QUALIFICATIONS PACK - OCCUPATIONAL STANDARD FOR MINING 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 standard that individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding

Contents

Introduction

Qualifications Pack-HEMM Mechanic

SECTOR:MINING

SUB-SECTOR: Engineering Services

OCCUPATION: Field Services – Mechanical

REFERENCEID:MIN/Q0433

ALIGNED TO:NCO-2015/3115.0102

Brief Job Description: The HEMM Mechanic diagnoses, repairs, overhauls and services Heavy Earth Moving Machinery (HEMM) to keep them in good running order. Also carries out repairs and maintenance of internal combustion engines and the various components of a Heavy Earth Moving Machine like Transmission, Torque Convertor, Power train, Final Drive, Compressor, Hydraulic Systems and Operational control systems etc. The Mechanic maintains all the relevant records, draws requirements of consumables and spare parts. He should be well versed with the Safety regulations and follow safe working procedures.

Personal Attributes: This job requires the individual to concentrate on the job at hand and complete it efficiently and effectively without any accidents, should be diligent, hard-working and good health are desired attributes, demonstrate strong work ethics, an ability to communicate courteously with co-workers, and must be good at following instructions of the supervisor.

Job Details

Qualification Pack Code	**MIN/Q0433**		
Job Role	**HEMM Mechanic**		
Credits(NSQF)	**TBD**	**Version number**	**2.0**
Industry	**Mining**	**Drafted on**	**01/11/2017**
Sub-sector	**Engineering Services**	**Last reviewed on**	**17/01/2018**
Occupation	**Field Services - Mechanical**	**Next review date**	**16/01/2022**
NSQC Clearance on			

Job Details

Job Role	**HEMM Mechanic**
Role Description	**HEMM Mechanic**
NSQF level	4
Minimum Educational Qualification **Maximum Educational Qualification**	ITI –Mechanical / Diesel Mechanic
Prerequisite License or Training	**Recommended:** a) Heavy Commercial Vehicle Driving License b) Training on HEMM by Equipment Manufacturer in terms of functionalities, cleaning and lubrication schedule, Hydraulic systems, reading of various monitors and sensors and minor maintenance. c) Knowledge of worksite safety and hazards spotting.
Minimum Job Entry Age	21 Years
Experience	3 Years as Assistant Mechanic or Technical Support
Applicable National Occupational Standards	**Compulsory:** 1. MIN/N0491 (Diagnose HEMM for repair requirements) 2. MIN/N0492 (Carry out service, repair and maintenance activities) 3. MIN/N0902 (Adhere to health & safety and MVTR requirements in OC Mines)
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.
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.
Job Role	Job role defines a unique set of functions that together form a unique employment opportunity in an organization.
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 they need 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.
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	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 verify that this is the appropriate OS they are looking for.
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 to the required standard.
Organizational Context	Organizational Context includes the way the organization is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical Knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills or Generic Skills	Core Skills or Generic Skills are a group of skills that are key to learning and working 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.

Acronyms

Keywords/Terms	Description
SCMS	Skill Council for Mining Sector
NOS	National Occupational Standards
NSQF	National Skill Qualification Framework
NVEQF	National Vocational Educational Qualification Framework
NVQF	National Vocational Qualification Framework
OS	Occupational Standard
PC	Performance Criteria
QP	Qualification Pack
SSC	Sector Skill Council
HEMM	Heavy Earth Moving Machinery
OEM	Original Equipment Manufacturer
DGMS	Director General of Mining Safety
OC	Open Cast
UG	Under Ground
MVTR	Mine Vocational Training Rule

National Occupational Standard

Overview

This Occupational Standard is about preventive maintenance, diagnosing faults and troubleshooting problems in a Heavy Earth Moving Machine (HEMM).

