

## Qualification Pack



# Supervisor Maintenance (Infrastructure Equipment)

QP Code: IES/Q1201

NSQF Level: 7

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  
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### IES/Q1201: Supervisor Maintenance (Infrastructure Equipment)

#### Brief Job Description

Coordinates and supervises the activities of maintenance staff engaged in maintaining and repairing of infrastructure equipment used for activities such as construction, earth moving, transporting material etc.

#### Personal Attributes

The individual should be able to direct individuals working under him and take decisions. He/she should be highly result oriented and have a service orientation. The individual should also be able to demonstrate technical competence with diagnostics. He/she should adhere to processes and be physically fit.

#### Applicable National Occupational Standards (NOS)

##### Compulsory NOS:

1. [IES/N1201: Supervise preventive maintenance and minor repair work](#)
2. [IES/N1202: Supervise corrective maintenance of equipment](#)
3. [IES/N7602: Comply with workshop health and safety guidelines](#)

#### Qualification Pack (QP) Parameters

<b>Sector</b>	Infrastructure Equipment
<b>Sub-Sector</b>	Equipment Service and spares
<b>Occupation</b>	Managerial & Supervisory - Equipment Service and Spares
<b>Country</b>	India
<b>NSQF Level</b>	7
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2004/7238.1
<b>Minimum Educational Qualification &amp; Experience</b>	Diploma (Mechanical/Electrical/Automobile Engineering ) with 5-10 Years of experience Atleast 6 years of experience as a Mechanic across one or different streams (Engine/ Hydraulics/ Electrical)
<b>Minimum Level of Education for Training in School</b>	
<b>Pre-Requisite License or Training</b>	On-the-job training on Quality Systems, Advanced diagnostics/ Maintenance related courses by OEMs



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<b>Minimum Job Entry Age</b>	18 Years
<b>Last Reviewed On</b>	31/03/2015
<b>Next Review Date</b>	31/03/2020
<b>NSQC Approval Date</b>	18/06/2015
<b>Version</b>	1.0

## Qualification Pack

### IES/N1201: Supervise preventive maintenance and minor repair work

#### Description

This unit provides Performance Criteria, Knowledge & Understanding and Skills & Ability for planning, supervision and documentation related to equipment maintenance.

#### Scope

This unit/task covers the following: Planning and resource allocation Safety, Health and Environment (SHE) adherence Maintenance work Effectiveness of maintenance work Documentation

#### Elements and Performance Criteria

##### *Planning and resource allocation*

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

- PC1.** create the preventive maintenance schedule and checklists as per parts and maintenance checklist
- PC2.** communicate maintenance plan to all the stakeholders like site supervisor/ project manager/ maintenance manager/ labor in-charge/ material manager/ contract labor etc as per organizational protocol
- PC3.** arrange for procurement of machine / equipment parts whenever necessary as per organization protocol
- PC4.** arrange availability of hardware for repair work or raise indent for the same much before the preventive maintenance schedule
- PC5.** plan and schedule availability of mechanics, technicians, labor in adequate numbers to carry out preventive maintenance
- PC6.** inspect and validate if all the tools used to monitor the functioning of the equipment are calibrated and certified by competent authority
- PC7.** assist in planning and operationalization of the field workshop/ service, as required
- PC8.** supervise equipment commissioning/ installation process

##### *Safety, Health and Environment (SHE) adherence*

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

- PC9.** comply with all organizational guidelines, she policy and quality standards during equipment maintenance
- PC10.** supervise the enforcement of all HSE related guidelines in equipment maintenance
- PC11.** carry out periodic walk-through to ensure that the service/ field workshop area is clean and free from hazards as per the safety, health and environmental policy/ guidelines
- PC12.** supervise the handling and disposal of waste based on environmental guidelines at the work place

##### *Maintenance work*

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

- PC13.** share equipment wise checklists and work schedule with the mechanics to ensure correct type of service (daily, weekly, monthly, quarterly, half yearly and yearly)/ maintenance activities are completed

