

QUALIFICATION PACK – OCCUPATIONAL STANDARD FOR INFRASTRUCTURE EQUIPMENT INDUSTRY

What are Occupational Standards(OS)?

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

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Introduction

Qualification Pack - Supervisor Maintenance (Infrastructure Equipment)

SECTOR:	INFRASTRUCTURE EQUIPMENT
SUB SECTOR:	Equipment Service and spares
OCCUPATION:	Managerial & Supervisory - Equipment Service and spares
REFERENCE ID:	IES/Q1201
ALIGNED TO:	NCO-2004/ 7238.1

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.

Job Details	Qualifications Pack Code	IES/Q1201		
	Job Role	Supervisor Maintenance (Infrastructure Equipment)		
	Credits(NSQF)	TBD	Version number	1.0
	Sector	Infrastructure Equipment	Drafted on	16/02/15
	Sub-sector	Equipment Service and spares	Last reviewed on	31/03/15
	Occupation	Managerial & Supervisory - Equipment Service and spares	Next review date	31/03/17

Job Role	Supervisor Maintenance (Infrastructure Equipment)
Role Description	Coordinates and supervises the activities of maintenance staff engaged in maintaining and repairing mechanical parts of infrastructure equipment used for activities such as construction, earth moving, transporting material etc.
NSQF level	7
Minimum Educational Qualifications*	Preferably Diploma in Mechanical/ Electrical/ Automobile Engineering
Maximum Educational Qualifications*	Bachelor's Degree in Mechanical/ Electrical/ Automobile Engineering
Training (Suggested but not mandatory)	On-the-job training on Quality Systems, Advanced diagnostics/ Maintenance related courses by OEMs
Experience	At- least 6 years of experience as a Mechanic across one or different streams (Engine/ Hydraulics/ Electrical)
Applicable National Occupational Standards (NOS)	<p>Compulsory</p> <ol style="list-style-type: none"> IES/N1201Supervise preventive maintenance and minor repair work IES/N1202Supervise corrective maintenance of equipment IES/N7602Comply with workshop health and safety guidelines <p>Optional: N.A.</p>
Performance Criteria	As described in the relevant OS units

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

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

National Occupational Standard



Overview

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

National Occupational Standards

IES/N1201 Supervise preventive maintenance and minor repair work

National Occupational Standard

Unit Code	IES/N1201
Unit Title (Task)	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	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> • Planning and resource allocation • Safety, Health and Environment (SHE) adherence • Maintenance work • Effectiveness of maintenance work • Documentation
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Planning and resource allocation	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Create the preventive maintenance schedule and checklists as per parts and maintenance checklist</p> <p>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</p> <p>PC3. Arrange for procurement of machine / equipment parts whenever necessary as per organization protocol</p> <p>PC4. Arrange availability of hardware for repair work or raise indent for the same much before the preventive maintenance schedule</p> <p>PC5. Plan and schedule availability of mechanics, technicians, labor in adequate numbers to carry out preventive maintenance</p> <p>PC6. Inspect and validate if all the tools used to monitor the functioning of the equipment are calibrated and certified by competent authority</p> <p>PC7. Assist in planning and operationalization of the field workshop/ service, as required</p> <p>PC8. Supervise equipment commissioning/ installation process</p>
Safety, Health and Environment (SHE) adherence	<p>PC9. Comply with all organizational guidelines, SHE policy and quality standards during equipment maintenance</p> <p>PC10. Supervise the enforcement of all HSE related guidelines in equipment maintenance</p> <p>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</p> <p>PC12. Supervise the handling and disposal of waste based on environmental guidelines at the work place</p>
Maintenance work	<p>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</p> <p>PC14. Assist the manager in monitoring maintenance operations with regards to timelines and budgets</p> <p>PC15. Ensure that third party equipment installed at the work place undergo</p>

