

QUALIFICATION PACK – OCCUPATIONAL STANDARD FOR INFRASTRUCTURE EQUIPMENT SECTOR



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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 - Mechanic (Engine)

SECTOR:	INFRASTRUCTUREEQUIPMENT
SUB SECTOR:	Equipment service and spares
OCCUPATION:	Equipment maintenance
REFERENCE ID:	IES/Q1101
ALIGNED TO:	NCO-2004/7233.24

Brief Job Description: The primary role of a Mechanic (Engine) is to provide assistance in engine related maintenance. Mechanic (Engine) supports the equipment operation by conducting inspections and preventive maintenance.

Personal Attributes: This job requires the individual to work independently as well as in teams. He should have analytical skills, problem solving attitude, high concentration levels, Mechanic Engine should have good hand-eye coordination, good eye-sight, no colour-blindness and should be able to complete precise and detailed work.

Job Details	Qualifications Pack Code	IES/Q1101		
	Job Role	Mechanic (Engine)		
	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	Equipment maintenance	Next review date	31/03/17

Job Role	Mechanic (Engine)
Role Description	Mechanic (Engine) provides assistance in engine related maintenance and supports the equipment operation by conducting inspections and preventive maintenance
NSQF level	4
Minimum Educational Qualifications*	Preferably ITI/ Diploma in Diesel Engine Mechanic
Maximum Educational Qualifications*	NA
Training (Suggested but not mandatory)	Engine training preferred
Experience	At least 2 years of experience in Engine maintenance
Applicable National Occupational Standards (NOS)	<p>Compulsory</p> <ol style="list-style-type: none"> IES/N1101 Carry out repair and maintenance of the equipment's engine IES/N7701 Carry out reporting and documentation IES/N7602 Comply 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 activities that need to be carried out for testing, diagnosing, repairing and maintaining engines.

IES/N1101 Carry out repair and maintenance of the equipment's engine

National Occupational Standard

Unit Code	IES/N1101
Unit Title (Task)	Carry out repair and maintenance of the equipment's engine
Description	This unit provides Performance Criteria, Knowledge & Understanding and Skills & Ability for activities that need to be carried out for testing, diagnosing, repairing and maintaining engines.
Scope	This unit/task covers the following: <ul style="list-style-type: none"> • Breakdown Repair • Maintenance Work
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Breakdown repair	To be competent, the user/individual on the job must be able to: <p>PC1. Collect information on the symptoms and problems associated with fault</p> <p>PC2. Check oil levels of engine, transmission and radiant coolant are as per manufacturer's indicators</p> <p>PC3. Select appropriate diagnostic techniques, tools and aids to locate the fault</p> <p>PC4. Apply appropriate diagnostic techniques, tools and aids to locate the fault</p> <p>PC5. Inspect the work area is free from hazards as per the safety norm of the organization</p> <p>PC6. Inspect the work area and check for the cleanliness and as per the organizational standards</p> <p>PC7. Carry out random checks and inspections to keep a check on the quality of work carried out</p> <p>PC8. Investigate and establish the most likely causes of the fault as per the Standard Operating Plan</p> <p>PC9. Remove, replace or repair the required components, using approved tools and techniques as per the manufacturer's manual</p> <p>PC10. Ensure to remove, replace or repair the required components without causing damage to components or surrounding structure</p> <p>PC11. Report any instances where the removal and replacement activities cannot be fully met as per company's policy</p> <p>PC12. Complete the relevant documentation, in accordance with organizational requirements</p> <p>PC13. Work safely at all times, complying with health and safety and other relevant regulations, directives and guidelines</p> <p>PC14. Handle and dispose waste based on environmental guidelines at the work place</p>
Maintenance work	PC15. Follow the maintenance schedule as per the manufacturer's manual PC16. replace or repair the engine parts as per the schedule PC17. Verify in appropriate sequence, for the engine, as per service manual, the following: <ul style="list-style-type: none"> • leakage from parts • breakage of parts