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- PC14.** assist the manager in monitoring maintenance operations with regards to timelines and budgets
- PC15.** ensure that third party equipment installed at the work place preventive maintenance as per agreed schedule/ annual maintenance contract with the vendor
- PC16.** help and guide the mechanics, as required
- PC17.** check the workmanship of mechanics/ technicians and other personnel
- PC18.** ensure the faulty parts are replaced/ repaired on the site or sent to vendor for repair through material department
- PC19.** ensure quality of workmanship of mechanics and enter the same in daily report

### *Effectiveness of maintenance work*

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

- PC20.** assist the workshop/ P&M manager in ensuring the quality of workmanship of third party vendors
- PC21.** check if the preventive maintenance work is complete as per the checklists given to all the mechanics
- PC22.** get a sign-off from the end user of the equipment like site engineer and/ or project head as per organizational protocol

### *Documentation*

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

- PC23.** document the details of the vendors in log-books/ organizational reports/ MIS/ vendors worksheets etc. as per organizational protocol
- PC24.** complete documentation applicable to the role like reports, preventive maintenance log-books, spare parts usage log-books, sign-off reports, management information reports, and other reports as per the quality & reporting standards applicable to the organization
- PC25.** keep all the records in a way and at a place where it is easily accessible to the relevant personnel

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the organizations procedures and guidelines related to breakdown & maintenance services
- KU2.** the performance standards & procedures followed by the organization
- KU3.** reporting structure in the organization
- KU4.** escalation matrix for reporting unresolved problems
- KU5.** timeframe in which the complaint/problem should be resolved
- KU6.** work target and review mechanism with supervisor for obtaining/ giving feedback related to performance process
- KU7.** location of tools and equipment
- KU8.** contact person in case of queries on procedure or equipment
- KU9.** process sequence for commissioning/ installation of equipment
- KU10.** contact details of the procurement team and process for procurement of equipment, spares and consumables

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- KU11.** location and process for storage and disposal of waste material
- KU12.** she/ safety policy of the organization
- KU13.** standard operating procedure (sop) of maintenance work in the department
- KU14.** quality standards in operation in the organization
- KU15.** she or any other safety standards in operation in the organization
- KU16.** risk impact of maintenance operations
- KU17.** original equipment manufacturers guide book on product usage and repair
- KU18.** calibration of tools used to measure the performance of equipment
- KU19.** procedure to allocate job among a team of mechanics based on their abilities, skills and units in which a job can be divided
- KU20.** process and elements of setting up and operationalizing a field workshop
- KU21.** installation/ commissioning process and stages for various types of p&m equipment
- KU22.** different she related processes to be carried out during operations
- KU23.** methods to enforce she policy guidelines in operations
- KU24.** safety risks and hazards at workshop and means to mitigate these
- KU25.** risk & impact of not doing preventive maintenance
- KU26.** escalation matrix for highlighting incidents/ system failures/ repeated failures/ probable failures/ obsolescence etc.
- KU27.** spare parts management and procurement process
- KU28.** method of preparing daily schedules and checklists for team members
- KU29.** review process for verifying correctness of work carried out
- KU30.** types of documents, records & reports prevalent in the organization
- KU31.** process of obtaining sign-off in the organization/ from customers

## Generic Skills (GS)

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

- GS1.** record any deviations/ incidents as per prescribed norms
- GS2.** document and report any health and safety related incidents/ accidents
- GS3.** read and comprehend basic english to read manuals of operations
- GS4.** read all organizational and equipment related health and safety manuals and documents
- GS5.** read instructions, guidelines/procedures/rules
- GS6.** give clear instructions to co-workers, subordinates others
- GS7.** make appropriate decisions pertaining to the concerned area of work with respect to intended work objective, span of authority, responsibility, laid down procedure and guidelines
- GS8.** work with supervisors/ team mates to carry out work related tasks
- GS9.** plan work according to the required schedule and location
- GS10.** ensure all customer needs are assessed and every effort is made to provide satisfactory service
- GS11.** assess, review that all requests are effectively allocated



