



Model Curriculum

QP Name: Mining Mate/Sirdar

Electives: Underground Metal/ Opencast/ Underground Coal

QP Code: MIN/Q1204

QP Version: 2.0

NSQF Level: 5

Model Curriculum Version: 2.0

Skill Council for Mining Sector || B-311, Okhla Industrial Area, Phase-I, New Delhi-110020
Website: www.skillcms.in



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Training Parameters

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|---|---|
| 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 |
| Aligned to NCO/ISCO/ISIC Code | NCO-2015/3121.9900, NCO-2015/3121.0500 |
| Minimum Educational Qualification and 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 |
| Pre-Requisite License or Training | Valid Gas testing certificate only, in case of underground mines and valid first-aid certificate |
| Minimum Job Entry Age | 20 years |
| Last Reviewed On | 27/01/2022 |
| Next Review Date | 27/01/2025 |
| NSQC Approval Date | 27/01/2022 |
| QP Version | 1.0 |
| Model Curriculum Creation Date | 27/01/2022 |
| Model Curriculum Valid Up to Date | 27/01/2025 |
| Model Curriculum Version | 2.0 |
| Minimum Duration of the Course | 600 hours |
| Maximum Duration of the Course | 600 hours |

Program Overview

This section summarizes the end objectives of the program along with its duration.

Training Outcomes

At the end of the program, the learner will be able to:

- Discuss how to supervise mineral production at point of extraction.
- Demonstrate how to oversee the safety of the mining operations.
- Display how to supervise blasting operations.
- Discuss health, safety and environmental guidelines for underground metalliferous mines, coalmines and open cast mines.

Compulsory Modules

The table lists the modules, their duration and mode of delivery.

| NOS and Module Details | Theory Duration (hrs) | Practical Duration (hrs) | On-the-Job Training Duration (Mandatory) (hrs) | On-the-Job Training Duration (Recommended) (hrs) | Total Duration (hrs) |
|--|-----------------------|--------------------------|--|--|----------------------|
| Bridge Module | 10:00 | 00:00 | 00:00 | | 10:00 |
| Module 1 - Introduction to the sector and the job role of Mining Mate/Sirdar | 10:00 | 00:00 | 00:00 | | 10:00 |
| MIN/N1211: Supervise mineral production at point of extraction <i>NOS Version No. 1</i> NSQF Level- 5 | 20:00 | 30:00 | 90:00 | | 140:00 |
| Module 2: Supervise mineral production at point of extraction | 20:00 | 30:00 | 90:00 | | 140:00 |
| MIN/N1212: Oversee the safety of the mining operations <i>NOS Version No.1</i> NSQF Level- 5 | 30:00 | 40:00 | 50:00 | | 120:00 |
| Module 3: Oversee the safety of the mining operations | 30:00 | 40:00 | 50:00 | | 120:00 |
| MIN/N1213: Supervise blasting operations <i>NOS Version No.1</i> NSQF Level- 5 | 20:00 | 40:00 | 60:00 | | 120:00 |
| Module 4: Supervise blasting operations | 20:00 | 40:00 | 60:00 | | 120:00 |
| DGT/VSQ/N0102: Employability Skills (60 Hours) NOS Version No. 1 | 24:00 | 36:00 | 00:00 | - | 60:00 |

| | | | | | |
|---|---------------|---------------|---------------|---|---------------|
| NSQF Level- 4 | | | | | |
| Introduction to Employability Skills | 00:30 | 01:00 | 00:00 | - | 01:30 |
| Constitutional values - Citizenship | 00:30 | 01:00 | 00:00 | - | 01:30 |
| Becoming a Professional in the 21st Century | 01:00 | 01:30 | 00:00 | - | 02:30 |
| Basic English Skills | 04:00 | 06:00 | 00:00 | - | 10:00 |
| Career Development & Goal Setting | 01:00 | 01:00 | 00:00 | - | 02:00 |
| Communication Skills | 02:00 | 03:00 | 00:00 | - | 05:00 |
| Diversity & Inclusion | 01:00 | 01:30 | 00:00 | - | 02:30 |
| Financial and Legal Literacy | 02:00 | 03:00 | 00:00 | - | 05:00 |
| Essential Digital Skills | 04:00 | 06:00 | 00:00 | - | 10:00 |
| Entrepreneurship | 03:00 | 04:00 | 00:00 | - | 07:00 |
| Customer Service | 02:00 | 03:00 | 00:00 | - | 05:00 |
| Getting Ready for Apprenticeship & Jobs | 03:00 | 05:00 | 00:00 | - | 08:00 |
| Total Duration | 104:00 | 146:00 | 200:00 | | 450:00 |

Elective Modules- (mandatory to select at least one)

The table lists the elective modules, their duration and mode of delivery.

Elective 1: Underground Metal

| NOS and Module Details | Theory Duration (hrs) | Practical Duration (hrs) | On-the-Job Training Duration (Mandatory) (hrs) | On-the-Job Training Duration (Recommended) (hrs) | Total Duration (hrs) |
|--|-----------------------|--------------------------|--|--|----------------------|
| MIN/N1702: Follow Health, Safety and Environmental guidelines for Underground Metalliferous Mines (UMM) (Including Mine Vocational Training Rule and Mine Rescue Rule) NOS Version No. 1 NSQF Level-4 | 40:00 | 40:00 | 70:00 | | 150:00 |
| Module 5: Follow Health, Safety and Environmental Guidelines for Underground Metalliferous Mines | 40:00 | 40:00 | 70:00 | | 150:00 |
| Total Duration | 40:00 | 40:00 | 70:00 | | 150:00 |

Elective 2: Opencast

| NOS and Module Details | Theory Duration (hrs) | Practical Duration (hrs) | On-the-Job Training Duration (Mandatory) (hrs) | On-the-Job Training Duration (Recommended) (hrs) | Total Duration (hrs) |
|---|-----------------------|--------------------------|--|--|----------------------|
| MIN/N1703: Follow Health, Safety, and Environmental Guidelines for opencast mines (Including Mine Vocational Training Rule) NOS Version No. 1 NSQF Level-4 | 40:00 | 40:00 | 70:00 | | 150:00 |
| Module 6: Follow Health, Safety and Environmental Guidelines for Opencast Mines | 40:00 | 40:00 | 70:00 | | 150:00 |
| Total Duration | 40:00 | 40:00 | 70:00 | | 150:00 |

Elective 3: Underground Coal

| NOS and Module Details | Theory Duration (hrs) | Practical Duration (hrs) | On-the-Job Training Duration (Mandatory) (hrs) | On-the-Job Training Duration (Recommended) (hrs) | Total Duration (hrs) |
|--|-----------------------|--------------------------|--|--|----------------------|
| MIN/N1704: Follow Health, Safety, and Environmental guidelines for underground coal mines (Including Mine Vocational Training Rule and Mine Rescue Rule) NOS Version No. 1 NSQF Level-4 | 40:00 | 40:00 | 70:00 | | 150:00 |
| Module 7: Follow Health, Safety and Environmental Guidelines for Underground Coal Mines | 40:00 | 40:00 | 70:00 | | 150:00 |
| Total Duration | 40:00 | 40:00 | 70:00 | | 150:00 |