Diagnose HEMM for repair requirements

National Occupational Standard

Unit Code Unit Title (Task)	MIN/N0491 Diagnose HEMM for repair requirements
Description	This unit is about diagnosing faults in HEMM and troubleshooting problems
Scope	This OS unit/task covers the following: • Identify and diagnose operational faults

Performance Criteria(PC) w.r.t. the Scope	
Element	**Performance Criteria**
Identify and diagnose operational faults	To be competent, the user/individual on the job must be able to: PC1. conduct scheduled, routine examination and assessments to identify wear, damage, corrosion, inadequate fluid levels, leaks, wear, security problems and general condition and serviceability. PC2. review complaint sheet, log book and history sheet of the equipment and understand repair requirements. PC3. understand original equipment manufacturers' specifications and follow standard operating procedure set out for preventive maintenance. PC4. use diagnostic tools as required to assess the problem including use of on board diagnostic tools like digital tools and devices, use of pressure gauges, filler gauges, callipers, condition monitoring devices and tools to obtain equipment data and compare the same with standards to detect faults in the system. PC5. check and make adjustments to clearances, gaps, settings, alignment, pressures, speeds and levels relevant to the engine area, transmission area, chassis area, final drive, electrical circuitry and body (including valves, ignition, fuel system and emissions, brakes, transmission, lights, final drive, hydraulic system, tyres/ tracks, steering and body and chassis fittings). PC6. check routine service components and materials, including oil seals, filters, drive belts, wiper blades, brake linings and pads, linkages, bearings,

Knowledge and Understanding(K)	
A. **Organizational Context** (Knowledge of	The user/individual on the job needs to know and understand: KA1. different types of mines and detail of the mine he is working in KA2. mine organisation, time keeping, need for discipline and punctuality

the organization and its processes)	KA3. benching in quarries, dressing of overhangs, undercuts, fencing KA4. Fire-fighting, first aid and hygiene KA5. code of traffic in specific areas of mine. significance of fences KA6. standing orders in force at the mine safety in the vicinity of machinery KA7. shot-firing and safety regulations. how and where to take shelter KA8. duties of workmen under mines act KA9. provision of compensation and working hours as per mines act KA10. knowledge of mining safety procedures KA11. outcome of violation of safely procedures
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. the basic technology used in and functioning of various components and aggregates of the equipment including: • engines and fuel system (diesel, petrol, electrical etc.) • cooling system, air supply systems • ignition systems, emission and exhaust system • clutch assembly & clutch operating system, gearbox & drive-train assembly and transmission systems (manual, automatic etc.) • drivelines and hubs, steering, suspension, brake system • tyres and wheels (including wheel alignment) • tracks and power train up to final drive, in case of crawling equipment • batteries and power storage system • power-generating/transmission systems (including charging and interlocking systems) • electronic systems including active and passive safety, media and other systems, electronic control unit • hydraulic and pneumatic systems, various lubrication systems KB2. the tools used to assess and confirm technical faults that cannot be determined through a visual inspection, including use of (but not limited to): • pressure indicators: fuel pressure testers, manifold gauge sets, oil pressure gauges, tyre pressure gauges

	• measuring equipment: vernier callipers, micrometre, feeler gauges, multi-meter, flow meter, temp gauge, dial gauge etc. • condition monitoring systems KB3. the various sources of information available for assessing service and repair requirements of the vehicle including • diagnostic displays, visual inspections • vehicle/equipment manufacturer specifications • standard operating procedures for diagnosis • equipment log books and history sheets, complaint register

Skills (S)	
Element	**Writing Skills**
A. Core Skills/ Generic Skills	The user/ individual on the job needs to know and understand how to: SA1. note down observations SA2. write information documents or enter the information in concerned register and online ERP systems under guidance of the supervisor
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA3. read and interpret drawings, symbols and measurements SA4. read information documents, instructions and OEM's manuals SA5. understand and analyse the available data about the site and Equipment
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA6. discuss task lists, schedules and activities. SA7. communicate effectively SA8. listen and comprehend the information SA9. put questions to extract maximum information about the job.
B. Professional Skills	**Plan and Organize**
	The user/individual on the job needs to know and understand how to: SB1. plan and organize the work order and jobs.

