



Skill Council For Mining Sector



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GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
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REIMAGINE FUTURE

Qualification Pack



Mining Mate/Sirdar

U/G Metal/ Opencast/ U/G Coal

QP Code: MIN/Q1204

Version: 2.0

NSQF Level: 5

Skill Council for Mining Sector || FIMI House, B-311, Okhla Industrial Area, Phase-I
New Delhi-110020



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MIN/Q1204: Mining Mate/Sirdar

Brief Job Description

The Mining Mate/Sirdar supervises mineral production, oversee the safety of mining operations and supervises blasting operations in metal/coal mines.

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/N1211: Supervise mineral production at point of extraction](#)
2. [MIN/N1212: Oversee the safety of the mining operations](#)
3. [MIN/N1213: Supervise Blasting Operation](#)
4. [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	Drilling/Cutting, Shot firing/Blasting, Loading and Hauling - Opencast, Loading and Hauling - Underground, Specialized Operations
Country	India
NSQF Level	5
Credits	30
Aligned to NCO/ISCO/ISIC Code	NCO-2015/3121.9900, NCO-2015/3121.0500
Minimum Educational Qualification & Experience	12th grade Pass (or its equivalent with 3 years of relevant experience {or As per Latest Metalliferous Mines Regulations or Coal Mines Regulations}) OR Previous relevant Qualification of NSQF Level (4 and with minimum education as 12th Grade Pass with 3 years relevant experience)
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
NSQ Approval Date	17/11/2022
Version	2.0
Reference code on NQR	2022/MIN/SCMS/06988
NQR Version	1

Remarks:

Total Notional Duration: 600 Hours = Domain Theory Duration: 120 Hours + Domain Practical Duration: 150 Hours + Domain OJT (Mandatory) Duration: 270 Hours + Employability Skills Duration: 60 Hours



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MIN/N1211: Supervise mineral production at point of extraction

Description

This OS unit is about being able to oversee/coordinate all activities involving mineral production at the point of extraction, in accordance with statutory and company requirements.

Scope

The scope covers the following :

- Protect personnel working in vicinity of mineral production faces
- Oversee mineral extraction
- Oversee inspection and maintenance of mineral production faces and associated equipment

Elements and Performance Criteria

Protect personnel working in vicinity of mineral production faces

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

- PC1.** oversee end-to-end mining operations and follow the duties of a Mining Mate as mentioned in the regulations by DGMS
- PC2.** check if he finds any person in a place other than the one assigned to him, may communicate the same to that person, and shall forth with report the matter
- PC3.** observe if any inexperienced person is employed on any work except under the supervision of an experienced person and report the same to the superior
- PC4.** report to superior official any deficiency in timber, appliances and other necessities required for the safe working of the district
- PC5.** take care that any dangerous operation is carried out with due precaution, and in such cases shall be present through out whenever any work of clearing falls of ground and setting of supports there in is being carried out
- PC6.** ensure not to leave the district under his charge until the end of the shift or until relieved by a duly appointed substitute
- PC7.** check if the mine is worked by a continuous succession of shifts, shall, before leaving his district, confer with the sirdar or competent personsucceeding him, and shall acquaint him with all matters requiring personal attention and give such other information as maybe necessary for the safety of his district and of the persons employed there in
- PC8.** monitor, record and control the number of persons in respective area of responsibility
- PC9.** observe that staff working within the area of responsibility gets aware if any hazardous situation has occurred and knows the appropriate action to be taken to inform others without jeopardizing the safety of self
- PC10.** carry out checks on the competency of persons employed in mineral extracting
- PC11.** communicate with staff to position them appropriately in order to prevent contact with moving plant/equipment/machine parts
- PC12.** observe the usage of appropriate personal protective equipment
- PC13.** check to ensure personnel are not exposed to excessive work hazards (e.g.vibration, hazardous substances)



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- PC14.** observe that manual handling tasks are minimized by the use of mechanical lifting devices.
- PC15.** confirm checks on safety devices have been carried out
- PC16.** identify problems (e.g. obstructions, geological movements, mechanical or service failure) and report to the appropriate person for advice or repair/remedial action