IES/N1101 Carry out repair and maintenance of the equipment's engine

	<ul style="list-style-type: none"> • unusual noise • under-rated performance <p>PC18. Check the engine indication & Fuel circulation as per service manual PC19. Check and clean Air Filter as per as per service manual PC20. Conduct Crank Test to test the lubrication as per engine specification PC21. Ensure Engine oil and coolant level are as per indicator PC22. Ensure water separator as per manufacturer's manual PC23. Ensure that water is drained , if, accumulated in the separator PC24. Report any instances where the parts need to be changed/repared as per organization policy PC25. Replenish / change the consumables as per the manufacturer's manual PC26. Change/Repair the defective part(s) as per manufacturer's manual PC27. Complete the relevant documentation, in accordance with organizational requirements</p>
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 KA2. The performance standards & procedures followed in the company KA3. Reporting structure in the company KA4. Escalation matrix for reporting unresolved problems KA5. Timeframe in which the complaint/problem should be resolved KA6. Work target and review mechanism with supervisor for obtaining/ giving feedback related to performance process KA7. Location of tools KA8. Contact person in case of queries on procedure or products KA9. Location and process for storage and disposal of waste material KA10. Safety Policy of the company</p>
<p>B. Technical Knowledge</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. The method to extract and use information from the relevant areas to assist in the diagnosis KB2. Techniques to rectify the fault in the engine of the infrastructure equipment KB3. The manufacturer's specification of the engine in use KB4. 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 KB5. Usage of various fault diagnostic equipment to investigate the problem in the engine(such as Multimeter, pressure gauges, thermal measuring equipment) KB6. Procedure to remove components from engine system without damage to the components or surrounding structure KB7. The specification and grades of lubricants KB8. The method to identify which lubricant to use n which equipment KB9. Usage of a various hand tools (such as spanners, sockets, screwdrivers, pliers, torque wrenches)</p>

IES/N1101 Carry out repair and maintenance of the equipment's engine

	<p>KB10. 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>KB11. Method to use all tools correctly, check and store after use</p> <p>KB12. Technique to lay the removed components out in a logical sequence to aid re-assembly,</p> <p>KB13. Methods to keep component parts together or in the order that they were removed</p> <p>KB14. Techniques of inspecting removed components of engine,</p> <p>KB15. Technique to check for damage and wear in engine</p> <p>KB16. the equipment used in the rectification operations (such as alignment tools, torque wrenches, presses)</p> <p>KB17. Methods to rectify the fault using methods such as component replacement, adjustments, repair and refitting techniques</p> <p>KB18. Ensure that all sealants and lubricants used are of the correct specification for the vehicle</p> <p>KB19. Technique to carry out visual, aural, functional and measurement tests</p> <p>KB20. Ensure the correct operation of the component or system</p> <p>KB21. The expected outcomes of the tests being conducted</p> <p>KB22. Problems with the diagnosis and rectification operations,</p> <p>KB23. Process of informing appropriate people of non-conformances</p> <p>KB24. Techniques to clean/service different parts of engine</p> <p>KB25. different jigs and fixtures used</p> <p>KB26. Method to fill different reports/templates followed in the organization</p> <p>KB27. The hazards associated with diagnosing and rectifying engine faults</p> <p>KB28. Usage of proper tools and equipment used and minimize & reduce any risk</p>
Skills (S)	
A. Core Skills / Generic Skills	<p>Writing Skills</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. Record and document the details of repairs and maintenance performed on various components</p> <p>SA2. Record all diagnostics as per the prescribed format recommended by the manufacturer</p> <p>Reading Skills</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SA3. Refer to operator and maintenance manuals, parts checklist and other equipment related collateral to support work tasks</p> <p>SA4. Read the specifications of an equipment or any other component or part</p> <p>Oral Communication (Listening and Speaking Skills)</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SA5. Interact with the customers, as required, to seek clarifications and understand issues</p> <p>SA6. Use correct technical terms while communicating with team members and customers</p> <p>SA7. interact with team members including colleagues to work efficiently</p>