Module Details

Module 1: Introduction to the sector and the job role of Mining Mate/Sirdar *Bridge Module*

Terminal Outcomes:

- Discuss the scope of mining industry.
- Explain the role and responsibility of the Mining Mate/Sirdar

| <i>Duration:10:00</i> | <i>Duration:00:00</i> |
|--|--|
| Theory – Key Learning Outcomes | Practical – Key Learning Outcomes |
| <ul style="list-style-type: none"> • Explain the importance of the mining industry. • Discuss the provision of wages, working hours, leave, and accident compensation as per the Mines Act-1952. • Explain the different types of mines such as open cast mines, underground mines, etc. • List basic terminologies and machineries used in Opencast Mines, underground mines, etc. • Describe the working cycle of opencast mines, underground mines, etc. • List the role and responsibilities of the Mining Mate / Sirdar • Explain various types of risks involved in Underground Mines, Open cast mines, Rare Earth Chemical Plants. | |
| Classroom Aids | |
| LCD Projector, Laptop/Computer with internet, White Board, Flip Chart, Markers | |
| Tools, Equipment and Other Requirements | |
| Posters for describing different types of mines. | |

Module 2: Supervise mineral production at point of extraction

Mapped to MIN/N1211, v1.0

Terminal Outcomes:

- Discuss the ways to protect personnel working in vicinity of mineral production faces
- Show how to oversee mineral extraction
- Explain how to oversee inspection and maintenance of mineral production faces and associated equipment

| Duration:20:00 | Duration:30:00 |
|---|--|
| Theory – Key Learning Outcomes | Practical – Key Learning Outcomes |
| <ul style="list-style-type: none"> • Discuss about different types of mines and detail of the mine he is working in. • Describe about the oversee end-to-end mining operations and follow the duties of a Mining Mate as mentioned in the regulations by DGMS. • Throw light on mine organisation, time keeping, need for discipline and punctuality. • Explain how to 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. • Explain the benching in quarries, dressing of overhangs, undercuts, fencing, first-aid and hygiene. • Describe how to 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. • State the standing orders in force at the mine. Safety in the vicinity of machinery. • Discuss about shot-firing and safety regulations. How and where to take shelter. • Throw light on how to ensure not to leave the district under his charge until the end of the shift or until relieved by a duly appointed substitute. • Highlight the duties of workmen. • Throw light on the provision of wages, working hours and accident compensation as per Mines act. • State the mining safety procedures. • Elucidate the impact of violation of safety procedures. • Discuss the relevant mining standards and | <ul style="list-style-type: none"> • Role play the situation on how to report to superior official any deficiency in timber, appliances and other necessities required for the safe working of the district. • Apply suitable techniques to 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. • Demonstrate how to check if the mine is worked by a continuous succession of shifts, shall, before leaving his district, confer with the sirdar or competent person 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. • Show how to monitor, record and control the number of persons in respective area of responsibility). • Role play the situation on how to 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. • Display how to observe the usage of appropriate personal protective equipment. • Demonstrate how to observe that manual handling tasks are minimized by |

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| <p>procedures followed in the company in detail.</p> <ul style="list-style-type: none"> • Discuss how to carry out checks on the competency of persons employed in mineral extracting. • Explain the statutory requirements and organisational procedures for the operation of mineral production faces. • Explain how to communicate with staff to position them appropriately in order to prevent contact with moving plant/equipment/machine parts. • Describe the relevant approved codes of practice and guidance for working safely on production faces. • Highlight the organisational procedures in the event of problems/repairs occurring that are not immediately rectifiable. • Elucidate how to check to ensure personnel are not exposed to excessive work hazards (e.g. vibration, hazardous substances) • Elaborate the reporting/recording procedures for inspections carried out on mineral production systems under regulatory requirements or organizational procedures. • Throw light on 5-S and safety norms being practiced in the organization. • Throw light on how to confirm checks on safety devices have been carried out. • State the different types of mining processes used. • Highlight the statutory requirements and operational procedures for strata support. • Discuss the statutory requirements and organizational procedures for the inspection and maintenance of mineral extracting equipment. • Describe how to check if the material needs for the production unit are met using material transport system and report in case of any inconsistencies. • Elucidate the manufacturers' instructions and operational procedures for the use of plant and equipment in your area of responsibility. • Describe an appreciation of the main principles of health and safety and environmental legislation and regulations relevant to mines. • Cite the industrial standards relevant to area of responsibility. | <p>the use of mechanical lifting devices.</p> <ul style="list-style-type: none"> • Apply suitable techniques to identify problems (e.g. obstructions, geological movements, mechanical or service failure) and report to the appropriate person for advice or repair/remedial action. • Display how to monitor the operational cycle and all relevant operations within area of responsibility/specific district. • Show how to co-ordinate face operations to maintain a true line of advance or retreat to prevent excessive face creep. • Display how to 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. • Apply suitable techniques to check that all haulage, storage, purification, and distribution work is performed efficiently and in compliance with statutory and other regulations. • Show how to monitor that all traveling roadways to, and working places in, his district are made and kept secure. • Demonstrate how to 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. • Show how to confirm that all safety devices fitted to mineral extraction and clearance system/s are in place and operational. • Demonstrate how to confirm that all service pipes, hoses, high tension cables, and trailing cables are identified, color-coded, stored correctly and have appropriate safety devices attached. • Show how to confirm that support installations/extraction systems/materials handling/ mineral processing machinery/ equipment are serviced/maintained in accordance with manufacturers/ company procedures. |
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- Cite how to check the dressing of exposed ground.
- Highlight the principal activities involved in mineral extraction.
- Describe how to 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.
- Discuss the types, features, advantages and limitations of mineral extracting systems.
- Elaborate how to complete records/reports according to legislative requirements and organizational procedures.
- Elaborate the principals and methods to keep production faces aligned with the survey/plan.
- Cite the main functions within the operational cycle.
- Discuss about the type, size and gauge of support systems used in area of responsibility.
- Elaborate the physical indications of excessive loads on roof supports (e.g. rock-bolts, etc.) and actions to be taken in accordance to tell-tale readings and status of trigger points.
- Cite how to implement isolation and lock-off procedures for plant/equipment as required for adjustments or routine or forced maintenance.
- Throw light on the manufacturers' and organizational instructions relating to the use of equipment and tools provided for mineral extraction.
- Enlist how to oversee planned maintenance of respirable/combustible dust suppression equipment.
- Throw light on manufacturers' and organizational instructions relating to the storage, maintenance and servicing of equipment and tools provided for mineral extraction.
- Cite about the plant/equipment isolation/lock-off policies and procedures.
- Highlight the maintenance procedures for dust suppression systems.
- Explain how to check that services system (e.g.cable handling devices)are supported, free moving and have sufficient storage to allow safe face advance/retreat.
- Cite the various SOP followed in the

