



Skill Council For Mining Sector



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MINISTRY OF SKILL DEVELOPMENT
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REIMAGINE FUTURE

Qualification Pack



Mine Shotfirer/Blaster

U/G Metal/ Opencast/ U/G Coal

QP Code: MIN/Q1302

Version: 2.0

NSQF Level: 4

Skill Council for Mining Sector || FIMI House, B-311, Okhla Industrial Area, Phase-I
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MIN/Q1302: Mine Shotfirer/Blaster

Brief Job Description

The Mine Shotfirer/Blaster receives and handles explosives, charges blast holes, fires blast holes and deals with misfires.

Personal Attributes

This job requires the individual to concentrate on the job at hand and complete it efficiently and effectively. The individual should be physically agile, strong, have good eye-sight, and not suffer from color-blindness.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [MIN/N1307: Receive and Handle Explosive Materials in mines](#)
2. [MIN/N1308: Charge Blast Holes and deal with misfires](#)
3. [DGT/VSQ/N0102: Employability Skills \(60 Hours\)](#)

Electives(mandatory to select at least one):

Elective 1: U/G Metal

1. [MIN/N1702: Follow Health, Safety and Environmental guidelines for Underground Metalliferous Mines \(UMM\) \(Including Mine Vocational Training Rule and Mine Rescue Rule\)](#)

Elective 2: Opencast

1. [MIN/N1703: Follow Health, Safety, and Environmental Guidelines for opencast mines \(Including Mine Vocational Training Rule\)](#)

Elective 3: U/G Coal

1. [MIN/N1704: Follow Health, Safety, and Environmental guidelines for underground coal mines \(Including Mine Vocational Training Rule and Mine Rescue Rule\)](#)



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Qualification Pack (QP) Parameters

| | |
|---|--|
| Sector | Mining |
| Sub-Sector | Mining Operation |
| Occupation | Shot firing/Blasting |
| Country | India |
| NSQF Level | 4 |
| Credits | 26 |
| Aligned to NCO/ISCO/ISIC Code | NCO-2015/7542.0100 |
| Minimum Educational Qualification & Experience | 12th Class (or its equivalent) with 3 Years of experience relevant OR Certificate-NSQF (Level 3: Explosives Handler, Jr. Mine Blaster) (+Class 12th pass or its equivalent)) with 2 Years of experience relevant |
| Minimum Level of Education for Training in School | |
| Pre-Requisite License or Training | Valid Gas Testing Certificate (only for underground mines) and First-Aid Certificate |
| Minimum Job Entry Age | 20 Years |
| Last Reviewed On | NA |
| Next Review Date | 17/11/2025 |
| NSQF Approval Date | 17/11/2022 |
| Version | 2.0 |
| Reference code on NQR | 2022/MIN/SCMS/06992 |
| NQR Version | 1 |

Remarks:

Total Notional Duration: 540 Hours = Domain Theory Duration: 120 Hours + Domain Practical Duration: 180 Hours + Domain OJT (Mandatory) Duration: 180 Hours + Employability Skills Duration: 60 Hours



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MIN/N1307: Receive and Handle Explosive Materials in mines

Description

This unit covers receiving explosive materials from the store and/or delivery vehicles, handling explosive materials on-site, determining blast requirements, and designing and arranging authorization for blast specification.

Scope

The scope covers the following :

- Receive and Handle Explosive Materials
- Determine the blasting requirements
- Design and arrange for authorization of the blast specification

Elements and Performance Criteria

Receive and Handle Explosive Materials

To be competent, the user/individual on the job must be able to:

- PC1.** obtain all explosive materials correctly and check conformity with the requirements of the blasting specification
- PC2.** complete the records accurately and make them available to authorised persons.
- PC3.** handle the explosive materials and move safely in accordance with operational and organisational procedures and relevant legislation requirements
- PC4.** contain all explosive materials safely and securely and take precautions to avoid any loss or damage.
- PC5.** apply the approved routes when transporting explosive materials.
- PC6.** display relevant danger notices in conformity with operational and organisational rules and procedures and with relevant legislation.

Determine the blasting requirements

To be competent, the user/individual on the job must be able to:

- PC7.** locate the area of blasting
- PC8.** interpret the requirements to conform with the overall development plans of the site
- PC9.** check the quality and extent of mineral materials for removal and confirm with the relevant persons (e.g. manager; explosives supervisor; blasting team; contractors: geotechnical specialist) and the operational requirements
- PC10.** interpret the geological makeup of the ground and mineral strata visually and evaluate for matching with the specified requirements
- PC11.** identify the geological anomalies of the blast site visually and take into account in the blast design
- PC12.** collect and record the dimensional information in accordance with the blast specification requirements
- PC13.** ensure that the output of the blast is confirmed to meet with the site requirements



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- PC14.** determine the extent of the blast from the production requirements, the fragmentation and geological makeup of the ground and mineral strata, face provision and availability and drill size
- PC15.** check the effects of a blast on plant, buildings, external features and the surrounding environment
- PC16.** check the drill plan
- PC17.** identify the potential hazards and danger sources and record in the blast specification
- PC18.** carry out the work to approved procedures and practices and in compliance with statutory requirements

Design and arrange for authorization of the blast specification

To be competent, the user/individual on the job must be able to:

- PC19.** collect information from previous blasts at the site and examine and evaluate information in determining the blast design
- PC20.** analyse constraints and capabilities of plant and equipment used for moving and processing mineral materials and factor the same in the blast design
- PC21.** determine types of explosive materials, method of initiation and blasting system and clearly stipulate in accordance with operational and organisation rules and procedures and compliance with legislative requirements
- PC22.** ensure rules and procedures for the storing, transporting and handling of explosives are clearly established which comply with legislative requirements carrying out specific techniques (transport, design, blasting, safety) carried out in underground and open cast mine working
- PC23.** ensure that requirements for safety and security of the blast operations are clearly identified and communicated
- PC24.** obtain authorisation of the blast specification in accordance with operational and organisational rules and procedures and comply with legislative requirements
- PC25.** communicate the agreed upon blast specifications to concerned stakeholders, in accordance with operational and organizational rules and procedures and comply with legislative requirements

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** different types of mines and detail of the mine a person is working in
- KU2.** classification of mines as per degree of gassiness
- KU3.** benching in quarries, dressing of overhangs, undercuts, fencing, first aid and hygiene
- KU4.** approved size and galleries accordance to the dept of mines
- KU5.** standing orders in force at the mine, safety in the vicinity of machinery
- KU6.** shot-firing and safety regulations.
- KU7.** importance of taking shelter at minner stations allotted to minners at times of short firing
- KU8.** general precaution regarding explosives
- KU9.** duties and responisbilty of short firer reg 49 of CMR 2017
- KU10.** provision of wages, working hours and accident compensation as per Mines act



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- KU11.** mining safety procedures
- KU12.** importance of PPE by workmen
- KU13.** impact of violation of safely procedures
- KU14.** relevant standards and procedures followed in the company
- KU15.** different types of approved apparatus requirements at the mine
- KU16.** importance of fire fighting and mine ventilation
- KU17.** processes like Procurement, Store management, inventory management, quality management and key contact points for query resolution
- KU18.** the types and range of explosive materials, their strength and characteristics (to include explosives; detonating devices; blasting agents; blasting accessories)
- KU19.** types of initiating systems
- KU20.** effects on blast performance of variations in blast specification
- KU21.** the approved procedures and practices in the context of the operations, the work activity and the workplace environment to include organisational; environmental; regulatory; emergency; operational.)
- KU22.** the responsibilities of blaster and relevant others under the health and safety statutory requirements
- KU23.** the relevant legislation associated to the handling and movement of explosives
- KU24.** how to recognise detonator types and delays.
- KU25.** the operational and organisational procedures and practices for handling and transport of explosives
- KU26.** the requirements for checking explosives type and condition
- KU27.** the reasons for, and location of, specified routes to be used when transporting explosive materials
- KU28.** understanding of relevant geotechnical information at the blast site
- KU29.** digging/loading capability of blast site loading equipment
- KU30.** strength and formation of mineral strata
- KU31.** danger of blasting in hot strata
- KU32.** the potential dangers/ hazards during transportation
- KU33.** the safety procedures when loading and unloading explosive materials.
- KU34.** the manufacturers' recommendations for handling explosives and detonators
- KU35.** the relevant legislation associated to the transport of explosives.
- KU36.** the dangers associated with environmental conditions
- KU37.** the dangers of induced currents from external sources
- KU38.** precaution for deep hole blasting, sleeping holes
- KU39.** precaution and bulk transport of explosives in open cast working
- KU40.** detailed understanding of Mine working and environmental impact of mining
- KU41.** precaution for deep hole blasting, sleeping holes
- KU42.** precaution and bulk transport of explosives in open cast working
- KU43.** detailed understanding of Mine working and environmental impact of mining

