

Model Curriculum

Dumper/Tipper Operator

SECTOR: Mining
SUB-SECTOR: Industrial Minerals
OCCUPATION: HEMM Operations
REF ID: MIN/Q 0403, 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: '**Dumper/Tipper Operator**' QP No. '**MIN/Qo4o3,v1.o NSQF Level 4**'

Date of Issuance: **October 27th, 2018**

Valid up to*: **October 27th, 2021**

**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)

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Dumper/Tipper Operator

CURRICULUM / SYLLABUS

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

| | | | |
|--|---|----------------------------|------------|
| Program Name | Dumper/Tipper Operator | | |
| Qualification Pack Name & Reference ID. | MIN/Q0403, V1.0 | | |
| Version No. | 1.0 | Version update date | 01.11.2021 |
| Pre-requisites to Training | ITI | | |
| Training Outcomes | <p>After completing this program, participants will be able to:</p> <ul style="list-style-type: none"> • Carry out pre-operation checks and routine maintenance of dumper. • Operate the dumper safely in the operational area. • Perform loading and hauling the load to the designated destination. • Perform discharging of load in a correct way by tipping the dump with careful maneuvering of hoist lever. • Organize routine maintenance in accordance with the manufacturer’s recommendations and company procedures. • Perform basic diagnostics and troubleshooting • Create documentation on time as per organizational requirements. | | |

This course encompasses 5 out of 5 National Occupational Standards (NOS) of “Dumper/Tipper 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"> Explain the role of Dumper/Tipper Operator in mining industry. Describe benching in quarries. Identify dressing of overhangs, undercuts, fencing. Define importance of first aid and hygiene. Follow basic safety, health and hygiene measures. Illustrate the standing orders in force at the mine. Characterize the shot-firing and safety regulations. Describe procedure of taking shelter during blasting. Apply the basic skills of communication. Examine the basic reading capabilities to enable reading of signs, notices and/or cautions at site. | Projector System, Posters, Graph etc. |
| 2 | <p>Prepare Dumper</p> <p>Theory Duration (hh:mm) 22:00</p> <p>Practical Duration (hh:mm) 48:00</p> <p>Corresponding NOS Code MIN/N0408</p> | <ul style="list-style-type: none"> Check oil levels of engine, transmission, radiator coolant and brake. Examine differential and hydraulic oil levels. Inspect the hydraulic hose and ram for leakages. Inspect the condition of parking brake, main horn, reverse horn, and head light. Examine the various controls, gauges, warning lamp and other safety devices. Examine fan belt tension, electrolyte level and terminal tightness. Check and correct the position of driver seat, rear and side mirrors so he can comfortable drive the dumper. Describe method of cleaning air filter and dust bowls. Inspect if there is any drain water or sediment in the fuel tank. Describe the procedure of filling coolant and oil in engine, transmission, etc. and Justify its necessity. Apply grease to all greasing pins and pivot points. Identify that the locking bar is in position to prevent the front and rear chassis moving and creating a crushing zone (articulated machines only) Inspect the footplates and steps are clean and free from mud, dirt and oil. Record all activities performed before starting the Dumper in a checking/maintenance logbook. Report defects precisely to the supervisor if beyond scope of his role. | Grease pump/gun, Oil Can, Parking wooden stopper, Hydraulic jack, Filter, Types of log book |
| 3 | <p>Perform Dumper Operations</p> <p>Theory Duration (hh:mm) 10:00</p> <p>Practical Duration (hh:mm)</p> | <ul style="list-style-type: none"> Determine any loose soil, hidden deep trenches or marshy patches in worksite where dumper could get stuck. Carry out starting the engine by using pushbutton switch and key switch together. Carry out starting the engine by using the priming pump and pre-heater in cold weather conditions. Make use of safety belt while driving the dumper. Justify that proper functioning of rearview camera and audiovisual alarm system. | Grease pump/gun, Oil Can, Parking wooden stopper, Hydraulic jack, Filter, Gloves, Types of log book, |