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| <p>organization.</p> <ul style="list-style-type: none"> • Discuss how to confirm that girder cradles/integrated working platforms associated with setting supports are available and in good order. • Explain the various occupational diseases/hazards that are likely in the given work set up. • Describe how to check that suitable and sufficient repairs have been carried out safely on damaged/faulty items of mineral extraction equipment. • Elucidate how to carry out organisational procedures for defects found that cannot be rectified immediately. | |
| <p>Classroom Aids</p> | |
| <p>LCD Projector, Laptop/Computer with internet, White Board, Flip Chart, Markers, Trainer Chair & Table, Demonstration Table, Pin Up Boards</p> | |
| <p>Tools, Equipment and Other Requirements</p> | |
| <p>Simple geological models – folds, faults, etc. Sample of rocks – different types (specimen)Hydrometer, Centigrade thermometers, Anemometers/ voltammeters, dummy explosives, detonators and fuses, Flame safety, magnetic unlocker, electrical lamps, fittings and accessories. Methanometers, Model of sinking shaft showing types of fans. Drilling tools and machines and accessories, Audio Visual Alarms, Safety Helmet, Gloves, Harness, earplugs/Ear muffs, goggles, nose mask, Dust mask, Safety shoes, Fire extinguisher, Gum boots, Visibility harness, Reflector Jacket, Fire Protective suits, Self-Rescuer Kit, Drone, First Aid box, Fire Fighting Chart, First Aid chart, LOTO (Lock Out Tag Out), Company’s SOP,</p> | |

Module 3: Oversee the safety of the mining operations

Mapped to MIN/N1212, v1.0

Terminal Outcomes:

- Discuss how to carry out monitoring and analysis
- Highlight on protection and sustenance of a safe working environment

| Duration:30:00 | Duration:40:00 |
|---|--|
| Theory – Key Learning Outcomes | Practical – Key Learning Outcomes |
| <ul style="list-style-type: none"> • Discuss the different types of mines and detail of the mine he is working in. • Describe how to 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 goaf, if any, for checking supports. • Throw light on mine organization, timekeeping, need for discipline and punctuality. • Elaborate on how to take appropriate steps to handle the dangerous situations observed during the inspection, as per the requirement. • Explain about benching in quarries, dressing of overhangs, undercuts, fencing, first aid and hygiene. • Discuss how to carry out the provisions as per regulations, in case any accumulation of inflammable or noxious gases is found. • Cite about standing orders in force at the mine. Safety in the vicinity of machinery. • Discuss about shot-firing and safety regulations. How and where to take shelter. • Highlight on how to complete records/reports according to legislative requirements and organizational procedures. • Highlight duties of workmen. • Enumerate the provision of wages, working hours and accident compensation as per Mines act. • Cite the mining safety procedures. • Throw light on the impact of violation of safety procedures. • Explain the relevant mining standards and procedures followed in company in detail. • Cite how to check geological conditions are with in normal operational parameters. • Describe the processes like Procurement, Store management, inventory management, | <ul style="list-style-type: none"> • Apply suitable techniques to 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. • Demonstrate how to check that equipment provided to prevent frictional ignitions/drain gas are in place and working in accordance with statutory, company and manufacturers specifications. • Show how to check ventilation system is operational within organisational limits. • Display how to check that the gas/smoke monitoring/detection equipment is correctly Positioned and operational. • Show how to operate and interpret readings from gas detection/monitoring equipment. • Apply suitable techniques to monitor the operations of dusts suppression/neutralisation equipment Implement action 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. • Role play the situation on how to communicate environmental problems/short fall in quality of the mine environment outside your limits of responsibility to the relevant person/s according to organisational procedures. |

quality management and key contact points for query resolution.

- Elaborate the quality norms and standards prescribed in the Quality Manual by the organization for painting.
- Highlight the 5S and Safety norms practiced in the organization.
- Describe the impact of rises and falls in air temperature on the physical/atmospheric working conditions below ground (heat, humidity, condensation, saturation).
- Explain the effect as harp rise or fall in barometric pressure will have on the behavior of gases below ground.
- Discuss about the gases indigenous/imported to a mine that may have an adverse effect on humans.
- Highlight for such gases encountered whether they are toxic, suffocating and/or explosive.
- Highlight for each gas encountered in your area of responsibility, their physiological effect on humans.
- Discuss about the dusts/hazardous substances indigenous/imported to a mine that may have an adverse effect on humans.
- Discuss about dusts/hazardous substances encountered whether they are explosive, carcinogenic, harmful, irritant, corrosive or toxic.
- Elaborate about ground movement/changes in strata conditions that can affect integrity of the mine/area, and corrective/ remedial/ reporting procedures to be followed.
- Enlist about the personal protective equipment for the work area, its correct use and maintenance.
- Highlight the methods used to measure airflow and corrective actions to be taken if below required levels.
- Enlist the personal protective equipment for the work area, its correct use and maintenance.
- Explain the methods used to measure airflow and corrective actions to be taken if below required levels.
- Describe about the monitoring equipment for detecting the inception of spontaneous combustion and/or fire.
- Elaborate the action to be taken should personnel be exposed to atmospheric conditions/ gases/ dusts/ hazardous

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| <p>substances in excess of prescribed limits (including reports).</p> <ul style="list-style-type: none"> • Throw light on the procedures for installation of additional ventilation equipment to dilute and remove accumulations of gases, including if applicable de-gassing. | |
| <p>Classroom Aids</p> | |
| <p>LCD Projector, Laptop/Computer with internet, White Board, Flip Chart, Markers, Trainer Chair & Table, Demonstration Table, Pin Up Boards</p> | |
| <p>Tools, Equipment and Other Requirements</p> | |
| <p>Simple geological models – folds, faults, etc. Sample of rocks – different types (specimen) Hydrometer, Centigrade thermometers, Anemometers/ voltammeters, dummy explosives, detonators and fuses, Flame safety, magnetic unlocker, electrical lamps, fittings and accessories. Methanometers, Model of sinking shaft showing types of fans. Drilling tools and machines and accessories, Audio Visual Alarms, Safety Helmet, Gloves, Harness, earplugs/Ear muffs, goggles, nose mask, Dust mask, Safety shoes, Fire extinguisher, Gum boots, Visibility harness, Reflector Jacket, Fire Protective suits, Self-Rescuer Kit, Drone, First Aid box, Fire Fighting Chart, First Aid chart, LOTO (Lock Out Tag Out), Company’s SOP,</p> | |

Module 4: Supervise Blasting Operation

Mapped to MIN/N1213, v1.0

Terminal Outcomes:

- Discuss how to supervise the preparation for the blast
- Show how to supervise firing of the blast
- Explain how to confirm conclusion of the blast

| <i>Duration:20:00</i> | <i>Duration:40:00</i> |
|---|--|
| Theory – Key Learning Outcomes | Practical – Key Learning Outcomes |
| <ul style="list-style-type: none"> • Discuss about the different types of mines and detail of the mine he is working in. • Explain how to check that the blast specification(s) are according to approved procedures and practices. • Throw light on the mine organization, time keeping, need for discipline and punctuality. • Discuss how to check that the changes to the blast specifications are in line with the defined requirements. • Explain the benching in quarries, dressing of overhangs, undercuts, fencing, first aid, and hygiene. • Highlight the standing orders in force at the mine, safety in the vicinity of machinery. • Discuss about the shot-firing and safety regulations. How and where to take shelter. • Cite the duties of workmen. • Describe about the provision of wages, working hours and accident compensation as per Mines act. • Throw light on how to make the arrangements to ensure environmental controls are set up and monitored to meet local requirements. • Cite the mining safety procedures. • Highlight about the identify and establish the blast sites according to approved procedures and practices. • Throw light on the impact of violation of safely procedures. • Throw light on how to identify the potential risks and appropriate action taken to eliminate or minimize. • Highlight the relevant mining standards and procedures followed in company in detail. • Describe the processes like Procurement, Store management, inventory management, quality management and key contact points for query resolution. | <ul style="list-style-type: none"> • Display how to make arrangements for the delivery and receipt of sufficient, suitable materials to meet the blast specification. • Show how to maintain the adequate security measures for on-site explosives and ensure that the records are completed. • Demonstrate how to monitor the timely issue the explosives to relevant person(s) in accordance to approved practices and procedures. • Show how to 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). • Show how to identify and communicate the requirements for safety and security of the blast operations. • Apply suitable techniques to monitor the establishment of the checks and their conduct to confirm the blasts it conforms to the blast specification. • Demonstrate how to check that the arrangements are made to ensure the removal of surplus explosives and the disposal of packaging. • Apply suitable techniques to review the work of the shot firer to blast at an agreed time is given when operating and environmental conditions are confirmed as suitable according to approved procedures and practices. • Show how to carry out the post-blast inspection according to approved procedures and practices. • Role play the situation on completion of the blasting operation, ensure the removal of warning and security arrangements, and signal that the area |

- Highlight the 5S and Safety norms practiced in the organization.
- Discuss how to check that the limits of the danger zone are confirmed and approved according to approved procedures and practices.
- Explain the importance of controlling, recording and analysis of ground vibration/air over pressure.
- Enlist how to check that the tools and equipment are approved as safe and suitable to meet the blast specification.
- Describe the importance of recording aspects of blast performance.
- Describe the importance of responsibilities under the Health and Safety Statutory Requirements, PESO, DGMS Guidelines, etc.
- Explain how to check that the position and form of the blast initiation site are confirmed and approved according to site operational procedures.
- Highlight the site shot firing rules.
- Discuss how to inspect that the checks are carried out to confirm warning and security arrangements are in place and operating according to approved procedures and practices.
- Cite the relevant legislation and standards.
- Elaborate how to ensure that the procedures are implemented to confirm evacuation of the danger area, and that visitors and contractors are in designated areas.
- Throw light on the types and use of communication systems.
- Describe the approved procedures and practices in the context of the operations, the work activity and the workplace environment (organizational; environmental; regulatory; emergency; operational).
- Highlight how to maintain and store records in accordance with operational and organizational rules and procedures.
- Highlight the legislation in relation to blasting in the situation and context (e.g. quarry, mine, tunnel).
- Cite the safe and secure storage of explosive substances.
- Describe how to ensure the approval of the post-blast remedial work according to operational procedures.
- Highlight the importance of maintenance of explosive storage facilities, such as

is returned to normal operational status, according to approved procedures and practices.

- Display how to monitor and record the over pressure and ensure their conform ancetolocal requirements.
- Show how to monitor the site-specific shot firing rules and procedures and provide the relevant recommendations.

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| <p>magazine, etc.</p> <ul style="list-style-type: none"> • Discuss about the recording of explosives/explosive materials in storage and use. • Cite the transportation methods for explosive substances. | |
| <p>Classroom Aids</p> | |
| <p>LCD Projector, Laptop/Computer with internet, White Board, Flip Chart, Markers, Trainer Chair & Table, Demonstration Table, Pin Up Boards</p> | |
| <p>Tools, Equipment and Other Requirements</p> | |
| <p>Simple geological models – folds, faults, etc. Sample of rocks – different types (specimen) Hydrometer, Centigrade thermometers, Anemometers/ voltammeters, dummy explosives, detonators and fuses, Flame safety, magnetic unlocker, electrical lamps, fittings and accessories. Methanometers, Model of sinking shaft showing types of fans. Drilling tools and machines and accessories, Audio Visual Alarms, Safety Helmet, Gloves, Harness, earplugs/Ear muffs, goggles, nose mask, Dust mask, Safety shoes, Fire extinguisher, Gum boots, Visibility harness, Reflector Jacket, Fire Protective suits, Self-Rescuer Kit, Drone, First Aid box, Fire Fighting Chart, First Aid chart, LOTO (Lock Out Tag Out), Company’s SOP,</p> | |

Employability Skills (60 Hours)

Mapped to DGT/VSQ/N0102, v1.0

| <i>Key Learning Outcomes</i> | |
|---|----------------------------|
| Introduction to Employability Skills | Duration: 1.5 Hours |
| <ol style="list-style-type: none"> 1. Discuss the Employability Skills required for jobs in various industries 2. List different learning and employability related GOI and private portals and their usage | |
| Constitutional values - Citizenship | Duration: 1.5 Hours |
| <ol style="list-style-type: none"> 3. Explain the constitutional values, including civic rights and duties, citizenship, responsibility towards society and personal values and ethics such as honesty, integrity, caring and respecting others that are required to become a responsible citizen 4. Show how to practice different environmentally sustainable practices. | |
| Becoming a Professional in the 21st Century | Duration: 2.5 Hours |
| <ol style="list-style-type: none"> 5. Discuss importance of relevant 21st century skills. 6. Exhibit 21st century skills like Self-Awareness, Behavior Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn etc. in personal or professional life. 7. Describe the benefits of continuous learning. | |
| Basic English Skills | Duration: 10 Hours |
| <ol style="list-style-type: none"> 8. Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone 9. Read and interpret text written in basic English 10. Write a short note/paragraph / letter/e-mail using basic English | |
| Career Development & Goal Setting | Duration: 2 Hours |
| <ol style="list-style-type: none"> 11. Create a career development plan with well-defined short- and long-term goals | |
| Communication Skills | Duration: 5 Hours |
| <ol style="list-style-type: none"> 12. Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette. 13. Explain the importance of active listening for effective communication 14. Discuss the significance of working collaboratively with others in a team | |
| Diversity & Inclusion | Duration: 2.5 Hours |
| <ol style="list-style-type: none"> 15. Demonstrate how to behave, communicate, and conduct oneself appropriately with all genders and PwD 16. Discuss the significance of escalating sexual harassment issues as per POSH act. | |
| Financial and Legal Literacy | Duration: 5 Hours |
| <ol style="list-style-type: none"> 17. Outline the importance of selecting the right financial institution, product, and service 18. Demonstrate how to carry out offline and online financial transactions, safely and securely 19. List the common components of salary and compute income, expenditure, taxes, investments etc. 20. Discuss the legal rights, laws, and aids | |
| Essential Digital Skills | Duration: 10 Hours |
| <ol style="list-style-type: none"> 21. Describe the role of digital technology in today's life 22. Demonstrate how to operate digital devices and use the associated applications and features, safely and securely 23. Discuss the significance of displaying responsible online behavior while browsing, using various social media platforms, e-mails, etc., safely and securely 24. Create sample word documents, excel sheets and presentations using basic features | |