Generic Skills (GS)



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Qualification Pack

User/individual on the job needs to know how to:

- GS1.** note down observations (if any)
- GS2.** write information documents or enter the information in online ERP systems under Guidance of the supervisor
- GS3.** read and interpret symbols and measurements
- GS4.** understand and analyse the available data about the site
- GS5.** discuss task lists, schedules and activities
- GS6.** communicate effectively
- GS7.** listen with full attention and comprehend the information given by various sources about the site
- GS8.** plan and organize the work order and jobs
- GS9.** organize all process manuals so that sorting/ accessing information is easy
- GS10.** use common sense and make judgments during day to day basis
- GS11.** use reasoning skills to identify and resolve basic problems
- GS12.** use intuition to detect any potential problems which could arise
- GS13.** follow instructions and work on areas of improvement identified
- GS14.** complete the assigned tasks with minimum supervision
- GS15.** complete the job within timelines and quality norms
- GS16.** detect problems in day to day tasks
- GS17.** discuss possible solution with the supervisor for problem solving
- GS18.** make decisions in emergency conditions



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Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| <i>Receive and Handle Explosive Materials</i> | 7 | 12 | - | 4 |
| PC1. obtain all explosive materials correctly and check conformity with the requirements of the blasting specification | 2 | 2 | - | 1 |
| PC2. complete the records accurately and make them available to authorised persons. | 1 | 2 | - | - |
| PC3. handle the explosive materials and move safely in accordance with operational and organisational procedures and relevant legislation requirements | 1 | 2 | - | 1 |
| PC4. contain all explosive materials safely and securely and take precautions to avoid any loss or damage. | 1 | 2 | - | 1 |
| PC5. apply the approved routes when transporting explosive materials. | 1 | 2 | - | 1 |
| PC6. display relevant danger notices in conformity with operational and organisational rules and procedures and with relevant legislation. | 1 | 2 | - | - |
| <i>Determine the blasting requirements</i> | 14 | 24 | - | 11 |
| PC7. locate the area of blasting | 1 | 2 | - | 1 |
| PC8. interpret the requirements to conform with the overall development plans of the site | 1 | 2 | - | 1 |
| PC9. check the quality and extent of mineral materials for removal and confirm with the relevant persons (e.g. manager; explosives supervisor; blasting team; contractors: geotechnical specialist) and the operational requirements | 1 | 2 | - | 1 |
| PC10. interpret the geological makeup of the ground and mineral strata visually and evaluate for matching with the specified requirements | 1 | 2 | - | 1 |
| PC11. identify the geological anomalies of the blast site visually and take into account in the blast design | 1 | 2 | - | - |

Qualification Pack

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| PC12. collect and record the dimensional information in accordance with the blast specification requirements | 1 | 2 | - | 1 |
| PC13. ensure that the output of the blast is confirmed to meet with the site requirements | 1 | 2 | - | 1 |
| PC14. determine the extent of the blast from the production requirements, the fragmentation and geological makeup of the ground and mineral strata, face provision and availability and drill size | 1 | 2 | - | 1 |
| PC15. check the effects of a blast on plant, buildings, external features and the surrounding environment | 2 | 2 | - | 1 |
| PC16. check the drill plan | 2 | 2 | - | 1 |
| PC17. identify the potential hazards and danger sources and record in the blast specification | 1 | 2 | - | 1 |
| PC18. carry out the work to approved procedures and practices and in compliance with statutory requirements | 1 | 2 | - | 1 |
| <i>Design and arrange for authorization of the blast specification</i> | 9 | 14 | - | 5 |
| PC19. collect information from previous blasts at the site and examine and evaluate information in determining the blast design | 2 | 2 | - | - |
| PC20. analyse constraints and capabilities of plant and equipment used for moving and processing mineral materials and factor the same in the blast design | 1 | 2 | - | 1 |
| PC21. determine types of explosive materials, method of initiation and blasting system and clearly stipulate in accordance with operational and organisation rules and procedures and compliance with legislative requirements | 1 | 2 | - | 1 |



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| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| PC22. ensure rules and procedures for the storing, transporting and handling of explosives are clearly established which comply with legislative requirements carrying out specific techniques (transport, design, blasting, safety) carried out in underground and open cast mine working | 2 | 2 | - | 1 |
| PC23. ensure that requirements for safety and security of the blast operations are clearly identified and communicated | 1 | 2 | - | 1 |
| PC24. obtain authorisation of the blast specification in accordance with operational and organisational rules and procedures and comply with legislative requirements | 1 | 2 | - | - |
| PC25. communicate the agreed upon blast specifications to concerned stakeholders, in accordance with operational and organizational rules and procedures and comply with legislative requirements | 1 | 2 | - | 1 |
| NOS Total | 30 | 50 | - | 20 |



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National Occupational Standards (NOS) Parameters

| | |
|----------------------------|---|
| NOS Code | MIN/N1307 |
| NOS Name | Receive and Handle Explosive Materials in mines |
| Sector | Mining |
| Sub-Sector | Mining Operation |
| Occupation | Shot firing/Blasting |
| NSQF Level | 4 |
| Credits | TBD |
| Version | 1.0 |
| Last Reviewed Date | 30/06/2022 |
| Next Review Date | 17/11/2025 |
| NSQC Clearance Date | 17/11/2022 |



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MIN/N1308: Charge Blast Holes and deal with misfires

Description

The unit covers checking blast sites prior to charging by checking the setting out and profiling of the drill holes, finalizing the blast specifications, and dealing with misfires.

Scope

The scope covers the following :

- Charge blast holes
- Blast as per specification
- Deal with Misfires

Elements and Performance Criteria

Charge blast holes

To be competent, the user/individual on the job must be able to:

- PC1.** check each blast hole is checked for condition, dimension, angle, inclination and direction, as appropriate, to ensure it is suitable for charging to the blast specification.
- PC2.** identify, record and report any variations to the blasting specification and confirm with the appropriate persons.
- PC3.** prepare the required quantities of explosives in accordance with the blast specification
- PC4.** check the explosives to ensure they conform, in quantity and type, to the blasting specification.
- PC5.** charge the blast holes in accordance with the blasting specification
- PC6.** place detonators and primers accurately in conformity with the blasting specification
- PC7.** identify and report the variations between the specification and the actual conditions at the time of charging in conformity with operational and organizational rules and procedures
- PC8.** return the explosive materials which are surplus to requirements to store and correctly package and label and maintain the records
- PC9.** interpret and implement the approved procedures and practices for disposal of surplus materials

Blast as per specification

To be competent, the user/individual on the job must be able to:

- PC10.** connect the ignition system for the explosive accurately in conformity with the blast specification
- PC11.** protect the connections against adverse environmental conditions, premature ignition and mechanical damage
- PC12.** implement operational safety procedures whilst preparing the initiation circuit and connecting the ignition system in conformity with approved procedures and practices
- PC13.** check the ignition system and initiation sequences thoroughly in accordance with operational and organizational rules and procedures and relevant legislation



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- PC14.** clear and secure the specified danger zone effectively in compliance with operational and organizational rules and procedures and the blast specification
- PC15.** provide clear notification to public of intention to fire the explosive
- PC16.** maintain security of exploder in compliance with relevant explosives regulations, operational and organizational rules and procedures
- PC17.** fire the explosive when all safety precautions have been taken and verified
- PC18.** inspect the blast area (including where applicable, the face, crest and pile) thoroughly in accordance with site rules and operational procedures
- PC19.** provide the all clear on satisfaction that the area is safe and the blasting operation is complete
- PC20.** record the type and quantity of explosive materials and means of initiation in accordance with organizational and operational procedures

Deal with Misfires

To be competent, the user/individual on the job must be able to:

- PC21.** recognize misfires correctly and communicate to appropriate person(s)
- PC22.** mark the located misfire in accordance with operational and organizational rules and procedures
- PC23.** secure the exclusion zone in conformity with operational and organisational rules and procedures
- PC24.** record and report the method of dealing with the misfire clearly and accurately in accordance with operational and organizational procedures
- PC25.** secure the area of recovery for unexploded explosives and isolate until recovery has been carried out and the area is made safe
- PC26.** ensure that the method of recovery used for unexploded charges minimises the risk of accidental initiation and is in conformity with operational and organisational rules and procedures for misfires
- PC27.** ensure that explosives and detonating devices are recovered and disposed of correctly and safely

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** different types of mines and detail of the mine a person is working in
- KU2.** mine organisation, time keeping, need for discipline and punctuality
- KU3.** benching in quarries, dressing of overhangs, undercuts, fencing, first aid and hygiene
- KU4.** standing orders in force at the mine. safety in the vicinity of machinery
- KU5.** shot-firing and safety regulations. how and where to take shelter
- KU6.** duties of workmen
- KU7.** provision of wages, working hours and accident compensation as per mines act
- KU8.** knowledge of mining safety procedures
- KU9.** impact of violation of safely procedures
- KU10.** relevant standards and procedures followed in the company