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| | <p>210:00</p> <p>Corresponding NOS Code MIN/N0409</p> | <ul style="list-style-type: none"> Identify unsafe condition for people working and hazards such as trenches, potholes and cables etc. Report unsafe condition of worksite if any. Select correct gear range by shifting the quadrant device. Justify dumper load and operating speed is within limits specified by the manufacturer. Follow the traffic rule / codes, which developed locally. Check temperature and pressure gauges continuously during operating the dumper Follow walkway rules e.g. operating the dumper within the permissible/allocated areas are followed. Make use of various signaling devices available in the dumper such as turn signal, parking indicator, air horn etc. as per requirement. Justify safe distance from a tip edge and presence of approved stop block in case of tipping over an edge. Select the right type of brake in different situations and conditions. Report any fault or problems to supervisor while operating the dumper. Justify that dumper is always parked on firm, level ground; with handbrake applied and drive and controls disengaged Operate the body hoist control to manoeuvring the hydraulic ram. Describe procedure of discharging the load with safely in the manner designated by the supervisor. Justify that no other operators travel on or stand near the Dumper. | |
| <p>4</p> | <p>Dumper Maintenance and troubleshooting</p> <p>Theory Duration (hh:mm) 30:00</p> <p>Practical Duration (hh:mm) 40:00</p> <p>Corresponding NOS Code MIN/N0410</p> | <ul style="list-style-type: none"> Identify fault in dumper and trace the causes of this fault. Perform cleaning air filter dust bowls Use clean footplates, pedals and steps free from mud, dirt, ice and snow Justify that drain water and sediment /fuel separators Make use of replenish coolants, lubricants and fluids. Describe procedure of greasing on all greasing pins and pivot points. Analyze condition of battery levels and terminals and perform any minor adjustments if required. Inspect the tyre rims, air pressure, wheel nuts and treads properly. Identify that assess when the problem is beyond his competence and report the problem to suitably qualified and competent personnel Ensure the machine is on firm and level ground before attempting to carry out any maintenance activity. Ensure the locking bar is in position to prevent the front and rear chassis moving and creating a crushing zone (articulated machines only) Ensure that no maintenance task on the engine is performed when running or still hot. Describe reporting procedure of shift operation. | <p>Grease pump/gun, Oil Can, Parking wooden stopper, Hydraulic jack, Filter, Gloves, Types of log book.</p> |
| <p>5</p> | <p>Reporting and Documentation</p> | <ul style="list-style-type: none"> Report problems/incidents as applicable in a timely manner | <p>Log Book, signage diary, statutory</p> |

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| | <p>Theory Duration (hh:mm) 10:00</p> <p>Practical Duration (hh:mm) 22:00</p> <p>Corresponding NOS Code MIN/N0411</p> | <ul style="list-style-type: none"> Report to the appropriate authority as laid down by the employer Use reporting procedures as prescribed by the employer. Identify documentation to be completed relating to one's role. Record details accurately using the appropriate format Prepare all documentation correctly on time. Justify that all documents are available to appropriate authorities to inspect Compute all Comply with safety, health, security and environment related regulations /guidelines at the work site. | <p>guidelines pocket book.</p> |
| 6 | <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 MIN/N0901</p> | <ul style="list-style-type: none"> Describe correct procedure of storage and transport of hazardous materials as per safety guidelines prescribed by DGMS. Deal with misfires as per statutory requirement. Perform safety regulations and procedures in case of fire hazard. Operate various grades of fire extinguishers. Carry out 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. Describe emergency organization chart of the specific mine site. Identify characteristics of post-blast fumes and take necessary precautions. Make use of safety gear such as hard hat, respiratory protection, eye protection, ear protection | <p>Fire Extinguisher Cylinders, First Aid Box, Fire Fighting Charts, First Aid Charts</p> |
| | <p>Total Duration</p> <p>Theory Duration 102:00</p> <p>Practical Duration 408:00</p> | <p>Unique Equipment Required:</p> <p>Helmet, Dust Mask, Goggles, Ear Plug, Gloves, Reflective Jacket, Safety Belt, Gum Boots/ Safety shoes, Dumper/ tipper Simulator (Optional)</p> | |

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: “Dumper/Tipper Operator” mapped to Qualification Pack: “MIN/Q0403”, V1.0

| Sr. No. | Area | Details |
|---------|---|--|
| 1 | Description | To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack “MIN/Q0403”. |
| 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 | ITI |
| 4a | Domain Certification | Certified for Job Role: “Dumper/Tipper Operator” mapped to QP: “MIN/Q0403, v1.0”. Minimum accepted score as per SSC guideline is 80%. |
| 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 guideline is 80%. |
| 5 | Experience | For ITI - 10 years of experience of HEMM Operations. Diploma in Mechanical / Mining – 5 years B.Tech. (Mechanical / Mining) – 4 Years |