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	<p>preventive maintenance as per agreed schedule/ annual maintenance contract with the vendor</p> <p>PC16. Help and guide the mechanics, as required</p> <p>PC17. Check the workmanship of mechanics/ technicians and other personnel</p> <p>PC18. Ensure the faulty parts are replaced/ repaired on the site or sent to vendor for repair through Material department</p> <p>PC19. Ensure quality of workmanship of mechanics and enter the same in daily report</p>
Effectiveness of maintenance work	<p>PC20. Assist the workshop/ P&M manager in ensuring the quality of workmanship of third party vendors</p> <p>PC21. Check if the preventive maintenance work is complete as per the checklists given to all the mechanics</p> <p>PC22. Get a sign-off from the end user of the equipment like Site Engineer and/ or Project Head as per organizational protocol</p>
Documentation	<p>PC23. Document the details of the vendors in log-books/ organizational reports/ MIS/ vendor's worksheets etc. as per organizational protocol</p> <p>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</p> <p>PC25. Keep all the records in a way and at a place where it is easily accessible to the relevant personnel</p>
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. The organization's procedures and guidelines related to Breakdown & Maintenance services</p> <p>KA2. The performance standards & procedures followed by the organization</p> <p>KA3. Reporting structure in the organization</p> <p>KA4. Escalation matrix for reporting unresolved problems</p> <p>KA5. Timeframe in which the complaint/problem should be resolved</p> <p>KA6. Work target and review mechanism with supervisor for obtaining/ giving feedback related to performance process</p> <p>KA7. Location of tools and equipment</p> <p>KA8. Contact person in case of queries on procedure or equipment</p> <p>KA9. Process sequence for commissioning/ installation of equipment</p> <p>KA10. Contact details of the procurement team and process for procurement of equipment, spares and consumables</p> <p>KA11. Location and process for storage and disposal of waste material</p> <p>KA12. SHE/ Safety Policy of the organization</p> <p>KA13. Standard operating procedure (SOP) of maintenance work in the department</p> <p>KA14. Quality standards in operation in the organization</p> <p>KA15. SHE or any other safety standards in operation in the organization</p> <p>KA16. Risk Impact of maintenance operations</p>
B. Technical Knowledge	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. Original Equipment Manufacturer's guide book on product usage and</p>

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Supervise preventive maintenance and minor repair work

	<p>repair</p> <p>KB2. Calibration of tools used to measure the performance of equipment</p> <p>KB3. Procedure to allocate job among a team of mechanics based on their abilities, skills and units in which a job can be divided</p> <p>KB4. Process and elements of setting up and operationalizing a field workshop</p> <p>KB5. Installation/ commissioning process and stages for various types of P&M equipment</p> <p>KB6. Different SHE related processes to be carried out during operations</p> <p>KB7. Methods to enforce SHE policy guidelines in operations</p> <p>KB8. Safety risks and hazards at workshop and means to mitigate these</p> <p>KB9. Risk & impact of not doing preventive maintenance</p> <p>KB10. Escalation matrix for highlighting incidents/ system failures/ repeated failures/ probable failures/ obsolescence etc.</p> <p>KB11. Spare parts management and procurement process</p> <p>KB12. Method of preparing daily schedules and checklists for team members</p> <p>KB13. Review process for verifying correctness of work carried out</p> <p>KB14. Types of documents, records & reports prevalent in the organization</p> <p>KB15. Process of obtaining sign-off in the organization/ from customers</p>
Skills (S)	
A. Core Skills / Generic Skills	Writing Skills
	The user/ individual on the job needs to know and understand how to:
	SA1. Record any deviations/ incidents as per prescribed norms
	SA2. Document and report any health and safety related incidents/ accidents
	Reading Skills
The user/ individual on the job needs to know and understand how to:	
SA3. Read and comprehend basic English to read manuals of operations	
SA4. Read all organizational and equipment related health and safety manuals and documents	
SA5. Read instructions, guidelines/procedures/rules	
B. Professional Skills	Oral Communication (Listening and Speaking Skills)
	The user/ individual on the job needs to know and understand how to:
	SA6. Give clear instructions to co-workers, subordinates others
	Decision Making
	The user/ individual on the job needs to know and understand how to:
SB1. 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	
Plan and Organize	
The user/ individual on the job needs to know and understand how to:	
SB2. Work with supervisors/ team mates to carry out work related tasks	
SB3. Plan work according to the required schedule and location	
Customer Centricity	
The user/ individual on the job needs to know and understand how to:	
SB4. Ensure all customer needs are assessed and every effort is made to provide satisfactory service	