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- KU11.** different types of electrical requirements at the mine
- KU12.** processes like procurement, store management, inventory management, quality management and key contact points for query resolution
- KU13.** the types and range of explosive materials, their strength and characteristics (to include explosives; detonating devices; blasting agents; blasting accessories.)
- KU14.** types of initiating systems
- KU15.** types of detonating devices and explosives used.
- KU16.** delayed detonators and how the delay is created.
- KU17.** how to identify and deal with faults that cannot be rectified
- KU18.** types of approved circuit testers
- KU19.** initiation sequences for blasting patterns and the possible effects on the time delay period between individual charges
- KU20.** blast patterns
- KU21.** circuit testing for electrical initiation
- KU22.** types of initiation and premature ignitions
- KU23.** types and uses of blasting/shotfiring equipment
- KU24.** causes of and dangers from flyrock
- KU25.** warning systems deployed at the blast site (e.g. site radio; siren; flags; hand signals; warning signs.)
- KU26.** the issues likely to arise from the blast operation
- KU27.** recognition of various types of misfires and relevant action to be taken
- KU28.** reasons for post-blast slippage of ground and its effects
- KU29.** dangerous effects of fumes created by blasting
- KU30.** acceptable conditions for the post-blast area (including when applicable face, crest, pile, area.)
- KU31.** the monitoring process for recordings of ground vibration/air over pressure
- KU32.** hazards associated with misfires and unexploded charges
- KU33.** systematic testing to reveal location of faults in a circuit
- KU34.** recognition of undisturbed ground and indications of unfired charges after blasting
- KU35.** calibration requirements for exploders
- KU36.** marking of misfires
- KU37.** types, causes and avoidance of misfires
- KU38.** safe methods of handling and disposal of explosive materials recovered from the site
- KU39.** desensitisation of bulk/loose grain explosives
- KU40.** the responsibilities of the blaster and relevant others under the health and safety statutory requirements
- KU41.** the relevant legislation associated to the handling and movement of explosives
- KU42.** how to recognize detonator types and delays
- KU43.** the operational and organizational procedures and practices for handling and transport of explosives
- KU44.** the requirements for checking explosives type and condition



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- KU45.** the dangers of induced currents from external sources
- KU46.** precautions for blasting as per weather conditions
- KU47.** various kinds of the blasting hazards
- KU48.** free face and its importance
- KU49.** environmental effects of blasting Ground vibration and flying fragments and how to control them and precautions to be taken for them
- KU50.** muffle blasting
- KU51.** about misfire sockets and blown-outs and how to deal with misfires
- KU52.** checking and clearing of choked holes before charging/loading
- KU53.** use of LOX, ANFO Blasting by bulk loading system, etc.
- KU54.** charging of hole in watery strata, hot strata and in bad weather

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** note down observations (if any).
- GS2.** write information documents or enter the information in online erp systems under guidance of the supervisor
- GS3.** read and interpret symbols and measurements
- GS4.** read information documents
- GS5.** understand and analyse the available data about the site
- GS6.** discuss task lists, schedules and activities
- GS7.** effectively communicate
- GS8.** attentively listen with full attention and comprehend the information given by various sources about the site
- GS9.** plan and organize the work order and jobs
- GS10.** organize all process manuals so that sorting/ accessing information is easy
- GS11.** use common sense and make judgments during day to day basis
- GS12.** use reasoning skills to identify and resolve basic problems
- GS13.** use intuition to detect any potential problems which could arise
- GS14.** follow instructions and work on areas of improvement identified
- GS15.** complete the assigned tasks with minimum supervision
- GS16.** complete the job within timelines and quality norms
- GS17.** detect problems in day to day tasks
- GS18.** discuss possible solution with the supervisor for problem solving
- GS19.** make decisions in emergency conditions

Qualification Pack

Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| <i>Charge blast holes</i> | 9 | 18 | - | 8 |
| PC1. check each blast hole is checked for condition, dimension, angle, inclination and direction, as appropriate, to ensure it is suitable for charging to the blast specification. | 1 | 2 | - | 1 |
| PC2. identify, record and report any variations to the blasting specification and confirm with the appropriate persons. | 1 | 2 | - | 1 |
| PC3. prepare the required quantities of explosives in accordance with the blast specification | 1 | 2 | - | - |
| PC4. check the explosives to ensure they conform, in quantity and type, to the blasting specification. | 1 | 2 | - | 1 |
| PC5. charge the blast holes in accordance with the blasting specification | 1 | 2 | - | 1 |
| PC6. place detonators and primers accurately in conformity with the blasting specification | 1 | 2 | - | 1 |
| PC7. identify and report the variations between the specification and the actual conditions at the time of charging in conformity with operational and organizational rules and procedures | 1 | 2 | - | 1 |
| PC8. return the explosive materials which are surplus to requirements to store and correctly package and label and maintain the records | 1 | 2 | - | 1 |
| PC9. interpret and implement the approved procedures and practices for disposal of surplus materials | 1 | 2 | - | 1 |
| <i>Blast as per specification</i> | 11 | 22 | - | 8 |
| PC10. connect the ignition system for the explosive accurately in conformity with the blast specification | 1 | 2 | - | - |
| PC11. protect the connections against adverse environmental conditions, premature ignition and mechanical damage | 1 | 2 | - | 1 |

Qualification Pack

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|--|--------------|-----------------|---------------|------------|
| PC12. implement operational safety procedures whilst preparing the initiation circuit and connecting the ignition system in conformity with approved procedures and practices | 1 | 2 | - | 1 |
| PC13. check the ignition system and initiation sequences thoroughly in accordance with operational and organizational rules and procedures and relevant legislation | 1 | 2 | - | 1 |
| PC14. clear and secure the specified danger zone effectively in compliance with operational and organizational rules and procedures and the blast specification | 1 | 2 | - | - |
| PC15. provide clear notification to public of intention to fire the explosive | 1 | 2 | - | 1 |
| PC16. maintain security of exploder in compliance with relevant explosives regulations, operational and organizational rules and procedures | 1 | 2 | - | - |
| PC17. fire the explosive when all safety precautions have been taken and verified | 1 | 2 | - | 1 |
| PC18. inspect the blast area (including where applicable, the face, crest and pile) thoroughly in accordance with site rules and operational procedures | 1 | 2 | - | 1 |
| PC19. provide the all clear on satisfaction that the area is safe and the blasting operation is complete | 1 | 2 | - | 1 |
| PC20. record the type and quantity of explosive materials and means of initiation in accordance with organizational and operational procedures | 1 | 2 | - | 1 |
| <i>Deal with Misfires</i> | 10 | 10 | - | 4 |
| PC21. recognize misfires correctly and communicate to appropriate person(s) | 2 | 2 | - | 1 |
| PC22. mark the located misfire in accordance with operational and organizational rules and procedures | 1 | 1 | - | - |



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Qualification Pack

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|--|--------------|-----------------|---------------|------------|
| PC23. secure the exclusion zone in conformity with operational and organisational rules and procedures | 1 | 1 | - | - |
| PC24. record and report the method of dealing with the misfire clearly and accurately in accordance with operational and organizational procedures | 1 | 1 | - | 1 |
| PC25. secure the area of recovery for unexploded explosives and isolate until recovery has been carried out and the area is made safe | 1 | 1 | - | - |
| PC26. ensure that the method of recovery used for unexploded charges minimises the risk of accidental initiation and is in conformity with operational and organisational rules and procedures for misfires | 2 | 2 | - | 1 |
| PC27. ensure that explosives and detonating devices are recovered and disposed of correctly and safely | 2 | 2 | - | 1 |
| NOS Total | 30 | 50 | - | 20 |



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National Occupational Standards (NOS) Parameters

| | |
|----------------------------|---|
| NOS Code | MIN/N1308 |
| NOS Name | Charge Blast Holes and deal with misfires |
| Sector | Mining |
| Sub-Sector | Mining Operation |
| Occupation | Shot firing/Blasting |
| NSQF Level | 4 |
| Credits | TBD |
| Version | 1.0 |
| Last Reviewed Date | 30/06/2022 |
| Next Review Date | 17/11/2025 |
| NSQC Clearance Date | 17/11/2022 |



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DGT/VSQ/N0102: Employability Skills (60 Hours)

Description

This unit is about employability skills, Constitutional values, becoming a professional in the 21st Century, digital, financial, and legal literacy, diversity and Inclusion, English and communication skills, customer service, entrepreneurship, and apprenticeship, getting ready for jobs and career development.

