



Skill Council For Mining Sector



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MINISTRY OF SKILL DEVELOPMENT
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REIMAGINE FUTURE

Qualification Pack



Ventilation Checker cum Fan Operator

U/G Metal/ U/G Coal

QP Code: MIN/Q1602

Version: 1.0

NSQF Level: 4

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



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Contents

| | |
|--|----|
| MIN/Q1602: Ventilation Checker cum Fan Operator | 3 |
| <i>Brief Job Description</i> | 3 |
| Applicable National Occupational Standards (NOS) | 3 |
| <i>Compulsory NOS</i> | 3 |
| <i>Elective 1: U/G Metal</i> | 3 |
| <i>Elective 2: U/G Coal</i> | 3 |
| <i>Qualification Pack (QP) Parameters</i> | 3 |
| MIN/N1603: Conduct pre-operation checks of ventilation fans | 5 |
| MIN/N1604: Operate and run ventilation management system | 10 |
| DGT/VSQ/N0102: Employability Skills (60 Hours) | 15 |
| MIN/N1702: Follow Health, Safety and Environmental guidelines for Underground Metalliferous Mines (UMM) (Including Mine Vocational Training Rule and Mine Rescue Rule) | 23 |
| MIN/N1704: Follow Health, Safety, and Environmental guidelines for underground coal mines (Including Mine Vocational Training Rule and Mine Rescue Rule) | 31 |
| Assessment Guidelines and Weightage | 39 |
| <i>Assessment Guidelines</i> | 39 |
| <i>Assessment Weightage</i> | 40 |
| Acronyms | 42 |
| Glossary | 43 |

Qualification Pack

MIN/Q1602: Ventilation Checker cum Fan Operator

Brief Job Description

A Ventilation Checker cum Fan Operator conducts pre-operation checks of ventilation fans and operates and runs them.

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/N1603: Conduct pre-operation checks of ventilation fans](#)
2. [MIN/N1604: Operate and run ventilation management system](#)
3. [DGT/VSQ/N0102: Employability Skills \(60 Hours\)](#)

Electives (mandatory to select at least one):

Elective 1: U/G Metal

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

Elective 2: U/G Coal

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

Qualification Pack (QP) Parameters

| | |
|-------------------|------------------|
| Sector | Mining |
| Sub-Sector | Mining Operation |



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| | |
|---|---|
| Occupation | Specialized Operations |
| Country | India |
| NSQF Level | 4 |
| Credits | 21 |
| Aligned to NCO/ISCO/ISIC Code | NCO-2015/3132.1100 |
| Minimum Educational Qualification & Experience | <p>12th grade Pass OR 11th grade pass (+ 1-year experience in relevant field) OR 10th grade pass (+ 2-year NTC in relevant field) OR 10th grade pass (+ 1-year NTC+1 Year NAC in relevant field) OR 8th grade pass (+ 2 year NTC + 1 Year NAC +1-year experience in relevant field) OR 10th grade pass (with 2 years of experience in relevant field) OR Certificate-NSQF (Level 3.0 with minimum education as 8th grade pass with 2 years of relevant experience (Jr. Ventilation Checker cum Fan Operator))</p> |
| Minimum Level of Education for Training in School | |
| Pre-Requisite License or Training | NA |
| Minimum Job Entry Age | 20 Years |
| Last Reviewed On | NA |
| Next Review Date | 17/11/2027 |
| NSQC Approval Date | 17/11/2022 |
| Version | 1.0 |
| Reference code on NQR | 2022/MIN/SCMS/06475 |
| NQR Version | 1 |



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MIN/N1603: Conduct pre-operation checks of ventilation fans

Description

This OS unit is about pre operation check of Ventilation Management methods in underground mine

Scope

The scope covers the following :

- Perform pre-operation check

Elements and Performance Criteria

Perform pre-operation check

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

- PC1.** examine the general physical condition of the main mechanical ventilator frame, blades, motor and water gauze.
- PC2.** ensure proper functioning of electrical and mechanical systems of the fan and the motor.
- PC3.** check initial water gauze at the start of the shift
- PC4.** observe the amperage of the motor used to operate the fan
- PC5.** check the condition of the electrical connections/different sources , circuits
- PC6.** observe occurrence of any discrepancy and report to the concerned official/ supervisor by the fan operator
- PC7.** perform general housekeeping/cleanliness of the fan house.
- PC8.** check and register the pressure development main mechanical ventilator
- PC9.** check air lock systems before beginning of operation
- PC10.** check Brattices, doors, stoppings and air-crossings
- PC11.** check and remove if any accumulation of debris, materials

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.** the capability to combat operational dangers and sufficient arrangements shall be made for early detection, control and extinguishing operational dangers
- KU3.** mine organization, time keeping, need for discipline and punctuality
- KU4.** galleries in underground mine, dressing of roof, stable/ unstable strata etc
- KU5.** evacuation to safe location threatening the safety and health of workers
- KU6.** standing orders in force at the mine and safety in the vicinity of machinery
- KU7.** duties and responsibility of workmen
- KU8.** provision of wages, working hours and accident compensation as per Mines act