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IES/N1201 Supervise preventive maintenance and minor repair work

	Problem Solving
	The user/ individual on the job needs to know and understand how to: SB5. Assess, review that all requests are effectively allocated
	Analytical Thinking
	The user/ individual on the job needs to know and understand how to: SB6. Analyze, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently
	Critical Thinking
	The user/ individual on the job needs to know and understand how to: SB7. Analyze, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently

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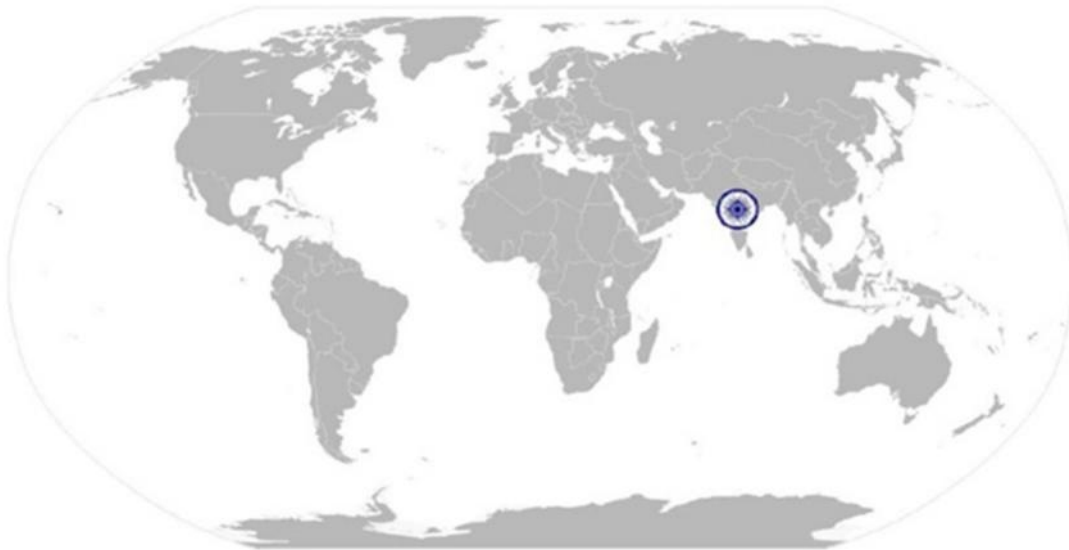
NOS Code	IES/N1201		
Credits(NSQF)	TBD	Version number	1.0
Sector	Infrastructure Equipment	Drafted on	16/02/15
Industry Sub-sector	Equipment Service and spares	Last reviewed on	31/03/15
Occupation	Managerial & Supervisory - Equipment Service and spares	Next review date	31/03/17

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IES/N1202

Supervise corrective maintenance of equipment

National Occupational Standard



Overview

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

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Supervise corrective maintenance of equipment