Oversee mineral extraction

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

- PC17.** monitor the operational cycle and all relevant operations within area of responsibility/specific district
- PC18.** check if the material needs for the production unit are met using material transport system and report in case of any inconsistencies
- PC19.** co-ordinate face operations to maintain a true line of advance or retreat to prevent excessive face creep.
- PC20.** oversee the immediate advance and setting of support (temporary/permanent) to combat poor roof conditions/face conditions and supervise the application of the support rules
- PC21.** check the dressing of exposed ground
- PC22.** co-ordinate work operations to ensure that each ongoing activity does not affect the activities, health, and safety of others within your sphere of responsibility
- PC23.** complete records/reports according to legislative requirements and organizational procedures

Oversee inspection and maintenance of mineral production faces and associated equipment

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

- PC24.** check that all haulage, storage, purification, and distribution work is performed efficiently and in compliance with statutory and other regulations
- PC25.** monitor that all traveling roadways to, and working places in, his district are made and kept secure
- PC26.** check to ensure fire hydrants and/or other firefighting equipment is correctly sited, installed, undamaged, and, fit for purpose in accordance with regulatory requirements and organizational procedures and operational requirements
- PC27.** implement isolation and lock-off procedures for plant/equipment as required for adjustments or routine or forced maintenance
- PC28.** oversee planned maintenance of respirable/combustible dust suppression equipment
- PC29.** confirm that all safety devices fitted to mineral extraction and clearance system/s are in place and operational
- PC30.** confirm that all service pipes, hoses, high tension cables, and trailing cables are identified, color-coded, stored correctly and have appropriate safety devices attached
- PC31.** check that services system (e.g.cable handling devices)are supported, free moving and have sufficient storage to allow safe face advance/retreat
- PC32.** confirm that girder cradles/integrated working platforms associated with setting supports are available and in good order
- PC33.** confirm that support installations/extraction systems/materialshandling/mineral processing machinery/equipment are serviced/maintained in accordance with manufacturers/company procedures
- PC34.** check that suitable and sufficient repairs have been carried out safely on damaged/faulty items of mineral extraction equipment



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PC35. carry out organisational procedures for defects found that cannot be rectified immediately.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** different types of mines and detail of the mine he 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.** mining safety procedures
- KU9.** impact of violation of safety procedures
- KU10.** relevant mining standards and procedures followed in the company in detail
- KU11.** statutory requirements and organisational procedures for the operation of mineral production faces
- KU12.** relevant approved codes of practice and guidance for working safely on production faces
- KU13.** organisational procedures in the event of problems/repairs occurring that are not immediately rectifiable
- KU14.** the reporting/recording procedures for inspections carried out on mineral production systems under regulatory requirements or organisational procedures
- KU15.** 5S and safety norms being practiced in the organization
- KU16.** different types of mining processes used
- KU17.** statutory requirements and operational procedures for strata support
- KU18.** statutory requirements and organizational procedures for the inspection and maintenance of mineral extracting equipment
- KU19.** manufacturers' instructions and operational procedures for the use of plant and equipment in your area of responsibility
- KU20.** an appreciation of the main principles of health and safety and environmental legislation and regulations relevant to mines
- KU21.** industrial standards relevant to area of responsibility
- KU22.** the principal activities involved in mine extraction
- KU23.** types, features, advantages and limitations of mineral extracting systems
- KU24.** principals and methods to keep production faces aligned with the survey/plan
- KU25.** the main functions within the operational cycle
- KU26.** type, size and gauge of support systems used in area of responsibility.
- KU27.** physical indications of excessive loads on roof supports (e.g. rockbolts, etc.) and actions to be taken in accordance to tell-tale readings and status of trigger points
- KU28.** manufacturers' and organizational instructions relating to the use of equipment and tools provided for mineral extraction



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- KU29.** manufacturers' and organizational instructions relating to the storage, maintenance and servicing of equipment and tools provided for mineral extraction
- KU30.** plant/equipment isolation/lock-off policies and procedures.
- KU31.** maintenance procedures for dust suppression systems
- KU32.** various SOP followed in the organization
- KU33.** various occupational diseases/hazards that are likely in the given work set up.