	SB2. organize all process manuals so that sorting / accessing information is easy SB3. arrange various tools, consumables and spare parts and other related facilities to execute the job
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB4. use common sense and make judgments during day to day basis SB5. use reasoning skills to identify and resolve basic problems SB6. use intuition to detect any potential problems which could arise
	Desire to learn and take initiatives
	The user/individual on the job needs to know and understand how to: SB7. follow instructions and work on areas of improvement identified SB8. complete the assigned tasks with minimum supervision SB9. complete the job within timelines and quality norms
	Problem Solving and Decision making
	The user/individual on the job needs to know and understand how to: SB10. detect problems in day to day tasks SB11. discuss possible solution with the supervisor for problem solving SB12. make decisions in emergency conditions
	Analytical Thinking
	SB13. analyse the situation of the HEMM and resolving to take suitable actions
	Customer Centricity
	SB14. report for all his activities to his Superiors, to whom he is answerable

NOS Version Control

NOS Code	MIN/N0491		
Credits(NSQF)	TBD	Version number	2.0
Industry	Mining	Drafted on	01/11/2017
Industry Sub-sector	Open cast and Underground mines	Last reviewed on	17/01/2018
Occupation	Mechanical Maintenance	Next review date	16/01/2022

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National Occupational Standard

Overview

This unit is about carrying out service and repairs of a HEMM, including Loader, Dozer, Excavator, Motor Grader, Load Haul Dump trucks, Side Discharge Loaders etc. w

National Occupational Standard

Unit Code	MIN/N0492
Unit Title(Task)	**Carry out service, repair and maintenance activities**
Description	This unit is about performing HEMM repairs and maintenance operation for activities that need to be carried out during a shift
Scope	This OS unit/task covers the following: • carry out service, repair and maintenance activities
Performance Criteria (PC)w.r.t. the Scope	
Element	**Performance Criteria**
Carry out service, repair and maintenance activities	To be competent, the user/individual on the job must be able to: PC1. ensure OEM recommended procedure and checklist is followed for routine servicing. PC2. ensure the HEMM is always parked (when idle) on flat and firm land, handbrakes applied and buckets pulled down to ground level. PC3. ensure no maintenance work on engine is carried out when the engine is hot and the switch key is plugged in. PC4. disconnect battery for any servicing on the electrical circuit, until and unless advised by electrician. PC5. conduct preventive maintenance at manufacturer prescribed intervals viz. 50 hours, 200 hours, 500 hours, 1000 hours etc. as per the guidelines of the OEM and instructions of his supervisors. PC6. carry out break down maintenance, as and when required, at work site or in workshop, as the case be. PC7. work out the requirements of spare parts, oils & lubricants, coolants, consumables like filter elements, V- belts, etc. PC8. maintain all the relevant records of inspection, maintenance and repairs carried out, on day to day basis. PC9. calibrate, align and adjust settings, alignment, pressures, tension, speeds and levels relevant to: i. engine and aggregates, transmission system ii. load bearing arms and structure iii. safety devices and components installed iv. electrical and electronic components

	v. other components (including to valves, ignition, fuel systems and emissions, brakes, transmission, lights, tyres, tracks, hydraulic systems, steering and body/chassis fittings) PC10. identify and change components requiring change due to continuous wear and tear including: I. fuel, oil and air filters, oil seals II. drive belts, braking system components III. drive train components IV. bearings and bushes etc. PC11. ensure disposal of materials in accordance with the organization's policies. PC12. refill correct grade of coolants, lubricants and other fluids as per OEM guidelines. PC13. understand the various precautions to be taken to avoid damage to the vehicle and its components. PC14. record all service and repairs carried out and ensure completeness of tasks assigned before releasing vehicle for the next procedure. PC15. follow standard operating procedures for using workshop tools and equipment. PC16. ensure all workshop tools, equipment and workstations are adequately maintained by carrying out scheduled checks, calibration and timely repairs.
Knowledge and Understanding(K)	
A. Organizational Context (Knowledge of the organization and its processes)	The user/individual on the job needs to know and understand: KA12. different types of mines and detail of the mine he/she is working in KA13. mine organisation, time keeping, need for discipline and punctuality KA14. benching in quarries, dressing of overhangs, undercuts, fencing KA15. Fire-fighting, first aid and hygiene KA16. code of traffic in specific areas of mine. significance of fences KA17. standing orders in force at the mine. safety in the vicinity of machinery KA18. shot-firing and safety regulations - how and where to take shelter KA19. duties of workmen under Mines Act KA20. provision of compensation and working hours as per Mines Act KA21. mining safety procedures KA22. outcome of violation of safety procedures
B. Technical Knowledge	The user/individual on the job needs to know and understand: KC1. the basic technology used in and functioning of various components and aggregates of the equipment. KC2. selection of standard materials for the job such as seals, sealants, fittings, gaskets, joints, fasteners etc. as per manufacturers' specification KC3. selection of jigs and fixtures required to carry out replacement of components and aggregates. KC4. how to carry out routine maintenance including a. checking vehicle condition against OEM specifications to identify damage, corrosion, wear and tear, fluid levels, leaks and other problems in serviceability b. make adjustments to settings, alignment, pressures, tension, speeds and levels relevant to i. engine and aggregates

