

## Qualification Pack



# Grader Machine Operator

Opencast/ Underground Metal/ Underground Coal

QP Code: IES/MIN/Q1405

Version: 1.0

NSQF Level: 3

Infrastructure Equipment Skill Council || Jubilee Building – 2nd Floor, No.45, Museum Road  
Bengaluru - 560025

## Qualification Pack

### Borrowed Qualification Pack (QP) Parameters

<b>Originating SSC</b>	Mining
<b>Borrowing SSC</b>	Infrastructure Equipment
<b>Borrowing Request Validity</b>	16/04/2025 to 30/01/2027
<b>Assessment and Certification to be conducted by</b>	Infrastructure Equipment
<b>Certification Logos to be included</b>	Infrastructure Equipment

## Qualification Pack

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## Qualification Pack

### MIN/Q1405: Grader Machine Operator

#### Brief Job Description

A grader operator prepares the grader for operations, conducts routine maintenance, performs the grader operations, and transports the grader.

#### 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/N1416: Prepare the grader for operations and conduct routine maintenance](#)
2. [MIN/N1417: Perform the grader operations](#)
3. [MIN/N1418: Transport the grader](#)
4. [DGT/VSQ/N0102: Employability Skills \(60 Hours\)](#)

##### Electives (mandatory to select at least one):

###### Elective 1: Opencast

1. [MIN/N1703: Follow Health, Safety, and Environmental Guidelines for opencast mines](#)

###### Elective 2: Underground Metal

1. [MIN/N1702: Follow Health, Safety and Environmental guidelines for Underground Metalliferous Mines](#)

###### Elective 3: Underground Coal

1. [MIN/N1704: Follow Health, Safety, and Environmental guidelines for underground coal mines](#)

#### Qualification Pack (QP) Parameters

## Qualification Pack

<b>Sector</b>	Infrastructure Equipment
<b>Sub-Sector</b>	
<b>Occupation</b>	Loading and Hauling - Opencast, Loading and Hauling - Underground
<b>Country</b>	India
<b>NSQF Level</b>	3
<b>Credits</b>	18
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2015/8342.0400
<b>Minimum Educational Qualification &amp; Experience</b>	10th grade pass OR 9th grade pass (with 1 year relevant experience) OR 8th grade pass (with 2 years relevant experience) OR 5th grade pass (with 5 years relevant experience) OR Previous relevant Qualification of NSQF Level (2.5-Jr. Grader Operator with 1.5 year of experience in relevant field)
<b>Minimum Level of Education for Training in School</b>	
<b>Pre-Requisite License or Training</b>	NA
<b>Minimum Job Entry Age</b>	20 Years
<b>Last Reviewed On</b>	NA
<b>Next Review Date</b>	30/01/2027
<b>NSQC Approval Date</b>	16/04/2025
<b>Version</b>	1.0
<b>Reference code on NQR</b>	QG-03-MG-02025-2024-V1-SCMS
<b>NQR Version</b>	1.0

### Remarks:

Total Duration: 420 Hours (360 hours Domain + 60 Hours Employability Skills)

## Qualification Pack

# MIN/N1416: Prepare the grader for operations and conduct routine maintenance

## Description

This unit is about preparing the grader for activities that need to be carried out during a Shift.

## Scope

The scope covers the following :

- Understand Grader Machine and its operation
- Conduct pre-operation checks to ensure safety and efficiency
- Comply with scheduled maintenance

## Elements and Performance Criteria

### *Understand Grader Machine and its operation*

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

- PC1.** identify the different types and sizes of graders, e.g. rigid articulating etc., and relevant manufacturers specifications as required
- PC2.** check the function of major components, such as circle, mould board,ripper, scarifier, drive train and their importance
- PC3.** check the common types of ground engaging tools, such as mould board cutting edges (e.g.,carbide,standarde etc.), ripper tooth
- PC4.** Identify different types of attachments and accessories: and such as V-blades,one-way blades, push-blades, ripper, scarifier, grade control system [e.g., Global Positioning System(GPS),laser],shouldering boot etc
- PC5.** ensure the purpose of attachments and accessories such as shouldering boot is used to prevent spillage etc.
- PC6.** check the basic tools and supplies associated with grader, such as hammer, screwdrivers, pliers, self-locking pliers, adjustable wrench, assorted other wrenches, grease etc.
- PC7.** check tyre conditions and inflation pressure
- PC8.** identify the regulatory documents required for the vehicle

### *Conduct pre-operation checks to ensure safety and efficiency*

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

- PC9.** inspect and service lubrication system such as low oil levels, dirty filler cap, adjust the oil level
- PC10.** inspect and service electrical system thorough visual inspection, and brief operation in idle condition
- PC11.** inspect and service hydraulic systems & suspension systems thorough visual inspection and brief operation if required such as grease pivot points, check hydraulic oil levels, use spill kit
- PC12.** inspect and service engine & transmission system to perform basic service, such as add coolant, use spill kit
- PC13.** inspect and service fuel system & air intake system through visual inspection and brief period of idle running, perform basic service, such as fill fuel, clean air filter

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### *Comply with scheduled maintenance*

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

- PC14.** maintain a checking/maintenance log book to record all activities to be performed before starting the Grader
- PC15.** read indicators that signal need for replacement
- PC16.** read maintenance records and documentation relating to service, such as log books and equipment manual
- PC17.** perform scheduled maintenance

### **Knowledge and Understanding (KU)**

The individual on the job needs to know and understand:

- KU1.** different types of mines and detail of the mine he is working in
- KU2.** mine organisation, time keeping, need for discipline and punctuality
- KU3.** benching in quarries, dressing of overhangs, undercuts, fencing, first aid and hygiene
- KU4.** standing orders in force at the mine and safety in the vicinity of machinery
- KU5.** shot firing and safety regulations, how and where to take shelter
- KU6.** duties of workmen
- KU7.** provision of wages, working hours and accident compensation as per Mines act
- KU8.** mining safety procedures
- KU9.** impact of violation of safety procedures
- KU10.** job specific documents e.g. daily maintenance checklist and importance of the same
- KU11.** risk and impact of not following defined procedures/work instructions
- KU12.** escalation matrix for reporting identified problems
- KU13.** cost of equipment and loss for the organization that results from damage of equipment
- KU14.** all direct/indirect cost of accidents to the organization
- KU15.** implications of delays in process to the organization
- KU16.** locally prepared emergency response/disaster management plan
- KU17.** normal operating conditions
- KU18.** correct engine oil, lubrication system, components, and functions
- KU19.** electrical system, components, and functions
- KU20.** hydraulic systems, components, and functions
- KU21.** cooling system, components, and functions, such as that fan belts are used to turn fan for cooling
- KU22.** load bearing structure of the machine
- KU23.** operator station and components, such as seat, instrument panel and control systems, operating levers, communication devices etc.
- KU24.** monitoring and warning systems and components
- KU25.** impact of weather and seasonal conditions on start-up procedures
- KU26.** common troubles and remedies
- KU27.** signage, mining area signs and other safety and emergency signals
- KU28.** response to emergencies such as fire, accident, major failure etc.

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**KU29.** various brake Mechanisms/Systems

**KU30.** various technical;aspects like road gradient, turning angle, Road Geometry etc

### 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.** analyse the available data about the site
- GS6.** discuss task lists, schedules and activities
- GS7.** effectively communicate
- GS8.** plan and organize the work order and jobs
- GS9.** organize all process manuals so that sorting/accessing information is easy
- GS10.** use common sense and make judgments during day to day basis
- GS11.** use reasoning skills to identify and resolve basic problems
- GS12.** use intuition to detect any potential problems which could arise
- GS13.** follow instructions and work on areas of improvement identified
- GS14.** complete the assigned tasks with minimum supervision
- GS15.** complete the job with in time lines and quality norms
- GS16.** discuss possible solution with the supervisor for problem solving
- GS17.** make decisions in emergency conditions



## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Understand Grader Machine and its operation</i>	<b>12</b>	<b>23</b>	-	<b>11</b>
<b>PC1.</b> identify the different types and sizes of graders, e.g. rigid articulating etc., and relevant manufacturers specifications as required	1	2	-	1
<b>PC2.</b> check the function of major components, such as circle, mould board,ripper, scarifier, drive train and their importance	2	3	-	2
<b>PC3.</b> check the common types of ground engaging tools, such as mould board cutting edges (e.g.,carbide,standardetc.), ripper tooth	2	3	-	2
<b>PC4.</b> Identify different types of attachments and accessories: and such as V-blades,one-way blades, push-blades, ripper, scarifier, grade control system [e.g., Global Positioning System(GPS),laser],shouldering boot etc	1	3	-	1
<b>PC5.</b> ensure the purpose of attachments and accessories such as shouldering boot is used to prevent spillage etc.	2	3	-	2
<b>PC6.</b> check the basic tools and supplies associated with grader, such as hammer, screwdrivers, pliers, self-locking pliers, adjustable wrench, assorted other wrenches, grease etc.	1	3	-	1
<b>PC7.</b> check tyre conditions and inflation pressure	2	3	-	1
<b>PC8.</b> identify the regulatory documents required for the vehicle	1	3	-	1
<i>Conduct pre-operation checks to ensure safety and efficiency</i>	<b>10</b>	<b>15</b>	-	<b>5</b>
<b>PC9.</b> inspect and service lubrication system such as low oil levels, dirty filler cap, adjust the oil level	2	3	-	1
<b>PC10.</b> inspect and service electricalsystem thorough visual inspection,and brief operation in idle condition	2	3	-	1
<b>PC11.</b> inspect and service hydraulic systems & suspension systems thorough visual inspection and brief operation if required such as grease pivot points, check hydraulic oil levels, use spill kit	2	3	-	1

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC12.</b> inspect and service engine & transmission system to perform basic service, such as add coolant, use spill kit	2	3	-	1
<b>PC13.</b> inspect and service fuel system & air intake system through visual inspection and brief period of idle running, perform basic service, such as fill fuel, clean air filter	2	3	-	1
<i>Comply with scheduled maintenance</i>	<b>8</b>	<b>12</b>	-	<b>4</b>
<b>PC14.</b> maintain a checking/maintenance log book to record all activities to be performed before starting the Grader	2	3	-	1
<b>PC15.</b> read indicators that signal need for replacement	2	3	-	1
<b>PC16.</b> read maintenance records and documentation relating to service, such as log books and equipment manual	2	3	-	1
<b>PC17.</b> perform scheduled maintenance	2	3	-	1
<b>NOS Total</b>	<b>30</b>	<b>50</b>	-	<b>20</b>

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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	MIN/N1416
<b>NOS Name</b>	Prepare the grader for operations and conduct routine maintenance
<b>Sector</b>	Mining
<b>Sub-Sector</b>	Mining Operation
<b>Occupation</b>	Loading and Hauling - Opencast, Loading and Hauling - Underground
<b>NSQF Level</b>	3.0
<b>Credits</b>	2
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	31/01/2024
<b>Next Review Date</b>	30/01/2027
<b>NSQF Clearance Date</b>	31/01/2024

## Qualification Pack

### MIN/N1417: Perform the grader operations

#### Description

This unit is about performing Grader operations.