National Occupational Standard

Unit Code	IES/N1202
Unit Title (Task)	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: <ul style="list-style-type: none"> • Avoid unscheduled break-down work • Documentation and Reporting
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Avoid unscheduled break-down work	To be competent, the user/individual on the job must be able to: <p>PC1. Formulate in consultation with the P&M/ Workshop Maintenance Manager the system of maintenance cycle for Plant & machinery (P&M)</p> <p>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</p> <p>PC3. Plan for natural and manmade contingencies</p> <p>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</p> <p>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</p> <p>PC6. Design a system by which the supervisor is informed about the break as soon as it occurs</p> <p>PC7. Identify the problem quickly by performing diagnostic breakdown analysis, study the equipment manuals</p> <p>PC8. Cordon off the area, switch off power source, move personnel to safe area, in-case of an emergency</p> <p>PC9. Deploy mechanics to address the break down, as per organization protocols</p> <p>PC10. Take immediate action so that the break down is rectified.</p> <p>PC11. Run the equipment after the repair to ensure its working appropriately and safely</p> <p>PC12. Note down all the critical parameters of performance of the equipment post repair</p> <p>PC13. Take sign off from Production/ Operation/ Project Manager under whose jurisdiction the equipment is working.</p>
Documentation and Reporting	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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Supervise corrective maintenance of equipment

Knowledge and Understanding (K)	
<p>A. Organizational Context (Knowledge of the company / organization and its processes)</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. The organization's procedures and guidelines related to Breakdown & Maintenance services</p> <p>KA2. The performance standards & procedures followed in the organization</p> <p>KA3. Reporting structure in the organization</p> <p>KA4. Escalation matrix for reporting unresolved problems</p> <p>KA5. Timeframe in which the complaint/problem should be resolved</p> <p>KA6. Work target and review mechanism with supervisor for obtaining/giving feedback related to performance process</p> <p>KA7. Location of tools</p> <p>KA8. Contact person in case of queries on procedure or products</p> <p>KA9. Location and process for storage and disposal of waste material</p> <p>KA10. Safety Policy of the company</p>
<p>B. Technical Knowledge</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. The usage cycle of existing equipment and machinery</p> <p>KB2. Dimensions and types of Plant & Machinery (P&M) equipment deployed</p> <p>KB3. Design of existing static equipment</p> <p>KB4. Layouts of existing static equipment</p> <p>KB5. Drawings and manuals of moving equipment</p> <p>KB6. Manpower hiring & allocation policy as required</p> <p>KB7. Material purchase policy as applicable</p> <p>KB8. The process to manage inventory for the various material procured</p> <p>KB9. Sequence of operation that needs to be performed</p> <p>KB10. The method to extract and use information from the relevant areas to assist in the diagnosis</p> <p>KB11. Techniques to rectify the fault in the engine of the infrastructure equipment</p> <p>KB12. The manufacturer's specification of the engine in use</p> <p>KB13. 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</p> <p>KB14. Usage of various fault diagnostic equipment to investigate the problem in the engine (such as Multimeter, pressure gauges, thermal measuring equipment)</p> <p>KB15. Procedure to remove components from engine system without damage to the components or surrounding structure</p> <p>KB16. Usage of a various hand tools (such as spanners, sockets, screwdrivers, pliers, torque wrenches)</p> <p>KB17. Methods to check that the tools and equipment to be used are correctly calibrated, and are in a safe, tested and serviceable condition</p> <p>KB18. Method to use all tools correctly, check and store after use</p> <p>KB19. Technique to lay the removed components out in a logical sequence to aid re-assembly,</p> <p>KB20. Methods to keep component parts together or in the order that they were removed</p>

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Supervise corrective maintenance of equipment

