

Model Curriculum

Bulldozer Operator

SECTOR: Mining
SUB-SECTOR: Mining Operation
OCCUPATION: HEMM Operations
REF ID: MIN/Q0205, V1.0
NSQF LEVEL: 4



Certificate

COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

SKILL COUNCIL FOR MINING SECTOR

for

MODEL CURRICULUM

Complying to National Occupational Standards of
Job Role/ Qualification Pack: '**Bulldozer Operator**' QP No. '**MIN/Qo2o5 NSQF Level 4**'

Date of Issuance: **April 10th, 2018**

Valid up to*: **March 3rd, 2022**

*Valid up to the next review date of the Qualification Pack or the
'Valid up to' date mentioned above (whichever is earlier)


Authorised Signatory
(Skill Council for Mining Sector)

TABLE OF CONTENTS

| | |
|---|-----------|
| 1. Curriculum | 04 |
| 2. Trainer Prerequisites | 08 |
| 3. Annexure: Assessment Criteria | 09 |

Bulldozer Operator

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

| | | | |
|--|--|----------------------------|------------|
| Program Name | Bulldozer Operator | | |
| Qualification Pack Name & Reference ID. | MIN/Q0205 | | |
| Version No. | 1.0 | Version update date | 24/03/2014 |
| Pre-requisites to Training | Preferable Class X | | |
| Training Outcomes | <p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> • Perform pre-operation checks & routine maintenance of Bulldozer • Record details of checking and maintenance • Start and drive the bulldozer to the operations area • Practice how to engage and manoeuvre the blade to push or move around ore stacks/waste rock /rejects as necessary • Demonstrate the use of blade for levelling the surface • Report of problem/incidents etc. • Report and Documentation • Comply to health and safety measures critical for mining operations | | |

This course encompasses 4 out of 4 National Occupational Standards (NOS) of “Bulldozer Operator” Qualification Pack issued by “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) 26:00</p> <p>Corresponding NOS Code Bridge Module</p> | <ul style="list-style-type: none"> Understand General Discipline in the class room (Do’s & Don’ts) Understand Role of bulldozer operator in mining industry Understand benching in quarries, dressing of overhangs, undercuts, fencing, first aid and hygiene Illustrate standing orders in force at the mine. Demonstrate safety in the vicinity of machinery. Explain shot-firing and safety regulations. How and where to take shelter. Learn and Practice Basic skills of communication Learn and practice Basic reading capabilities to enable reading of signs, notices and/or cautions at site. | Computer With Internet , LCD Projector , Trainer Chair & Pin Up Boards, White Board |
| 2 | <p>Prepare Bulldozer:</p> <p>(hh:mm) 40:00</p> <p>Practical Duration (hh:mm) 90:00</p> <p>Corresponding NOS Code MIN/N0215</p> | <ul style="list-style-type: none"> Adhere to time limits given by supervisor 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 Check fan belt tension, electrolyte level and terminal tightness Clean the Bulldozer and outer element of air cleaner with compressed air Top up oil in engine, transmission, etc. if necessary after checking Apply grease to all greasing points Drain accumulated water from the diesel tank. Maintain a checking/maintenance logbook to detail all activities conducted before starting the Bulldozer Inform supervisor of those problems that extend beyond scope of one’s role Fill out administrative forms as required by the company | Bulldozer, Vehicle Driver Tool Box, Helmet, Dust Mask, Goggles, Ear Plug, Gloves, Reflective Jacket ,Safety Belt, Gum Boots, Fire Extinguisher Cylinders, First Aid Box, Fire Fighting Charts, First Aid Charts, Computer With Internet, LCD Projector, Trainer Chair & Table, Demonstration Table, Pin Up Boards, Slide wrench, Bulldozer simulator, Spanner Set , White Board, Vehicle Log Book |
| 3 | <p>Perform Bulldozer Operations:</p> | <ul style="list-style-type: none"> Plan the dozing job before starting the manoeuvre | Bulldozer, Vehicle Driver Tool Box, Helmet, Dust Mask, Goggles, Ear Plug, Gloves, Reflective Jacket ,Safety Belt, Gum Boots, Fire Extinguisher Cylinders, First Aid |