| | |
|--|--------------------------|
| 25. utilize virtual collaboration tools to work effectively | |
| Entrepreneurship | Duration: 7 Hours |
| 26. Explain the types of entrepreneurship and enterprises 27. Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan 28. Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement 29. Create a sample business plan, for the selected business opportunity | |
| Customer Service | Duration: 5 Hours |
| 30. Describe the significance of analyzing different types and needs of customers 31. Explain the significance of identifying customer needs and responding to them in a professional manner. 32. Discuss the significance of maintaining hygiene and dressing appropriately | |
| Getting Ready for apprenticeship & Jobs | Duration: 8 Hours |
| 33. Create a professional Curriculum Vitae (CV) 34. Use various offline and online job search sources such as employment exchanges, recruitment agencies, and job portals respectively 35. Discuss the significance of maintaining hygiene and confidence during an interview 36. Perform a mock interview 37. List the steps for searching and registering for apprenticeship opportunities | |

Trainer Requirements

| Trainer Prerequisites | | | | | | |
|--|--|------------------------------|----------------|---------------------|---------------------|--|
| Minimum Educational Qualification | Specialization | Relevant Industry Experience | | Training Experience | | Remarks |
| | | Years | Specialization | Years | Specialization | |
| Graduate/CITS | Any discipline | - | - | 2 | Teaching experience | Prospective ES trainer should: <ul style="list-style-type: none"> • have good communication skills • be well versed in English • have digital skills • have attention to detail • be adaptable • have willingness to learn |
| Current ITI trainers | Employability Skills Training (3 days full-time course done between 2019-2022) | - | - | - | - | |
| Certified current EEE trainers (155 hours) | from Management SSC (MEPSC) | - | - | - | - | |
| Certified Trainer | Qualification Pack: Trainer (MEP/Q0102) | - | - | - | - | |

| Trainer Certification | |
|--|--|
| Domain Certification | Platform Certification |
| <p>Certified in 60-hour Employability NOS (2022), with a minimum score of 80%</p> <p>OR</p> <p>Certified in 120-, 90-hour Employability NOS (2022), with a minimum score of 80%</p> | <p>MEP/Q2601, v2.0 Trainer (VET and Skills). Minimum accepted score as per SSC guideline is 80%.</p> |

Master Trainer Requirements

| Master Trainer Prerequisites | | | | | | |
|-----------------------------------|--|------------------------------|----------------|---------------------|---|--|
| Minimum Educational Qualification | Specialization | Relevant Industry Experience | | Training Experience | | Remarks |
| | | Years | Specialization | Years | Specialization | |
| Graduate/CITS | Any discipline | - | - | 3 | Employability Skills curriculum training experience with an interest to train as well as orient other peer trainers | <p>Prospective ES Master trainer should:</p> <ul style="list-style-type: none"> • have good communication skills • be well versed in English • have basic digital skills • have attention to detail • be adaptable • have willingness to learn • be able to grasp concepts fast and is creative with teaching practices and likes sharing back their learning with others |
| Certified Master Trainer | Qualification Pack: Master Trainer (MEP/Q2602) | - | - | 3 | EEE training of Management SSC (MEPSC) (155 hours) | |

| Master Trainer Certification | |
|---|---|
| Domain Certification | Platform Certification |
| Certified in 60-hour Employability NOS (2022), with a minimum score of 90% . OR Certified in 120-, 90-hour Employability NOS (2022), with a minimum score of 90% | MEP/Q2602, v2.0 Master Trainer (VET and Skills). Minimum accepted score as per SSC guideline is 90%. |

Assessment Strategy

The trainee will be tested for the acquired skill, knowledge and attitude through formative/summative assessment at the end of the course and as this NOS and MC is adopted across sectors and qualifications, the respective AB can conduct the assessments as per their requirements.

| LIST OF TOOLS & EQUIPMENT FOR EMPLOYABILITY SKILLS | | |
|---|--|-------------|
| S No. | Name of the Equipment | Quantity |
| 1. | Computer (PC) with latest configurations – and Internet connection with standard operating system and standard word processor and worksheet software (Licensed) (all software should either be latest version or one/two version below) | As required |
| 2. | UPS | As required |
| 3. | Scanner cum Printer | As required |
| 4. | Computer Tables | As required |
| 5. | Computer Chairs | As required |
| 6. | LCD Projector | As required |
| 7. | White Board 1200mm x 900mm | As required |
| <i>Note: Above Tools & Equipment not required, if Computer LAB is available in the institute.</i> | | |

Proposed Assessment Strategy/Guidelines:

- Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria mentioned above).
- Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on these criteria.

Module 5: Follow Health, Safety and Environmental Guidelines for Underground Metalliferous Mines (UMM)

Mapped to MIN/N1702, v1.0

Terminal Outcomes:

- Discuss worksite health and safety measures, and environmental guidelines.

| <i>Duration:40:00</i> | <i>Duration:40:00</i> |
|--|--|
| Theory – Key Learning Outcomes | Practical – Key Learning Outcomes |
| <ul style="list-style-type: none"> • Explain the importance of undertaking "The Take-5 (Personal Risk Assessment)" before commencement of any work (DGMS Tech. circulars 2/2014). • Discuss how to comply with safety, health and security-related regulations/guidelines at the mine. • Recall the safety guidelines specified by Directorate General of Mine Safety (DGMS). • List the precautions to be followed against U/G electrical appliances. • Recall appropriate safety practices while traveling on U/G haul roads, in case of post blast fumes and misfire. • Discuss the manufacturer’s instructions for care and safe operation of mine machinery and equipment. • Discuss about various types of gases found in the mine and their effect. • Discuss the laid out procedure to be followed in case of gas detecting alarm signal on leakage of inflammable gases. • Shed light on how to use appropriate PPE as per the requirement. • State how to identify six directional hazards at workplace and take decisions accordingly. • Discuss how to check that roof supporting is as per Systematic Support Plan (SSP) and approved Systematic Support Rules (SSR) while undertaking work in an area. • Elaborate on how to follow appropriate Standard Operating Procedure while working near any isolated and sealed off area of the mine. • List the different types of machineries used in U/G mines. • Throw light on provision of medical examination (IME & PME) of person employed as per Mines Rules 1955. | <ul style="list-style-type: none"> • Demonstrate how to operate various types of fire extinguishers to control different types of fire at a worksite when required. • Show how to use self-rescue apparatus, appropriately when required. • Read line diagram of ventilation circuit to identify the working ventilation district, to direct air to the working face. |

