Wire Saw Operator

QP Code: MIN/Q1201

Version: 2.0

NSQF Level: 4

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

Contents

Qualification Pack

MIN/Q1201: Wire Saw Operator

Brief Job Description

Wire Saw operator drives and operates a Wire Saw machine to cut large dimension stone blocks of granite, marble, limestone, slate, sandstone etc. into smaller blocks.They also ensure that the safety systems are working correctly and perform essential maintenance on the Wire Saw.

Personal Attributes

This job requires the individual to concentrate on the job and complete it effectively and efficiently. The individual should be physically agile, strong, have good eyesight and not suffer from colour-blindness, demonstrate strong work ethics and an ability to communicate courteously with others.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. MIN/N1201: Prepare the Wire Saw for operations

2. MIN/N1202: Perform wire saw operations

3. MIN/N1203: Carry out reporting and documentation related to the Wire Saw Operation

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

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

Qualification Pack (QP) Parameters

Sector	Mining
Sub-Sector	Mining Operation
Occupation	Drilling/Cutting
Country	India
NSQF Level	4
Credits	15
Aligned to NCO/ISCO/ISIC Code	NCO-2015/8111.2901

Minimum Educational Qualification & Experience	8th grade pass plus 2-year NTC plus 1 Year NAC
	        OR
	8th pass plus 1-year NTC plus 1-Year NAC plus CITS
	        OR
	10th grade pass and pursuing continuous schooling
	        OR
	10th grade pass (with 2 years relevant experience)
	        OR
	Previous relevant Qualification of NSQF Level (3.0 Jr. Wire Saw Operator with minimum education as 5th Grade pass with 2 years relevant experience)

Minimum Level of Education for Training in School	
Pre-Requisite License or Training	Preferable Heavy Motor Vehicle Driving License
Minimum Job Entry Age	20 Years
Last Reviewed On	NA
Next Review Date	17/11/2025
NSQC Approval Date	17/11/2022
Version	2.0
Reference code on NQR	2022/MIN/SCMS/06979
NQR Version	1

Remarks:

Total Notional Duration: 450 Hours = Domain Theory Duration: 90 Hours+ Domain Practical Duration: 150 Hours + Domain OJT (Mandatory) Duration: 150 Hours + Employability Skills Duration: 60 Hours

MIN/N1201: Prepare the Wire Saw for operations

Description

This unit is about preparing the Wire Saw for activities that need to be carried out during a shift.

Scope

The scope covers the following :

- Conducting pre-operation checks
- Recording and reporting details of daily checks

Elements and Performance Criteria

Conducting pre-operation checks

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

PC1. follow the work related instructions given by the supervisor before the shift starts

PC2. set the Wire Saw machine on a leveled ground which is free from obstacles

PC3. inspect the body components for cracks and bearing wear

PC4. check the various controls, gauges, warning lamp and other safety devices

PC5. ensure that crown blocks are mounted securely

PC6. check the condition of Wire Saw bits and change the bits and joints if required

PC7. check all hoses connections are in order if using a compressed air Wire Saw

PC8. apply grease to all the required parts

PC9. ensure that no other worker/s travel or stand near the wire Sawing site

PC10. follow the manufacturer's instructions specified for care and safe operating condition of wire saw machine

PC11. check available dust reduction measures

PC12. inform the mechanic/electrician for any electrical/ instrumental/ mechanical problem in the Wire Saw

Recording and reporting details of daily checks

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

PC13. update the operation and maintenance log book with activities conducted before starting the Wire saw

PC14. inform the supervisor of those problems which are not under one's purview

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. job-specific documents e.g. daily maintenance checklist and importance of the same

KU2. risk and impact of not following defined procedures/work instructions

KU3. the hierarchy for reporting identified problems

KU4.   cost of equipment and loss for the company that results from damage of equipment

KU5.   implications of delays in the process

KU6.   handover and takeover procedures of the Wire Saw according to company's SOP

KU7.   safety guidelines specified by Directorate General of MInes Safety (DGMS) specific to Wire Saw operations

KU8.   different types of mines and detail of the mine one is working in

KU9.   benching in quarries, dressing of overhangs, undercuts, fencing etc.