	ii. steering system, clutch and brake assembly iii. transmission system, wheels and axle, or , track system iv. electrical and electronic components v. other components KC5. the type and quality of components specified by the OEM for use as replacement parts KC6. the grade of lubricants specified by the OEM for use KC7. typical causes and symptoms of operational faults and failures of a vehicle corrective action to be taken for common engine and aggregate system faults and failures KC8. faults and failures that necessitate replacement of components and other units KC9. how to dispose of replaced components in accordance with safety, health and environmental policies and regulations
Skills (S)	
Element **A. Core Skills/ Generic Skills**	**Writing Skills** The user/ individual on the job needs to know and understand how to: SA1. note down observations SA2. write information documents or enter the information in concerned Register and online ERP systems under guidance of the supervisor
	Reading Skills The user/individual on the job needs to know and understand how to: SA3. read and interpret drawings symbols and measurements SA4. understand and analyse the available data
	Oral Communication (Listening and Speaking skills) The user/individual on the job needs to know and understand how to: SA5. discuss task lists, schedules and activities SA6. communicate effectively with all concerned about the job at hand SA7. listen and comprehend the information SA8. put questions to extract maximum information about the job
B. Professional Skills	**Plan and Organize** The user/individual on the job needs to know and understand how to: SB1. plan and organize the work order and jobs

	SB2. organize all process manuals SB3. arrange for various tools, consumables and spare parts
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB4. use common sense and make judgments during day to day basis SB5. use reasoning skills to identify and resolve basic problems
	Desire to learn and take initiatives
	The user/individual on the job needs to know and understand how to: SB6. follow instructions and work on areas of improvement identified SB7. complete the assigned tasks with minimum supervision SB8. complete the job within timelines and quality norms
	Problem Solving and Decision making
	The user/individual on the job needs to know and understand how to: SB9. detect problems in day to day tasks SB10. discuss possible solution with the supervisor for problem solving SB11. make decisions in emergency conditions
	Analytical Thinking
	SB12. analyse the situation of the HEMM and resolve
	Customer Centricity
	SB13. report for all his activities to his superiors, to whom he is answerable.

NOS Version Control

NOS Code	MIN/N0492		
Credits(NSQF)	TBD	Version number	2.0
Industry	Mining	Drafted on	01/11/2017
Industry Sub-sector	Open cast and Underground mines	Last reviewed on	17/01/2018
Occupation	Mechanical Maintenance	Next review date	16/01/2022

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National Occupational Standards

Overview

This unit is about adhering to Health & Safety and DGMS prescribed MVTR requirements at an Open Cast Mine or Quarry or job roles associated with surface operations in a Mining industry.