Generic Skills (GS)

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

- GS1.** read equipment manuals and process documents to understand the equipment and processes better
- GS2.** read internal information memos send by internal customers (other functions within the organization)
- GS3.** document in formation from the sketches and engineering drawings
- GS4.** note measurements, equipment panel readings for various process parameters in the required reporting formats
- GS5.** understand and analyse the available data about the site
- GS6.** discuss tasklists, schedules, and work-loads with the operative co-workers
- GS7.** answer internal customers to clarify the nature ofthe problem and make a diagnosis
- GS8.** discuss task lists, schedules and activities with the operators and line leaders
- GS9.** effectively communicate with the team members , question the operator/in order to understand the nature of the problem and to clarify queries
- GS10.** attentively listen with full attention and comprehend the information given by the speaker
- GS11.** plan and organize the work order and jobs received from the internalcustomers
- GS12.** plan and organize the design documents received from internal customers.
- GS13.** organize all process/equipment manuals so that sorting out information is fast
- GS14.** use common sense andmake judgments during day to day basis
- GS15.** use analytical skills to identify and resolve problems or defects in the working of various processes
- GS16.** intuition to detect any potential problems which could arise
- GS17.** carefully run the mining operations in case of delays
- GS18.** detect and resolve the problems occurring on a day today tasks
- GS19.** consider all the available information, analyse and make effective decisions toensure smooth running of the mining operations regularly as well as during emergency conditions



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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Protect personnel working in vicinity of mineral production faces</i>	11	27	-	11
PC1. oversee end-to-end mining operations and follow the duties of a Mining Mate as mentioned in the regulations by DGMS	1	2	-	1
PC2. check if he finds any person in a place other than the one assigned to him, may communicate the same to that person, and shall forth with report the matter	-	1	-	-
PC3. observe if any inexperienced person is employed on any work except under the supervision of an experienced person and report the same to the superior	1	2	-	1
PC4. report to superior official any deficiency in timber, appliances and other necessities required for the safe working of the district	-	1	-	-
PC5. take care that any dangerous operation is carried out with due precaution, and in such cases shall be present through out whenever any work of clearing falls of ground and setting of supports there in is being carried out	-	1	-	-
PC6. ensure not to leave the district under his charge until the end of the shift or until relieved by a duly appointed substitute	1	2	-	1
PC7. check if the mine is worked by a continuous succession of shifts, shall, before leaving his district, confer with the sirdar or competent persons succeeding him, and shall acquaint him with all matters requiring personal attention and give such other information as maybe necessary for the safety of his district and of the persons employed there in	1	2	-	1
PC8. monitor, record and control the number of persons in respective area of responsibility	-	1	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC9. observe that staff working within the area of responsibility gets aware if any hazardous situation has occurred and knows the appropriate action to be taken to inform others without jeopardizing the safety of self	1	2	-	1
PC10. carry out checks on the competency of persons employed in mineral extracting	1	2	-	1
PC11. communicate with staff to position them appropriately in order to prevent contact with moving plant/equipment/machine parts	-	1	-	-
PC12. observe the usage of appropriate personal protective equipment	1	2	-	1
PC13. check to ensure personnel are not exposed to excessive work hazards (e.g.vibration, hazardous substances)	1	2	-	1
PC14. observe that manual handling tasks are minimized by the use of mechanical lifting devices.	1	2	-	1
PC15. confirm checks on safety devices have been carried out	1	2	-	1
PC16. identify problems (e.g. obstructions, geological movements, mechanical or service failure)and report to the appropriate person for advice or repair/remedial action	1	2	-	1
<i>Oversee mineral extraction</i>	7	11	-	4
PC17. monitor the operational cycle and all relevant operations within area of responsibility/specific district	1	2	-	1
PC18. check if the material needs for the production unit are met using material transport system and report in case of any inconsistencies	1	2	-	1
PC19. co-ordinate face operations to maintain a true line of advance or retreat to prevent excessive face creep.	1	2	-	1
PC20. oversee the immediate advance and setting of support (temporary/permanent) to combat poor roof conditions/face conditions and supervise the application of the support rules	1	2	-	1