National Occupational Standards

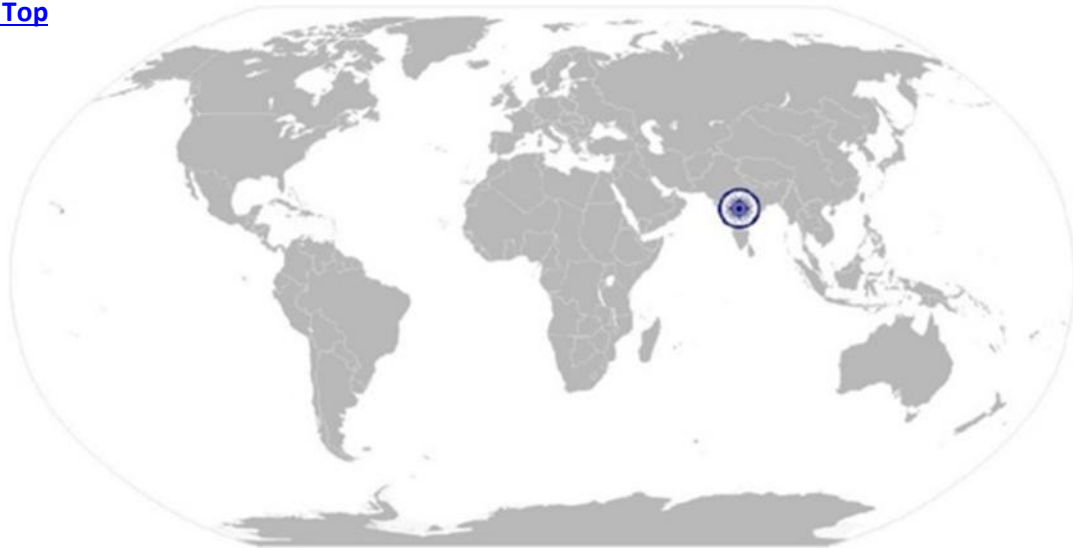
IES/N1101 Carry out repair and maintenance of the equipment's engine

B. Professional Skills	Decision Making
	The user/ individual on the job needs to know and understand how to:
	SB1. Evaluate the situation to decide on seeking assistance from manager/ peers
	SB2. Decide on the repair/ replacement of any aggregate or component post the diagnosis
	Plan and Organize
	The user/ individual on the job needs to know and understand how to:
	SB3. Plan, prioritize and sequence work operations as per required schedule and location
	SB4. Organize and analyze information relevant to work
	Customer Centricity
	The user/ individual on the job needs to know and understand how to:
	SB5. Ensure that the service provided is of the highest order to ensure customer satisfaction
	SB6. Follow up with the superiors on any unfavourable feedback received from customer
	SB7. Ensure timely communication of the additional requirements in the equipment to the customer
Problem Solving	
The user/ individual on the job needs to know and understand how to:	
SB8. Refer problems outside area of responsibility to appropriate person	
SB9. Determine problems in the equipment needing priority action	
SB10. Refer complex diagnosis to supervisor/ other peers	
Analytical Thinking	
The user/ individual on the job needs to know and understand how to:	
SB11. Assess repairs required based on technical faults identified	
Critical Thinking	
The user/ individual on the job needs to know and understand how to:	
SB12. Analyse, evaluate and apply the information gathered from observation, experience, reasoning to act efficiently and effectively	
SB13. Use the diagnosis results to take an appropriate decision on repair or replacement of component with consultation with manager/ peers	

IES/N1101 Carry out repair and maintenance of the equipment's engine
NOS Version Control

NOS Code	IES/N1101		
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	Equipment maintenance	Next review date	31/03/17

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IES/N7701

Carry out reporting and documentation

National Occupational Standard



Overview

This unit provides Performance Criteria, Knowledge & Understanding and Skills & Ability for activities that are needed for preparation of various documents and reporting of data/problems.