- State the importance of first aid and hygiene.
- Explain how to take precaution against occupational health hazards (like dust, water, mine gases etc.) due to U/G working environment.
- Discuss duties and rights of workers, as well as the safety and occupational health policy of organization.
- Throw light on the selection process of person for rescue training.
- Shed light on isolation and sealed off area of the mine.
- Discuss the various problems/incidents likely to occur and precautions to be taken when handling heavy equipment.
- State the mine safety standard including illumination level, noise levels, dust level, pollutants, etc. at the work-site.
- List the common sources of pollution in the mines and ways to minimize it.
- Discuss the process to be followed for reporting any unsafe act/condition in work area to the concerned person.
- Describe how to use underground mine communication system.
- State the importance of maintaining positive isolation at the work site.
- Describe the safety appliances and rescue equipment.
- State how to report any symptoms of illness to the shift-in-charge.
- Outline the role of Internal Safety Organisation, safety committee, workman's inspector and DGMS.
- Discuss the mining area-specific signs, and other safety and emergency signals and the outcome of violation of safety procedures.
- List the role and responsibilities of rescue room and rescue team.
- Discuss how to contact rescue room and rescue team in case of emergency.
- State the importance of taking shelter at the miner's station during blasting operation.
- Discuss about the safety equipment and importance of FAB (Fresh Air Base)
- Describe shot-firing / blasting related safety regulations including taking shelter during blasting.
- Throw light on the emergency response /disaster management plan prepared by the

| | |
|--|--|
| <p>organization as per DGMS guideline.</p> <ul style="list-style-type: none"> • Explain the rules and regulations for safety and security while handling hazardous materials. • Outline the basic provisions in Mines Creche Rules, 1966 (MCR) for females employed in the mines. • Discuss the importance of sensitization towards different genders and persons with disabilities (PWD). • Explain the importance of following infection control policies, '5-S' practices, and waste management. • Discuss the importance of water/material/energy conservation and management. • Discuss Safety Management Plan (SMP) and Emergency Management Plan (EMP) • Explain how to maintain hand hygiene by washing hands with alcohol based sanitisers/soap. • Elucidate on how to maintain hygiene at the work site and disinfect the machine/tools before and after work/task. • Discuss the environmental impact of mining related operations and steps to reduce those impacts. • Throw light on the mineral conservation practices in U/G mining operations to achieve optimum ore or mineral recovery. • Explain how to ensure that stowing practices produce minimum disturbance to the surface. • Discuss how to ensure that the subgrade ore is carried out to surface and stacked separately at the earmarked place. • Explain how to ensure the productivity of the machine for material/fuel conservation. | |
|--|--|

Classroom Aids

LCD Projector, Laptop/Computer with internet, White Board, Flip Chart, Markers, Trainer Chair & Table, Demonstration Table, Pin Up Boards

Tools, Equipment and Other Requirements

Helmet, gloves, harness, earplugs, Safety Goggles, Nose mask, Safety shoes, Fire extinguisher, Types of log book, First Aid box, MCDR, MCR, Company’s SOP; Diagrams showing quarries, overhangs, fencing, etc.; samples of different types of rocks to be encountered; Mines Act; “5-S” Charts; Daily, Weekly, Monthly Maintenance/Defect sheets; Systematic Support Plan (SSP); Systematic Support Rules (SSR); self-rescue apparatus; Line Diagram of Ventilation Circuit; Alcohol based sanitisers; self-rescue apparatus; Gas Detector, Safety Lamp, Self-Contained Breathing Apparatus, gum boots; Diagrams of Armoured face conveyor; Charts of coal mines occupational diseases; CMR; MMR; MRR, Company’s Safety Management Plan (SMP) and Emergency Management Plan (EMP);

Module 6: Follow Health, Safety and Environmental Guidelines for Opencast Mines

Mapped to MIN/N1703, v1.0

Terminal Outcomes:

- Discuss worksite health and safety measures and environmental guidelines.

| <i>Duration:40:00</i> | <i>Duration:40:00</i> |
|---|---|
| Theory – Key Learning Outcomes | Practical – Key Learning Outcomes |
| <ul style="list-style-type: none"> • Explain how to comply with safety, health, and security-related regulations/guidelines at the open cast mine and safety instructions given by the workman's inspector. • Discuss about various environmental awareness program related to mining, organized by the various government bodies/ company. • Discuss the importance of following adequate safety while working at haul roads, heights, overburden dumps, sump area, stockyard, near moving parts, etc. • Recall the safety precautions to be taken while working on sites (sub-station, workshop etc.), with equipment, and conducting welding and cutting operations. • Discuss how to follow appropriate Safe Operating Procedure (SOP) while dealing with explosives. • Explain the importance of responding promptly and appropriately to an accident/ incident or an emergency situation, within limits of the role and responsibility. • Discuss usage of appropriate PPE as per the requirement. • Explain how to maintain hand hygiene by washing hands with alcohol based sanitisers/soap. • Elucidate on how to maintain hygiene at the work site and disinfect the machine/tools before and after work/task. • State how to report any symptoms of illness to the shift-in-charge. • Discuss the safety guidelines specified by Directorate General of Mine Safety (DGMS). • List basic mining terminologies and definitions. | <ul style="list-style-type: none"> • Show how to provide first aid to an injured person. • Display how to operate various types of fire extinguishers to control different types of fire at a worksite when required. |

- Explain about the means of access and egress from the mines, location of workshop, haul roads and working face including dump yards.
- Outline about the shot-firing / blasting related safety regulations including taking shelter during blasting.
- Discuss the duties of workers, working hours and accident compensation as per under The Mines act-1952.
- Throw light on the hierarchy of the reporting.
- Recall the proper documents specific to the machine.
- Discuss about the machine operation, condition of the machine and worksite.
- Throw light on various problems/ incidents and precautions to be taken when handling heavy equipment.
- Throw light on the environmental impact of related opencast mining operations.
- Discuss how to follow the process for collecting, storing and disposing of the hazardous material and waste in compliance with worksite guidelines.
- Explain the process of top soil removal and management and ensure not to mix topsoil with waste in day to day tasks.
- Discuss how to ensure that HEMM is washed at the designated location.
- Illuminate on how to ensure the productivity of the machine for material/fuel conservation.
- Discuss the mineral conservation practices specified by the organization in accordance with MCDR-2017 (Mineral Conservation and Development Rules).
- Discuss how to assist supervisor for reducing environmental impact caused due to related mining operations.
- Discuss the role of workmen inspector, safety committee and internal safety organization.
- Throw light on the importance of signages, mining area-specific signs, and other safety and emergency signals.
- State the outcome of violation of safety procedures.
- Discuss the importance of sensitization towards different genders and PWD (Persons with Disabilities).
- Throw light on mine sump and pumping system of the mines.