Scope

The scope covers the following :

- Introduction to Employability Skills
- Constitutional values - Citizenship
- Becoming a Professional in the 21st Century
- Basic English Skills
- Career Development & Goal Setting
- Communication Skills
- Diversity & Inclusion
- Financial and Legal Literacy
- Essential Digital Skills
- Entrepreneurship
- Customer Service
- Getting ready for Apprenticeship & Jobs

Elements and Performance Criteria

Introduction to Employability Skills

To be competent, the user/individual on the job must be able to:

- PC1.** identify employability skills required for jobs in various industries
- PC2.** identify and explore learning and employability portals

Constitutional values - Citizenship

To be competent, the user/individual on the job must be able to:

- PC3.** recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.
- PC4.** follow environmentally sustainable practices

Becoming a Professional in the 21st Century

To be competent, the user/individual on the job must be able to:

- PC5.** recognize the significance of 21st Century Skills for employment
- PC6.** practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life

Basic English Skills

To be competent, the user/individual on the job must be able to:



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- PC7.** use basic English for everyday conversation in different contexts, in person and over the telephone
- PC8.** read and understand routine information, notes, instructions, mails, letters etc. written in English
- PC9.** write short messages, notes, letters, e-mails etc. in English

Career Development & Goal Setting

To be competent, the user/individual on the job must be able to:

- PC10.** understand the difference between job and career
- PC11.** prepare a career development plan with short- and long-term goals, based on aptitude

Communication Skills

To be competent, the user/individual on the job must be able to:

- PC12.** follow verbal and non-verbal communication etiquette and active listening techniques in various settings
- PC13.** work collaboratively with others in a team

Diversity & Inclusion

To be competent, the user/individual on the job must be able to:

- PC14.** communicate and behave appropriately with all genders and PwD
- PC15.** escalate any issues related to sexual harassment at workplace according to POSH Act

Financial and Legal Literacy

To be competent, the user/individual on the job must be able to:

- PC16.** select financial institutions, products and services as per requirement
- PC17.** carry out offline and online financial transactions, safely and securely
- PC18.** identify common components of salary and compute income, expenses, taxes, investments etc
- PC19.** identify relevant rights and laws and use legal aids to fight against legal exploitation

Essential Digital Skills

To be competent, the user/individual on the job must be able to:

- PC20.** operate digital devices and carry out basic internet operations securely and safely
- PC21.** use e- mail and social media platforms and virtual collaboration tools to work effectively
- PC22.** use basic features of word processor, spreadsheets, and presentations

Entrepreneurship

To be competent, the user/individual on the job must be able to:

- PC23.** identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research
- PC24.** develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion
- PC25.** identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity

Customer Service

To be competent, the user/individual on the job must be able to:

- PC26.** identify different types of customers
- PC27.** identify and respond to customer requests and needs in a professional manner.



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PC28. follow appropriate hygiene and grooming standards

Getting ready for apprenticeship & Jobs

To be competent, the user/individual on the job must be able to:

PC29. create a professional Curriculum vitae (Résumé)

PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively

PC31. apply to identified job openings using offline /online methods as per requirement

PC32. answer questions politely, with clarity and confidence, during recruitment and selection

PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. need for employability skills and different learning and employability related portals

KU2. various constitutional and personal values

KU3. different environmentally sustainable practices and their importance

KU4. Twenty first (21st) century skills and their importance

KU5. how to use English language for effective verbal (face to face and telephonic) and written communication in formal and informal set up

KU6. importance of career development and setting long- and short-term goals

KU7. about effective communication

KU8. POSH Act

KU9. Gender sensitivity and inclusivity

KU10. different types of financial institutes, products, and services

KU11. how to compute income and expenditure

KU12. importance of maintaining safety and security in offline and online financial transactions

KU13. different legal rights and laws

KU14. different types of digital devices and the procedure to operate them safely and securely

KU15. how to create and operate an e- mail account and use applications such as word processors, spreadsheets etc.

KU16. how to identify business opportunities

KU17. types and needs of customers

KU18. how to apply for a job and prepare for an interview

KU19. apprenticeship scheme and the process of registering on apprenticeship portal

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. read and write different types of documents/instructions/correspondence

GS2. communicate effectively using appropriate language in formal and informal settings



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- GS3.** behave politely and appropriately with all
- GS4.** how to work in a virtual mode
- GS5.** perform calculations efficiently
- GS6.** solve problems effectively
- GS7.** pay attention to details
- GS8.** manage time efficiently
- GS9.** maintain hygiene and sanitization to avoid infection



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Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|--|--------------|-----------------|---------------|------------|
| <i>Introduction to Employability Skills</i> | 1 | 1 | - | - |
| PC1. identify employability skills required for jobs in various industries | - | - | - | - |
| PC2. identify and explore learning and employability portals | - | - | - | - |
| <i>Constitutional values - Citizenship</i> | 1 | 1 | - | - |
| PC3. recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc. | - | - | - | - |
| PC4. follow environmentally sustainable practices | - | - | - | - |
| <i>Becoming a Professional in the 21st Century</i> | 2 | 4 | - | - |
| PC5. recognize the significance of 21st Century Skills for employment | - | - | - | - |
| PC6. practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life | - | - | - | - |
| <i>Basic English Skills</i> | 2 | 3 | - | - |
| PC7. use basic English for everyday conversation in different contexts, in person and over the telephone | - | - | - | - |
| PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English | - | - | - | - |
| PC9. write short messages, notes, letters, e-mails etc. in English | - | - | - | - |
| <i>Career Development & Goal Setting</i> | 1 | 2 | - | - |

Qualification Pack

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| PC10. understand the difference between job and career | - | - | - | - |
| PC11. prepare a career development plan with short- and long-term goals, based on aptitude | - | - | - | - |
| <i>Communication Skills</i> | 2 | 2 | - | - |
| PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings | - | - | - | - |
| PC13. work collaboratively with others in a team | - | - | - | - |
| <i>Diversity & Inclusion</i> | 1 | 2 | - | - |
| PC14. communicate and behave appropriately with all genders and PwD | - | - | - | - |
| PC15. escalate any issues related to sexual harassment at workplace according to POSH Act | - | - | - | - |
| <i>Financial and Legal Literacy</i> | 2 | 3 | - | - |
| PC16. select financial institutions, products and services as per requirement | - | - | - | - |
| PC17. carry out offline and online financial transactions, safely and securely | - | - | - | - |
| PC18. identify common components of salary and compute income, expenses, taxes, investments etc | - | - | - | - |
| PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation | - | - | - | - |
| <i>Essential Digital Skills</i> | 3 | 4 | - | - |
| PC20. operate digital devices and carry out basic internet operations securely and safely | - | - | - | - |
| PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively | - | - | - | - |
| PC22. use basic features of word processor, spreadsheets, and presentations | - | - | - | - |



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| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|--|--------------|-----------------|---------------|------------|
| <i>Entrepreneurship</i> | 2 | 3 | - | - |
| PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research | - | - | - | - |
| PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion | - | - | - | - |
| PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity | - | - | - | - |
| <i>Customer Service</i> | 1 | 2 | - | - |
| PC26. identify different types of customers | - | - | - | - |
| PC27. identify and respond to customer requests and needs in a professional manner. | - | - | - | - |
| PC28. follow appropriate hygiene and grooming standards | - | - | - | - |
| <i>Getting ready for apprenticeship & Jobs</i> | 2 | 3 | - | - |
| PC29. create a professional Curriculum vitae (Résumé) | - | - | - | - |
| PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively | - | - | - | - |
| PC31. apply to identified job openings using offline /online methods as per requirement | - | - | - | - |
| PC32. answer questions politely, with clarity and confidence, during recruitment and selection | - | - | - | - |
| PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements | - | - | - | - |
| NOS Total | 20 | 30 | - | - |



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National Occupational Standards (NOS) Parameters

| | |
|----------------------------|---------------------------------|
| NOS Code | DGT/VSQ/N0102 |
| NOS Name | Employability Skills (60 Hours) |
| Sector | Cross Sectoral |
| Sub-Sector | Professional Skills |
| Occupation | Employability |
| NSQF Level | 4 |
| Credits | 2 |
| Version | 1.0 |
| Last Reviewed Date | NA |
| Next Review Date | 17/11/2025 |
| NSQF Clearance Date | 17/11/2022 |



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Qualification Pack

MIN/N1702: Follow Health, Safety and Environmental guidelines for Underground Metalliferous Mines (UMM) (Including Mine Vocational Training Rule and Mine Rescue Rule)

Description

This unit is about adhering to health, safety and environmental guidelines in Underground Metalliferous Mines (UMM) during the execution of various tasks and operations and maintenance.