National Occupational Standard

Unit Code	MIN/N0902
Unit Title (Task)	Adhere to health & safety and MVTR requirements in OC Mines
Description	This unit is about adhering to health and safety requirements at the Open Cast Mines or Surface operations and during execution of varied job roles, equipment upkeep and maintenance and operations.
Scope	• Comply with safety, security and administrative requirements
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Comply with safety, security and administrative requirements	To be competent, the user/individual on the job must be able to PC1. comply with safety, health, security and environment related regulations / guidelines at the mine and follow the Safe Operation Procedure (SOP) made before hand in consultation with the DGMS and implement the same. PC2. use PPE (personal protective equipment) such as, hand gloves, helmet, safety shoes, dust mask, ear plug, reflective jackets, safety goggles etc. PC3. carry out operations as per the manufacturer's and worksite related health and safety guidelines and take requisite care not to damage any power, utility and pneumatic lines and protect self and machinery from unwarranted exposure. PC4. follow safety measures in the OC mining or outdoor environment to ensure that the health and safety of self or others (including members of the public) are not at risk. PC5. ensure that no unauthorized personnel or equipment are present in specified work area and ensure that no other operators travel on or stand near the loader. PC6. utilize judiciously, various signaling devices available in the mining equipment and HEMMs, such as turn signal, parking indicator, air horn etc. PC7. ensure that HEMM or other such transportation and moving machinery are always parked on firm, level ground with handbrake applied and drive and controls disengaged.

	PC8. undertake all prescribed measures while camping in a remote site or camp, including compliance to safety procedures in case of inundation, fire hazard, gas occurrence etc. PC9. support in administering first aid and resuscitation measures to fellow team members and operate various grades of fire extinguishers, as applicable. PC10. handle the transport, storage and disposal of hazardous materials and waste in compliance with worksite guidelines as prescribed by DGMS and mine manager. PC11. deal with misfires as per laid out process and during blasting operation, take shelter at the miner's station. PC12. respond promptly and appropriately to an accident/ incident or emergency situation, within limits of the role and responsibility.
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. mining safety procedures and outcome of violation of safety procedures. KA2. benching in quarries, fencing. KA3. sources of dust, noise and vibration and measures to minimize such sources as per guideline & regulation enforce by the DGMS. KA4. locally prepared emergency preparedness / disaster management plan. KA5. code of traffic in specific areas of mine and significance of fences. KA6. standing orders in force at the mine, safety in the vicinity of machinery to protect from any electrical / mechanical / compressed air trouble by enforcing the Safe Operation Procedure (SOP). KA7. shot-firing and safety regulations- how and where to take shelter. KA8. process for reporting any unsafe act/condition in work area which may endanger his or his colleague's life. KA9. hazardous material safety and security rules and regulations as prescribed by DGMS. KA10. proper up keeping and storage of his own tools, tackles and support material. KA11. environmental impact of mining hazardous material safety and security rules and regulations as prescribed by DGMS.

	KA12. code of practice (the do's & don'ts) for safe handling and transport of dangerous material and heavy equipment. KA13. various national and international standard, and statutory provisions, laws and bylaws related to compressed gases handling in mining sector in India.
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. basic knowledge of operation of the machines used in OC Mines. KB2. technical and gallery training as per first schedule, Mining Vocational Training Rules (MVTR) 1966. KB3. refresher training as per first schedule, Mining Vocational Training Rules (MVTR) 1966, if absent from mines for a period of one year or more before re-employment. KB4. first aid training and firefighting training. KB5. take-5 (Personal Risk Assessment) training (DGMS Tech. circulars 2/2014).

NOS Version Control

NOS Code	MIN/N0902		
Credits(NSQF)	TBD	Version number	2.0
Sector	Mining	Drafted on	01/11/2017
Sub-sector	Engineering Services	Last reviewed on	17/01/2018
Occupation	Field Services - Mechanical	Next review date	16/01/2022

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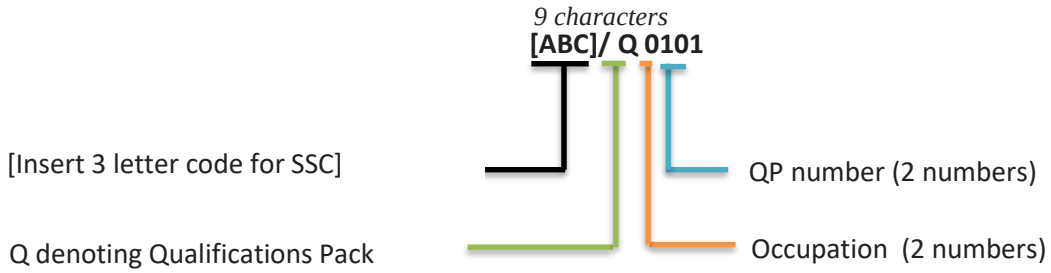
Annexure