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- GS12.** analyze, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently
- GS13.** analyze, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently



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### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Planning and resource allocation</i>	<b>3</b>	<b>23</b>	-	-
<b>PC1.</b> create the preventive maintenance schedule and checklists as per parts and maintenance checklist	-	3	-	-
<b>PC2.</b> communicate maintenance plan to all the stakeholders like site supervisor/ project manager/ maintenance manager/ labor in-charge/ material manager/ contract labor etc as per organizational protocol	1	3	-	-
<b>PC3.</b> arrange for procurement of machine / equipment parts whenever necessary as per organization protocol	-	3	-	-
<b>PC4.</b> arrange availability of hardware for repair work or raise indent for the same much before the preventive maintenance schedule	1	3	-	-
<b>PC5.</b> plan and schedule availability of mechanics, technicians, labor in adequate numbers to carry out preventive maintenance	-	3	-	-
<b>PC6.</b> inspect and validate if all the tools used to monitor the functioning of the equipment are calibrated and certified by competent authority	1	3	-	-
<b>PC7.</b> assist in planning and operationalization of the field workshop/ service, as required	-	3	-	-
<b>PC8.</b> supervise equipment commissioning/ installation process	-	2	-	-
<i>Safety, Health and Environment (SHE) adherence</i>	<b>2</b>	<b>9</b>	-	-
<b>PC9.</b> comply with all organizational guidelines, she policy and quality standards during equipment maintenance	1	3	-	-
<b>PC10.</b> supervise the enforcement of all HSE related guidelines in equipment maintenance	-	2	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC11.</b> carry out periodic walk-through to ensure that the service/ field workshop area is clean and free from hazards as per the safety, health and environmental policy/ guidelines	1	2	-	-
<b>PC12.</b> supervise the handling and disposal of waste based on environmental guidelines at the work place	-	2	-	-
<i>Maintenance work</i>	<b>4</b>	<b>14</b>	-	-
<b>PC13.</b> share equipment wise checklists and work schedule with the mechanics to ensure correct type of service (daily, weekly, monthly, quarterly, half yearly and yearly)/ maintenance activities are completed	1	2	-	-
<b>PC14.</b> assist the manager in monitoring maintenance operations with regards to timelines and budgets	-	2	-	-
<b>PC15.</b> ensure that third party equipment installed at the work place preventive maintenance as per agreed schedule/ annual maintenance contract with the vendor	1	2	-	-
<b>PC16.</b> help and guide the mechanics, as required	-	2	-	-
<b>PC17.</b> check the workmanship of mechanics/ technicians and other personnel	-	2	-	-
<b>PC18.</b> ensure the faulty parts are replaced/ repaired on the site or sent to vendor for repair through material department	1	2	-	-
<b>PC19.</b> ensure quality of workmanship of mechanics and enter the same in daily report	1	2	-	-
<i>Effectiveness of maintenance work</i>	<b>1</b>	<b>6</b>	-	-
<b>PC20.</b> assist the workshop/ P&M manager in ensuring the quality of workmanship of third party vendors	-	2	-	-
<b>PC21.</b> check if the preventive maintenance work is complete as per the checklists given to all the mechanics	-	2	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC22.</b> get a sign-off from the end user of the equipment like site engineer and/ or project head as per organizational protocol	1	2	-	-
<i>Documentation</i>	-	<b>8</b>	-	-
<b>PC23.</b> document the details of the vendors in log-books/ organizational reports/ MIS/ vendors worksheets etc. as per organizational protocol	-	3	-	-
<b>PC24.</b> complete documentation applicable to the role like reports, preventive maintenance log-books, spare parts usage log-books, sign-off reports, management information reports, and other reports as per the quality & reporting standards applicable to the organization	-	3	-	-
<b>PC25.</b> keep all the records in a way and at a place where it is easily accessible to the relevant personnel	-	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/N1201
<b>NOS Name</b>	Supervise preventive maintenance and minor repair work
<b>Sector</b>	Infrastructure Equipment
<b>Sub-Sector</b>	Equipment Service and spares
<b>Occupation</b>	Managerial & Supervisory - Equipment Service and spares
<b>NSQF Level</b>	7
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	31/03/2015
<b>Next Review Date</b>	31/03/2017
<b>NSQC Clearance Date</b>	