Scope

The scope covers the following :

- Follow work-site health and safety measures
- Follow environmental guidelines

Elements and Performance Criteria

Follow work-site health and safety measures

To be competent, the user/individual on the job must be able to:

- PC1.** undertake "The Take-5 (Personal Risk Assessment)" before commencement of any work
- PC2.** comply with safety, health and security-related regulations/guidelines at the mine e.g. follow Standard Operating Procedure (SOP) for material handling in underground (U/G) mine
- PC3.** operate various types of fire extinguishers to control different types of fire at a worksite when required
- PC4.** check that roof supporting is as per Systematic Support Plan (SSP) and approved Systematic Support Rules (SSR) while undertaking work in an area
- PC5.** take precaution against occupational health hazards (like dust, water, mine gases etc.) due to U/G working environment
- PC6.** use self-rescue apparatus, appropriately when required
- PC7.** follow appropriate emergency response procedure during emergency such as fire, water inrush, fall of ground etc.
- PC8.** follow precautions against U/G electrical appliances
- PC9.** follow appropriate Standard Operating Procedure while working near any isolated and sealed off area of the mine
- PC10.** follow appropriate safety practices while traveling on U/G haul roads, incase of post blast fumes and misfire
- PC11.** follow the manufacturer's instructions for care and safe operation of mine machinery and equipment
- PC12.** identify the working ventilation district from line diagram of ventilation circuit to direct air to the working face
- PC13.** follow Safety Management Plan (SMP) and Emergency Management Plan (EMP)
- PC14.** follow gas detecting alarm signal on leakage of inflammable gases and laid out procedure to ensure safety



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- PC15.** follow process for reporting any unsafe act/condition in work area to the concerned person
- PC16.** use underground mine communication system
- PC17.** ensure positive isolation near the work place if applicable
- PC18.** use appropriate PPE as per the requirement
- PC19.** maintain hand hygiene by washing hands with alcohol based sanitisers/soap
- PC20.** disinfect the machine/tools before and after work/task
- PC21.** maintain hygiene at the work site
- PC22.** report any symptoms of illness to the shift-incharge
- PC23.** identify six directional hazards at workplace and take decisions accordingly

Follow environmental guidelines

To be competent, the user/individual on the job must be able to:

- PC24.** identify the environmental impact of mining related operations and follow steps to reduce those impact
- PC25.** follow the mineral conservation practices in U/G mining operations to achieve optimum ore or mineral recovery
- PC26.** ensure that the stowing practices produce minimum disturbance to the surface
- PC27.** ensure that the subgrade ore is carried out to surface and stacked separately at the earmarked place
- PC28.** ensure the productivity of the machine for material/fuel conservation
- PC29.** follow the process for collecting, storing and disposing of the hazardous material and waste (like used oil, lubricant, battery, etc.) in compliance with worksite guidelines
- PC30.** follow the "5-S" practice at work site like cleaning oil from ground (to avoid soil from getting damaged), etc.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** safety guidelines specified by Directorate General of Mine Safety (DGMS)
- KU2.** duties and rights of workers
- KU3.** selection process of person for rescue training
- KU4.** about Systematic Support Plan (SSP) and approved Systematic Support Rules (SSR)
- KU5.** isolation and sealed off area of the mine
- KU6.** various types of gases found in the mine and their effect
- KU7.** self-rescue apparatus and their uses
- KU8.** provision of medical examination (IME & PME) of person employed as per Mines Rules 1955
- KU9.** importance of first aid and hygiene
- KU10.** about different types of machinery used in U/G mines
- KU11.** different types of supporting systems used in U/G mines as per SSP and SSR
- KU12.** about precautions to be taken when handling heavy equipment
- KU13.** various problems/incidents likely to occur
- KU14.** role of Internal Safety Organization, safety committee, workman's inspector and DGMS



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- KU15.** about mine safety standard including light illumination level, noise levels, dust level, pollutants, etc at the work-site
- KU16.** common sources of pollution in the mines and ways to minimize it
- KU17.** various types of fire extinguishers
- KU18.** safety equipment like safety shoes, safety belt, tight fit clothing, hand gloves, safety goggles, Gas Detector, Safety Lamp, Self-Contained Breathing Apparatus, gum boots, ear plugs, Face Mask, etc.
- KU19.** shot-firing / blasting related safety regulations including taking shelter during blasting
- KU20.** emergency response /disaster management plan prepared by the organization as per DGMS guideline
- KU21.** mining area-specific signs, and other safety and emergency signals
- KU22.** the outcome of violation of safety procedures
- KU23.** Take-5 (Personal Risk Assessment) training (DGMS Tech. circulars 2/2014)
- KU24.** rules and regulations for safety and security while handling hazardous materials
- KU25.** safety appliances and rescue equipment
- KU26.** importance and use of various communication system used in UG mines
- KU27.** importance of positive isolation at working site
- KU28.** safety and occupational health policy of organisation
- KU29.** six directional hazard identification process
- KU30.** basic personal and workplace hygiene
- KU31.** importance of FAB (Fresh Air Base)
- KU32.** basic provisions in Mines Creche Rules, 1966 (MCR) for females employed in the mines
- KU33.** the role and responsibilities of rescue room and rescue station and how to contact them in case of emergency
- KU34.** importance of taking shelter at the miner's station during blasting operation
- KU35.** importance of sensitization towards different genders and persons with disabilities (PWD)
- KU36.** importance of following infection control policies, '5-S' practices, and waste management
- KU37.** importance of water/material/energy conservation and management
- KU38.** importance of SMP and EMP, prepared by the organization, as per DGMS guideline

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** fill up documentation applicable to one's role
- GS2.** make decisions on the concerned area of work
- GS3.** read basic English language
- GS4.** read and interpret manuals, health, and safety instructions, memos, etc.
- GS5.** use the digital information from machine
- GS6.** use basic applications of a computer
- GS7.** plan and organize the work order and tasks
- GS8.** use reasoning skills to identify and resolve fundamental problems



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GS9. complete the assigned tasks timely

Qualification Pack

Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| <i>Follow work-site health and safety measures</i> | 24 | 42 | - | 17 |
| PC1. undertake "The Take-5 (Personal Risk Assessment)" before commencement of any work | - | 2 | - | 2 |
| PC2. comply with safety, health and security-related regulations/guidelines at the mine e.g. follow Standard Operating Procedure (SOP) for material handling in underground (U/G) mine | 1 | 3 | - | - |
| PC3. operate various types of fire extinguishers to control different types of fire at a worksite when required | 1 | 4 | - | 1 |
| PC4. check that roof supporting is as per Systematic Support Plan (SSP) and approved Systematic Support Rules (SSR) while undertaking work in an area | 1 | 1 | - | - |
| PC5. take precaution against occupational health hazards (like dust, water, mine gases etc.) due to U/G working environment | 1 | 2 | - | 1 |
| PC6. use self-rescue apparatus, appropriately when required | - | 4 | - | 1 |
| PC7. follow appropriate emergency response procedure during emergency such as fire, water inrush, fall of ground etc. | 1 | 2 | - | 1 |
| PC8. follow precautions against U/G electrical appliances | 2 | 2 | - | 2 |
| PC9. follow appropriate Standard Operating Procedure while working near any isolated and sealed off area of the mine | 2 | 2 | - | 1 |
| PC10. follow appropriate safety practices while traveling on U/G haul roads, incase of post blast fumes and misfire | 2 | 4 | - | - |
| PC11. follow the manufacturer's instructions for care and safe operation of mine machinery and equipment | 1 | 2 | - | 1 |

Qualification Pack

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| PC12. identify the working ventilation district from line diagram of ventilation circuit to direct air to the working face | 1 | 1 | - | - |
| PC13. follow Safety Management Plan (SMP) and Emergency Management Plan (EMP) | 1 | - | - | - |
| PC14. follow gas detecting alarm signal on leakage of inflammable gases and laid out procedure to ensure safety | 1 | 2 | - | 1 |
| PC15. follow process for reporting any unsafe act/condition in work area to the concerned person | - | 2 | - | 1 |
| PC16. use underground mine communication system | - | 1 | - | - |
| PC17. ensure positive isolation near the work place if applicable | 1 | 1 | - | 1 |
| PC18. use appropriate PPE as per the requirement | 2 | 4 | - | 2 |
| PC19. maintain hand hygiene by washing hands with alcohol based sanitisers/soap | 1 | 1 | - | 1 |
| PC20. disinfect the machine/tools before and after work/task | 1 | 1 | - | - |
| PC21. maintain hygiene at the work site | 1 | 1 | - | 1 |
| PC22. report any symptoms of illness to the shift-incharge | 1 | - | - | - |
| PC23. identify six directional hazards at workplace and take decisions accordingly | 2 | - | - | - |
| <i>Follow environmental guidelines</i> | 6 | 8 | - | 3 |
| PC24. identify the environmental impact of mining related operations and follow steps to reduce those impact | 1 | 2 | - | - |
| PC25. follow the mineral conservation practices in U/G mining operations to achieve optimum ore or mineral recovery | - | 1 | - | - |
| PC26. ensure that the stowing practices produce minimum disturbance to the surface | 1 | 1 | - | - |



