



Model Curriculum

Bulldozer Operator

SECTOR: MINING

SUB-SECTOR: MINING OPERATION

OCCUPATION: LOADING AND HAULING

REF ID: MIN/Q0205

NSQF LEVEL: 4



Certificate

CURRICULUM COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

SKILL COUNCIL FOR MINING SECTOR

for the

MODEL CURRICULUM

Complying to National Occupational Standards of
Job Role/ Qualification Pack: 'Bulldozer Operator' QP No. 'MIN/Q.0205 NSQF Level 4'

Date of Issuance: December 24th, 2015

Valid up to: March 31st, 2017

Authorised Signatory
(Skill Council for Mining Sector)

* Valid up to the next review date of the Qualification Pack



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Bulldozer Operator

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Bulldozer Operator”, in the “Mining” Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	Bulldozer Operator		
Qualification Pack Name & Reference ID.	MIN/Q 0205		
Version No.	1.0	Version Update Date	08 – 01 – 2016
Pre-requisites to Training	Xth and statutory certificate		
Training Outcomes	<p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> • Gain familiarity with the operation: Able to use the tractor and blade to scoop out soil, move rock and ore to other locations on the site, and to level the soil. Bulldozers are capable of pushing ore and rock. Bulldozer operators are also responsible for confirming that their safety systems are working properly and for performing basic maintenance on the Bulldozer. • Become well versed with Environment Health & Safety: Well versed with on-site health and safety measures relating to blasting and use of personal protective equipment. The individual should be skilled in performing various driving and manoeuvring operations with the Bulldozer. • Identify and use basic tools, equipment & materials: Understanding of carrying out loading and hauling operation. 		

This course encompasses 4 out of 4 National Occupational Standards (NOS) of “Bulldozer Operator” Qualification Pack issued by “SSC: Skill Council for Mining Sector”.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	<p>Introduction</p> <p>Theory Duration (hh:mm) 10:00</p> <p>Practical Duration (hh:mm) 20:00</p> <p>Corresponding NOS Code Bridge Module</p>	<p>Understanding of following</p> <ul style="list-style-type: none"> • Transportation of raw materials. • Uses of blade to scoop out soil. • Knowledge of Levers and switches in order to operate the Bulldozer properly. 	<p>PPTs of Iron and steel manufacturing, Charts showing the same</p>
2.	<p>Prepare Bulldozer</p> <p>Theory Duration (hh:mm) 20:00</p> <p>Practical Duration (hh:mm) 45:00</p> <p>Corresponding NOS Code MIN/N0215</p>	<p>This unit is about preparing the Bulldozer for activities that need to be carried out during a shift for Conducting pre-operation checks & routine maintenance of Bulldozer and recording details of checking and maintenance as well as be able to:</p> <ul style="list-style-type: none"> • Check oil levels of engine, transmission, radiator coolant and brake • Check differential and hydraulic oil levels • Check condition of parking brake, main horn, reverse horn, warning lamp and head light. • Ensure availability of safety features in Dozers like Audio Visual Alarm, camera, mirrors, Horn, auto fire protection system. <p>The Operators must be able to prepare and maintenance of Levers and switches in order to operate the Bulldozer properly & Instrument panel and various controls.</p> <ul style="list-style-type: none"> • Understand Signage, mining areas signs and other safety and emergency signals. • Optimal working condition of Bulldozer components e.g. parking brake, main horn, reverse horn, etc. • Optimal engine oil pressure, radiator coolant temperature. 	<p>Bulldozer, Different size of blade, Wrench, Grease pump/gun, Oil Can, Parking wooden stopper, Hydraulic jack, Filter, Gloves, Safety shoes, Safety goggles, Safety helmet, Fire extinguisher, Types of log book, First Aid box.</p>