IES/N7701

Carry out reporting and documentation

National Occupational Standard

Unit Code	IES/N7701
Unit Title (Task)	Carry out reporting and documentation
Description	This unit provides Performance Criteria, Knowledge & Understanding and Skills & Ability for activities that are needed for preparation of various documents and reporting of data/problems.
Scope	This unit/task covers the following: <ul style="list-style-type: none"> Report unresolved problems Prepare reports related to field visits and work done
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Report unresolved problems	To be competent, the user/individual on the job must be able to: PC1. Follow reporting procedures as laid down by the employer PC2. Report and escalate problems/ incidents as required in a timely manner as per organizational policy PC3. Report to the appropriate authority as per the policy laid down by the employer
Prepare reports related to field visits and work done	PC4. Identify job related documentation that needs to be completed PC5. Prepare parts list that needs to be procured for resolving problem in equipment PC6. Use prescribed formats and record details accurately as per the process PC7. Complete all documentation as per the policy laid down by the employer PC8. Adhere to the suggested timelines as per company's policy PC9. Make the documents available to appropriate authorities for inspection as per company's policy
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: KA1. The organization's procedures and guidelines related to reporting & documentation KA2. Reporting structure in the company KA3. Escalation matrix for reporting unresolved problems KA4. Timeframe in which the complaint/problem should be resolved KA5. Work target and review mechanism with supervisor for obtaining/ giving feedback related to performance process KA6. Implications of delays in process to the company KA7. Contact person in case of queries on procedure KA8. Company's guidelines on how to fill & maintain documents KA9. The different channels of reporting in the company
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. The different types of documents to be maintained KB2. Different methods of recording information/reporting KB3. Methods to collate information and fill in the required form KB4. Methods to maintain the documents KB5. The importance of correct information KB6. Implications of sharing incorrect information

IES/N7701

Carry out reporting and documentation

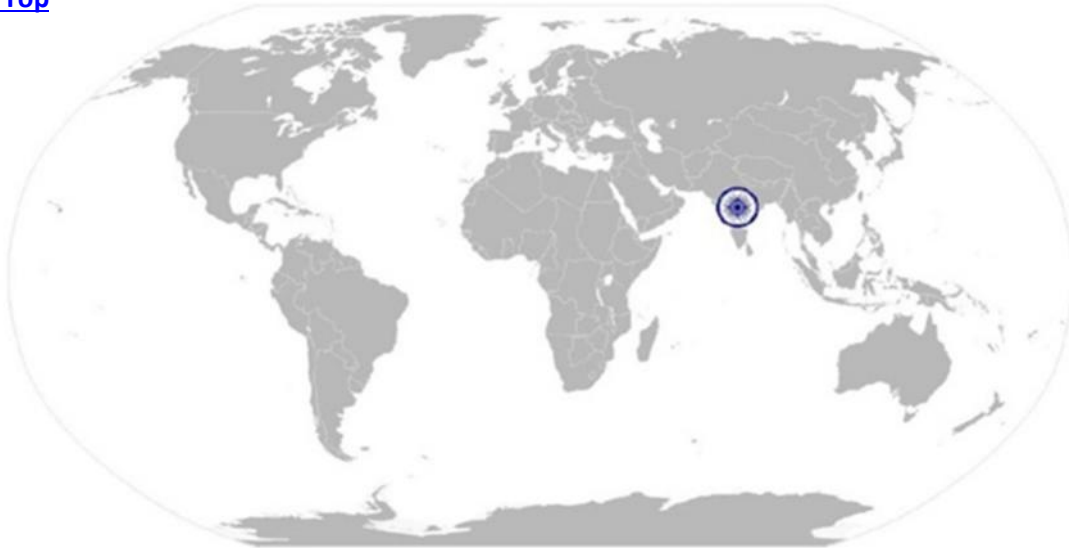
Skills (S)	
A. Core Skills / Generic Skills	Writing Skills
	The user/ individual on the job needs to know and understand how to: SA1. Record/ accurately document the details of the job work as per organization's policies and process
	Reading Skills
	The user/ individual on the job needs to know and understand how to: SA2. Read instructions, guidelines/procedures/rules SA3. Refer to operator and maintenance manuals, parts checklist and other equipment related collateral to support work tasks
	Oral Communication (Listening and Speaking Skills)
B. Professional Skills	The user/ individual on the job needs to know and understand how to: SA4. Use correct technical terms while interacting with superior SA5. Interact with team members including colleagues to work efficiently
	Decision Making
	The user/ individual on the job needs to know and understand how to: SB1. Evaluate the situation to decide on seeking assistance from manager/peers
	Plan and Organize
	The user/ individual on the job needs to know and understand how to: SB2. Organize and analyze information relevant to work
	Customer Centricity
	The user/ individual on the job needs to know and understand how to: SB3. Provide service of the highest order to ensure customer satisfaction
	Problem Solving
	The user/ individual on the job needs to know and understand how to: SB4. Seek appropriate assistance from other sources to resolve problems
	Analytical Thinking
The user/ individual on the job needs to know and understand how to: SB5. Identify cause and effect relations in area of work	
Critical Thinking	
The user/ individual on the job needs to know and understand how to: SB6. Apply balanced judgment to different situations	