#### Scope

The scope covers the following :

- Comply with grades and stakes
- Operate grader
- Follow shutdown procedure

#### Elements and Performance Criteria

##### *Comply with grades and stakes*

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

- PC1.** recognize symbols and markings used on job site
- PC2.** interpret survey markers, construction grades, and stakes to differentiate between types of survey markers, construction grades, and stakes identify what is indicated by different types of survey markers, construction grades, and stakes
- PC3.** mark stakes/surface with appropriate symbols or markings, such as coloured paint, ribbons
- PC4.** ensure the use of grade-checking devices such as laser levels, line levels, sight levels and check grades using information on stakes and plans

##### *Operate grader*

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

- PC5.** set up equipment correctly to adjust to factors affecting safe operation of equipment, maintain stability of equipment, position equipment correctly communicate with traffic control person/signaller
- PC6.** install attachments to the equipment following correct procedures and mechanisms specified by the equipment manufacturer
- PC7.** use tools for installing attachments, positions equipment and attachments for installation and installs attachments safely
- PC8.** start the grader safely, following correct procedures as specified by the equipment manufacturer
- PC9.** use different operating control conditions
- PC10.** monitor performance of equipment from gauges and symbols, and using own senses and judgment to monitor/ adjust performance and identify equipment problems
- PC11.** identify and troubleshoot equipment problems and possible solutions, communicate problems accurately to others, such as maintenance personnel if required.
- PC12.** observe and respond to movement of others (people, vehicles, and other equipment in work area while performing tasks
- PC13.** communicate with others, such as site personnel, signaller, traffic control person use and respond to hand and audible signals

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- PC14.** optimize equipment capabilities by positioning equipment correctly by adjusting operation to accommodate weather conditions, materials being handled, limitations of equipment, ground conditions, seasonal conditions, and stability characteristics, etc. adjust work procedures as necessary
- PC15.** maintain and adjust grades, scarify and rip surface materials, such as reclaiming road surface materials to maintain road within the capabilities and limitations of equipment and site obstructions and hazards, such as underground/opencast utilities
- PC16.** check strip/windrow surface materials according to job specifications while avoiding site obstructions and hazards
- PC17.** ensure work surface materials, such as combine, separate, windrow and spread materials as per the job specifications
- PC18.** control blade of grader to cut, shape and distribute material effectively and create rough/finish graded itches in accordance with job specifications
- PC19.** create slopes (also known as inclines) by cutting or filling and blending materials in accordance with job specifications
- PC20.** establish grade profiles by reading site plans and positioning attachments of the equipment correctly to generate rough/finish grades to job specifications, such as correct elevation
- PC21.** create proper drainage to prevent haul road erosion and water accumulation on haul roads

*Follow shutdown procedure*

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

- PC22.** ensure clean wheels and attachments according to manufacturers' specifications and company policies and procedures
- PC23.** identify appropriate parking location and park equipment according to company policies and procedures, lower attachments before shutting down
- PC24.** shut down and secure equipment as per company policy and procedures and manufacturer's specification to protect against movement, theft and vandalism
- PC25.** perform housekeeping of the equipment as per the manufacturer's specification and clean site ms such as windshields, rails, steps, instrument panel
- PC26.** perform visual inspection, identify existing or potential problems communicate concerns to appropriate personnel, such as supervisor, mechanic

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

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

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- KU10.** types of documentation in organization e.g. daily maintenance checklist and importance of the same
- KU11.** risk and impact of not following defined procedures/work instructions.
- KU12.** rules and regulations of mine as per standard operating procedure(SOP)
- KU13.** risk and impact of not following Organization's SOP
- KU14.** escalation matrix for reporting identified problems
- KU15.** duties and responsibilities associated with his job role as per the employer.
- KU16.** cost of delays to the organization
- KU17.** direct/Indirect cost of accidents to the Organization
- KU18.** locally prepared emergency response/disaster management plan
- KU19.** symbols and markings, such as colour-coded ribbons, surface paint marks
- KU20.** job site colour coding for utility grades and stakes
- KU21.** types and uses of survey markers, construction grades, and stakes.
- KU22.** site plan and grade templates
- KU23.** equipment manufacturers' specifications for operation of the equipment
- KU24.** safety controls and equipment, such as travel alarms, seat belt caution, warning, and hazard decals, lights and symbols
- KU25.** job specifications and activities
- KU26.** factors affecting safe operation, such as weather, ground conditions, utilities
- KU27.** correct positioning of equipment and stability characteristics of equipment
- KU28.** attachments and specifications
- KU29.** procedures and mechanisms for installation of attachments
- KU30.** operating controls, instrument panel, such as gauges, symbols and functions of the equipment
- KU31.** general understanding of normal operating characteristics
- KU32.** site traffic patterns
- KU33.** equipment blind spots
- KU34.** code of signals (Hand/audible and any other signal)
- KU35.** stability characteristics, such as centre of gravity, leverage, tipping axis and correct positioning of equipment
- KU36.** grades and stakes
- KU37.** surface materials and their characteristics, such as sand, gravel and their characteristics e.g. density, moisture content and related phenomenon
- KU38.** using scarifier and ripper
- KU39.** identifying site obstructions and hazards, such as underground utilities
- KU40.** grade profiles and definition of rough and finish grades
- KU41.** importance of proper drainage creation techniques to prevent haul road erosion and water accumulation

## Generic Skills (GS)

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

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- 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.** 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 with in timelines and quality norms
- GS17.** detect problems in day to day tasks
- GS18.** discuss possible solution with the supervisor for problem solving
- GS19.** make decisions in emergency conditions