KU10. importance of first aid and hygiene

KU11. code of practice in specific areas of the mine

KU12. standing orders in force at the mine

KU13. importance of safety in the vicinity of machinery

KU14. about shot-firing / blasting related safety regulations including taking shelter during blasting

KU15. duties of workmen under the Mines Act-1952

KU16. provision of compensation and working hours, leaves, etc. as per Mines Act-1952

KU17. the outcome of violation of safety procedures

KU18. different types of Heavy Earth Moving Machines (H.E.M.M) and their use

KU19. common terminologies related to Wire Saw

KU20. different types of Wire Saws, their specifications and usage

KU21. about instrument panel, various controls, their location and operation

KU22. different types of Wire Saw bits and their uses

KU23. how to check condition of bits, requirement to change the bits, proper joints etc.

KU24. routine checks essential before starting Wire Saw operations

KU25. about safety provisions for machine

KU26. available dust reduction measures and how to use them effectively

KU27. 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.   note down observations (if any)

GS2.   read and interpret symbols and readings

GS3.   read information documents

GS4.   discuss task lists, schedules, and activities

GS5.   effectively communicate, listen and comprehend the information given by various sources about the site

GS6.   make decisions pertaining to the concerned area of work

GS7.   plan and organize the work order and tasks

GS8.   organize all operation and service manuals so that sorting/ accessing information is easy

GS9.   detect problems in day to day tasks

GS10. discuss possible solution with the supervisor for problem solving

GS11. make decisions in emergency conditions

GS12. follow instructions and work on areas of improvement identified

GS13. complete the assigned tasks timely

GS14. use reasoning skills to identify and resolve basic problems

GS15. analyze and detect any potential problems which could arise during operation

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Conducting pre-operation checks	**26**	**44**	**-**	**18**
PC1. follow the work related instructions given by the supervisor before the shift starts	2	4	-	2
PC2. set the Wire Saw machine on a leveled ground which is free from obstacles	2	4	-	2
PC3. inspect the body components for cracks and bearing wear	2	4	-	2
PC4. check the various controls, gauges, warning lamp and other safety devices	2	4	-	1
PC5. ensure that crown blocks are mounted securely	2	4	-	1
PC6. check the condition of Wire Saw bits and change the bits and joints if required	2	4	-	1
PC7. check all hoses connections are in order if using a compressed air Wire Saw	2	4	-	2
PC8. apply grease to all the required parts	2	4	-	1
PC9. ensure that no other worker/s travel or stand near the wire Sawing site	2	3	-	1
PC10. follow the manufacturer's instructions specified for care and safe operating condition of wire saw machine	2	3	-	2
PC11. check available dust reduction measures	3	3	-	1
PC12. inform the mechanic/electrician for any electrical/ instrumental/ mechanical problem in the Wire Saw	3	3	-	2
Recording and reporting details of daily checks	**4**	**6**	**-**	**2**
PC13. update the operation and maintenance log book with activities conducted before starting the Wire saw	2	3	-	1
PC14. inform the supervisor of those problems which are not under one's purview	2	3	-	1

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

National Occupational Standards (NOS) Parameters

NOS Code	MIN/N1201
NOS Name	Prepare the Wire Saw for operations
Sector	Mining
Sub-Sector	Mining Operation
Occupation	Drilling/Cutting
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	27/01/2022
Next Review Date	17/11/2025
NSQC Clearance Date	17/11/2022

MIN/N1202: Perform wire saw operations

Description

This unit is about performing Wire Sawing operation using a rig mounted Wire Saw machine.

Scope

The scope covers the following :

- Pre operational arrangements and transportation of the Wire Saw machine
- Positioning and mounting the Wire Saw
- Performing cutting operation and basic maintenance

Elements and Performance Criteria

Pre operational arrangements and transportation of the Wire Saw machine

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

PC1. plan and organize the tasks/works according to the supervisor's/site engineer's instructions

PC2. arrange the Wire Saw of a suitable capacity and clean the site

PC3. shift the machine to the place of work

PC4. operate propelling motor control levers to smoothly move the Wire Saw machine in all four directions

PC5. ensure all necessary precautions are adhered to before towing the Wire Saw to a distant site

PC6. raise Wire Saw guide to 1.5m above ground level and make it horizontal to prevent any damage in transit

PC7. organize daily consumables including cutting bits etc., according to the day's plan

Positioning and mounting the Wire Saw

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

PC8. erect appropriate signages, barricades as required, the work area before positioning and mounting the Wire Saw

PC9. ensure Wire Saw is mounted on a stable base and adjust the tracks by methodically manipulating the positions of oscillation cylinder valve and hydraulic track valve

Performing cutting operation and basic maintenance

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

PC10. mount and use the water supply nozzle for cooling of the wire while cutting

PC11. perform cutting operation and set optimal speed of driving and cutting to ensure best results

PC12. make use of various systems in the remote control unit to control the hydraulic oil flow rate, wire tension control, longitudinal advance control for cutting direction, potentiometer for speed adjustment etc

PC13. carry out basic maintenance such as replacing rubber on the pulleys, cleaning the diamond wire guard and drive wheel guard, keeping grip points free from oil and grease etc.