## Qualification Pack

### IES/N1202: Supervise corrective maintenance of equipment

#### Description

This unit provides Performance Criteria, Knowledge & Understanding and Skills & Ability for supervising corrective maintenance of Plant and Machinery (P&M) equipment

#### Scope

This unit/task covers the following: Avoid unscheduled break-down work Documentation and Reporting

#### Elements and Performance Criteria

##### *Avoid unscheduled break-down work*

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

- PC1.** formulate in consultation with the P&M/ Workshop Maintenance Manager the system of maintenance cycle for Plant & machinery (P&M)
- PC2.** divide the manpower of mechanics and other support personnel into teams and make them responsible for planned and unplanned work, based on the frequency and severity of breakdowns
- PC3.** plan for natural and manmade contingencies
- PC4.** create a predictive tests and analysis such as pressure , temperature, wear & tear checks, oil leakage test, hydraulic systems check, engine stress and gas exhaust system tests, wire life assessments etc. in consultation and advice of manage
- PC5.** provide data to manager about key performance parameters (like mean time between break-downs, cost of maintenance, power consumption, water consumption, oil and gas consumption, manpower utilization etc) as per cma procedures
- PC6.** design a system by which the supervisor is informed about the break as soon as it occurs
- PC7.** identify the problem quickly by performing diagnostic breakdown analysis, study the equipment manuals
- PC8.** cordon off the area, switch off power source, move personnel to safe area, in-case of an emergency
- PC9.** deploy mechanics to address the break down, as per organization protocols
- PC10.** take immediate action so that the break down is rectified.
- PC11.** run the equipment after the repair to ensure its working appropriately and safely
- PC12.** note down all the critical parameters of performance of the equipment post repair
- PC13.** take sign off from production/ operation/ project manager under whose jurisdiction the equipment is working.

##### *Documentation and Reporting*

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

- PC14.** give information and data to manager so as to make changes, if any, in the preventive maintenance schedule
- PC15.** ensure all the relevant stakeholders are informed about the rectification
- PC16.** ensure entries are made in log-books, erp, and other organization specified reports

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### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the organizations procedures and guidelines related to breakdown & maintenance services
- KU2.** the performance standards & procedures followed in the organization
- KU3.** reporting structure in the organization
- KU4.** escalation matrix for reporting unresolved problems
- KU5.** timeframe in which the complaint/problem should be resolved
- KU6.** work target and review mechanism with supervisor for obtaining/ giving feedback related to 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.** the usage cycle of existing equipment and machinery
- KU12.** dimensions and types of plant & machinery (p&m) equipment deployed
- KU13.** design of existing static equipment
- KU14.** layouts of existing static equipment
- KU15.** drawings and manuals of moving equipment
- KU16.** manpower hiring & allocation policy as required
- KU17.** material purchase policy as applicable
- KU18.** the process to manage inventory for the various material procured
- KU19.** sequence of operation that needs to be performed
- KU20.** the method to extract and use information from the relevant areas to assist in the diagnosis
- KU21.** techniques to rectify the fault in the engine of the infrastructure equipment
- KU22.** the manufacturers specification of the engine in use
- KU23.** techniques used to diagnose the faults (such as sensory information - sight, sound, smell, touch;, aural, visual and functional checks, taking measurements and use of equipment self-diagnostics) in the engine
- KU24.** usage of various fault diagnostic equipment to investigate the problem in the engine(such as multimeter, pressure gauges, thermal measuring equipment)
- KU25.** procedure to remove components from engine system without damage to the components or surrounding structure
- KU26.** usage of a various hand tools (such as spanners, sockets, screwdrivers, pliers, torque wrenches)
- KU27.** methods to check that the tools and equipment to be used are correctly calibrated, and are in a safe, tested and serviceable condition
- KU28.** method to use all tools correctly, check and store after use
- KU29.** technique to lay the removed components out in a logical sequence to aid re-assembly,
- KU30.** methods to keep component parts together or in the order that they were removed
- KU31.** techniques of inspecting removed components of engine,