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- KU9.** mining safety procedures
- KU10.** impact of violation of safely procedures
- KU11.** relevant standards and procedures followed in the company
- KU12.** select , identify and use of right tools at right job
- KU13.** operation and monitoring of the site's remote atmospheric monitoring system
- KU14.** carrying out basic maintenance and arrange for calibration of the system
- KU15.** velocity of air classified according to degree of gassiness
- KU16.** detection and precaution against inflammable and noxious gasses
- KU17.** operation and maintenance of portable gas monitoring instruments in including recording, calibration, charging, and making it fit to use
- KU18.** electrical motors and principles of fan operation
- KU19.** 3-phase electricity supply (including star and delta modes) and operation
- KU20.** carrying out mine airflow measurements and results interpretation
- KU21.** carrying out auxiliary fan airflow measurements as defined in the VMP and in accordance with regulation 31of the HSE Mining (Underground) Regulations 1999
- KU22.** ventilation plans
- KU23.** precautions against fire in ventilation appliances

Generic Skills (GS)

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

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



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GS19. make decisions in emergency conditions



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Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|--|--------------|-----------------|---------------|------------|
| <i>Perform pre-operation check</i> | 30 | 50 | - | 20 |
| PC1. examine the general physical condition of the main mechanical ventilator frame, blades, motor and water gauze. | 2 | 4 | - | 1 |
| PC2. ensure proper functioning of electrical and mechanical systems of the fan and the motor. | 2 | 4 | - | 1 |
| PC3. check initial water gauze at the start of the shift | 2 | 4 | - | 2 |
| PC4. observe the amperage of the motor used to operate the fan | 3 | 4 | - | 2 |
| PC5. check the condition of the electrical connections/different sources , circuits | 3 | 4 | - | 2 |
| PC6. observe occurrence of any discrepancy and report to the concerned official/ supervisor by the fan operator | 3 | 5 | - | 2 |
| PC7. perform general housekeeping/cleanliness of the fan house. | 3 | 5 | - | 2 |
| PC8. check and register the pressure development main mechanical ventilator | 3 | 5 | - | 2 |
| PC9. check air lock systems before beginning of operation | 3 | 5 | - | 2 |
| PC10. check Brattices, doors, stoppings and air-crossings | 3 | 5 | - | 2 |
| PC11. check and remove if any accumulation of debris, materials | 3 | 5 | - | 2 |
| NOS Total | 30 | 50 | - | 20 |



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National Occupational Standards (NOS) Parameters

| | |
|----------------------------|--|
| NOS Code | MIN/N1603 |
| NOS Name | Conduct pre-operation checks of ventilation fans |
| Sector | Mining |
| Sub-Sector | Mining Operation |
| Occupation | Specialized Operations |
| NSQF Level | 4 |
| Credits | TBD |
| Version | 1.0 |
| Last Reviewed Date | NA |
| Next Review Date | 17/11/2027 |
| NSQC Clearance Date | 17/11/2022 |



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Qualification Pack

MIN/N1604: Operate and run ventilation management system

Description

This OS unit is about the operation and running of Ventilation Management methods in underground mine.

Scope

The scope covers the following :

- Operation & Running

Elements and Performance Criteria

Operation & Running

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

- PC1.** keep the ventilator running at the speed fixed by the manager.
- PC2.** examine the machinery and observe the pressure-recorded or water gauge and the speed-indicator at intervals of not more than one hour, and shall, enter the readings of the indicator in a bound-paged book kept for the purpose at the fan- house.
- PC3.** report to the superior, any stoppage of, damage to, or defect or derangement in the machinery, or any unusual variation in the water-gauge or other indicators; shall also immediately report to him any unusual circumstances in regard to mine ventilation which may come to his notices
- PC4.** ensure the ventilator is continuously operated, shall not leave the post until received by a duly appointed substitute
- PC5.** start , stop, restart, remove or alter not to be done without official outhorisation
- PC6.** maintenance and recording of speed , water gauze ,running hours,number of hours the fan has been stopped during the shift with reason, ampere reading of the motor used for the operation of fan,

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.** classification of gassy seam into degree of gassiness according to the percentage of inflammable gas in general body of air
- KU3.** precaution in gassy seams
- KU4.** standard of ventilation
- KU5.** specific devision of splits and airways ensuring availability of fresh air
- KU6.** mine organization, time keeping, need for discipline and punctuality
- KU7.** precaution from inflammable and noxious gasses
- KU8.** precaution / preventing ventilation appliances from fire