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC21. check the dressing of exposed ground	1	1	-	-
PC22. co-ordinate work operations to ensure that each ongoing activity does not affect the activities, health, and safety of others within your sphere of responsibility	1	1	-	-
PC23. complete records/reports according to legislative requirements and organizational procedures	1	1	-	-
<i>Oversee inspection and maintenance of mineral production faces and associated equipment</i>	12	12	-	5
PC24. check that all haulage, storage, purification, and distribution work is performed efficiently and in compliance with statutory and other regulations	1	1	-	1
PC25. monitor that all traveling roadways to, and working places in, his district are made and kept secure	1	1	-	1
PC26. check to ensure fire hydrants and/or other firefighting equipment is correctly sited, installed, undamaged, and, fit for purpose in accordance with regulatory requirements and organizational procedures and operational requirements	1	1	-	1
PC27. implement isolation and lock-off procedures for plant/equipment as required for adjustments or routine or forced maintenance	1	1	-	-
PC28. oversee planned maintenance of respirable/combustible dust suppression equipment	1	1	-	-
PC29. confirm that all safety devices fitted to mineral extraction and clearance system/s are in place and operational	1	1	-	-
PC30. confirm that all service pipes, hoses, high tension cables, and trailing cables are identified, color-coded, stored correctly and have appropriate safety devices attached	1	1	-	1
PC31. check that services system (e.g.cable handling devices)are supported, free moving and have sufficient storage to allow safe face advance/retreat	1	1	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC32. confirm that girder cradles/integrated working platforms associated with setting supports are available and in good order	1	1	-	-
PC33. confirm that support installations/extraction systems/materialshandling/mineral processing machinery/equipment areserviced/maintained in accordance with manufacturers/companyprocedures	1	1	-	1
PC34. check that suitable and sufficient repairs have been carried out safely on damaged/faulty items of mineral extraction equipment	1	1	-	-
PC35. carry out organisational procedures for defects found that cannot be rectified immediately.	1	1	-	-
NOS Total	30	50	-	20



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National Occupational Standards (NOS) Parameters

NOS Code	MIN/N1211
NOS Name	Supervise mineral production at point of extraction
Sector	Mining
Sub-Sector	Mining Operation
Occupation	Drilling/Cutting, Shot firing/Blasting, Loading and Hauling - Opencast, Loading and Hauling - Underground, Specialized Operations
NSQF Level	5
Credits	TBD
Version	1.0
Last Reviewed Date	27/01/2022
Next Review Date	17/11/2025
NSQC Clearance Date	17/11/2022

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MIN/N1212: Oversee the safety of the mining operations

Description

This unit is about being able to monitor all the major hazards within the mine and apply control measures according to organizational requirements within the area and limits of their responsibilities. It will include observation and testing, carrying out procedures, and subsequently recording/reporting.

Scope

The scope covers the following :

- Carry out monitoring and analysis
- Protection and Sustenance of a safe working environment

Elements and Performance Criteria

Carry out monitoring and analysis

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

- PC1.** make such inspection and reports as are required by the various applicable regulations, and in making such examination, shall pay particular attention to edges of the go af,ifany,for checking supports
- PC2.** take appropriate steps to handle the dangerous situations observed during the inspection, as per the requirement
- PC3.** carryout the provisions as per regulations, in case any accumulation of inflammable or noxious gases is found
- PC4.** proceed at once to the place of accident (on receipt of information of an accident met by any person in his district), inspect the place and, if required, supervise the rescue operations, and shall report or send notice of the accident to the mine manager
- PC5.** complete records/reports according to legislative requirements and organisational procedures

Protection and Sustenance of a safe working environment

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

- PC6.** check that equipment provided to prevent friction alignments/drain gas are in place and working in accordance with statutory, company and manufacturers specifications
- PC7.** check ventilation system is operational within organisational limits
- PC8.** check that the gas/smoke monitoring/detection equipment is correctly Positioned and operational
- PC9.** operate and interpret readings from gas detection/monitoringequipment
- PC10.** check geological conditions are with in normal operational parameters
- PC11.** monitor the operations of dusts uppression/neutralisation equipment Implementaction to address any short comings arising in the ventilation system which may adversely affect the quality of the mine environment with in area of responsibility
- PC12.** communicate environmental problems/short fall in quality of the mine environment outside your limits of responsibility to the relevantperson/s according to organisational procedures