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- KU32.** technique to check for damage and wear in engine
- KU33.** the equipment used in the rectification operations (such as alignment tools, torque wrenches, presses)
- KU34.** methods to rectify the fault using methods such as component replacement, adjustments, repair and refitting techniques
- KU35.** technique to carry out visual, aural, functional and measurement tests
- KU36.** the expected outcomes of the tests being conducted
- KU37.** problems with the diagnosis and rectification operations
- KU38.** process of informing appropriate people of non-conformances
- KU39.** techniques to clean/service different parts of engine different jigs and fixtures used
- KU40.** method to fill different reports/templates followed in the organization

## 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.** make appropriate decisions pertaining to the concerned area of work with respect to intended work objective, span of authority, responsibility, laid down procedure and guidelines
- GS6.** think through the problem, evaluate the possible solution(s) and suggest an optimum /best possible solution(s)
- GS7.** make an appropriate timely decision in responding to emergencies/accidents in line with organizational/ worksite guidelines
- GS8.** work with supervisors/ team mates to carry out work related tasks
- GS9.** plan work according to the required schedule and location
- GS10.** review and ensure regular maintenance on a daily basis before machine operations
- GS11.** ensure all customer needs are assessed and every effort is made to provide satisfactory service
- GS12.** assess and review that all customer requests are effectively allocated
- GS13.** refer problems outside area of responsibility to appropriate person
- GS14.** use the diagnosis results to take an appropriate decision on repair or replacement of component
- GS15.** analyse and apply the information gathered from observation, experience, reasoning, or communication to act efficiently
- GS16.** evaluate the criticality of any damage to the appropriate equipment and take appropriate action
- GS17.** analyse, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently

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### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Avoid unscheduled break-down work</i>	9	34	-	-
<b>PC1.</b> formulate in consultation with the P&M/ Workshop Maintenance Manager the system of maintenance cycle for Plant & machinery (P&M)	-	3	-	-
<b>PC2.</b> divide the manpower of mechanics and other support personnel into teams and make them responsible for planned and unplanned work, based on the frequency and severity of breakdowns	-	3	-	-
<b>PC3.</b> plan for natural and manmade contingencies	1	3	-	-
<b>PC4.</b> create a predictive tests and analysis such as pressure , temperature, wear & tear checks, oil leakage test, hydraulic systems check, engine stress and gas exhaust system tests, wire life assessments etc. in consultation and advice of manage	1	3	-	-
<b>PC5.</b> provide data to manager about key performance parameters (like mean time between break -downs, cost of maintenance, power consumption, water consumption, oil and gas consumption, manpower utilization etc) as per cma procedures	1	3	-	-
<b>PC6.</b> design a system by which the supervisor is informed about the break as soon as it occurs	1	3	-	-
<b>PC7.</b> identify the problem quickly by performing diagnostic breakdown analysis, study the equipment manuals	1	3	-	-
<b>PC8.</b> cordon off the area, switch off power source, move personnel to safe area, in-case of an emergency	1	3	-	-
<b>PC9.</b> deploy mechanics to address the break down, as per organization protocols	-	2	-	-
<b>PC10.</b> take immediate action so that the break down is rectified.	-	2	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC11.</b> run the equipment after the repair to ensure its working appropriately and safely	1	2	-	-
<b>PC12.</b> note down all the critical parameters of performance of the equipment post repair	1	2	-	-
<b>PC13.</b> take sign off from production/ operation/ project manager under whose jurisdiction the equipment is working.	1	2	-	-
<i>Documentation and Reporting</i>	<b>1</b>	<b>6</b>	-	-
<b>PC14.</b> give information and data to manager so as to make changes, if any, in the preventive maintenance schedule	1	2	-	-
<b>PC15.</b> ensure all the relevant stakeholders are informed about the rectification	-	2	-	-
<b>PC16.</b> ensure entries are made in log-books, erp, and other organization specified reports	-	2	-	-
<b>NOS Total</b>	<b>10</b>	<b>40</b>	-	-