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Comply with grades and stakes</i>	<b>4</b>	<b>8</b>	-	<b>2</b>
<b>PC1.</b> recognize symbols and markings used on job site	1	2	-	-
<b>PC2.</b> interpret survey markers, construction grades, and stakes to differentiate between types of survey markers, construction grades, and stakes identify what is indicated by different types of survey markers, construction grades, and stakes	1	2	-	1
<b>PC3.</b> mark stakes/surface with appropriate symbols or markings, such as coloured paint, ribbons	1	2	-	1
<b>PC4.</b> ensure the use of grade-checking devices such as laser levels, line levels, sight levels and check grades using information on stakes and plans	1	2	-	-
<i>Operate grader</i>	<b>21</b>	<b>33</b>	-	<b>13</b>
<b>PC5.</b> set up equipment correctly to adjust to factors affecting safe operation of equipment, maintain stability of equipment, position equipment correctly communicate with traffic control person/signaller	2	3	-	1
<b>PC6.</b> install attachments to the equipment following correct procedures and mechanisms specified by the equipment manufacturer	1	1	-	1
<b>PC7.</b> use tools for installing attachments, positions equipment and attachments for installation and installs attachments safely	1	1	-	1
<b>PC8.</b> start the grader safely, following correct procedures as specified by the equipment manufacturer	3	2	-	1
<b>PC9.</b> use different operating control conditions	1	2	-	-
<b>PC10.</b> monitor performance of equipment from gauges and symbols, and using ownsenses and judgment to monitor/ adjust performance and identify equipment problems	1	2	-	1
<b>PC11.</b> identify and troubleshoot equipment problems and possible solutions, communicate problems accurately to others, such as maintenance personnel if required.	1	2	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC12.</b> observe and respond to movement of others (people, vehicles, and other equipment in work area while performing tasks	1	2	-	1
<b>PC13.</b> communicate with others, such as site personnel, signaller, traffic control person use and respond to hand and audible signals	1	2	-	-
<b>PC14.</b> optimize equipment capabilities by positioning equipment correctly by adjusting operation to accommodate weather conditions, materials being handled, limitations of equipment, ground conditions, seasonal conditions, and stability characteristics, etc. adjust work procedures as necessary	1	2	-	1
<b>PC15.</b> maintain and adjust grades, scarify and rip surface materials, such as reclaiming road surface materials to maintain road within the capabilities and limitations of equipment and site obstructions and hazards, such as underground/opencast utilities	1	2	-	1
<b>PC16.</b> check strip/windrow surface materials according to job specifications while avoiding site obstructions and hazards	1	2	-	1
<b>PC17.</b> ensure work surface materials, such as combine, separate, windrow and spread materials as per the job specifications	1	2	-	1
<b>PC18.</b> control blade of grader to cut, shape and distribute material effectively and create rough/finish graded itches in accordance with job specifications	1	2	-	1
<b>PC19.</b> create slopes (also known as inclines) by cutting or filling and blending materials in accordance with job specifications	1	2	-	1
<b>PC20.</b> establish grade profiles by reading site plans and positioning attachments of the equipment correctly to generate rough/finish grades to job specifications, such as correct elevation	1	2	-	1
<b>PC21.</b> create proper drainage to prevent haul road erosion and water accumulation on haul roads	2	2	-	-
<i>Follow shutdown procedure</i>	<b>5</b>	<b>9</b>	-	<b>5</b>

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC22.</b> ensure clean wheels and attachments according to manufacturers' specifications and company policies and procedures	1	1	-	1
<b>PC23.</b> identify appropriate parking location and park equipment according to company policies and procedures, lower attachments before shutting down	1	2	-	1
<b>PC24.</b> shut down and secure equipment as per company policy and procedures and manufacturer's specification to protect against movement, theft and vandalism	1	2	-	1
<b>PC25.</b> perform housekeeping of the equipment as per the manufacturer's specification and clean site ms such as windshields,rails,steps,instrument panel	1	2	-	1
<b>PC26.</b> perform visual inspection, identify existing or potential problems communicate concernsto appropriate personnel,such as supervisor, mechanic	1	2	-	1
<b>NOS Total</b>	<b>30</b>	<b>50</b>	<b>-</b>	<b>20</b>

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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	MIN/N1417
<b>NOS Name</b>	Perform the grader operations
<b>Sector</b>	Mining
<b>Sub-Sector</b>	Mining Operation
<b>Occupation</b>	Loading and Hauling - Opencast, Loading and Hauling - Underground
<b>NSQF Level</b>	3.0
<b>Credits</b>	4
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	31/01/2024
<b>Next Review Date</b>	30/01/2027
<b>NSQF Clearance Date</b>	31/01/2024

## Qualification Pack

### MIN/N1418: Transport the grader

#### Description

This unit is about transporting Grader Machine from one location to another as per the requirement while ensuring public safety, equipment safety, and efficiency and complying with relevant transport legislation, processes, and procedures

#### Scope

The scope covers the following :

- Prepare Grader for transportation
- Drive Grader on public roads

#### Elements and Performance Criteria

##### *Prepare Grader for transportation*

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

- PC1.** check load grader and attachments for transport such as clean blades and wheels
- PC2.** load or assist with loading Grader and attachments while avoiding hazards such as uneven ground, utility lines etc.
- PC3.** respond to code of signals (Hand/audible sounds etc.)
- PC4.** protect equipment from damage, such as cover exhaust pipe etc
- PC5.** assist with securing Grader and attachment to transport vehicle driver as required, such as attach warning flags and reflectors.
- PC6.** unload or assist with unloading grader and attachments and assist transport driver as required
- PC7.** assess and adjust to hazards, such as overhead obstructions, narrow landing areas
- PC8.** check the working of visual attachments, rear view camera etc

##### *Drive Grader on public roads*

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

- PC9.** prepare grader for road travel: secure attachments in proper positions for road travel, complete inspection, such as check brakes, steering, lights, tires, and Back-up warnings, clean equipment
- PC10.** drive grader on a public road: comply with applicable legislation, such as possessing appropriate and valid driver's license, follow the route to the destination, adjust to road and weather conditions, such as adjust speed, recognize and avoid potential hazards

#### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** different types of mines and detail of the mine one is working in
- KU2.** mine organisation, time keeping, need for discipline and punctuality
- KU3.** benching in quarries, Dressing of overhangs, Undercuts, Fencing, First aid and Hygiene

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- KU4.** standing orders in force at the mine. Safety in the vicinity of machinery
- KU5.** shot firing and Safety regulations. How and where to take shelter
- KU6.** duties of workmen
- KU7.** provision of wages, working hours and accident compensation as per Mines act
- KU8.** mining safety procedures
- KU9.** environmental impact on mining safety procedures
- KU10.** impact of violation of safety procedures
- KU11.** types of documentation in organization e.g. daily maintenance checklist and importance of the same
- KU12.** risk and impact of not following defined procedures/work instructions.
- KU13.** rules and regulations of mine as per standard operating procedure (SOP)
- KU14.** risk and impact of not following Organization's SOP
- KU15.** escalation matrix for reporting identified problems
- KU16.** manufacturers' specifications of grader and attachments
- KU17.** company policies and procedures
- KU18.** how to load grader on to different types of transport vehicles, such as beavertail, folding goose neck
- KU19.** impact of weather conditions
- KU20.** code of signals (Hand/ audible signals etc.)
- KU21.** tie down points of Grader
- KU22.** loading/unloading technique using proper rigging techniques
- KU23.** applicable legislation, such as traffic laws
- KU24.** route and destination
- KU25.** proper positioning of attachments for road travel
- KU26.** equipment's limitations on public roads, such as speed, blind spots