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Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** different types of mines and detail of the mine he is working in
- KU2.** mine organisation, timekeeping, 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.** mining safety procedures
- KU9.** impact of violation of safely procedures
- KU10.** relevant mining standards and procedures followed in company in detail
- KU11.** processes like Procurement, Store management, inventory management, quality management and key contact points for query resolution
- KU12.** quality norms and standards prescribed in the Quality Manual by the organization for painting
- KU13.** 5S and Safety norms practiced in the organization
- KU14.** impact of rises and falls in air temperature on the physical/atmospheric working conditions below ground(heat, humidity, condensation, saturation)
- KU15.** the effect as harprise or fall in barometric pressure will have on the behaviour of gases below ground
- KU16.** the gases indigenous/imported to a mine that may have an adverse effect on humans
- KU17.** for such gases encountered whether they are toxic, suffocating and/or explosive
- KU18.** for each gas encountered in your area of responsibility, their physiological effect on humans
- KU19.** the dusts/hazardous substances indigenous/imported to a mine that may have an adverse effect on humans
- KU20.** for such dusts/hazardous substances encountered whether they are explosive, carcinogenic, harmful, irritant, corrosive or toxic
- KU21.** ground movement/changes in strata conditions that can affect integrity Of the mine/area, and corrective/remedial/reporting procedures to be followed
- KU22.** personal protective equipment for the work area, its correct use and maintenance
- KU23.** methods used to measure airflow and corrective actions to be taken if below required levels
- KU24.** personal protective equipment for the work area, its correct use and maintenance
- KU25.** methods used to measure airflow and corrective actions to be taken if below required levels
- KU26.** the monitoring equipment for detecting the inception of spontaneous combustion and/or fire
- KU27.** action to be taken should personnel be exposed to atmospheric conditions/gases/dusts/hazardous substances in excess of prescribed limits(including reports)
- KU28.** procedures for installation of additional ventilation equipment to dilute and remove accumulations of gases, including if applicable de-gassing

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Generic Skills (GS)

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

- GS1.** read equipment manuals and process documents to understand the equipment and processes better
- GS2.** read internal information memos send by internal customers (other functions within the organization)
- GS3.** document in formation from the sketches and engineering drawings
- GS4.** note measurements, equipment panel readings for various process parameters in the required reporting formats
- GS5.** understand and analyse the available data about the site
- GS6.** discuss tasklists, schedules, and work-loads with the operative co-workers
- GS7.** answer internal customers to clarify the nature ofthe problem and make a diagnosis
- GS8.** discuss task lists, schedules and activities with the operators and line leaders
- GS9.** effectively communicate with the team members , question the operator/in order to understand the nature of the problem and to clarify queries
- GS10.** attentively listen with full attention and comprehend the information given by the speaker
- GS11.** plan and organize the work order and jobs received from the internalcustomers
- GS12.** plan and organize the design documents received from internal customers.
- GS13.** organize all process/equipment manuals so that sorting out information is fast
- GS14.** use common sense andmake judgments during day to day basis
- GS15.** use analytical skills to identify and resolve problems or defects in the working of various processes
- GS16.** intuition to detect any potential problems which could arise
- GS17.** carefully run the mining operations in case of delays
- GS18.** detect and resolve the problems occurring on a day today tasks
- GS19.** consider all the available information, analyse and make effective decisions toensure smooth running of the mining operations regularly as well as during emergency conditions