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| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|--|--------------|-----------------|---------------|------------|
| PC27. ensure that the subgrade ore is carried out to surface and stacked separately at the earmarked place | 1 | - | - | 1 |
| PC28. ensure the productivity of the machine for material/fuel conservation | 1 | 1 | - | - |
| PC29. follow the process for collecting, storing and disposing of the hazardous material and waste (like used oil, lubricant, battery, etc.) in compliance with worksite guidelines | 1 | 1 | - | 1 |
| PC30. follow the "5-S" practice at work site like cleaning oil from ground (to avoid soil from getting damaged), etc. | 1 | 2 | - | 1 |
| NOS Total | 30 | 50 | - | 20 |



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& ENTREPRENEURSHIP



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NSDC
REIMAGINE FUTURE

Qualification Pack

National Occupational Standards (NOS) Parameters

| | |
|----------------------------|--|
| NOS Code | MIN/N1702 |
| NOS Name | Follow Health, Safety and Environmental guidelines for Underground Metalliferous Mines (UMM) (Including Mine Vocational Training Rule and Mine Rescue Rule) |
| Sector | Mining |
| Sub-Sector | Mining Operation |
| Occupation | HSE Functions, Mine Surveying, Drilling/Cutting, Shot firing/Blasting, Loading and Hauling - Underground, Specialized Operations, Electrical Services, Mechanical Services |
| NSQF Level | 4 |
| Credits | TBD |
| Version | 1.0 |
| Last Reviewed Date | 30/06/2022 |
| Next Review Date | 17/11/2025 |
| NSQC Clearance Date | 17/11/2022 |



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Qualification Pack

MIN/N1703: Follow Health, Safety, and Environmental Guidelines for opencast mines (Including Mine Vocational Training Rule)

Description

This unit is about adhering to health, safety and environmental guidelines at the Open Cast Mines while executing various tasks, maintenance and operations.

Scope

The scope covers the following :

- Follow work-site health and safety measures
- Follow Environmental guidelines

Elements and Performance Criteria

Follow work-site health and safety measures

To be competent, the user/individual on the job must be able to:

- PC1.** comply with safety, health, and security-related regulations/guidelines at the opencast mine
- PC2.** follow the safety instructions given by the workman's inspector
- PC3.** follow adequate safety while working at haul roads, heights, overburden dumps, sump area, stockyard, near moving parts, etc.
- PC4.** take safety precautions while working on sites (sub-station, workshop etc.), with equipment, and conducting welding and cutting operations
- PC5.** follow appropriate Safe Operating Procedure (SOP) while dealing with explosives
- PC6.** respond promptly and appropriately to an accident/ incident or an emergency situation, within limits of the role and responsibility
- PC7.** provide first aid to an injured person
- PC8.** operate various types of fire extinguishers to control different types of fire at a worksite when required
- PC9.** use appropriate PPE as per the requirement
- PC10.** maintain hand hygiene by washing hands with alcohol based sanitisers/soap
- PC11.** disinfect the machine/tools before and after work/task
- PC12.** maintain hygiene at the work site
- PC13.** report any symptoms of illness to the shift-incharge

Follow Environmental guidelines

To be competent, the user/individual on the job must be able to:

- PC14.** identify the environmental impact of related opencast mining operations
- PC15.** follow the process for collecting, storing and disposing of the hazardous material and waste (like used oil, lubricant, battery, etc.) in compliance with worksite guidelines
- PC16.** ensure not to mix topsoil with waste in day to day tasks
- PC17.** ensure that HEMM is washed at the designated location



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- PC18.** ensure the productivity of the machine for material/fuel conservation
- PC19.** follow the mineral conservation practices specified by the organization in accordance with MCDR-2017 (Mineral Conservation and Development Rules)
- PC20.** assist supervisor for reducing environmental impact caused due to related mining operations

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** about various environmental awareness program related to mining, organized by the various government bodies/company
- KU2.** safety guidelines specified by Directorate General of Mine Safety (DGMS)
- KU3.** basic mining terminologies and definitions
- KU4.** means of access and egress from the mines, location of workshop, haul roads and working face including dump yards
- KU5.** duties of workers under The Mines act-1952
- KU6.** working hours and accident compensation as per The Mines act-1952
- KU7.** about precautions to be taken when handling heavy equipment
- KU8.** various problems/incidents likely to occur
- KU9.** hierarchy of the reporting
- KU10.** machine operation, condition of the machine and worksite
- KU11.** proper documents specific to the machine
- KU12.** role of workmen inspector, safety committee and internal safety organization
- KU13.** the process of top soil removal and management
- KU14.** mine sump and pumping system of the mines
- KU15.** about mine safety standard including light illumination level, noise levels, dust level, pollutants, etc at the work-site
- KU16.** common sources of pollution in the mines and ways to minimize it
- KU17.** safety equipment like safety shoes, safety belt, tight fit clothing, hand gloves, safety goggles, gas detector, safety lamp, self-contained breathing apparatus, gum boots, ear plugs, face mask, etc.
- KU18.** shot-firing / blasting related safety regulations including taking shelter during blasting
- KU19.** emergency response /disaster management plan prepared by the organization
- KU20.** signages, mining area-specific signs, and other safety and emergency signals
- KU21.** the outcome of violation of safety procedures
- KU22.** basic personal and workplace hygiene
- KU23.** importance of sensitization towards different genders and PWD (Persons with Disabilities)

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** fill up documentation applicable to one's role



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- GS2.** make decisions on the concerned area of work
- GS3.** read and interpret manuals, health, and safety instructions, memos, etc.
- GS4.** plan and organize the work order and jobs
- GS5.** use reasoning skills to identify and resolve fundamental problems
- GS6.** complete the assigned tasks timely

Qualification Pack

Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|--|--------------|-----------------|---------------|------------|
| <i>Follow work-site health and safety measures</i> | 20 | 34 | - | 15 |
| PC1. comply with safety, health, and security-related regulations/guidelines at the opencast mine | 2 | 2 | - | 1 |
| PC2. follow the safety instructions given by the workman's inspector | 1 | 3 | - | 1 |
| PC3. follow adequate safety while working at haul roads, heights, overburden dumps, sump area, stockyard, near moving parts, etc. | 3 | 3 | - | 1 |
| PC4. take safety precautions while working on sites (sub-station, workshop etc.), with equipment, and conducting welding and cutting operations | 1 | 3 | - | 1 |
| PC5. follow appropriate Safe Operating Procedure (SOP) while dealing with explosives | 2 | 3 | - | 2 |
| PC6. respond promptly and appropriately to an accident/ incident or an emergency situation, within limits of the role and responsibility | 2 | 3 | - | 1 |
| PC7. provide first aid to an injured person | 2 | 3 | - | 1 |
| PC8. operate various types of fire extinguishers to control different types of fire at a worksite when required | 1 | 3 | - | 1 |
| PC9. use appropriate PPE as per the requirement | 2 | 4 | - | 2 |
| PC10. maintain hand hygiene by washing hands with alcohol based sanitisers/soap | 1 | 2 | - | 1 |
| PC11. disinfect the machine/tools before and after work/task | 1 | 2 | - | 1 |
| PC12. maintain hygiene at the work site | 1 | 1 | - | 1 |
| PC13. report any symptoms of illness to the shift-incharge | 1 | 2 | - | 1 |
| <i>Follow Environmental guidelines</i> | 10 | 16 | - | 5 |



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| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|--|--------------|-----------------|---------------|------------|
| PC14. identify the environmental impact of related opencast mining operations | 2 | 2 | - | 1 |
| PC15. follow the process for collecting, storing and disposing of the hazardous material and waste (like used oil, lubricant, battery, etc.) in compliance with worksite guidelines | 1 | 2 | - | 1 |
| PC16. ensure not to mix topsoil with waste in day to day tasks | 2 | 2 | - | 1 |
| PC17. ensure that HEMM is washed at the designated location | 2 | 2 | - | 1 |
| PC18. ensure the productivity of the machine for material/fuel conservation | 1 | 3 | - | - |
| PC19. follow the mineral conservation practices specified by the organization in accordance with MCDR-2017 (Mineral Conservation and Development Rules) | 1 | 3 | - | 1 |
| PC20. assist supervisor for reducing environmental impact caused due to related mining operations | 1 | 2 | - | - |
| NOS Total | 30 | 50 | - | 20 |



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Qualification Pack

National Occupational Standards (NOS) Parameters

| | |
|----------------------------|---|
| NOS Code | MIN/N1703 |
| NOS Name | Follow Health, Safety, and Environmental Guidelines for opencast mines (Including Mine Vocational Training Rule) |
| Sector | Mining |
| Sub-Sector | Mining Operation |
| Occupation | HSE Functions, , Exploration, Mineral Estimation, Planning, Mine Surveying, Drilling/Cutting, Shot firing/Blasting, Loading and Hauling - Opencast, Specialized Operations, Electrical Services, Mechanical Services, Instrumentation and Control Systems, Ore Processing |
| NSQF Level | 4 |
| Credits | TBD |
| Version | 1.0 |
| Last Reviewed Date | 30/06/2022 |
| Next Review Date | 17/11/2025 |
| NSQC Clearance Date | 17/11/2022 |



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REIMAGINE FUTURE

Qualification Pack

MIN/N1704: Follow Health, Safety, and Environmental guidelines for underground coal mines (Including Mine Vocational Training Rule and Mine Rescue Rule)

Description

This unit is about adhering to health, safety and environmental guidelines in Underground Coal Mines (UCM) during execution of various tasks, operations and maintenance.