## 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.** 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

## Qualification Pack

- 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 with in timelines and quality norms
- GS17.** detect problems in day to day tasks
- GS18.** discuss possible solution with the supervisor for problem solving
- GS19.** make decisions in emergency conditions

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare Grader for transportation</i>	<b>24</b>	<b>40</b>	-	<b>16</b>
<b>PC1.</b> check load grader and attachments for transport such as clean blades and wheels	3	5	-	2
<b>PC2.</b> load or assist with loading Grader and attachments while avoiding hazards such as uneven ground, utility lines etc.	3	5	-	2
<b>PC3.</b> respond to code of signals (Hand/audible sounds etc.)	3	5	-	2
<b>PC4.</b> protect equipment from damage, such as cover exhaust pipe etc	3	5	-	2
<b>PC5.</b> assist with securing Grader and attachment to transport vehicle driver as required, such as attach warning flags and reflectors.	3	5	-	2
<b>PC6.</b> unload or assist with unloading grader and attachments and assist transport driver as required	3	5	-	2
<b>PC7.</b> assess and adjust to hazards, such as overhead obstructions, narrow landing areas	3	5	-	2
<b>PC8.</b> check the working of visual attachments, rear view camera etc	3	5	-	2
<i>Drive Grader on public roads</i>	<b>6</b>	<b>10</b>	-	<b>4</b>
<b>PC9.</b> prepare grader for road travel: secure attachments in proper positions for road travel, complete inspection, such as check brakes, steering, lights, tires, and Back-up warnings, clean equipment	3	5	-	2
<b>PC10.</b> drive grader on a public road: comply with applicable legislation, such as possessing appropriate and valid driver's license, follow the route to the destination, adjust to road and weather conditions, such as adjust speed, recognize and avoid potential hazards	3	5	-	2
<b>NOS Total</b>	<b>30</b>	<b>50</b>	-	<b>20</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	MIN/N1418
<b>NOS Name</b>	Transport the grader
<b>Sector</b>	Mining
<b>Sub-Sector</b>	Mining Operation
<b>Occupation</b>	Loading and Hauling - Opencast, Loading and Hauling - Underground
<b>NSQF Level</b>	3.0
<b>Credits</b>	4
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	31/01/2024
<b>Next Review Date</b>	30/01/2027
<b>NSQF Clearance Date</b>	31/01/2024



## Qualification Pack

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

#### Description

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

#### Scope

The scope covers the following :

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

#### Elements and Performance Criteria

##### *Introduction to Employability Skills*

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

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

##### *Constitutional values - Citizenship*

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

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

##### *Becoming a Professional in the 21st Century*

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

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

##### *Basic English Skills*

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

## Qualification Pack

- 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.
- PC28.** follow appropriate hygiene and grooming standards

## Qualification Pack

### *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
- GS3.** behave politely and appropriately with all
- GS4.** how to work in a virtual mode

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- GS5.** perform calculations efficiently
- GS6.** solve problems effectively
- GS7.** pay attention to details
- GS8.** manage time efficiently
- GS9.** maintain hygiene and sanitization to avoid infection

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Introduction to Employability Skills</i>	1	1	-	-
<b>PC1.</b> identify employability skills required for jobs in various industries	-	-	-	-
<b>PC2.</b> identify and explore learning and employability portals	-	-	-	-
<i>Constitutional values – Citizenship</i>	1	1	-	-
<b>PC3.</b> 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.	-	-	-	-
<b>PC4.</b> follow environmentally sustainable practices	-	-	-	-
<i>Becoming a Professional in the 21st Century</i>	2	4	-	-
<b>PC5.</b> recognize the significance of 21st Century Skills for employment	-	-	-	-
<b>PC6.</b> 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	-	-
<b>PC7.</b> use basic English for everyday conversation in different contexts, in person and over the telephone	-	-	-	-
<b>PC8.</b> read and understand routine information, notes, instructions, mails, letters etc. written in English	-	-	-	-
<b>PC9.</b> write short messages, notes, letters, e-mails etc. in English	-	-	-	-
<i>Career Development &amp; Goal Setting</i>	1	2	-	-

## Qualification Pack

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

## Qualification Pack

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

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	DGT/VSQ/N0102
<b>NOS Name</b>	Employability Skills (60 Hours)
<b>Sector</b>	Cross Sectoral
<b>Sub-Sector</b>	Professional Skills
<b>Occupation</b>	Employability
<b>NSQF Level</b>	4
<b>Credits</b>	2
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	18/02/2025
<b>Next Review Date</b>	18/02/2030
<b>NSQC Clearance Date</b>	18/02/2025



## Qualification Pack

# MIN/N1703: Follow Health, Safety, and Environmental Guidelines for opencast mines

## Description

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

## Scope

The scope covers the following :

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

## Elements and Performance Criteria

### *Follow work-site health and safety measures*

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

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

### *Follow Environmental guidelines*

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

- PC14.** identify the environmental impact of related opencast mining operations
- PC15.** follow the process for collecting, storing and disposing of the hazardous material and waste (like used oil, lubricant, battery, etc.) in compliance with worksite guidelines
- PC16.** ensure not to mix topsoil with waste in day to day tasks
- PC17.** ensure that HEMM is washed at the designated location
- PC18.** ensure the productivity of the machine for material/fuel conservation