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Carry out monitoring and analysis</i>	13	22	-	7
PC1. make such inspection and reports as are required by the various applicable regulations, and in making such examination, shall pay particular attention to edges of the go af,ifany,for checking supports	3	5	-	2
PC2. take appropriate steps to handle the dangerous situations observed during the inspection, as per the requirement	3	5	-	2
PC3. carryout the provisions as per regulations, in case any accumulation of inflammable or noxious gases is found	2	4	-	1
PC4. proceed at once to the place of accident (on receipt of information of an accident met by any person in his district), inspect the place and, if required, supervise the rescue operations, and shall report or send notice of the accident to the mine manager	3	4	-	1
PC5. complete records/reports according to legislative requirements and organisational procedures	2	4	-	1
<i>Protection and Sustenance of a safe working environment</i>	17	28	-	13
PC6. check that equipment provided to prevent friction alignitions/drain gas are in place and working in accordance with statutory, company and manufacturers specifications	2	4	-	1
PC7. check ventilation system is operational within organisational limits	2	4	-	2
PC8. check that the gas/smoke monitoring/detection equipment is correctly Positioned and operational	2	4	-	2
PC9. operate and interpret readings from gas detection/monitoringequipment	3	4	-	2



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. check geological conditions are with in normal operational parameters	2	4	-	2
PC11. monitor the operations of dusts uppression/neutralisation equipment Implementaction to address any short comings arising in the ventilation system which may adversely affect the quality of the mine environment with in area of responsibility	3	4	-	2
PC12. communicate environmental problems/short fall in quality of the mine environment outside your limits of responsibility to the relevantperson/s according to organisational procedures	3	4	-	2
NOS Total	30	50	-	20



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Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	MIN/N1212
NOS Name	Oversee the safety of the mining operations
Sector	Mining
Sub-Sector	Mining Operation
Occupation	Drilling/Cutting, Shot firing/Blasting, Loading and Hauling - Opencast, Loading and Hauling - Underground, Specialized Operations
NSQF Level	5
Credits	TBD
Version	1.0
Last Reviewed Date	27/01/2022
Next Review Date	17/11/2025
NSQC Clearance Date	17/11/2022



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MIN/N1213: Supervise Blasting Operation

Description

This unit is designed for the candidate to demonstrate competence to organize and supervise all work involving the use of explosives. It covers the day-to-day use of explosives, and the activities of those involved in blast design, shot-firing, explosives storage and transportation.

Scope

The scope covers the following :

- Supervise the preparation for the blast
- Supervise firing of the blast
- Confirm conclusion of the blast

Elements and Performance Criteria

Supervise the preparation for the blast

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

- PC1.** check that the blast specification(s) are according to approved procedures and practices
- PC2.** check that the changes to the blast specifications are in line with the defined requirements
- PC3.** make arrangements for the delivery and receipt of sufficient, suitable materials to meet the blast specification.
- PC4.** maintain the adequate security measures for on-site explosives and ensure that the records are completed
- PC5.** monitor the timely issue of the explosives to relevant person(s) in accordance to approved practices and procedures
- PC6.** carry out the checks to ensure activities involving the use, transportation and storage of explosives or explosive substances are carried out by relevant person(s)
- PC7.** make the arrangements to ensure environmental controls are set up and monitored to meet local requirements
- PC8.** identify and establish the blast sites according to approved procedures and practices.
- PC9.** identify the potential risks and appropriate action taken to eliminate or minimise.
- PC10.** identify and communicate the requirements for safety and security of the blast operations

Supervise firing of the blast

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

- PC11.** monitor the establishment of the checks and their conduct to confirm the blasts conform to the blast specification.
- PC12.** check that the limits of the danger zone are confirmed and approved according to approved procedures and practices
- PC13.** check that the tools and equipment are approved as safe and suitable to meet the blast specification
- PC14.** check that the arrangements are made to ensure the removal of surplus explosives and the disposal of packaging.