| | |
|--|--|
| <ul style="list-style-type: none"> • State the mine safety standard including illumination level, noise levels, dust level, pollutants, etc. at the work-site. • List the common sources of pollution in the mines and ways to minimize it. • Enlist the safety equipment. • Discuss emergency response /disaster management plan prepared by the organization. | |
| Classroom Aids | |
| LCD Projector, Laptop/Computer with internet, White Board, Flip Chart, Markers, Trainer Chair & Table, Demonstration Table, Pin Up Boards | |
| Tools, Equipment and Other Requirements | |
| Helmet, gloves, harness, earplugs, Safety Goggles, Nose mask, Safety shoes, Fire extinguisher, Types of log book, First Aid box, MCDR, MCR, Company’s SOP; Diagrams showing quarries, overhangs, fencing, etc.; samples of different types of rocks to be encountered; Mines Act; “5-S” Charts; Daily, Weekly, Monthly Maintenance/Defect sheets; Systematic Support Plan (SSP); Systematic Support Rules (SSR); self-rescue apparatus; Line Diagram of Ventilation Circuit; Alcohol based sanitizers; self-rescue apparatus; Gas Detector, Safety Lamp, Self-Contained Breathing Apparatus, gum boots; Diagrams of Armoured face conveyor; Charts of coal mines occupational diseases; CMR; MMR; MRR, Company’s Safety Management Plan (SMP) and Emergency Management Plan (EMP); | |

Module 7: Follow Health, Safety and Environmental Guidelines for Underground Coal Mines

Mapped to MIN/N1704, v1.0

Terminal Outcomes:

- Discuss worksite health and safety measures and environmental guidelines.

| <i>Duration:40:00</i> | <i>Duration:40:00</i> |
|--|--|
| <p>Theory – Key Learning Outcomes</p> <ul style="list-style-type: none"> • List the preventive measures against firedamp, white damp, blackdamp etc. • Explain the importance of undertaking "The Take-5 (Personal Risk Assessment)" before commencement of any work (DGMS Tech. circulars 2/2014). • Discuss how to check that roof supporting is as per Systematic Support Plan (SSP) and approved Systematic Support Rules (SSR while undertaking work in an area. • Throw light on various types of gases available in the mine and their effects; and their control measures. • Discuss how to comply with safety, health and security-related regulations/guidelines at the mine. • Describe how to ensure that oil, grease, canvas or other inflammable material are stored in fire-proof receptacle. • Discuss the importance of ensuring that every instrument, apparatus and equipment are DGMS approved before these are used. • List the safety precautions to be followed against spontaneous heating of the coal. • Discuss how to ensure that no person is traveling/working/staying under unsupported roof. • Throw light on how to take precaution against occupational health hazards due to U/G working environment. • Discuss the importance of reporting any symptoms of illness to the shift-incharge. • Discuss Safety Management Plan (SMP) and Emergency Management Plan (EMP) and precautions against U/G electrical appliances. • Discuss the safety guidelines specified by Directorate General of Mine Safety (DGMS) and selection process of person for rescue training. | <p>Practical – Key Learning Outcomes</p> <ul style="list-style-type: none"> • Show how to use the flame safety lamp for detecting the methane gas as per Standard Operating Procedure (SOP). • Demonstrate how to operate various types of fire extinguishers to control different types of fire at worksite, if required. • Display how to use self-rescue apparatus appropriately when required. • Read the line diagram of ventilation circuit to identify the working ventilation district to direct air to the working face. • Demonstrate how to keep Armoured face conveyor (AFC) and chocks in 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. • Show how to provide first aid to an injured person. |

- Elucidate on how to take proper care against damage and accidents while loading, transporting, dismantling and erecting of roof supports.
- Throw light on how to follow appropriate SOP while working near any isolated and sealed off area of the mine.
- Discuss the provision of medical examination (Initial Medical Examination (IME) & Periodical Medical Examination (PME)) of a person employed, as per Mines Rules 1955.
- List different types of machineries used in U/G mines.
- Enlist different types of supporting system used in U/G mines as per SSP and SSR.
- Cite precautions to be taken when handling heavy equipment.
- Discuss how to ensure that the roof and sidewalls of the mine face (or newly exposed area of the mines) have been scaled/ dressed properly.
- List relevant safety precautions to be taken during depillaring operation in UCM.
- Recall the safety precautions to be followed while traveling on U/G haul roads, in case of post blast fumes and misfire.
- Discuss the manufacturer's instructions for care and safe operation of mine machinery and equipment.
- Throw light on the laid out SOP in case of alarm signal for leakage of inflammable gases.
- Explain the process of reporting any unsafe act/condition in the working area to the concerned person.
- Discuss how to use underground mine communication system.
- Elucidate the importance of positive isolation near the work.
- Discuss the importance of using appropriate Personal Protective Equipment (PPE) as per the requirement.
- Explain how to maintain hand hygiene by washing hands with alcohol based sanitisers/soap, disinfect the machine/tools before and after work/task and maintain hygiene at the work site.
- Discuss how to identify six directional hazards at workplace and take decisions accordingly.
- Discuss the environmental impact of mining related operations and steps to reduce those

impacts.

- Throw light on the mineral conservation practices in U/G mining operations to achieve optimum ore or mineral recovery.
- Describe how to ensure that the stowing practices produce minimum disturbance to the surface.
- Discuss how to ensure that the subgrade coal is carried out to surface and stacked separately at the earmarked place.
- Throw light on how to ensure the productivity of the machine for material/fuel conservation.
- Outline the process for collecting, storing and disposing of the hazardous material and waste (like used oil, lubricant, battery, etc.) in compliance with worksite guidelines.
- Discuss the "5-S" practice at work site.
- Discuss the duties and rights of workers.
- List the various electrical problems/incidents likely to occur.
- Throw light on the role of Internal Safety Organization, safety committee, workman's inspector and DGMS.
- State mine safety standard including light illumination level, noise levels, dust level, pollutants, etc. at the work-site.
- List common sources of pollution in the mines and ways to minimize it.
- Discuss shot-firing / blasting related safety regulations including taking shelter during blasting.
- Recall mining area-specific signs, and other safety and emergency signals.
- Discuss the outcome of violation of safety procedures.
- List safety appliances and rescue equipment.
- Discuss the safety and occupational health policy of organisation.
- Explain the importance of FAB (Fresh Air Base).
- State basic provisions in Mines Creche Rules, 1966 (MCR) for any females employed in the mines.
- Discuss about basic safety regulations of Coal Mines Regulation, 2017 (CMR).
- List types of stone dust barrier and its importance.
- Explain coal dust explosion and its preventive measures.

- Classify coal mines as per the degree of gassiness of coal seams such as first degree, second degree, and third-degree mines.
- List the precautions to be taken as per the gassiness of the coal mines.
- Discuss about coal mines occupational disease and their preventive measures.
- List the roles, duties and responsibilities of rescue team members, rescue room and rescue station.
- Discuss how to contact them in case of emergency.
- Enlist the correct steps for conducting any rescue work as per Mine Rescue Rule (MRR).
- State the importance of sensitization towards different genders and persons with disabilities (PWD).
- Discuss the importance of waste management, hazardous material safety, security rules and regulations.
- Throw light on importance of water/material/energy conservation and management.