IES/N7701 Carry out reporting and documentation

NOS Version Control

NOS Code	IES/N7701		
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	Equipment maintenance	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. 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: SA2. Read all organizational and equipment related health and safety manuals and documents SA3. Read instructions, guidelines/procedures/rules
	Oral Communication (Listening and Speaking Skills) The user/ individual on the job needs to know and understand how to: SA4. Give clear instructions to coworkers, subordinates and others
	B. Professional Skills
	Decision Making The user/ individual on the job needs to know and understand how to: SB1. Make decisions on a suitable course of action or response in the event of any emergency, health and safety related incidents/accidents
	Plan and Organize The user/ individual on the job needs to know and understand how to: SB2. Plan and organize own work schedule, work area, tools, equipment and materials to minimise any risk for health and safety related incident/accident
	Customer Centricity The user/ individual on the job needs to know and understand how to:

IES/N7602

Comply with workshop health and safety guidelines

	SB3. Build and maintain positive and effective relationships with colleagues and customers
	Problem Solving
	The user/ individual on the job needs to know and understand how to: SB4. Identify immediate or temporary solutions to resolve delays SB5. Seek appropriate assistance from other sources to resolve problems
	Analytical Thinking
	The user/ individual on the job needs to know and understand how to: SB6. Identify 'cause and effect' relations in own area of work
	Critical Thinking
	The user/ individual on the job needs to know and understand how to: SB7. Apply balanced judgment to different situations

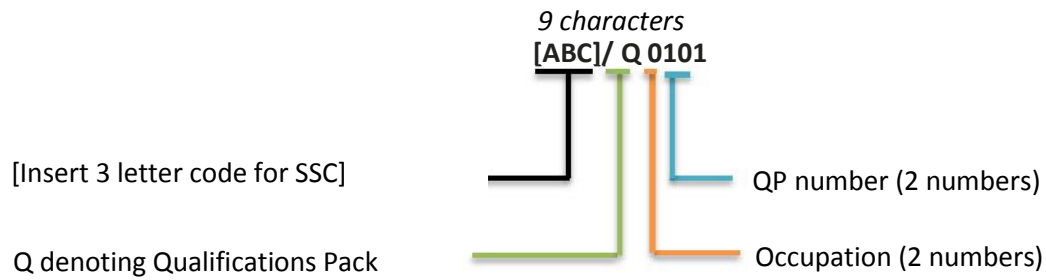
NOS Version Control

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	Equipment maintenance	Next review date	31/03/17

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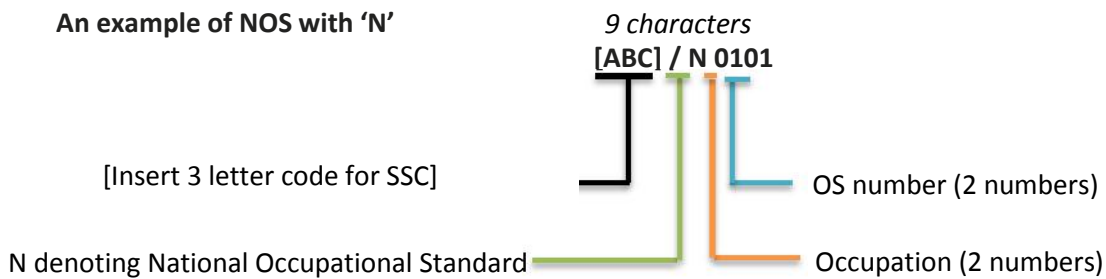
Nomenclature for QP and NOS units

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 Mechanic (Engine)

Qualification Pack IES/Q1101

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 Mark	Out Of	Marks Allocation	
				Theory	Practical
1. IES/N1101 Carry out repair and maintenance of the equipment's engine	PC1. Collect information on the symptoms and problems associated with fault	46	1	0	1
	PC2. Check oil levels of engine, transmission and radiant coolant are as per manufacturer's indicators		1	0	1
	PC3. Select appropriate diagnostic techniques, tools and aids to locate the fault		1	0	1
	PC4. Apply appropriate diagnostic techniques, tools and aids to locate the fault		1	0	1
	PC5. Inspect the work area is free from hazards as per the safety norm of the organization		1	0	1
	PC6. Inspect the work area and check for the cleanliness and as per the organizational standards		2	1	1