Annexure: Assessment Criteria

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| Assessment Criteria for Dumper/Tipper Operator | |
| Job Role | Dumper/Tipper Operator |
| Qualification Pack | MIN/Q0403, V1.0 |
| Sector Skill Council | Mining |

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. Behavior 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 Centre (as per assessment criteria given)
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training Centre based on these criteria.
5. To pass the Qualification Pack, every trainee should score a minimum of 60% in every NOS
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.

| Compulsory NOS | | | | Marks Allocation | |
|-----------------------------------|---|------------------|--------|------------------|-------------------|
| Total Marks:100 | Assessment Criteria for outcomes | Total Mark (100) | Out Of | Theory | Skills Practica I |
| 1. MIN/N0408 Prepare Dumper | PC1. Adhere to time limits given by supervisor | 20 | 1 | 0.5 | 0.5 |
| | PC2. Check oil levels of engine, transmission, radiator coolant and brake | | 1 | 0.5 | 0.5 |
| | PC3. Check differential and hydraulic oil levels | | 1 | 0.5 | 0.5 |
| | PC4. Check the hydraulic hose and ram for leakages | | 2 | 0.5 | 1.5 |
| | PC5. Check condition of parking brake, main horn, reverse horn, and head light. | | 1 | 0.5 | 0.5 |
| | PC6. Check the various controls, gauges, warning lamp and other safety devices | | 1 | 0.5 | 0.5 |
| | PC7. Check fan belt tension, electrolyte level and terminal tightness | | 1 | 0.5 | 0.5 |
| | PC8. Check and adjust driving position, rear and side mirrors, seat belts | | 1 | 0.5 | 0.5 |

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| | PC9. Clean air filter dust bowls | | 2 | 0.5 | 1.5 |
| | PC10. Drain water and sediment from the fuel tank. | | 1 | 0.5 | 0.5 |
| | PC11. Top up coolant and oil in engine, transmission, etc. if necessary | | 1 | 0.5 | 0.5 |
| | PC12. Apply grease to all greasing pins and pivot points | | 2 | 0.5 | 1.5 |
| | PC13. Ensure the locking bar is in position to prevent the front and rear chassis moving and creating a crushing zone (articulated machines only) | | 2 | 1 | 1 |
| | PC14. Keep footplates and steps clean and free from mud, dirt and oil. | | 1 | 0.5 | 0.5 |
| | PC15. Maintain a checking/maintenance logbook to record all activities performed before starting the Dumper | | 1 | 0.5 | 0.5 |
| | PC16. Report defects precisely to the supervisor if beyond scope of his role | | 1 | 0.5 | 0.5 |
| | | Total | 20 | 8.5 | 11.5 |
| 2. MIN/N0409 (Perform Dumper Operations) | PC1. Plan and organize the job according to given instructions | 20 | 1 | 0.5 | 0.5 |
| | PC2. Inspect the worksite to identify any loose soil, hidden deep trenches or marshy patches where dumper could get stuck. | | 1 | 0.5 | 0.5 |
| | PC3. Start the engine using the pushbutton switch and key switch together | | 1 | 0.5 | 0.5 |
| | PC4. Use the priming pump and pre-heater to start the engine in cold weather conditions | | 1 | 0.5 | 0.5 |
| | PC5. Always wear safety belt while driving | | 1 | 0.5 | 0.5 |
| | PC6. Ensure proper functioning of rear view camera and audio visual alarm | | 1 | 0.5 | 0.5 |
| | PC7. Not use mobile phones while driving | | 0.5 | 0.5 | 0 |
| | PC8. Look out for people working and hazards such as trenches, potholes and cables | | 1 | 0.5 | 0.5 |
| | PC9. Operate the shifting quadrant device for selecting the correct gear range | | 1 | 0.5 | 0.5 |
| | PC10. Ensure dumper load and operating speed is within limits specified by the manufacturer. | | 1 | 0.5 | 0.5 |