	<p>KB21. Techniques of inspecting removed components of engine,</p> <p>KB22. Technique to check for damage and wear in engine</p> <p>KB23. The equipment used in the rectification operations (such as alignment tools, torque wrenches, presses)</p> <p>KB24. Methods to rectify the fault using methods such as component replacement, adjustments, repair and refitting techniques</p> <p>KB25. Technique to carry out visual, aural, functional and measurement tests</p> <p>KB26. The expected outcomes of the tests being conducted</p> <p>KB27. Problems with the diagnosis and rectification operations</p> <p>KB28. Process of informing appropriate people of non-conformances</p> <p>KB29. Techniques to clean/service different parts of engine different jigs and fixtures used</p> <p>KB30. Method to fill different reports/templates followed in the organization</p>
Skills (S)	
A. Core Skills / Generic Skills	Writing Skills
	The user/ individual on the job needs to know and understand how to: SA1. Record any deviations/ incidents as per prescribed norms
	Reading Skills
	The user/ individual on the job needs to know and understand how to: SA2. Read and comprehend basic English to read manuals of operations SA3. Read instructions, guidelines/procedures/rules related to the worksite and equipment operations
B. Professional Skills	Oral Communication (Listening and Speaking Skills)
	The user/ individual on the job needs to know and understand how to: SA4. Give clear instructions to co-workers, subordinates and other personnel
	Decision Making
	The user/ individual on the job needs to know and understand how to: SB1. 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 SB2. Think through the problem, evaluate the possible solution(s) and suggest an optimum /best possible solution(s) SB3. Make an appropriate timely decision in responding to emergencies/accidents in line with organizational/ worksite guidelines
	Plan and Organize
	The user/ individual on the job needs to know and understand how to: SB4. Work with supervisors/ team mates to carry out work related tasks SB5. Plan work according to the required schedule and location SB6. Review and ensure regular maintenance on a daily basis before machine operations
	Customer Centricity
	The user/ individual on the job needs to know and understand how to: SB7. Ensure all customer needs are assessed and every effort is made to provide satisfactory service SB8. Assess and review that all customer requests are effectively allocated
Problem Solving	

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Supervise corrective maintenance of equipment

	The user/ individual on the job needs to know and understand how to: SB9. Refer problems outside area of responsibility to appropriate person SB10. Use the diagnosis results to take an appropriate decision on repair or replacement of component
	Analytical Thinking
	The user/ individual on the job needs to know and understand how to: SB11. Analyse and apply the information gathered from observation,experience,reasoning, or communication to act efficiently SB12. Evaluate the criticality of any damage to the appropriate equipment and take appropriate action
	Critical Thinking
	The user/ individual on the job needs to know and understand how to: SB13. Analyse, evaluate and apply the information gathered from observation,experience,reasoning, or communication to act efficiently

NOS Version Control

NOS Code	IES/N1202		
Credits(NSQF)	TBD	Version number	1.0
Sector	Infrastructure Equipment	Drafted on	16/02/15
Industry Sub-sector	Equipment Service and spares	Last reviewed on	31/03/15
Occupation	Managerial & Supervisory - Equipment Service and spares	Next review date	31/03/17

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IES/N7602 Comply with workshop health and safety guidelines

National Occupational Standard



Overview

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

IES/N7602 Comply with workshop health and safety guidelines

National Occupational Standard

Unit Code	IES/N7602
Unit Title (Task)	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: <ul style="list-style-type: none"> • Service workshop health and safety
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Service workshop health and safety	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Comply with safety, health, security and environment related regulations/ guidelines as per organizational/ manufacturer's policy</p> <p>PC2. Carry out maintenance operations as per the manufacturer's and workshop related health and safety guidelines/ standard operating procedures</p> <p>PC3. Follow safety regulations and procedures with regard to service workshop hazards and risks</p> <p>PC4. Use appropriate protective clothing/ equipment for specific tasks and work conditions as per service manual</p> <p>PC5. Lift and carry tools/equipment/components safely using correct procedure as per the service manual</p> <p>PC6. Use appropriate tools in a proper manner as given in the service manual</p> <p>PC7. Keep the work area free from clutter and spillage</p> <p>PC8. Store equipment and tools back at designated place post use and inspect to make sure they are not left behind</p> <p>PC9. Handle the storage and disposal of hazardous materials and waste in compliance with health, safety and environmental guidelines</p> <p>PC10. Operate various grades of fire extinguishers, as applicable</p> <p>PC11. Support in administering basic first aid and report to concerned team members, as required, in case of an accident</p> <p>PC12. Respond promptly and appropriately to an accident/ incident or emergency situation, within limits of your role and responsibility</p> <p>PC13. Record and report details related to operations, incidents or accidents, as applicable</p>
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. Health, safety, environmental(HSE) and security related policies/ guidelines of the organization</p> <p>KA2. The importance of complying with health, safety, environmental and security guidelines during workshop operations</p> <p>KA3. Contact details of personnel responsible for Health, Safety and environment (SHE) related matters</p> <p>KA4. Location of workshop store, first aid station and safe assembly points</p> <p>KA5. Concerned personnel to reach out in case of emergencies and</p>