PC14. ensure all associated parts (couplings/rods etc.) are used to their maximum potential, while ensuring their sustainability to reduce downtime and wastage

PC15. take all the safety precautions against hazards during the Wire Sawing operation

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. emergency response /disaster management plan prepared by the organization

KU2. risk and impact of not following defined procedures/work instructions

KU3. cost of equipment and loss for the company that results from damage of equipment

KU4. safety guidelines for Wire Sawing operations specified by Directorate General of Mines Safety (DGMS)

KU5. different types of mines and detail of the mine one is working in

KU6. implications of delays in the process

KU7. benching in quarries, dressing of overhangs, undercuts, fencing, etc.

KU8. importance of first aid and hygiene

KU9. about shot-firing / blasting related safety regulations including taking shelter during blasting

KU10. duties of workmen under the Mines Act-1952

KU11. the operating manual of the Wire Saw

KU12. provision of compensation and working hours, leaves, etc as per Mines Act-1952

KU13. different types of Wire Saws, their specifications and usage

KU14. about instrument panel, various controls, their location and operation

KU15. different types of Wire Saw bits, their expected life and usage

KU16. about the replacement process of bits and joints

KU17. operation of different sub-assemblies such as drive wheel, hydraulic system, power unit, water supply system, wire tensioning arm, wire length adjustment pulley etc.

KU18. procedure of setting up of the Wire Saw for various tasks - horizontal, vertical or flush cutting

KU19. wire sawing pattern and sequence of operations

KU20. method and significance of twisting the diamond wire before joining connectors

KU21. basic maintenance such as replacing rubber on the pulleys, cleaning the diamond wire guard and drive wheel guard and keeping grip points free from oil and grease

KU22. mining area signs and other safety and emergency signals

KU23. importance of sensitization towards different genders and PWD (Persons with Disabilities)

Generic Skills (GS)

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

GS1. note down observations (if any)

GS2. read and interpret symbols and readings

GS3. read information documents

GS4. discuss task lists, schedules, and activities

GS5. effectively communicate, listen and comprehend the information given by various sources about the site

GS6. make decisions pertaining to the concerned area of work

GS7. plan and organize the work order and tasks

GS8. organize all operation and service manuals so that sorting/ accessing information is easy

GS9. detect problems in day to day tasks

GS10. discuss possible solution with the supervisor for problem solving

GS11. make decisions in emergency conditions

GS12. follow instructions and work on areas of improvement identified

GS13. complete the assigned tasks timely

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Pre operational arrangements and transportation of the Wire Saw machine	**17**	**26**	**-**	**12**
PC1. plan and organize the tasks/works according to the supervisor's/site engineer's instructions	2	4	-	2
PC2. arrange the Wire Saw of a suitable capacity and clean the site	2	4	-	2
PC3. shift the machine to the place of work	3	5	-	2
PC4. operate propelling motor control levers to smoothly move the Wire Saw machine in all four directions	3	4	-	2
PC5. ensure all necessary precautions are adhered to before towing the Wire Saw to a distant site	3	3	-	2
PC6. raise Wire Saw guide to 1.5m above ground level and make it horizontal to prevent any damage in transit	2	3	-	1
PC7. organize daily consumables including cutting bits etc., according to the day's plan	2	3	-	1
Positioning and mounting the Wire Saw	**5**	**6**	**-**	**2**
PC8. erect appropriate signages, barricades as required, the work area before positioning and mounting the Wire Saw	3	4	-	1
PC9. ensure Wire Saw is mounted on a stable base and adjust the tracks by methodically manipulating the positions of oscillation cylinder valve and hydraulic track valve	2	2	-	1
Performing cutting operation and basic maintenance	**8**	**18**	**-**	**6**
PC10. mount and use the water supply nozzle for cooling of the wire while cutting	2	3	-	1
PC11. perform cutting operation and set optimal speed of driving and cutting to ensure best results	1	3	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. make use of various systems in the remote control unit to control the hydraulic oil flow rate, wire tension control, longitudinal advance control for cutting direction, potentiometer for speed adjustment etc	1	3	-	1
PC13. carry out basic maintenance such as replacing rubber on the pulleys, cleaning the diamond wire guard and drive wheel guard, keeping grip points free from oil and grease etc.	1	3	-	1
PC14. ensure all associated parts (couplings/rods etc.) are used to their maximum potential, while ensuring their sustainability to reduce downtime and wastage	1	3	-	1
PC15. take all the safety precautions against hazards during the Wire Sawing operation	2	3	-	1
NOS Total	**30**	**50**	**-**	**20**