Sr. No.	Module	Key Learning Outcomes	Equipment Required
3.	<p>Perform Bulldozer Operations.</p> <p>Theory Duration (hh:mm) 20:00</p> <p>Practical Duration (hh:mm) 70:00</p> <p>Corresponding NOS Code MIN/N0216</p>	<p>This unit is about performing operations while using the Bulldozer starting from driving the bulldozer to the operations area. Operator also Engage and manoeuvre the blade to push or move around ore stacks/waste rock /rejects as necessary. And use blade appropriately for levelling the surface. The Bulldozer operator will be able to perform:</p> <ul style="list-style-type: none"> Plan the dozing job before starting the maneuver. Plan the dozing job before starting the maneuver. Inspect the site to identify any loose soil, hidden deep trenches or marshy patches where dozer could get stuck. Ensure Bulldozer load and operating speed is within specified limits. Adhere to load targets and time limits given by supervisor. Fill out administrative forms as required by the company Ensure that walkway rules e.g. operating the Bulldozer within the permissible / allocated areas are followed. Perform dozing safely on down slopes, near banks and bench edges. Use the correct slings and links. Perform maintenance checks as and when necessary. 	<p>Bulldozer, Different size of blade, Wrench, Grease pump/gun, Oil Can, Parking wooden stopper, Hydraulic jack, Filter, Gloves, Safety shoes, Safety goggles, Safety helmet, Fire extinguisher, Types of log book, First Aid box.</p>
4.	<p>Carryout reporting and Documentation.</p> <p>Theory Duration (hh:mm) 10:00</p> <p>Practical Duration (hh:mm) 20:00</p> <p>Corresponding NOS Code MIN/N0217</p>	<p>This unit is about carrying out reporting and documentation and operator must:</p> <ul style="list-style-type: none"> Report problems/incidents as applicable in a timely manner. Report to the appropriate authority as laid down by the employer. Follow reporting procedures as prescribed by the employer. Make sure documents are available to all appropriate authorities to inspect. 	
5.	<p>Health & Safety</p>	<ul style="list-style-type: none"> This unit is about health and safety measures critical in open-cast mines Health and safety measures critical for 	<p>Gloves, Safety shoes, Safety goggles, Safety helmet, Fire extinguisher, Types of log book, First Aid box</p>

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	<p>Theory Duration (hh:mm) 10:00</p> <p>Practical Duration (hh:mm) 15:00</p> <p>Corresponding NOS Code MIN / N0204</p>	<p>personnel working in open-cast mines</p> <ul style="list-style-type: none"> Comply with occupational health and safety regulations adopted by the employer. Follow mining operations procedures with respect to materials handling and accidents. Adhere to the safety guidelines specified by Directorate General of Mine Safety (DGMS)). 	
6.	<p>Total Duration</p> <p>Theory Duration (hh:mm) 70:00</p> <p>Practical Duration (hh:mm) 170:00</p>	<p>Unique Equipment Required:</p> <p>Bulldozer, Different size of blade, Wrench, Grease pump/gun, Oil Can, Parking wooden stopper, Hydraulic jack, Filter, Gloves, Safety shoes, Safety goggles, Safety helmet, Fire extinguisher, Types of log book, First Aid box.</p>	

Grand Total Course Duration: 240 Hours, 0 Minutes

(This syllabus/ curriculum has been approved by [SSC: Skill Council for Mining Sector](#))

Trainer Prerequisites for Job role: “Bulldozer Operator” mapped to Qualification Pack: “MIN/Q0205”

Sr. No.	Area	Details
1	Description	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack “ <u>MIN/Q0205</u> ”.
2	Personal Attributes	Aptitude for conducting training, and pre/ post work to ensure competent, employable candidates at the end of the training. Strong communication skills, interpersonal skills, ability to work as part of a team; a passion for quality and for developing others; well-organised and focused, eager to learn and keep oneself updated with the latest in the mentioned field.
3	Minimum Educational Qualifications	Preferably Class X Passed and statutory certificate.
4a	Domain Certification	Statutory Certificate from Directorate General of Mines Safety (DGMS) for Job Role: “ <u>Bulldozer Operator</u> ” mapped to QP: “ <u>MIN/Q0205</u> ”. Minimum accepted score for domain certification will be 85%.
4b	Platform Certification	Recommended that the Trainer is certified for the Job Role: “Trainer”, mapped to the Qualification Pack: “ <u>SSC/Q1402</u> ”. Minimum accepted score for platform certification will be 90%.
5	Experience	2-3 years of experience in similar job of HEMM Operation.

Annexure: Assessment Criteria

Assessment Criteria for Bulldozer Operator	
Job Role	Bulldozer Operator
Qualification Pack	MIN/Q0205
Sector Skill Council	Mining

Sr. No.	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 of the theory/knowledge will be based on written test/viva-voce or both while skill test shall be hands on practical. Behaviour and attitude will be assessed while performing the task.
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 70% . Weightage distribution for assessment will be 30 % for and 70% practical.
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.