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| | PC11. Adhere to time limits given by supervisor | | 0.5 | 0.5 | 0 |
| | PC12. Follow the traffic rule/codes developed locally | | 1 | 0.5 | 0.5 |
| | PC13. Perform in-operation visual checks on critical temperature and pressure gauges. | | 1 | 0.5 | 0.5 |
| | PC14. Ensure that walkway rules e.g. operating the Dumper within the permissible/allocated areas are followed. | | 1 | 0.5 | 0.5 |
| | PC15. Utilize judiciously various signalling devices available in the dumper such as turn signal, parking indicator, air horn etc. | | 1 | 0.5 | 0.5 |
| | PC16. Keep a safe distance from a tip edge and use an approved stop block before tipping over an edge | | 1 | 0.5 | 0.5 |
| | PC17. Select and use the right type of brake in different situations and conditions. | | 1 | 0.5 | 0.5 |
| | PC18. Inform supervisor of any problems while operating the Dumper | | 0.5 | 0.5 | 0 |
| | PC19. Ensure that dumper is always parked on firm, level ground; with handbrake applied and drive and controls disengaged | | 1 | 0.5 | 0.5 |
| | PC20. Operate the body hoist control handle to manoeuvre the hydraulic ram that tips the dump. | | 1 | 0.5 | 0.5 |
| | PC21. Discharge the load safely at the position and in the manner designated by the supervisor | | 1 | 0.5 | 0.5 |
| | PC22. Ensure that no other operators travel on or stand near the Dumper | | 0.5 | 0.5 | 0 |
| | | Total | 20 | 11 | 9 |
| 3.MIN/N 0410 (Perform basic maintenance and troubleshooting on dumper) | PC1. Track machine operating hours to assess the right service schedule. | 20 | 2 | 1 | 1 |
| | PC2. Clean air filter dust bowls | | 2 | 1 | 1 |
| | PC3. Clean footplates, pedals and steps free from mud, dirt, ice and snow | | 1 | 0 | 1 |
| | PC4. Drain water and sediment /fuel separators | | 1 | 0 | 1 |
| | PC5. Replenish coolants, lubricants and fluids | | 2 | 1 | 1 |

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| | PC6. Grease all greasing pins and pivot points | | 2 | 1 | 1 |
| | PC7. Check battery levels and condition of the terminals and carrying out minor adjustments if required. | | 1 | 0 | 1 |
| | PC8. Check and maintain the tyre rims, air pressure, wheel nuts and treads. | | 1 | 0 | 1 |
| | PC9. Assess when the problem is beyond his competence and report the problem to suitably qualified and competent personnel | | 2 | 1 | 1 |
| | PC10. Ensure the machine is on firm and level ground before attempting to carry out any maintenance activity. | | 2 | 1 | 1 |
| | PC11. Ensure the locking bar is in position to prevent the front and rear chassis moving and creating a crushing zone (articulated machines only) | | 2 | 1 | 1 |
| | PC12. Ensure that no maintenance task on the engine is performed when running or still hot. | | 2 | 1 | 1 |
| | | Total | 20 | 8 | 12 |
| 4.MIN/N 0411 Reporting And Documentation | PC1. Report problems/incidents as applicable in a timely manner | 20 | 2 | 0.5 | 1.5 |
| | PC2. Report to the appropriate authority as laid down by the employer | | 3 | 0.5 | 2.5 |
| | PC3. Follow reporting procedures as prescribed by the employer | | 3 | 0.5 | 2.5 |
| | PC4. Identify documentation to be completed relating to one's role | | 3 | 0.5 | 2.5 |
| | PC5. Record details accurately using the appropriate format | | 3 | 0.5 | 2.5 |
| | PC6. Complete all documentation within stipulated time. | | 3 | 0.5 | 2.5 |
| | PC7. Ensure documents are available to appropriate authorities to inspect | | 3 | 0.5 | 2.5 |
| | | Total | 20 | 3.5 | 16.5 |
| 5. MIN/N 0901 (Health and Safety) | PC1. Perform storage and transport of hazardous materials compliant with safety guidelines prescribed by DGMS. | 20 | 3 | 2 | 1 |
| | PC2. Deal with misfires as per statutory requirement | | 2 | 1 | 1 |

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| | PC3. Comply with safety regulations and procedures in case of fire hazard. | | 3 | 0.5 | 2.5 |
| | PC4. Operate various grades of fire extinguishers. | | 3 | 0.5 | 2.5 |
| | 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 | | 2 | 1 | 1 |
| | PC6. Emergency organization of the specific mine site. | | 3 | 2 | 1 |
| | 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 | | 2 | 1 | 1 |
| | | Total | 20 | 9 | 11 |
| | Total QP | | 100 | 40 | 60 |
| | Pass Percentage (%) | | | 40% | 60% |