Scope

The scope covers the following :

- Follow work-site health and safety measures
- Follow environmental guidelines

Elements and Performance Criteria

Follow work-site health and safety measures

To be competent, the user/individual on the job must be able to:

- PC1.** follow preventive measures against firedamp, whitedamp, blackdamp etc.
- PC2.** use the flame safety lamp for detecting the methane gas as per Standard Operating Procedure (SOP)
- PC3.** undertake "The Take-5 (Personal Risk Assessment)" before commencement of any work
- PC4.** comply with safety, health and security-related regulations/guidelines at the mine e.g. SOP for material handling in underground (U/G) mine
- PC5.** ensure that oil, grease, canvas or other inflammable material are stored in fire-proof receptacle
- PC6.** ensure that every instrument, apparatus and equipment are DGMS approved before these are used
- PC7.** ensure that Armoured face conveyor (AFC) and chocks must be kept in a straight line for every cycle of operations and tightened up to the setting pressure while keeping it in full contact with the roof, applicable for longwall mining
- PC8.** provide first aid to an injured person
- PC9.** follow safety precautions against spontaneous heating of the coal
- PC10.** operate various types of fire extinguishers to control different types of fire at worksite, if required
- PC11.** ensure that no person is traveling/working/staying under unsupported roof
- PC12.** check that roof supporting is as per Systematic Support Plan (SSP) and approved Systematic Support Rules (SSR) while undertaking work in an area
- PC13.** take precaution against occupational health hazards (like dust, water, mine gases etc.) due to U/G working environment
- PC14.** use self-rescue apparatus appropriately when required
- PC15.** follow Safety Management Plan (SMP) and Emergency Management Plan (EMP)



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- PC16.** follow precautions against U/G electrical appliances
- PC17.** take proper care against damage and accidents while loading, transporting, dismantling and erecting of roof supports
- PC18.** follow appropriate SOP while working near any isolated and sealed off area of the mine
- PC19.** ensure that the roof and the sidewalls of the mine face (or newly exposed area of the mines) have been scaled/dressed properly
- PC20.** take relevant safety precautions during depillaring operation in UCM
- PC21.** follow appropriate safety practices while traveling on U/G haul roads, incase of post blast fumes and misfire
- PC22.** follow the manufacturer's instructions for care and safe operation of mine machinery and equipment
- PC23.** identify the working ventilation district from line diagram of ventilation circuit to direct air to the working face
- PC24.** follow laid out SOP in case of alarm signal for leakage of inflammable gases
- PC25.** follow the process of reporting any unsafe act/condition in the working area to the concerned person
- PC26.** use underground mine communication system
- PC27.** ensure positive isolation near the work place if applicable
- PC28.** use appropriate Personal Protective Equipment (PPE) as per the requirement
- PC29.** maintain hand hygiene by washing hands with alcohol based sanitisers/soap
- PC30.** disinfect the machine/tools before and after work/task
- PC31.** maintain hygiene at the work site
- PC32.** report any symptoms of illness to the shift-incharge
- PC33.** identify six directional hazards at workplace and take decisions accordingly

Follow environmental guidelines

To be competent, the user/individual on the job must be able to:

- PC34.** identify the environmental impact of mining related operations and follow steps to reduce those impact
- PC35.** follow the mineral conservation practices in U/G mining operations to achieve optimum ore or mineral recovery
- PC36.** ensure that the stowing practices produce minimum disturbance to the surface
- PC37.** ensure that the subgrade coal is carried out to surface and stacked separately at the earmarked place
- PC38.** ensure the productivity of the machine for material/fuel conservation
- PC39.** follow the process for collecting, storing and disposing of the hazardous material and waste (like used oil, lubricant, battery, etc.) in compliance with worksite guidelines
- PC40.** follow the "5-S" practice at work site like cleaning oil from ground (to avoid soil from getting damaged), etc.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:



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- KU1.** safety guidelines specified by Directorate General of Mine Safety (DGMS)
- KU2.** duties and rights of workers
- KU3.** selection process of person for rescue training
- KU4.** about Systematic Support Plan (SSP) and approved Systematic Support Rules (SSR)
- KU5.** isolation and sealed off area of the mine
- KU6.** various types of gases available in the mine and their effects; and their control measures
- KU7.** self-rescue apparatus and their uses
- KU8.** provision of medical examination (Initial Medical Examination (IME) & Periodical Medical Examination (PME)) of a person employed, as per Mines Rules 1955
- KU9.** importance of first aid and hygiene
- KU10.** about different types of machineries used in U/G mines
- KU11.** different types of supporting system used in U/G mines as per SSP and SSR
- KU12.** about precautions to be taken when handling heavy equipment
- KU13.** various problems/incidents likely to occur
- KU14.** role of Internal Safety Organization, safety committee, workman's inspector and DGMS
- KU15.** about mine safety standard including light illumination level, noise levels, dust level, pollutants, etc at the work-site
- KU16.** common sources of pollution in the mines and ways to minimize it
- KU17.** various types of fire extinguishers
- KU18.** safety equipment like safety shoes, safety belt, tight fit clothing, hand gloves, safety goggles, Gas Detector, Safety Lamp, Self-Contained Breathing Apparatus, gum boots, ear plugs, Face Mask, etc.
- KU19.** shot-firing / blasting related safety regulations including taking shelter during blasting
- KU20.** mining area-specific signs, and other safety and emergency signals
- KU21.** the outcome of violation of safety procedures
- KU22.** Take-5 (Personal Risk Assessment) training (DGMS Tech. circulars 2/2014)
- KU23.** hazardous material safety, security rules and regulations
- KU24.** safety appliances and rescue equipment
- KU25.** importance and use of various communication system used in UG mines
- KU26.** importance of positive isolation at working site
- KU27.** safety and occupational health policy of organisation
- KU28.** six directional hazard identification process
- KU29.** basic personal and workplace hygiene
- KU30.** importance of FAB (Fresh Air Base)
- KU31.** basic provisions in Mines Creche Rules, 1966 (MCR) for any females employed in the mines
- KU32.** about basic safety regulations of Coal Mines Regulation, 2017 (CMR)
- KU33.** types of stone dust barrier and its importance
- KU34.** coal dust explosion and its preventive measures
- KU35.** classification of coal mines as per the degree of gassiness of coal seams such as first degree, second degree, and third-degree mines
- KU36.** precautions as per the gassiness of the coal mines



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- KU37.** use of flame safety lamp and its parts
- KU38.** about coal mines occupational disease such as pneumoconiosis or 'black lung' and their preventive measures
- KU39.** Standard of Ventilation as per the section 153 of the CMR 2017
- KU40.** Standard of Lighting as per the section 178 of the CMR 2017
- KU41.** the roles, duties and responsibilities of rescue team members, rescue room and rescue station and how to contact them in case of emergency
- KU42.** the correct steps for conducting any rescue work as per Mine Rescue Rule (MRR)
- KU43.** importance of taking shelter at the miner's station during blasting operation
- KU44.** importance of sensitization towards different genders and persons with disabilities (PWD)
- KU45.** importance of following infection control policies, '5-S' practices, and waste management
- KU46.** importance of water/material/energy conservation and management
- KU47.** importance of SMP and EMP, prepared by the organization, as per DGMS guideline

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** fill up documentation applicable to one's role
- GS2.** make decisions on the concerned area of work
- GS3.** read basic English language
- GS4.** read and interpret manuals, health, and safety instructions, memos, etc.
- GS5.** use the digital information from a machine
- GS6.** plan and organize the work order and tasks
- GS7.** use basic applications of the computer
- GS8.** use reasoning skills to identify and resolve fundamental problems
- GS9.** complete the assigned tasks timely