## Qualification Pack

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

### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** about various environmental awareness program related to mining, organized by the various government bodies/company
- KU2.** safety guidelines specified by Directorate General of Mine Safety (DGMS)
- KU3.** how to identify six-directional hazards
- KU4.** basic mining terminologies and definitions
- KU5.** importance of blind spot survey/training
- KU6.** means of access and egress from the mines, location of workshop, haul roads and working face including dump yards
- KU7.** duties of workers under The Mines act-1952
- KU8.** working hours and accident compensation as per The Mines act-1952
- KU9.** about precautions to be taken when handling heavy equipment
- KU10.** various problems/incidents likely to occur
- KU11.** hierarchy of the reporting
- KU12.** machine operation, condition of the machine and worksite
- KU13.** proper documents specific to the machine
- KU14.** role of workmen inspector, safety committee and internal safety organization
- KU15.** the process of top soil removal and management
- KU16.** mine sump and pumping system of the mines
- KU17.** about mine safety standard including light illumination level, noise levels, dust level, pollutants, etc at the work-site
- KU18.** common sources of pollution in the mines and ways to minimize it
- KU19.** 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.
- KU20.** shot-firing / blasting related safety regulations including taking shelter during blasting
- KU21.** emergency response /disaster management plan prepared by the organization
- KU22.** signages, mining area-specific signs, and other safety and emergency signals
- KU23.** the outcome of violation of safety procedures
- KU24.** basic personal and workplace hygiene
- KU25.** importance of sensitization towards different genders and PWD (Persons with Disabilities)

### Generic Skills (GS)

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

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

## Qualification Pack

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

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Follow work-site health and safety measures</i>	<b>20</b>	<b>34</b>	-	<b>15</b>
<b>PC1.</b> comply with safety, health, and security-related regulations/guidelines at the opencast mine	2	2	-	1
<b>PC2.</b> follow the safety instructions given by the workman's inspector	1	3	-	1
<b>PC3.</b> follow adequate safety while working at haul roads, heights, overburden dumps, sump area, stockyard, near moving parts, etc.	3	3	-	1
<b>PC4.</b> take safety precautions while working on sites (sub-station, workshop etc.), with equipment, and conducting welding and cutting operations	1	3	-	1
<b>PC5.</b> follow appropriate Safe Operating Procedure (SOP) while dealing with explosives	2	3	-	2
<b>PC6.</b> respond promptly and appropriately to an accident/ incident or an emergency situation, within limits of the role and responsibility	2	3	-	1
<b>PC7.</b> provide first aid to an injured person	2	3	-	1
<b>PC8.</b> operate various types of fire extinguishers to control different types of fire at a worksite when required	1	3	-	1
<b>PC9.</b> use appropriate PPE as per the requirement	2	4	-	2
<b>PC10.</b> maintain hand hygiene by washing hands with alcohol based sanitisers/soap	1	2	-	1
<b>PC11.</b> disinfect the machine/tools before and after work/task	1	2	-	1
<b>PC12.</b> maintain hygiene at the work site	1	1	-	1
<b>PC13.</b> report any symptoms of illness to the shift-incharge	1	2	-	1
<i>Follow Environmental guidelines</i>	<b>10</b>	<b>16</b>	-	<b>5</b>
<b>PC14.</b> identify the environmental impact of related opencast mining operations	2	2	-	1

## Qualification Pack

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

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	MIN/N1703
<b>NOS Name</b>	Follow Health, Safety, and Environmental Guidelines for opencast mines
<b>Sector</b>	Mining
<b>Sub-Sector</b>	Mining Operation
<b>Occupation</b>	HSE Functions, , Exploration, Mineral Estimation, Planning, Mine Surveying, Drilling/Cutting, Shot firing/Blasting, Loading and Hauling - Opencast, Specialized Operations, Electrical Services, Mechanical Services, Instrumentation and Control Systems, Ore Processing
<b>NSQF Level</b>	3.5
<b>Credits</b>	2
<b>Version</b>	2.0
<b>Last Reviewed Date</b>	27/08/2024
<b>Next Review Date</b>	26/08/2027
<b>NSQC Clearance Date</b>	27/08/2024

## Qualification Pack

# MIN/N1702: Follow Health, Safety and Environmental guidelines for Underground Metalliferous Mines

## 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
- PC15.** follow process for reporting any unsafe act/condition in work area to the concerned person
- PC16.** use underground mine communication system

## Qualification Pack

- 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.** importance of blind spot survey/training
- KU11.** about different types of machinery used in U/G mines
- KU12.** different types of supporting systems used in U/G mines as per SSP and SSR
- KU13.** about precautions to be taken when handling heavy equipment
- KU14.** various problems/incidents likely to occur
- KU15.** role of Internal Safety Organization, safety committee, workman's inspector and DGMS
- KU16.** about mine safety standard including light illumination level, noise levels, dust level, pollutants, etc at the work-site