| | | | |
|---|--|--|--|
| | <p>Theory Duration (hh:mm) 12:00</p> <p>Practical Duration (hh:mm) 210:00</p> <p>Corresponding NOS Code MIN/N 0216</p> | <ul style="list-style-type: none"> 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 proper Lock out and Tag out scenario to avoid any untoward incident triggered due to unknowingly operation of machine / system under maintenance. Inform supervisor of any problems while operating the Bulldozer Ensure that no other operators travel on or stand near the Bulldozer 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>Box, Fire Fighting Charts, First Aid Charts, Computer With Internet, LCD Projector, Trainer Chair & Table, Demonstration Table, Pin Up Boards, Slide wrench, Bulldozer simulator, Spanner Set , White Board, Vehicle Log Book</p> |
| 4 | <p>Carry Out Reporting and Documentation:</p> <p>Theory Duration (hh:mm) 20:00</p> <p>Practical Duration (hh:mm) 20:00</p> <p>Corresponding NOS Code MIN/N0217</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. Identify documentation to be completed relating to one's role. Record details accurately using the appropriate format. Complete all documentation within stipulated time. Make sure documents are available to all appropriate authorities to inspect | <p>Bulldozer, Vehicle Driver Tool Box, Helmet, Dust Mask, Goggles, Ear Plug, Gloves, Reflective Jacket ,Safety Belt, Gum Boots, Fire Extinguisher Cylinders, First Aid Box, Fire Fighting Charts, First Aid Charts, Computer With Internet, LCD Projector, Trainer Chair & Table, Demonstration Table, Pin Up Boards, Slide wrench, Bulldozer simulator, Spanner Set , White Board, Vehicle Log Book</p> |
| 5 | <p>Health and Safety</p> <p>Theory Duration (hh:mm) 20:00</p> <p>Practical Duration (hh:mm) 62:00</p> <p>Corresponding NOS Code</p> | <ul style="list-style-type: none"> Perform storage and transport of hazardous materials compliant with safety guidelines prescribed by DGMS. Deal with misfires as per statutory requirement Comply with safety regulations and procedures in case of fire hazard. Operate various grades of fire extinguishers. 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 | <p>Helmet, Dust Mask, Goggles, Ear Plug, Gloves, Reflective Jacket, Safety Belt, Gum Boots/ Safety shoes ,Fire Extinguisher Cylinders ,First Aid Box, Fire Fighting Charts, First Aid Charts</p> |

| | | | |
|--|--|---|--|
| | MIN/N0204 | <ul style="list-style-type: none"> • Demonstrate careful practices in handling explosives. • Identify characteristics of post-blast fumes and take necessary precautions. • Wears safety gear such as hard hat, respiratory protection, eye protection, ear protection | |
| | Total Duration Theory Duration 102:00 Practical Duration 408:00 | Unique Equipment Required: Bulldozer | |

Grand Total Course Duration: 510 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 “MIN/Q0205”. |
| 2 | Personal Attributes | This job requires sensitivity to problem solving, safety orientation, reading, writing and communication skills and good agility. The person should be of good physical condition with good vision and must pass through periodic medical tests. |
| 3 | Minimum Educational Qualifications | Class X/ ITI or Diploma in Mining/ Mechanical or B-Tech in Mining/ Mechanical |
| 4a | Domain Certification | Certified for Job Role: “Bulldozer Operator” mapped to QP: “MIN/Q0205, v1.0”. Minimum accepted score is 70% |
| 4b | Platform Certification | Recommended that the Trainer is certified for the Job Role: “Trainer”, mapped to the Qualification Pack: “MEP/Q0102”. Minimum accepted score as per SSC guidelines is 80%. |
| 5 | Experience | <ol style="list-style-type: none"> 1. Class X/ ITI - 6 years 2. Diploma in Mining/ Mechanical- 5 years 3. B-Tech in Mining/ Mechanical - 4 years |

Annexure: Assessment Criteria

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

| 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. |
| 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 evaluations for skill practical for every student at each examination/training Centre based on these criteria. |
| 5 | Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below). |
| 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 <i>unsuccessful completion</i> , the trainee may seek reassessment on the Qualification Pack. |

| Compulsory NOS | | | | Marks Allocation | |
|--------------------------------------|--|------------------|--------|------------------|------------------|
| Total Marks: 100 | | | | | |
| Assessment outcome | Assessment Criteria for outcomes | Total Mark (100) | Out Of | 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 | 7 | 18 |
| 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 scenario to avoid any untoward incident triggered due to unknowingly operation of machine / system under maintenance. | | 2 | 0 | 2 |
| | 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 | 1 | 1 |
| | | Total | 30 | 6 | 22 |
| 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 extinguishers. | | 3 | 1 | 2 |
| | 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 |
| | | Total | 30 | 7 | 23 |