge</b>	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
<b>Core Skills/ Generic Skills (GS)</b>	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.
<b>Electives</b>	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.
<b>Options</b>	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.