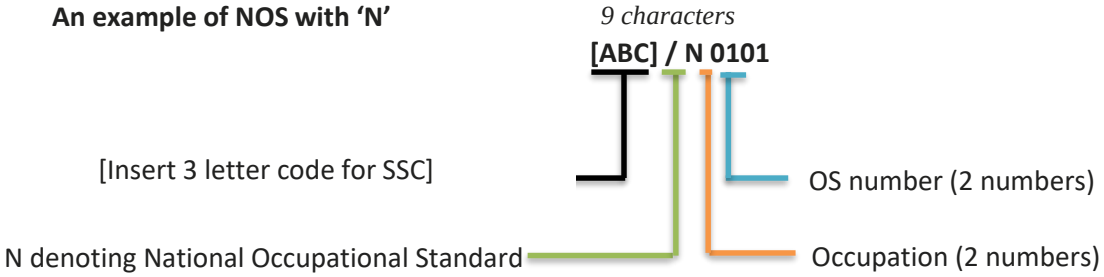
Nomenclature for QP and NOS

Qualifications Pack



Occupational Standard

An example of NOS with 'N'



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

Sub-sector	Range of Occupation numbers
Exploration & Resource Management	**1 to 25**
Mining Operations	**26 to 65**
Engineering Services	**66 to 90**
Mineral Beneficiation	**91 to 99**

Sequence	Description	Example
Three letters	Industry name	MIN
Slash	/	/
Next letter	Whether **Q**P or **N**OS	N
Next two numbers	Occupation code	01
Next two numbers	OS number	01

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CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role HEMM Mechanic

Qualification Pack MIN/Q0433

Sector Skill Council Skill Council for Mining Sector

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. 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 this criterion.
6. To pass the Qualification Pack , every trainee should score a minimum of 70% of aggregate marks to successfully clear the assessment.
7. In case of *unsuccessful completion*, the trainee may seek reassessment on the Qualification Pack.

Compulsory NOS **Total Marks: 100**				**Marks Allocation**	
Assessment outcomes	**Assessment Criteria for outcomes**	**Total Marks**	**Out Of**	**Theory**	**Skills Practical**
1. MIN/N0491 (Diagnose HEMM for repair requirements)	PC1. conduct scheduled, routine examination and assessments to identify wear, damage, corrosion, inadequate fluid levels, leaks, wear, security problems and general condition and serviceability	**35**	4	1	3
	PC2. review complaint sheet ,log book and history sheet of the equipment and understand repair requirements		3	2	1

	PC3. understand original equipment manufacturers' specifications and follow standard operating procedure set out for preventive maintenance.		3	2	1
	PC4. use diagnostic tools as required to assess the problem; including use of on board diagnostic tools like digital tools and devices, use of pressure gauges, filler gauges, callipers, condition monitoring devices and tools to obtain equipment data and compare the same with standards to detect faults in the system.		3	1	2
	PC5. check and make adjustments to clearances, gaps, settings, alignment, pressures, speeds and levels relevant to the engine area, transmission area, chassis area, final drive, electrical circuitry and body (including valves, ignition, fuel system and emissions, brakes, transmission, lights, final drive, hydraulic system, tyres/ tracks, steering and body and chassis fittings).		4	1	3
	PC6. check routine service components and materials, including oil seals, filters, drive belts, wiper blades, brake linings and pads, linkages, bearings, lubricants and fluids.		4	1	3
	PC7. recognise and record any damage to equipment components and units outside normal service items.		3	0	3
	PC8. check lubricant levels and identify codes and grades of lubricants to be used for specific components of HEMM.		3	1	2