IES/N7602 Comply with workshop health and safety guidelines

	accidents/ incidents KA6. Reporting and documentation procedures for HSE and security matters
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. Manufacturer's guidelines related to health and safety requirements KB2. Common types of health, safety, environment and security risks related to maintenance operations KB3. Types, use and importance of Personal Protective Equipment (PPE) and other safety clothing KB4. Safe working practices to avoid common hazards and risks KB5. Safe working practices when working with tools and machines KB6. Safe working practices while working in different processes/ confined spaces KB7. Various dangers associated with the use of electrical equipment KB8. Various types of safety signs/ warnings and their meaning KB9. Guidelines for transport, storage and disposal of hazardous materials and waste KB10. Types of common hazards and risks at the workshop including fire, electrical, equipment related KB11. Knowledge of safe lockdown/ stop of machinery use in case of emergencies and incidents/ accidents KB12. Types of fire extinguishers and their use KB13. Common injuries and appropriate basic first aid treatment eg. electrical shock, bleeding, wounds, fractures, minor burns, eye injuries
Skills (S)	
A. Core Skills / Generic Skills	Writing Skills The user/ individual on the job needs to know and understand how to: SA1. Record any deviations/ incidents as per prescribed norms
	Reading Skills The user/ individual on the job needs to know and understand how to: SA2. Read and comprehend basic English to read manuals of operations SA3. Read instructions, guidelines/procedures/rules related to the worksite and equipment operations SA4. Read all organizational and equipment related health and safety manuals and documents
	Oral Communication (Listening and Speaking Skills) The user/ individual on the job needs to know and understand how to: SA5. Give clear instructions to co-workers, subordinates and other personnel
	B. Professional Skills
	Decision Making The user/ individual on the job needs to know and understand how to: SB1. 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 SB2. Make an appropriate timely decision in responding to emergencies/accidents in line with organizational/ worksite guidelines SB3. Rightly use the correct PPE and other safety gear while at the worksite

IES/N7602 Comply with workshop health and safety guidelines

	<p>Plan and Organize</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SB4. Work with supervisors/ team mates to carry out work related tasks</p> <p>SB5. Plan work according to the required schedule and location</p> <p>SB6. Review and ensure regular maintenance on a daily basis before machine operations</p>
	<p>Customer Centricity</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SB7. Ensure all customer needs are assessed and every effort is made to provide satisfactory service</p> <p>SB8. Analyse and ensure all customer requests are effectively allocated</p>
	<p>Problem Solving</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SB9. Identify sources of support that can be availed for problem solving for various kinds of problems</p>
	<p>Analytical Thinking</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SB10. Analyse and apply the information gathered from observation, experience, reasoning, or communication to act efficiently</p> <p>SB11. Assess the intensity of the fire accident and operate fire extinguishers</p>
	<p>Critical Thinking</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SB12. Analyse, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently</p>