Assessment outcome	Assessment Criteria	Total Mark (100)	Out Of	Marks Allocation	
				Theory	Skills Practical
1. MIN/N 0215 (Prepare Bulldozer)	PC1. Adhere to time limits given by supervisor.	25	1	1	0
	PC2. Check oil levels of engine, transmission, radiator coolant and brake.		2	1	1
	PC3. Check differential and hydraulic oil levels.		2	1	1
	PC4. Check condition of parking brake, main horn, reverse horn, warning lamp and head light.		2	0	2
	PC5. Ensure availability of safety features in Dozers like Audio Visual Alarm, camera, mirrors, Horn, auto fire protection system.		2	1	1
	PC6. Check fan belt tension, electrolyte level and terminal tightness.		2	0	2
	PC7. Clean the Bulldozer and outer element of air cleaner with compressed air.		2	0	2
	PC8. Top up oil in engine, transmission, etc. if necessary after checking.		2	0	2
	PC9. Apply grease to all greasing points.		2	0	2
	PC10. Drain accumulated water from the diesel tank.		2	0	2
	PC11. Maintain a checking/maintenance logbook to detail all activities conducted before starting the Bulldozer.		2	1	1
	PC12. Inform supervisor of those problems that extend beyond scope of one's role.		2	1	1
	PC13. Fill out administrative forms as required by the company.		2	2	0
	Total	25	8	17	
2. MIN/N 0216 (Perform Bulldozer Operations)	PC1. Plan the dozing job before starting the maneuver	30	2	1	1
	PC2. Inspect the site to identify any loose soil, hidden deep trenches or marshy patches where dozer could get stuck.		4	0	4
	PC3. Ensure Bulldozer load and operating speed is within specified limits.		3	1	2
	PC4. Adhere to load targets and time limits given by supervisor.		4	1	3
	PC5. Fill out administrative forms as required by the company.		1	1	0
	PC6. Ensure proper Lock out and Tag out		2	0	2

Assessment outcome	Assessment Criteria	Total Mark (100)	Out Of	Marks Allocation	
				Theory	Skills Practical
	scenario to avoid any untoward incident triggered due to unknowingly operation of machine / system under maintenance.				
	PC7. Inform supervisor of any problems while operating the Bulldozer.		2	1	1
	PC8. Ensure that no other operators travel on or stand near the Bulldozer.		2	0	2
	PC9. Ensure that walkway rules e.g. operating the Bulldozer within the permissible/allocated areas are followed.		2	1	1
	PC10. Perform dozing safely on down slopes, near banks and bench edges.		4	2	2
	PC11. Use the correct slings and links.		2	1	1
	PC12. Perform maintenance checks as and when necessary.		2	0	2
		Total	30	9	21
3. MIN/N 0217 (Carry Out Reporting and Documentation)	PC1. Report problems/incidents as applicable in a timely manner.	15	3	1	2
	PC2. Report to the appropriate authority as laid down by the employer.		3	1	2
	PC3. Follow reporting procedures as prescribed by the employer.		2	1	1
	PC4. Identify documentation to be completed relating to one's role.		2	0	2
	PC5. Record details accurately using the appropriate format		2	1	1
	PC6. Complete all documentation within stipulated time.		2	1	1
	PC7. Make sure documents are available to all appropriate authorities to inspect.		1	1	0
		Total	15	6	9
4. MIN/N 0204 (Health and Safety)	PC1. Perform storage and transport of hazardous materials compliant with safety guidelines prescribed by DGMS.	30	5	2	3
	PC2. Deal with misfires as per statutory requirement.		5	1	4
	PC3. Comply with safety regulations and procedures in case of fire hazard.		4	1	3
	PC4. Operate various grades of fire		3	1	2

Assessment outcome	Assessment Criteria	Total Mark (100)	Out Of	Marks Allocation	
				Theory	Skills Practical
	extinguishers.				
	PC5. Work responsibly and as safe and careful as possible so as not to put the health and safety of self or others at risk, including members of the public.		3	0	3
	PC6. Demonstrate careful practices in handling explosives.		5	1	4
	PC7. Identify characteristics of post-blast fumes and take necessary precautions.		2	1	1
	PC8. Wears safety gear such as hard hat, respiratory protection, eye protection, ear protection		3	0	3
	NOS TOTAL	Total	30	7	23
	QP TOTAL			30	70



Skill Council for Mining Sector

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