## Qualification Pack

- KU17.** common sources of pollution in the mines and ways to minimize it
- KU18.** various types of fire extinguishers
- KU19.** 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.
- KU20.** shot-firing / blasting related safety regulations including taking shelter during blasting
- KU21.** emergency response /disaster management plan prepared by the organization as per DGMS guideline
- KU22.** mining area-specific signs, and other safety and emergency signals
- KU23.** the outcome of violation of safety procedures
- KU24.** Take-5 (Personal Risk Assessment) training (DGMS Tech. circulars 2/2014)
- KU25.** rules and regulations for safety and security while handling hazardous materials
- KU26.** safety appliances and rescue equipment
- KU27.** importance and use of various communication system used in UG mines
- KU28.** importance of positive isolation at working site
- KU29.** safety and occupational health policy of organisation
- KU30.** six directional hazard identification process
- KU31.** basic personal and workplace hygiene
- KU32.** importance of FAB (Fresh Air Base)
- KU33.** basic provisions in Mines Creche Rules, 1966 (MCR) for females employed in the mines
- KU34.** the role and responsibilities of rescue room and rescue station and how to contact them in case of emergency
- KU35.** importance of taking shelter at the miner's station during blasting operation
- KU36.** importance of sensitization towards different genders and persons with disabilities (PWD)
- KU37.** importance of following infection control policies, '5-S' practices, and waste management
- KU38.** importance of water/material/energy conservation and management
- KU39.** 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
- 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>	<b>24</b>	<b>42</b>	-	<b>17</b>
<b>PC1.</b> undertake "The Take-5 (Personal Risk Assessment)" before commencement of any work	-	2	-	2
<b>PC2.</b> 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	-	-
<b>PC3.</b> operate various types of fire extinguishers to control different types of fire at a worksite when required	1	4	-	1
<b>PC4.</b> 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	-	-
<b>PC5.</b> take precaution against occupational health hazards (like dust, water, mine gases etc.) due to U/G working environment	1	2	-	1
<b>PC6.</b> use self-rescue apparatus, appropriately when required	-	4	-	1
<b>PC7.</b> follow appropriate emergency response procedure during emergency such as fire, water inrush, fall of ground etc.	1	2	-	1
<b>PC8.</b> follow precautions against U/G electrical appliances	2	2	-	2
<b>PC9.</b> follow appropriate Standard Operating Procedure while working near any isolated and sealed off area of the mine	2	2	-	1
<b>PC10.</b> follow appropriate safety practices while traveling on U/G haul roads, incase of post blast fumes and misfire	2	4	-	-
<b>PC11.</b> 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
<b>PC12.</b> identify the working ventilation district from line diagram of ventilation circuit to direct air to the working face	1	1	-	-
<b>PC13.</b> follow Safety Management Plan (SMP) and Emergency Management Plan (EMP)	1	-	-	-
<b>PC14.</b> follow gas detecting alarm signal on leakage of inflammable gases and laid out procedure to ensure safety	1	2	-	1
<b>PC15.</b> follow process for reporting any unsafe act/condition in work area to the concerned person	-	2	-	1
<b>PC16.</b> use underground mine communication system	-	1	-	-
<b>PC17.</b> ensure positive isolation near the work place if applicable	1	1	-	1
<b>PC18.</b> use appropriate PPE as per the requirement	2	4	-	2
<b>PC19.</b> maintain hand hygiene by washing hands with alcohol based sanitisers/soap	1	1	-	1
<b>PC20.</b> disinfect the machine/tools before and after work/task	1	1	-	-
<b>PC21.</b> maintain hygiene at the work site	1	1	-	1
<b>PC22.</b> report any symptoms of illness to the shift-incharge	1	-	-	-
<b>PC23.</b> identify six directional hazards at workplace and take decisions accordingly	2	-	-	-
<i>Follow environmental guidelines</i>	<b>6</b>	<b>8</b>	-	<b>3</b>
<b>PC24.</b> identify the environmental impact of mining related operations and follow steps to reduce those impact	1	2	-	-
<b>PC25.</b> follow the mineral conservation practices in U/G mining operations to achieve optimum ore or mineral recovery	-	1	-	-
<b>PC26.</b> ensure that the stowing practices produce minimum disturbance to the surface	1	1	-	-

## Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC27.</b> ensure that the subgrade ore is carried out to surface and stacked separately at the earmarked place	1	-	-	1
<b>PC28.</b> ensure the productivity of the machine for material/fuel conservation	1	1	-	-
<b>PC29.</b> 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
<b>PC30.</b> follow the "5-S" practice at work site like cleaning oil from ground (to avoid soil from getting damaged), etc.	1	2	-	1
<b>NOS Total</b>	<b>30</b>	<b>50</b>	<b>-</b>	<b>20</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	MIN/N1702
<b>NOS Name</b>	Follow Health, Safety and Environmental guidelines for Underground Metalliferous Mines
<b>Sector</b>	Mining
<b>Sub-Sector</b>	Mining Operation
<b>Occupation</b>	HSE Functions, Mine Surveying, Drilling/Cutting, Shot firing/Blasting, Loading and Hauling - Underground, Specialized Operations, Electrical Services, Mechanical Services
<b>NSQF Level</b>	3.5
<b>Credits</b>	2
<b>Version</b>	2.0
<b>Last Reviewed Date</b>	27/08/2024
<b>Next Review Date</b>	26/08/2027
<b>NSQC Clearance Date</b>	27/08/2024

## Qualification Pack

# MIN/N1704: Follow Health, Safety, and Environmental guidelines for underground coal mines

## 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)
- PC16.** follow precautions against U/G electrical appliances

## Qualification Pack

- 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:

- KU1.** safety guidelines specified by Directorate General of Mine Safety (DGMS)
- KU2.** duties and rights of workers

## Qualification Pack

- 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.** importance of blind spot survey/training
- KU30.** basic personal and workplace hygiene
- KU31.** importance of FAB (Fresh Air Base)
- KU32.** basic provisions in Mines Creche Rules, 1966 (MCR) for any females employed in the mines
- KU33.** about basic safety regulations of Coal Mines Regulation, 2017 (CMR)
- KU34.** types of stone dust barrier and its importance
- KU35.** coal dust explosion and its preventive measures
- KU36.** classification of coal mines as per the degree of gassiness of coal seams such as first degree, second degree, and third-degree mines
- KU37.** precautions as per the gassiness of the coal mines
- KU38.** use of flame safety lamp and its parts