	PC7. Carry out random checks and inspections to keep a check on the quality of work carried out		1	0	1
	PC8. Investigate and establish the most likely causes of the fault as per the Standard Operating Plan		1	0	1
	PC9. Remove, replace or repair the required components, using approved tools and techniques as per the manufacturer's manual		1	0	1
	PC10. Ensure to remove, replace or repair the required components without causing damage to components or surrounding structure		1	0	1
	PC11. Report any instances where the removal and replacement activities cannot be fully met as per company's policy		4	1	3
	PC12. Complete the relevant documentation, in accordance with organizational requirements		2	1	1
	PC13. Work safely at all times, complying with health and safety and other relevant regulations, directives and guidelines		1	0	1
	PC14. Handle and dispose waste based on environmental guidelines at the work place		2	1	1
	PC15. Follow the maintenance schedule as per the manufacturer's manual		1	0	1
	PC16. replace or repair the engine parts as per the schedule		2	1	1
	PC17. Verify in appropriate sequence, for the engine, as per service manual, the following: <ul style="list-style-type: none"> leakage from parts breakage of parts unusual noise under-rated performance 		4	1	3
	PC18. Check the engine indication & Fuel circulation as per service manual		2	1	1
	PC19. Check and clean Air Filter as per as per service manual		1	0	1
	PC20. Conduct Crank Test to test the lubrication as per engine specification		3	0	3
	PC21. Ensure Engine oil and coolant level are as per indicator		2	1	1

	PC22. Ensure water separator as per manufacturer's manual		3	0	3
	PC23. Ensure that water is drained , if, accumulated in the separator		2	1	1
	PC24. Report any instances where the parts need to be changed/repared as per organization policy		2	1	1
	PC25. Replenish / change the consumables as per the manufacturer's manual		2	1	1
	PC26. Change/Repair the defective part(s) as per manufacturer's manual		1	0	1
	PC27. Complete the relevant documentation, in accordance with organizational requirements		1	0	1
		Total	46	11	35
2. IES/N7701 Carry out reporting and documentation	PC1. Follow reporting procedures as laid down by the employer	18	2	1	1
	PC2. Report and escalate problems/ incidents as required in a timely manner as per organizational policy		2	1	1
	PC3. Report to the appropriate authority as per the policy laid down by the employer		2	1	1
	PC4. Identify job related documentation that needs to be completed		2	1	1
	PC5. Prepare parts list that needs to be procured for resolving problem in equipment		3	0	3
	PC6. Use prescribed formats and record details accurately as per the process		2	1	1
	PC7. Complete all documentation as per the policy laid down by the employer		2	1	1
	PC8. Adhere to the suggested timelines as per company's policy		1	0	1
	PC9. Make the documents available to appropriate authorities for inspection as per company's policy		2	1	1
			Total	18	7
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	26	2	1	1

	PC2. Carry out maintenance operations as per the manufacturer's and workshop related health and safety guidelines/ standard operating procedures		3	0	3
	PC3. Follow safety regulations and procedures with regard to service workshop hazards and risks		2	1	1
	PC4. Use appropriate protective clothing/ equipment for specific tasks and work conditions as per service manual		2	1	1
	PC5. Lift and carry tools/equipment/components safely using correct procedure as per the service manual		4	1	3
	PC6. Use appropriate tools in a proper manner as given in the service manual		4	1	3
	PC7. Keep the work area free from clutter and spillage		2	1	1
	PC8. Store equipment and tools back at designated place post use and inspect to make sure they are not left behind		1	0	1
	PC9. Handle the storage and disposal of hazardous materials and waste in compliance with health, safety and environmental guidelines		1	0	1
	PC10. Operate various grades of fire extinguishers, as applicable		2	1	1
	PC11. Support in administering basic first aid and report to concerned team members, as required, in case of an accident		1	0	1
	PC12. Respond promptly and appropriately to an accident/ incident or emergency situation, within limits of your role and responsibility		1	0	1
	PC13. Record and report details related to operations, incidents or accidents, as applicable		1	0	1
		Total	26	7	19