Classroom Aids

LCD Projector, Laptop/Computer with internet, White Board, Flip Chart, Markers, Trainer Chair & Table, Demonstration Table, Pin Up Boards

Tools, Equipment and Other Requirements

Helmet, gloves, harness, earplugs, Safety Goggles, Node mask, Safety shoes, Fire extinguisher, Types of log book, First Aid box, MCDR, MCR, Company's SOP; Diagrams showing quarries, overhangs, fencing, etc.; samples of different types of rocks to be encountered; Mines Act; "5-S" Charts; Daily, Weekly, Monthly Maintenance/Defect sheets; Systematic Support Plan (SSP); Systematic Support Rules (SSR); self-rescue apparatus; Line Diagram of Ventilation Circuit; Alcohol based sanitisers; self-rescue apparatus; Gas Detector, Safety Lamp, Self-Contained Breathing Apparatus, gum boots; Diagrams of Armoured face conveyor; Charts of coal mines occupational diseases; CMR; MMR; MRR, Company's Safety Management Plan (SMP) and Emergency Management Plan (EMP);

Annexure

Trainer Requirements

| Trainer Prerequisites | | | | | | |
|-----------------------------------|----------------|------------------------------|---|---------------------|----------------|---------|
| Minimum Educational Qualification | Specialization | Relevant Industry Experience | | Training Experience | | Remarks |
| | | Years | Specialization | Years | Specialization | |
| Class X | NA | 6 | Relevant experience required in Mining operations in the field of mining sector. | NA | - | - |
| OR | | | | | | |
| ITI | NA | 6 | Relevant experience required in Mining operations in the field of mining sector. | NA | - | - |
| OR | | | | | | |
| Diploma | Mining | 5 | Relevant experience required in Mining operations in the field of mining sector.. | NA | - | - |
| OR | | | | | | |
| B-Tech | Mining | 4 | Relevant experience required in Mining operations in the field of mining sector.. | NA | - | - |

| Trainer Certification | |
|--|---|
| Domain Certification | Platform Certification |
| MIN/Q1204, v2.0 Mining Mate /Sirdar. Minimum accepted score as per SSC guideline is 80%. | MEP/Q2601, v2.0 Trainer (VET and Skills). Minimum accepted score as per SSC guideline is 80%. |

Assessor Requirements

| Assessor Prerequisites | | | | | | |
|-----------------------------------|----------------|------------------------------|--|--------------------------------|----------------|---------|
| Minimum Educational Qualification | Specialization | Relevant Industry Experience | | Training/Assessment Experience | | Remarks |
| | | Years | Specialization | Years | Specialization | |
| Class X | NA | 8 | Relevant experience required in Mining operations in the field of mining sector. | NA | - | - |
| OR | | | | | | |
| ITI | NA | 8 | Relevant experience required in Mining operations in the field of mining sector. | NA | - | - |
| OR | | | | | | |
| Diploma | Mining | 7 | Relevant experience required in Mining operations in the field of mining sector. | NA | - | - |
| OR | | | | | | |
| B-Tech | Mining | 6 | Relevant experience required in Mining operations in the field of mining sector. | NA | - | - |

| Assessor Certification | |
|--|--|
| Domain Certification | Platform Certification |
| MIN/Q1204, v2.0 Mining Mate /Sirdar. Minimum accepted score as per SSC guideline is 80%. | MEP/Q2701, v2.0 Assessor (VET and Skills). Minimum accepted score as per SSC guideline is 80%. |

Assessment Strategy

Assessment system Overview: -

Assessment will be carried out by SCMS affiliated assessment partners. Based on the results of assessment, SCMS certifies the learners. Candidates have to pass online theoretical assessment which is approved by SCMS.

The assessment will have both theory and practical components in 30:70 ratio.

While theory assessment is summative and an online written exam; practical will involve demonstrations of applications and presentations of procedures and other components. Practical assessment will also be summative in nature.

Testing Environment: -

Training partner has to share the batch start date and end date, number of trainees and the job role.

Assessment is fixed for a day after the end date of training. It could be next day or later. Assessment will be conducted at the training venue.

Question bank of theory and practical will be prepared by assessment agency and approved by SCMS. From this set of questions, assessment agency will prepare the question paper. Theory testing will include multiple choice questions, pictorial question, etc. which will test the trainee on theoretical knowledge of the subject.

The theory and practical assessments will be carried out on same day. If number of candidates are many, more assessors and venue will be organized on same day of the assessment.

| Assessment | | | |
|-----------------|------------------------|-------------------------|--|
| Assessment Type | Formative or Summative | Strategies | Examples |
| Theory | Summative | Written Examination | Knowledge of facts related to the job role and functions. Understanding of principles and concepts related to the job role and functions |
| Practical | Summative | Structured tasks | Presentation |
| Viva | Summative | Questioning and Probing | Mock interview on topics |

Assessment Quality Assurance framework

Only certified assessor can be assigned for conducting assessment. Provision of 100 % video recording with clear audio to be maintained and the same is to be submitted to SCMS.

The training partner will intimate the time of arrival of the assessor and time of leaving the venue.



Methods of Validation: -

Unless the trainee is registered, the person cannot undergo assessment. To further ensure that the person registered is the person appearing for assessment, id verification will be carried out. Aadhar card number is required of registering the candidate for training. This will form the basis of further verification during the assessment. Assessor conducts the assessment in accordance with the assessment guidelines and question bank as per the job role. The assessor carries tablet with the loaded questions. This tablet is geo tagged and so it is monitored to check their arrival and completion of assessment. Video of the practical session is prepared and submitted to SCMS. Random spot checks/audit is conducted by SCMS assigned persons to check the quality of assessment. Assessment agency will be responsible to put details in SIP.

SCMS will also validate the data and result received from the assessment agency.

Method of assessment documentation and access

The assessment agency will upload the result of assessment in the portal. The data will not be accessible for change by the assessment agency after the upload. The assessment data will be validated by SCMS assessment team. After upload, only SCMS can access this data. SCMS approves the results within a week and uploads on SIP.

References

Glossary

| Term | Description |
|------------------------------|---|
| Declarative Knowledge | Declarative knowledge refers to facts, concepts and principles that need to be known and/or understood in order to accomplish a task or to solve a problem. |
| Key Learning Outcome | Key learning outcome is the statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training outcome is specified in terms of knowledge, understanding (theory) and skills (practical application). |
| OJT (M) | On-the-job training (Mandatory); trainees are mandated to complete specified hours of training on site |
| OJT (R) | On-the-job training (Recommended); trainees are recommended the specified hours of training on site |
| Procedural Knowledge | Procedural knowledge addresses how to do something, or how to perform a task. It is the ability to work, or produce a tangible work output by applying cognitive, affective or psychomotor skills. |
| Training Outcome | Training outcome is a statement of what a learner will know, understand and be able to do upon the completion of the training. |
| Terminal Outcome | Terminal outcome is a statement of what a learner will know, understand and be able to do upon the completion of a module. A set of terminal outcomes help to achieve the training outcome. |

Acronyms and Abbreviations

| Term | Description |
|-------------|---|
| NSQF | National Skills Qualification Framework |
| NSQC | National Skills Qualification Committee |
| NOS | National Occupational Standards |
| RE | Rare Earths |
| SIP | Skill India Portal |
| SOP | Standard Operating Procedure |
| SCMS | Skill Council for Mining Sector |
| NSQF | National Skills Qualification Framework |