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- PC15.** check that the position and form of the blast initiation site are confirmed and approved according to site operational procedures
- PC16.** inspect that the checks are carried out to confirm warning and security arrangements are in place and operating according to approved procedures and practices
- PC17.** ensure that the procedures are implemented to confirm evacuation of the danger area, and that visitors and contractors are in designated areas
- PC18.** review the work of the shotfirer to blast at an agreed time is given when operating and environmental conditions are confirmed suitable according to approved procedures and practices

Confirm conclusion of the blast

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

- PC19.** maintain and store records in accordance with operational and organisational rules and procedures
- PC20.** carry out the post-blast inspection according to approved procedures and practices
- PC21.** ensure the approval of the post-blast remedial work according to operational procedures
- PC22.** on completion of the blasting operation, ensure the removal of warning and security arrangements, and signal that the area is returned to normal operational status, according to approved procedures and practices
- PC23.** monitor and record the over pressure and ensure they conform to local requirements
- PC24.** monitor the site-specific shot firing rules and procedures and provide the relevant recommendations

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** different types of mines and detail of the mine he is working in
- KU2.** mine organization, 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.** mining safety procedures
- KU9.** impact of violation of safety procedures
- KU10.** relevant mining standards and procedures followed in company in detail
- KU11.** processes like Procurement, Store management, inventory management, quality management and key contact points for query resolution.
- KU12.** 5S and Safety norms practiced in the organization
- KU13.** importance of controlling, recording and analysis of ground vibration/air over pressure
- KU14.** importance of recording aspects of blast performance
- KU15.** importance of responsibilities under the Health and Safety Statutory Requirements, PESO, DGMS Guidelines, etc.



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- KU16.** site shot firing rules
- KU17.** relevant legislation and standards
- KU18.** types and use of communication systems
- KU19.** approved procedures and practices in the context of the operations, the work activity and the workplace environment (organizational; environmental;regulatory;emergency;operational)
- KU20.** legislation in relation to blasting in the situation and context (e.g. quarry,mine,tunnel)
- KU21.** safe and secure storage of explosive substances
- KU22.** importance of maintenance of explosive storage facilities, such as magazine, etc.
- KU23.** recording of explosives/explosive materials in storage and use
- KU24.** transportation methods for explosive substances

Generic Skills (GS)

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

- GS1.** read equipment manuals and process documents to understand the equipment and processes better
- GS2.** read internal information memos send by internal customers (other functions within the organization)
- GS3.** document in formation from the sketches and engineering drawings
- GS4.** note measurements, equipment panel readings for various process parameters in the required reporting formats
- GS5.** understand and analyse the available data about the site
- GS6.** discuss tasklists, schedules, and work-loads with the operative co-workers
- GS7.** answer internal customers to clarify the nature ofthe problem and make a diagnosis
- GS8.** discuss task lists, schedules and activities with the operators and line leaders
- GS9.** effectively communicate with the team members , question the operator/in order to understand the nature of the problem and to clarify queries
- GS10.** attentively listen with full attention and comprehend the information given by the speaker
- GS11.** plan and organize the work order, jobs, design documents, or any other information received from the internal departments/teams
- GS12.** organize all process/equipment manuals so that sorting out information is fast
- GS13.** use common sense andmake judgments during day to day basis
- GS14.** use analytical skills to identify and resolve problems or defects in the working of various processes
- GS15.** detect any potential problems which could arise
- GS16.** run the mining operations,carefully, in case of delays
- GS17.** detect and resolve the problems occurring in day-to-day tasks
- GS18.** consider all the available information, analyse and make effective decisions to ensure smooth running of the mining operations regularly as well as during emergency conditions

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Supervise the preparation for the blast</i>	13	22	-	7
PC1. check that the blast specification(s) are according to approved procedures and practices	1	2	-	-
PC2. check that the changes to the blast specifications are in line with the defined requirements	1	2	-	-
PC3. make arrangements for the delivery and receipt of sufficient, suitable materials to meet the blast specification.	1	2	-	-
PC4. maintain the adequate security measures for on-site explosives are and ensure that the records are completed	2	3	-	1
PC5. monitor the timely issue the explosives to relevant person(s) in accordance to approved practices and procedures	2	3	-	1
PC6. carry out the checks to ensure activities involving the use, transportation and storage of explosives or explosive substances are carried out by relevant person(s)	2	2	-	1
PC7. make the arrangements to ensure environmental controls are set up and monitored to meet local requirements	1	2	-	1
PC8. identify and establish the blast sites according to approved procedures and practices.	1	2	-	1
PC9. identify the potential risks and appropriate action taken to eliminate or minimise.	1	2	-	1
PC10. identify and communicate the requirements for safety and security of the blast operations	1	2	-	1
<i>Supervise firing of the blast</i>	11	16	-	8
PC11. monitor the establishment of the checks and their conduct to confirm the blasts it conforms to the blast specification.	1	2	-	1