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- KU9.** prevent and outbreak belowground or the spread to one part to other part of mine/ adjoining mine during operational danger
- KU10.** galleries in underground mine, dressing of roof, stable and unstable strata etc
- KU11.** standing orders in force at the mine. Safety in the vicinity of machinery
- KU12.** duties of workmen
- KU13.** provision of wages, working hours and accident compensation as per Mines act
- KU14.** periodic checks of sealed off areas
- KU15.** evacuation to safe location threatening the safety and health of workers
- KU16.** mining safety procedures
- KU17.** impact of violation of safely procedures
- KU18.** relevant standards and procedures followed in the company
- KU19.** the water gauze required for the efficient operation of the fan
- KU20.** the speed prescribed by the manager
- KU21.** basic electrical and mechanical system of the fan.
- KU22.** the appropriate ampere at which the fan motor should run
- KU23.** restriction of installation of mechanical ventilator belowground
- KU24.** precaution /preventing ventilation appliances from fire
- KU25.** pressure recording instrument for continuous register the pressure developed

Generic Skills (GS)

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

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



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- GS18.** discuss possible solution with the supervisor for problem solving
- GS19.** make decisions in emergency conditions



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Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|--|--------------|-----------------|---------------|------------|
| <i>Operation & Running</i> | 30 | 50 | - | 20 |
| PC1. keep the ventilator running at the speed fixed by the manager. | 5 | 9 | - | 4 |
| PC2. examine the machinery and observe the pressure-recorded or water gauge and the speed-indicator at intervals of not more than one hour, and shall, enter the readings of the indicator in a bound-paged book kept for the purpose at the fan-house. | 5 | 9 | - | 4 |
| PC3. report to the superior, any stoppage of, damage to, or defect or derangement in the machinery, or any unusual variation in the water-gauge or other indicators; shall also immediately report to him any unusual circumstances in regard to mine ventilation which may come to his notices | 5 | 8 | - | 3 |
| PC4. ensure the ventilator is continuously operated, shall not leave the post until received by a duly appointed substitute | 5 | 8 | - | 3 |
| PC5. start , stop, restart, remove or alter not to be done without official outhorisation | 5 | 8 | - | 3 |
| PC6. maintenance and recording of speed , water gauze ,running hours,number of hours the fan has been stopped during the shift with reason, ampere reading of the motor used for the operation of fan, | 5 | 8 | - | 3 |
| NOS Total | 30 | 50 | - | 20 |



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National Occupational Standards (NOS) Parameters

| | |
|----------------------------|---|
| NOS Code | MIN/N1604 |
| NOS Name | Operate and run ventilation management system |
| Sector | Mining |
| Sub-Sector | Mining Operation |
| Occupation | Specialized Operations |
| NSQF Level | 4 |
| Credits | TBD |
| Version | 1.0 |
| Last Reviewed Date | NA |
| Next Review Date | 17/11/2027 |
| NSQC Clearance Date | 17/11/2022 |



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

Description

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

Scope

The scope covers the following :

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

Elements and Performance Criteria

Introduction to Employability Skills

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

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

Constitutional values - Citizenship

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

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

Becoming a Professional in the 21st Century

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

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

Basic English Skills

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



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

Career Development & Goal Setting

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

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

Communication Skills

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

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

Diversity & Inclusion

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

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

Financial and Legal Literacy

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

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

Essential Digital Skills

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

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

Entrepreneurship

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

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

Customer Service

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

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



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PC28. follow appropriate hygiene and grooming standards

Getting ready for apprenticeship & Jobs

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

PC29. create a professional Curriculum vitae (Résumé)

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

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

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

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

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

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

KU2. various constitutional and personal values

KU3. different environmentally sustainable practices and their importance

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

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

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

KU7. about effective communication

KU8. POSH Act

KU9. Gender sensitivity and inclusivity

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

KU11. how to compute income and expenditure

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

KU13. different legal rights and laws

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

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

KU16. how to identify business opportunities

KU17. types and needs of customers

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

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

Generic Skills (GS)

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

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

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



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



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Assessment Criteria

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

Qualification Pack

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



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REIMAGINE FUTURE

Qualification Pack

| 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 | 27/01/2025 |
| NSQC Clearance Date | 27/01/2022 |



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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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REIMAGINE FUTURE

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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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& ENTREPRENEURSHIP



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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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Qualification Pack

GS9. complete the assigned tasks timely

Qualification Pack

Assessment Criteria

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

Qualification Pack

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



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NSDC
REIMAGINE FUTURE

Qualification Pack

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



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& ENTREPRENEURSHIP



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National Occupational Standards (NOS) Parameters

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



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Qualification Pack

MIN/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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N.S.D.C
REIMAGINE FUTURE

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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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& ENTREPRENEURSHIP



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REIMAGINE FUTURE

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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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& ENTREPRENEURSHIP



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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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Qualification Pack

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/N1603. Conduct pre-operation checks of ventilation fans | 30 | 50 | - | 20 | 100 | 30 |
| MIN/N1604. Operate and run ventilation management system | 30 | 50 | - | 20 | 100 | 30 |
| DGT/VSQ/N0102. Employability Skills (60 Hours) | 20 | 30 | 0 | 0 | 50 | 10 |
| Total | 80 | 130 | 0 | 0 | 250 | 70 |

Elective: 1 U/G Metal

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



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Elective: 2 U/G Coal

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



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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 |

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. |