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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	IES/N1202
<b>NOS Name</b>	Supervise corrective maintenance of equipment
<b>Sector</b>	Infrastructure Equipment
<b>Sub-Sector</b>	Equipment Service and spares
<b>Occupation</b>	Managerial & Supervisory - Equipment Service and spares
<b>NSQF Level</b>	7
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	31/03/2015
<b>Next Review Date</b>	31/03/2017
<b>NSQC Clearance Date</b>	

## Qualification Pack

### IES/N7602: Comply with workshop health and safety guidelines

#### Description

This unit provides Performance Criteria, Knowledge & Understanding and Skills & Ability for adhering to health and safety requirements at the service workshop during equipment maintenance.

#### Scope

This unit/task covers the following: Service workshop health and safety

#### Elements and Performance Criteria

##### *Service workshop 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 as per organizational/ manufacturers policy
- PC2.** carry out maintenance operations as per the manufacturers and workshop related health and safety guidelines/ standard operating procedures
- PC3.** follow safety regulations and procedures with regard to service workshop hazards and risks
- PC4.** use appropriate protective clothing/ equipment for specific tasks and work conditions as per service manual
- PC5.** lift and carry tools/equipment/components safely using correct procedure as per the service manual
- PC6.** use appropriate tools in a proper manner as given in the service manual
- PC7.** keep the work area free from clutter and spillage
- PC8.** store equipment and tools back at designated place post use and inspect to make sure they are not left behind
- PC9.** handle the storage and disposal of hazardous materials and waste in compliance with health, safety and environmental guidelines
- PC10.** operate various grades of fire extinguishers, as applicable
- PC11.** support in administering basic first aid and report to concerned team members, as required, in case of an accident
- PC12.** respond promptly and appropriately to an accident/ incident or emergency situation, within limits of your role and responsibility
- PC13.** 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
- KU2.** the importance of complying with health, safety, environmental and security guidelines during workshop operations

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- KU3.** contact details of personnel responsible for health, safety and environment (she) related matters
- KU4.** location of workshop store, first aid station 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
- KU8.** common types of health, safety, environment and security risks related to maintenance operations
- KU9.** types, use and importance of personal protective equipment (ppe) and other safety clothing
- KU10.** safe working practices to avoid common hazards and risks
- KU11.** safe working practices when working with tools and machines
- KU12.** safe working practices while working in different processes/ confined spaces
- KU13.** various dangers associated with the use of electrical equipment
- KU14.** various types of safety signs/ warnings and their meaning
- KU15.** guidelines for transport, storage and disposal of hazardous materials and waste
- KU16.** types of common hazards and risks at the workshop including fire, electrical, equipment related
- KU17.** knowledge of safe lockdown/ stop of machinery use in case of emergencies and incidents/ accidents
- KU18.** types of fire extinguishers and their use
- KU19.** 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 all organizational and equipment related health and safety manuals and documents
- GS3.** read instructions, guidelines/procedures/rules
- GS4.** give clear instructions to coworkers, subordinates and others
- GS5.** make decisions on a suitable course of action or response in the event of any emergency, health and safety related incidents/accidents
- GS6.** plan and organize own work schedule, work area, tools, equipment and materials to minimise any risk for health and safety related incident/accident
- GS7.** build and maintain positive and effective relationships with colleagues and customers
- GS8.** identify immediate or temporary solutions to resolve delays
- GS9.** seek appropriate assistance from other sources to resolve problems
- GS10.** identify 'cause and effect' relations in own area of work
- GS11.** apply balanced judgment to different situations
- GS12.** document and report any health and safety related incidents/ accidents
- GS13.** read all organizational and equipment related health and safety manuals and documents