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. check that the limits of the danger zone are confirmed and approved according to approved procedures and practices	1	2	-	1
PC13. check that the tools and equipment are approved as safe and suitable to meet the blast specification	1	2	-	1
PC14. check that the arrangements are made to ensure the removal of surplus explosives and the disposal of packaging.	1	2	-	1
PC15. check that the position and form of the blast initiation site are confirmed and approved according to site operational procedures	1	2	-	1
PC16. inspect that the checks are carried out to confirm warning and security arrangements are in place and operating according to approved procedures and practices	2	2	-	1
PC17. ensure that the procedures are implemented to confirm evacuation of the danger area, and that visitors and contractors are indesignated areas	2	2	-	1
PC18. review the work of the shotfirer to blast at an agreed time is given when operating and environmental conditions are confirmed assuitable according to approved procedures and practices	2	2	-	1
<i>Confirm conclusion of the blast</i>	6	12	-	5
PC19. maintain and store records in accordance with operational and organisational rules and procedures	1	2	-	-
PC20. carry out the post-blast in spection according to approved procedures and practices	1	2	-	1
PC21. ensure the approval of the post-blast remedial work according to operational procedures	1	2	-	1
PC22. on completion of the blasting operation, ensure the removal of warning and security arrangements, and signal that the area is returned to normal operational status, according to approved procedures and practices	1	2	-	1



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC23. monitor and record the over pressure and ensure their conform ancetolocal requirements	1	2	-	1
PC24. monitor the site-specific shot firing rules and procedures and provide the relevant recommendations	1	2	-	1
NOS Total	30	50	-	20



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Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	MIN/N1213
NOS Name	Supervise Blasting Operation
Sector	Mining
Sub-Sector	Mining Operation
Occupation	Drilling/Cutting, Shot firing/Blasting, Loading and Hauling - Opencast, Loading and Hauling - Underground, Specialized Operations
NSQF Level	5
Credits	TBD
Version	1.0
Last Reviewed Date	27/01/2022
Next Review Date	17/11/2025
NSQC Clearance Date	17/11/2022



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Qualification Pack

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

Qualification Pack

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
NSQC 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

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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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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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REIMAGINE FUTURE

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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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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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 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 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/N1211.Supervise mineral production at point of extraction	30	50	-	20	100	15
MIN/N1212.Oversee the safety of the mining operations	30	50	-	20	100	25
MIN/N1213.Supervise Blasting Operation	30	50	-	20	100	25
DGT/VSQ/N0102.Employability Skills (60 Hours)	20	30	-	-	50	10
Total	110	180	-	60	350	75

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	25
Total	30	50	-	20	100	25



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Elective: 2 Opencast

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	25
Total	30	50	-	20	100	25

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	25
Total	30	50	-	20	100	25



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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
NOS	National Occupational Standard(s)
QP	Qualification Pack
NSQF	National Skills Qualifications Framework
TVET	Technical and Vocational Education and Training
SCMS	Skill Council for Mining Sector
ROPS	Roll-Over Protection Structure
FOPS	Falling Object Protective Structure
PC	Performance Criteria
HEMM	Heavy Earth Moving Machinery
OEM	Original Equipment Manufacturer
DGMS	Directorate General of Mining Safety
MMR	Metalliferous Mines Regulations
CMR	Coal Mines Regulations
SOP	Standard Operating Practice
MVTR	Mine Vocational Training Rules
MRR	Mines Rescue Rules
HSE	health, safety & environment
OB	Over Burden
ERP	Enterprise resource planning
MCDR	Mineral Conservation and Development Rules

Qualification Pack

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.
Sector	A 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	a 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 the industry.
Occupational Standards	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 Standard	NOS are occupational standards which apply uniquely in the Indian context.



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Qualification Pack	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 role
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.