National Occupational Standards (NOS) Parameters

NOS Code	MIN/N1202
NOS Name	Perform wire saw operations
Sector	Mining
Sub-Sector	Mining Operation
Occupation	Drilling/Cutting
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	27/01/2022
Next Review Date	17/11/2025
NSQC Clearance Date	17/11/2022

MIN/N1203: Carry out reporting and documentation related to the Wire Saw Operation

Description

This unit is about carrying out reporting and documentation related to the Wire Saw operations.

Scope

The scope covers the following :

- Reporting and documentation

Elements and Performance Criteria

Reporting and documentation

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

PC1. identify documentation to be completed

PC2. prepare all documentation correctly on time

PC3. report completion of job allocated during the shift, problems encountered and further actions that need to be taken

PC4. report safety and hazard related problems on urgent and priority basis to the supervisor and the manager

PC5. record the details of the machine operations accurately using the appropriate format

PC6. ensure that all documents are available to all appropriate authorities for inspection

PC7. use Mineral Conservation and Development Rules (MCDR) based logbook and fill accurate data in correct format along with the signature at the end

PC8. handover all important information to the reliever in a proper manner

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. types of documentation in organization e.g. daily maintenance checklist and importance of the same

KU2. different types of mines and detail of the mine one is working in

KU3. commonly used mining terminologies

KU4. duties of workers under The Mines Act-1952

KU5. risk and impact of not following defined procedures/work instructions

KU6. the hierarchy for reporting identified problems

KU7. various problems/incidents likely to occur

KU8. handover and takeover procedures of the Wire Saw operations according to company's SOP

KU9. 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. note down observations (if any)

GS2. fill up documentation applicable to one's role

GS3. make decisions on the concerned area of work

GS4. read and explain manuals, health and safety instructions, memos, etc

GS5. plan and organize the work order and jobs

GS6. use reasoning skills to identify and resolve fundamental problems

GS7. complete the assigned tasks timely

GS8. maintain a good relationship with the supervisor/ and staff

GS9. detect problems in day to day tasks

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Reporting and documentation	**30**	**50**	**-**	**20**
PC1. identify documentation to be completed	3	6	-	2
PC2. prepare all documentation correctly on time	4	7	-	2
PC3. report completion of job allocated during the shift, problems encountered and further actions that need to be taken	4	6	-	2
PC4. report safety and hazard related problems on urgent and priority basis to the supervisor and the manager	4	6	-	3
PC5. record the details of the machine operations accurately using the appropriate format	4	7	-	2
PC6. ensure that all documents are available to all appropriate authorities for inspection	4	6	-	3
PC7. use Mineral Conservation and Development Rules (MCDR) based logbook and fill accurate data in correct format along with the signature at the end	3	6	-	3
PC8. handover all important information to the reliever in a proper manner	4	6	-	3
NOS Total	**30**	**50**	**-**	**20**

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	MIN/N1203
NOS Name	Carry out reporting and documentation related to the Wire Saw Operation
Sector	Mining
Sub-Sector	Mining Operation
Occupation	Drilling/Cutting
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	27/01/2022
Next Review Date	17/11/2025
NSQC Clearance Date	17/11/2022

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

Description

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

Scope

The scope covers the following :

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

Elements and Performance Criteria

Follow work-site health and safety measures

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

PC1. comply with safety, health, and security-related regulations/guidelines at the opencast mine

PC2. follow the safety instructions given by the workman's inspector

PC3. follow adequate safety while working at haul roads, heights, overburden dumps, sump area, stockyard, near moving parts, etc.