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- GS14.** read instructions, guidelines/procedures/rules
- GS15.** give clear instructions to coworkers, subordinates and others
- GS16.** make decisions on a suitable course of action or response in the event of any emergency, health and safety related incidents/accidents
- GS17.** plan and organize own work schedule, work area, tools, equipment and materials to minimise any risk for health and safety related incident/accident
- GS18.** build and maintain positive and effective relationships with colleagues and customers
- GS19.** identify immediate or temporary solutions to resolve delays
- GS20.** seek appropriate assistance from other sources to resolve problems
- GS21.** identify 'cause and effect' relations in own area of work
- GS22.** apply balanced judgment to different situations

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### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Service workshop health and safety</i>	<b>7</b>	<b>19</b>	-	-
<b>PC1.</b> comply with safety, health, security and environment related regulations/ guidelines as per organizational/ manufacturers policy	1	1	-	-
<b>PC2.</b> carry out maintenance operations as per the manufacturers and workshop related health and safety guidelines/ standard operating procedures	-	3	-	-
<b>PC3.</b> follow safety regulations and procedures with regard to service workshop hazards and risks	1	1	-	-
<b>PC4.</b> use appropriate protective clothing/ equipment for specific tasks and work conditions as per service manual	1	1	-	-
<b>PC5.</b> lift and carry tools/equipment/components safely using correct procedure as per the service manual	1	3	-	-
<b>PC6.</b> use appropriate tools in a proper manner as given in the service manual	1	3	-	-
<b>PC7.</b> keep the work area free from clutter and spillage	1	1	-	-
<b>PC8.</b> store equipment and tools back at designated place post use and inspect to make sure they are not left behind	-	1	-	-
<b>PC9.</b> handle the storage and disposal of hazardous materials and waste in compliance with health, safety and environmental guidelines	-	1	-	-
<b>PC10.</b> operate various grades of fire extinguishers, as applicable	1	1	-	-
<b>PC11.</b> support in administering basic first aid and report to concerned team members, as required, in case of an accident	-	1	-	-
<b>PC12.</b> respond promptly and appropriately to an accident/ incident or emergency situation, within limits of your role and responsibility	-	1	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. record and report details related to operations, incidents or accidents, as applicable	-	1	-	-
<b>NOS Total</b>	<b>7</b>	<b>19</b>	-	-

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	IES/N7602
<b>NOS Name</b>	Comply with workshop health and safety guidelines
<b>Sector</b>	Infrastructure Equipment
<b>Sub-Sector</b>	Equipment Service and spares
<b>Occupation</b>	Equipment Maintenance
<b>NSQF Level</b>	3
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	31/03/2015
<b>Next Review Date</b>	31/03/2017
<b>NSQC Clearance Date</b>	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 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.

**Recommended Pass % : 70**

#### Assessment Weightage

##### Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
IES/N1201.Supervise preventive maintenance and minor repair work	10	60	-	-	70	48
IES/N1202.Supervise corrective maintenance of equipment	10	40	-	-	50	34
IES/N7602.Comply with workshop health and safety guidelines	7	19	-	-	26	18
<b>Total</b>	<b>27</b>	<b>119</b>	<b>-</b>	<b>-</b>	<b>146</b>	<b>100</b>

## 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.