IES/N7602 Comply with workshop health and safety guidelines

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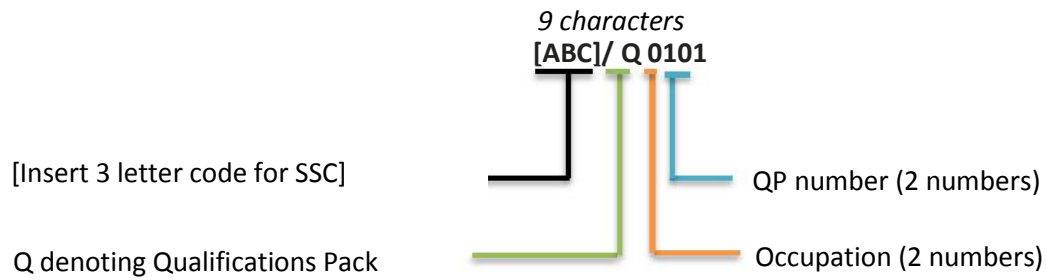
NOS Code	IES/N7602		
Credits(NSQF)	TBD	Version number	1.0
Sector	Infrastructure Equipment	Drafted on	16/02/15
Industry Sub-sector	Equipment Service and spares	Last reviewed on	31/03/15
Occupation	Managerial & Supervisory - Equipment Service and spares	Next review date	31/03/17

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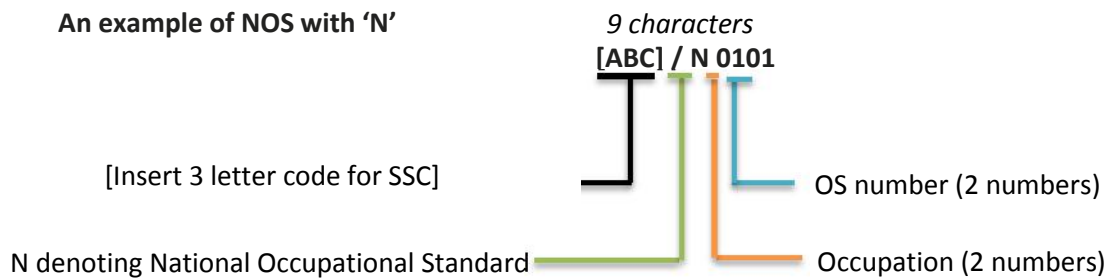
Nomenclature for QP and NOS units

Qualifications Pack



Occupational Standard

An example of NOS with 'N'



Nomenclature for QP and NOS units

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

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

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

CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role Supervisor Maintenance (Infrastructure Equipment)

Qualification Pack IES/Q1201

Sector Skill Council Infrastructure Equipment

Guidelines for Assessment

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC
3. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below)
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criteria
5. To pass the Qualification Pack, every trainee should score a minimum of 50% aggregate
6. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack

NOS	Performance Criteria	Total Marks	Out Of	Marks Allocation	
				Theory	Practical
1. IES/N1201 Supervise preventive maintenance and minor repair work	PC1. Create the preventive maintenance schedule and checklists as per parts and maintenance checklist	70	3	0	3
	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		4	1	3
	PC3. Arrange for procurement of machine / equipment parts whenever necessary as per organization protocol		3	0	3

	PC4. Arrange availability of hardware for repair work or raise indent for the same much before the preventive maintenance schedule		4	1	3
	PC5. Plan and schedule availability of mechanics, technicians, labor in adequate numbers to carry out preventive maintenance		3	0	3
	PC6. Inspect and validate if all the tools used to monitor the functioning of the equipment are calibrated and certified by competent authority		4	1	3
	PC7. Assist in planning and operationalization of the field workshop/ service, as required		3	0	3
	PC8. Supervise equipment commissioning/ installation process		2	0	2
	PC9. Comply with all organizational guidelines, SHE policy and quality standards during equipment maintenance		4	1	3
	PC10. Supervise the enforcement of all SHE related guidelines in equipment maintenance		2	0	2
	PC11. Carry out periodic walk-throughs to ensure that the service/ field workshop area is clean and free from hazards as per the Safety, Health and Environmental policy/ guidelines		3	1	2
	PC12. Supervise the handling and disposal of waste based on environmental guidelines at the work place		2	0	2
	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		3	1	2