PC4. take safety precautions while working on sites (sub-station, workshop etc.), with equipment, and conducting welding and cutting operations

PC5. follow appropriate Safe Operating Procedure (SOP) while dealing with explosives

PC6. respond promptly and appropriately to an accident/ incident or an emergency situation, within limits of the role and responsibility

PC7. provide first aid to an injured person

PC8. operate various types of fire extinguishers to control different types of fire at a worksite when required

PC9. use appropriate PPE as per the requirement

PC10. maintain hand hygiene by washing hands with alcohol based sanitisers/soap

PC11. disinfect the machine/tools before and after work/task

PC12. maintain hygiene at the work site

PC13. report any symptoms of illness to the shift-incharge

Follow Environmental guidelines

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

PC14. identify the environmental impact of related opencast mining operations

PC15. follow the process for collecting, storing and disposing of the hazardous material and waste (like used oil, lubricant, battery, etc.) in compliance with worksite guidelines

PC16. ensure not to mix topsoil with waste in day to day tasks

PC17. ensure that HEMM is washed at the designated location

PC18. ensure the productivity of the machine for material/fuel conservation

PC19. follow the mineral conservation practices specified by the organization in accordance with MCDR-2017 (Mineral Conservation and Development Rules)

PC20. assist supervisor for reducing environmental impact caused due to related mining operations

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. about various environmental awareness program related to mining, organized by the various government bodies/company

KU2. safety guidelines specified by Directorate General of Mine Safety (DGMS)

KU3. basic mining terminologies and definitions

KU4. means of access and egress from the mines, location of workshop, haul roads and working face including dump yards

KU5. duties of workers under The Mines act-1952

KU6. working hours and accident compensation as per The Mines act-1952

KU7. about precautions to be taken when handling heavy equipment

KU8. various problems/incidents likely to occur

KU9. hierarchy of the reporting

KU10. machine operation, condition of the machine and worksite

KU11. proper documents specific to the machine

KU12. role of workmen inspector, safety committee and internal safety organization

KU13. the process of top soil removal and management

KU14. mine sump and pumping system of the mines

KU15. about mine safety standard including light illumination level, noise levels, dust level, pollutants, etc at the work-site

KU16. common sources of pollution in the mines and ways to minimize it

KU17. safety equipment like safety shoes, safety belt, tight fit clothing, hand gloves, safety goggles, gas detector, safety lamp, self-contained breathing apparatus, gum boots, ear plugs, face mask, etc.

KU18. shot-firing / blasting related safety regulations including taking shelter during blasting

KU19. emergency response /disaster management plan prepared by the organization

KU20. signages, mining area-specific signs, and other safety and emergency signals

KU21. the outcome of violation of safety procedures

KU22. basic personal and workplace hygiene

KU23. importance of sensitization towards different genders and PWD (Persons with Disabilities)

Generic Skills (GS)

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

GS1. fill up documentation applicable to one's role

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

Assessment Criteria

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

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

National Occupational Standards (NOS) Parameters

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

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:

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

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

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

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Introduction to Employability Skills	1	1	-	-
PC1. identify employability skills required for jobs in various industries	-	-	-	-
PC2. identify and explore learning and employability portals	-	-	-	-
Constitutional values – Citizenship	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	-	-	-	-
Becoming a Professional in the 21st Century	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	-	-	-	-
Basic English Skills	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	-	-	-	-
Career Development & Goal Setting	1	2	-	-

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	-	-	-	-
Communication Skills	**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	-	-	-	-
Diversity & Inclusion	**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	-	-	-	-
Financial and Legal Literacy	**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	-	-	-	-
Essential Digital Skills	**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	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Entrepreneurship	**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	-	-	-	-
Customer Service	**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	-	-	-	-
Getting ready for apprenticeship & Jobs	**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**	**-**	**-**

National Occupational Standards (NOS) Parameters

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

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.

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/N1201.Prepare the Wire Saw for operations	30	50	-	20	100	20
MIN/N1202.Perform wire saw operations	30	50	-	20	100	40
MIN/N1203.Carry out reporting and documentation related to the Wire Saw Operation	30	50	-	20	100	10
MIN/N1703.Follow Health, Safety, and Environmental Guidelines for opencast mines (Including Mine Vocational Training Rule)	30	50	-	20	100	20
DGT/VSQ/N0102.Employability Skills (60 Hours)	20	30	-	-	50	10
Total	**140**	**230**	**-**	**80**	**450**	**100**

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training
SCMS	Skill Council for Mining Sector
HEMM	Heavy Earth Moving Machinery
OEM	Original Equipment Manufacturer
DGMS	Directorate General of Mining Safety
MMR	Metalliferous Mines Regulations
CMR	Coal Mines Regulations
SOP	Standard Operating Practice
MVTR	Mine Vocational Training Rules
HSE	Health, Safety and Environment
MRR	Mines Rescue Rules
MSDR	Mineral Conservation and Development Rules
OB	Over Burden
PwD	Persons with Disability

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.

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.