Qualification Pack

Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| <i>Follow work-site health and safety measures</i> | 24 | 43 | - | 14 |
| PC1. follow preventive measures against firedamp, whitedamp, blackdamp etc. | 1 | 1 | - | - |
| PC2. use the flame safety lamp for detecting the methane gas as per Standard Operating Procedure (SOP) | - | 1 | - | - |
| PC3. undertake "The Take-5 (Personal Risk Assessment)" before commencement of any work | 1 | 1 | - | 1 |
| PC4. comply with safety, health and security-related regulations/guidelines at the mine e.g. SOP for material handling in underground (U/G) mine | 1 | 1 | - | 1 |
| PC5. ensure that oil, grease, canvas or other inflammable material are stored in fire-proof receptacle | - | 1 | - | - |
| PC6. ensure that every instrument, apparatus and equipment are DGMS approved before these are used | 1 | 1 | - | - |
| PC7. ensure that Armoured face conveyor (AFC) and chocks must be kept in a straight line for every cycle of operations and tightened up to the setting pressure while keeping it in full contact with the roof, applicable for longwall mining | 3 | 3 | - | - |
| PC8. provide first aid to an injured person | 1 | 2 | - | 1 |
| PC9. follow safety precautions against spontaneous heating of the coal | 1 | 1 | - | - |
| PC10. operate various types of fire extinguishers to control different types of fire at worksite, if required | - | 2 | - | - |
| PC11. ensure that no person is traveling/working/staying under unsupported roof | 1 | - | - | - |
| PC12. check that roof supporting is as per Systematic Support Plan (SSP) and approved Systematic Support Rules (SSR) while undertaking work in an area | - | 2 | - | 1 |

Qualification Pack

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| PC13. take precaution against occupational health hazards (like dust, water, mine gases etc.) due to U/G working environment | - | 1 | - | 1 |
| PC14. use self-rescue apparatus appropriately when required | - | 2 | - | - |
| PC15. follow Safety Management Plan (SMP) and Emergency Management Plan (EMP) | 1 | 2 | - | 1 |
| PC16. follow precautions against U/G electrical appliances | 2 | 2 | - | 1 |
| PC17. take proper care against damage and accidents while loading, transporting, dismantling and erecting of roof supports | 1 | 2 | - | - |
| PC18. follow appropriate SOP while working near any isolated and sealed off area of the mine | 1 | 1 | - | 1 |
| PC19. ensure that the roof and the sidewalls of the mine face (or newly exposed area of the mines) have been scaled/dressed properly | 1 | 1 | - | - |
| PC20. take relevant safety precautions during depillaring operation in UCM | - | 2 | - | 1 |
| PC21. follow appropriate safety practices while traveling on U/G haul roads, incase of post blast fumes and misfire | 1 | 1 | - | - |
| PC22. follow the manufacturer's instructions for care and safe operation of mine machinery and equipment | - | 1 | - | 1 |
| PC23. identify the working ventilation district from line diagram of ventilation circuit to direct air to the working face | - | 1 | - | 1 |
| PC24. follow laid out SOP in case of alarm signal for leakage of inflammable gases | 1 | 1 | - | - |
| PC25. follow the process of reporting any unsafe act/condition in the working area to the concerned person | - | 1 | - | 1 |
| PC26. use underground mine communication system | - | 1 | - | - |

Qualification Pack

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|--|--------------|-----------------|---------------|------------|
| PC27. ensure positive isolation near the work place if applicable | 1 | 1 | - | - |
| PC28. use appropriate Personal Protective Equipment (PPE) as per the requirement | 2 | 2 | - | 1 |
| PC29. maintain hand hygiene by washing hands with alcohol based sanitisers/soap | - | 1 | - | - |
| PC30. disinfect the machine/tools before and after work/task | 1 | 1 | - | - |
| PC31. maintain hygiene at the work site | 1 | 1 | - | - |
| PC32. report any symptoms of illness to the shift-incharge | 1 | 1 | - | - |
| PC33. identify six directional hazards at workplace and take decisions accordingly | - | 1 | - | 1 |
| <i>Follow environmental guidelines</i> | 6 | 7 | - | 6 |
| PC34. identify the environmental impact of mining related operations and follow steps to reduce those impact | 1 | 1 | - | 1 |
| PC35. follow the mineral conservation practices in U/G mining operations to achieve optimum ore or mineral recovery | 1 | 1 | - | 1 |
| PC36. ensure that the stowing practices produce minimum disturbance to the surface | 1 | 1 | - | - |
| PC37. ensure that the subgrade coal is carried out to surface and stacked separately at the earmarked place | 1 | 1 | - | 1 |
| PC38. ensure the productivity of the machine for material/fuel conservation | 1 | 1 | - | 1 |
| PC39. follow the process for collecting, storing and disposing of the hazardous material and waste (like used oil, lubricant, battery, etc.) in compliance with worksite guidelines | - | 1 | - | 1 |
| PC40. follow the "5-S" practice at work site like cleaning oil from ground (to avoid soil from getting damaged), etc. | 1 | 1 | - | 1 |



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| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|----------------------------------|--------------|-----------------|---------------|------------|
| NOS Total | 30 | 50 | - | 20 |



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Qualification Pack

National Occupational Standards (NOS) Parameters

| | |
|----------------------------|--|
| NOS Code | MIN/N1704 |
| NOS Name | Follow Health, Safety, and Environmental guidelines for underground coal mines (Including Mine Vocational Training Rule and Mine Rescue Rule) |
| Sector | Mining |
| Sub-Sector | Mining Operation |
| Occupation | HSE Functions, Mine Surveying, Drilling/Cutting, Shot firing/Blasting, Loading and Hauling - Underground, Specialized Operations, Electrical Services, Mechanical Services |
| NSQF Level | 4 |
| Credits | TBD |
| Version | 1.0 |
| Last Reviewed Date | 30/06/2022 |
| Next Review Date | 17/11/2025 |
| NSQC Clearance Date | 17/11/2022 |

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Element/ Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down the proportion of marks for Theory and Skills Practical for each Element/ 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 the 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 these criteria.



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6. To pass the Qualification Pack assessment, every trainee should score the Recommended Pass % aggregate for the QP.

7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

Minimum Aggregate Passing % at QP Level : 70

(Please note: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

Assessment Weightage

Compulsory NOS

| National Occupational Standards | Theory Marks | Practical Marks | Project Marks | Viva Marks | Total Marks | Weightage |
|---|--------------|-----------------|---------------|------------|-------------|-----------|
| MIN/N1307.Receive and Handle Explosive Materials in mines | 30 | 50 | 0 | 20 | 100 | 30 |
| MIN/N1308.Charge Blast Holes and deal with misfires | 30 | 50 | 0 | 20 | 100 | 30 |
| DGT/VSQ/N0102.Employability Skills (60 Hours) | 20 | 30 | - | - | 50 | 10 |
| Total | 80 | 130 | - | 40 | 250 | 70 |

Elective: 1 U/G Metal

| National Occupational Standards | Theory Marks | Practical Marks | Project Marks | Viva Marks | Total Marks | Weightage |
|---|--------------|-----------------|---------------|------------|-------------|-----------|
| MIN/N1702.Follow Health, Safety and Environmental guidelines for Underground Metalliferous Mines (UMM) (Including Mine Vocational Training Rule and Mine Rescue Rule) | 30 | 50 | - | 20 | 100 | 30 |
| Total | 30 | 50 | - | 20 | 100 | 30 |

Elective: 2 Opencast



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| National Occupational Standards | Theory Marks | Practical Marks | Project Marks | Viva Marks | Total Marks | Weightage |
|--|--------------|-----------------|---------------|------------|-------------|-----------|
| MIN/N1703.Follow Health, Safety, and Environmental Guidelines for opencast mines (Including Mine Vocational Training Rule) | 30 | 50 | - | 20 | 100 | 30 |
| Total | 30 | 50 | - | 20 | 100 | 30 |

Elective: 3 U/G Coal

| National Occupational Standards | Theory Marks | Practical Marks | Project Marks | Viva Marks | Total Marks | Weightage |
|---|--------------|-----------------|---------------|------------|-------------|-----------|
| MIN/N1704.Follow Health, Safety, and Environmental guidelines for underground coal mines (Including Mine Vocational Training Rule and Mine Rescue Rule) | 30 | 50 | - | 20 | 100 | 30 |
| Total | 30 | 50 | - | 20 | 100 | 30 |



Skill Council For Mining Sector



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Qualification Pack

Acronyms

| | |
|-------------|---|
| NOS | National Occupational Standard(s) |
| NSQF | National Skills Qualifications Framework |
| QP | Qualifications Pack |
| TVET | Technical and Vocational Education and Training |



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Glossary

| | |
|--|--|
| Sector | Sector is a conglomeration of different business operations having similar business 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. |
| Job role | Job role defines a unique set of functions that together form a unique employment opportunity in an organisation. |
| 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 (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts. |
| Performance Criteria (PC) | Performance Criteria (PC) 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 (QP) | QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications 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. |
| Scope | Scope is a 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 quality of performance required. |



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| | |
|---|--|
| Knowledge and Understanding (KU) | Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard. |
| Organisational Context | Organisational context includes the way the organisation 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/ Generic Skills (GS) | Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today’s world. These skills are typically needed in any work environment 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. |
| Electives | Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives. |
| Options | Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options. |