	PC14. Assist the manager in monitoring maintenance operations with regards to timelines and budgets		2	0	2
	PC15. Ensure that third party equipment installed at the work place undergo preventive maintenance as per agreed schedule/ annual maintenance contract with the vendor		3	1	2
	PC16. Help and guide the mechanics, as required		2	0	2
	PC17. Check the workmanship of mechanics/ technicians and other personnel		2	0	2
	PC18. Ensure the faulty parts are replaced/ repaired on the site or sent to vendor for repair through Material department		3	1	2
	PC19. Ensure quality of workmanship of mechanics and enter the same in daily report		3	1	2
	PC20. Assist the workshop/ P&M manager in ensuring the quality of workmanship of third party vendors		2	0	2
	PC21. Check if the preventive maintenance work is complete as per the checklists given to all the mechanics		2	0	2
	PC22. Get a sign-off from the end user of the equipment like Site Engineer and/ or Project Head as per organizational protocol		3	1	2
	PC23. Document the details of the vendors in log-books/ organizational reports/ MIS/ vendor's worksheets etc. as per organizational protocol		3	0	3
	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		3	0	3

	PC25. Keep all the records in a way and at a place where it is easily accessible to the relevant personnel		2	0	2
		Total	70	10	60
2. IES/N1202 Supervise corrective maintenance of equipment	PC1. Formulate in consultation with the P&M/ Workshop Maintenance Manager the system of maintenance cycle for Plant & machinery (P&M)	50	3	0	3
	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		3	0	3
	PC3. Plan for natural and manmade contingencies		4	1	3
	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		4	1	3
	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		4	1	3
	PC6. Design a system by which the supervisor is informed about the break as soon as it occurs		4	1	3
	PC7. Identify the problem quickly by performing diagnostic breakdown analysis, study the equipment manuals		4	1	3
	PC8. Cordon off the area, switch off power source, move personnel to safe area, in-case of an emergency		4	1	3

	PC9. Deploy mechanics to address the break down, as per organization protocols		2	0	2
	PC10. Take immediate action so that the break down is rectified.		2	0	2
	PC11. Run the equipment after the repair to ensure its working appropriately and safely		3	1	2
	PC12. Note down all the critical parameters of performance of the equipment post repair		3	1	2
	PC13. Take sign off from Production/ Operation/ Project Manager under whose jurisdiction the equipment is working.		3	1	2
	PC14. Give information and data to Manager so as to make changes, if any, in the preventive maintenance schedule		3	1	2
	PC15. Ensure all the relevant stakeholders are informed about the rectification		2	0	2
	PC16. Ensure entries are made in log-books, ERP, and other organization specified reports		2	0	2
		Total	50	10	40
3. IES/N7602					
Comply with workshop health and safety guidelines	PC1. Comply with safety, health, security and environment related regulations/ guidelines as per organizational/ manufacturer's policy		0	0	2
	PC2. Carry out maintenance operations as per the manufacturer's and workshop related health and safety guidelines/ standard operating procedures	30	5	1	2
	PC3. Follow safety regulations and procedures with regard to service workshop hazards and risks		5	0	2
	PC4. Use appropriate protective clothing/ equipment for specific tasks and work conditions as per service manual		5	1	2

	PC5. Lift and carry tools/equipment/components safely using correct procedure as per the service manual		5	1	2
	PC6. Use appropriate tools in a proper manner as given in the service manual		5	0	2
	PC7. Keep the work area free from clutter and spillage		5	1	2
	PC8. Store equipment and tools back at designated place post use and inspect to make sure they are not left behind		5	0	1
	PC9. Handle the storage and disposal of hazardous materials and waste in compliance with health, safety and environmental guidelines		5	1	3
	PC10. Operate various grades of fire extinguishers, as applicable		5	0	3
	PC11. Support in administering basic first aid and report to concerned team members, as required, in case of an accident		5	0	1
	PC12. Respond promptly and appropriately to an accident/incident or emergency situation, within limits of your role and responsibility		5	0	1
	PC13. Record and report details related to operations, incidents or accidents, as applicable		5	0	2
		Total	30	5	25