## Qualification Pack

- KU39.** about coal mines occupational disease such as pneumoconiosis or 'black lung' and their preventive measures
- KU40.** Standard of Ventilation as per the section 153 of the CMR 2017
- KU41.** Standard of Lighting as per the section 178 of the CMR 2017
- KU42.** the roles, duties and responsibilities of rescue team members, rescue room and rescue station and how to contact them in case of emergency
- KU43.** the correct steps for conducting any rescue work as per Mine Rescue Rule (MRR)
- KU44.** importance of taking shelter at the miner's station during blasting operation
- KU45.** importance of sensitization towards different genders and persons with disabilities (PWD)
- KU46.** importance of following infection control policies, '5-S' practices, and waste management
- KU47.** importance of water/material/energy conservation and management
- KU48.** 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>	<b>24</b>	<b>43</b>	-	<b>14</b>
<b>PC1.</b> follow preventive measures against firedamp, whitedamp, blackdamp etc.	1	1	-	-
<b>PC2.</b> use the flame safety lamp for detecting the methane gas as per Standard Operating Procedure (SOP)	-	1	-	-
<b>PC3.</b> undertake "The Take-5 (Personal Risk Assessment)" before commencement of any work	1	1	-	1
<b>PC4.</b> 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
<b>PC5.</b> ensure that oil, grease, canvas or other inflammable material are stored in fire-proof receptacle	-	1	-	-
<b>PC6.</b> ensure that every instrument, apparatus and equipment are DGMS approved before these are used	1	1	-	-
<b>PC7.</b> 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	-	-
<b>PC8.</b> provide first aid to an injured person	1	2	-	1
<b>PC9.</b> follow safety precautions against spontaneous heating of the coal	1	1	-	-
<b>PC10.</b> operate various types of fire extinguishers to control different types of fire at worksite, if required	-	2	-	-
<b>PC11.</b> ensure that no person is traveling/working/staying under unsupported roof	1	-	-	-
<b>PC12.</b> 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
<b>PC13.</b> take precaution against occupational health hazards (like dust, water, mine gases etc.) due to U/G working environment	-	1	-	1
<b>PC14.</b> use self-rescue apparatus appropriately when required	-	2	-	-
<b>PC15.</b> follow Safety Management Plan (SMP) and Emergency Management Plan (EMP)	1	2	-	1
<b>PC16.</b> follow precautions against U/G electrical appliances	2	2	-	1
<b>PC17.</b> take proper care against damage and accidents while loading, transporting, dismantling and erecting of roof supports	1	2	-	-
<b>PC18.</b> follow appropriate SOP while working near any isolated and sealed off area of the mine	1	1	-	1
<b>PC19.</b> 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	-	-
<b>PC20.</b> take relevant safety precautions during depillaring operation in UCM	-	2	-	1
<b>PC21.</b> follow appropriate safety practices while traveling on U/G haul roads, incase of post blast fumes and misfire	1	1	-	-
<b>PC22.</b> follow the manufacturer's instructions for care and safe operation of mine machinery and equipment	-	1	-	1
<b>PC23.</b> identify the working ventilation district from line diagram of ventilation circuit to direct air to the working face	-	1	-	1
<b>PC24.</b> follow laid out SOP in case of alarm signal for leakage of inflammable gases	1	1	-	-
<b>PC25.</b> follow the process of reporting any unsafe act/condition in the working area to the concerned person	-	1	-	1
<b>PC26.</b> use underground mine communication system	-	1	-	-

## Qualification Pack

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

## Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>NOS Total</b>	<b>30</b>	<b>50</b>	<b>-</b>	<b>20</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	MIN/N1704
<b>NOS Name</b>	Follow Health, Safety, and Environmental guidelines for underground coal mines
<b>Sector</b>	Mining
<b>Sub-Sector</b>	Mining Operation
<b>Occupation</b>	HSE Functions, Mine Surveying, Drilling/Cutting, Shot firing/Blasting, Loading and Hauling - Underground, Specialized Operations, Electrical Services, Mechanical Services
<b>NSQF Level</b>	3.5
<b>Credits</b>	2
<b>Version</b>	2.0
<b>Last Reviewed Date</b>	27/08/2024
<b>Next Review Date</b>	26/08/2027
<b>NSQC Clearance Date</b>	27/08/2024

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

## Qualification Pack

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/N1416.Prepare the grader for operations and conduct routine maintenance	30	50	0	20	100	15
MIN/N1417.Perform the grader operations	30	50	0	20	100	25
MIN/N1418.Transport the grader	30	50	0	20	100	25
DGT/VSQ/N0102.Employability Skills (60 Hours)	20	30	-	-	50	10
<b>Total</b>	<b>110</b>	<b>180</b>	<b>-</b>	<b>60</b>	<b>350</b>	<b>75</b>

Elective: 1 Opencast

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
MIN/N1703.Follow Health, Safety, and Environmental Guidelines for opencast mines	30	50	0	20	100	25
<b>Total</b>	<b>30</b>	<b>50</b>	<b>-</b>	<b>20</b>	<b>100</b>	<b>25</b>

Elective: 2 Underground Metal

## Qualification Pack

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	30	50	0	20	100	25
<b>Total</b>	<b>30</b>	<b>50</b>	<b>-</b>	<b>20</b>	<b>100</b>	<b>25</b>

Elective: 3 Underground 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	30	50	0	20	100	25
<b>Total</b>	<b>30</b>	<b>50</b>	<b>-</b>	<b>20</b>	<b>100</b>	<b>25</b>



## Qualification Pack

### Acronyms

<b>NOS</b>	National Occupational Standard(s)
<b>NSQF</b>	National Skills Qualifications Framework
<b>QP</b>	Qualifications Pack
<b>TVET</b>	Technical and Vocational Education and Training

## Qualification Pack

### Glossary

<b>Sector</b>	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.
<b>Sub-sector</b>	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
<b>Occupation</b>	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
<b>Job role</b>	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
<b>Occupational Standards (OS)</b>	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.
<b>Performance Criteria (PC)</b>	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
<b>National Occupational Standards (NOS)</b>	NOS are occupational standards which apply uniquely in the Indian context.
<b>Qualifications Pack (QP)</b>	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.
<b>Unit Code</b>	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
<b>Unit Title</b>	Unit title gives a clear overall statement about what the incumbent should be able to do.
<b>Description</b>	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.
<b>Scope</b>	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.
<b>Knowledge and Understanding (KU)</b>	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.

## Qualification Pack

<b>Organisational Context</b>	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.
<b>Technical Knowledge</b>	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
<b>Core Skills/ Generic Skills (GS)</b>	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.
<b>Electives</b>	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.
<b>Options</b>	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.