	PC9. dismantle specific components and assemblies, needing attention, to locate and identify faults.		4	2	2
	PC10. report malfunctions or repair requirements observed in equipment beyond what is mentioned in the complaint sheet.		4	1	3
		Total	**35**	**12**	**23**
2. MIN/N0492 (Carry out service, repair and maintenance activities)	PC1. ensure OEM recommended procedure and checklist is followed for routine servicing.	**35**	2	1	1
	PC2. ensure the HEMM is always parked (when idle) on flat and firm land, handbrakes applied and buckets pulled down to ground level.		2	0	2
	PC3. ensure no maintenance work on engine is carried out when the engine is hot and the switch key is plugged in.		2	0	2
	PC4. disconnect battery for any servicing on the electrical circuit, until and unless advised by electrician.		2	0	2
	PC5. conduct preventive maintenance at manufacturer prescribed intervals viz. 50 hours, 200 hours, 500 hours, 1000 hours etc. as per the guidelines of the OEM and instructions of his supervisors.		3	1	2

	PC6. carry out break down maintenance, as and when required, at work site or in workshop, as the case be.		2	1	1
	PC7. work out the requirements of spare parts, oils & lubricants, coolants, consumables like filter elements, V- belts, etc.		2	0	2
	PC8. maintain all the relevant records of inspection, maintenance and repairs carried out, on day to day basis.		2	0	2
	PC9. calibrate, align and adjust settings, alignment, pressures, tension, speeds and levels relevant to: • engine and aggregates, transmission system • load bearing arms and structure • safety devices and components installed • electrical and electronic components • other components (including to valves, ignition, fuel systems and emissions, brakes, transmission, lights, tyres, tracks, hydraulic systems, steering and body/chassis fittings).		3	1	2
	PC10. identify and change components requiring change due to continuous wear and tear including: • fuel, oil and air filters, oil seals • drive belts, braking system components • drive train components • bearings and bushes etc.		3	1	2

	PC11. ensure disposal of materials in accordance with the organization's policies		2	0	2
	PC12. refill correct grade of coolants, lubricants and other fluids as per OEM guidelines.		2	1	1
	PC13. understand the various precautions to be taken to avoid damage to the vehicle and its components.		2	1	1
	PC14. record all service and repairs carried out and ensure completeness of tasks assigned before releasing vehicle for the next procedure.		2	1	1
	PC15. follow standard operating procedures for using workshop tools and equipment.		2	1	1
	PC16. ensure all workshop tools, equipment and workstations are adequately maintained by carrying out scheduled checks, calibration and timely repairs		2	1	1
		Total	**35**	**10**	**25**
3. MIN/N0902 (Adhere to health & safety and MVTR requirements in OC Mines)	PC1. comply with safety, health, security and environment related regulations / guidelines at the mine and follow the safe operation procedure (SOP) made before hand in consultation with the DGMS and implement the same.	**30**	3	2	1
	PC2. use PPE (personal protective equipment) such as, hand gloves, helmet, safety shoes, dust mask, ear plug, reflective jackets, self-rescuer, safety goggles etc.		3	1	2

	PC3. carry out operations as per the manufacturer's and worksite related health and safety guidelines and take requisite care not to damage any power, utility and pneumatic lines and protect self and machinery from unwarranted exposure.		3	1	2
	PC4. follow safety measures in the OC mining or outdoor environment to ensure that the health and safety of self or others (including members of the public) are not at risk.		2	0	2
	PC5. ensure that no unauthorized personnel or equipment are present in specified work area and ensure that no other operators travel on or stand near the loader		3	0	3
	PC6. utilize judiciously various signaling devices available in the mining equipment and HEMMs, such as turn signal, parking indicator, air horn etc.		2	0	2
	PC7. ensure that HEMM or other such transportation and moving machinery are always parked on firm, level ground; with handbrake applied and drive and controls disengaged		3	0	3
	PC8. undertake all prescribed measures while camping in a remote site or camp, including compliance to safety procedures in case of inundation, fire hazard, gas occurrence etc.		2	1	1
	PC9. support in administering first aid and resuscitation measures to fellow team members and operate various grades of fire extinguishers, as applicable.		2	0	2
	PC10. handle the transport, storage and disposal of hazardous materials and waste in		2	1	1

	compliance with worksite guidelines as prescribed by DGMS and mine manager.				
	PC11. deal with misfires as per laid out process and during blasting operation, take shelter at the miner's station.		2	1	1
	PC12. respond promptly and appropriately to an accident/ incident or emergency situation, within limits of the role and responsibility.		3	1	2
		Total	**30**	**8**	**22**
	QP Total		**100**	**30**	**70**