



QUALIFICATION PACK - OCCUPATIONAL STANDARDS FOR MINING INDUSTRY

What are Occupational Standards(OS)?

OS describe what individuals need to do, know and understand in order to carry out a particular job role or function

performance
standards that
individuals must
achieve when
carrying out
functions in the
workplace,
together with
specifications of
the underpinning
knowledge and
understanding

Contact Us:

FIMI House, B-311, Okhla Ind. Area Ph-I, New Delhi-110020 011-26814596

:-mail: scms@skillcms.ir



Contents

<u>1.</u>	Introduction and Contacts	.Page 1
2.	Qualifications Pack	Page 2
<u>3.</u>	Glossary of Key Terms	.Page 3
<u>4.</u>	OS Units	Page 5

Introduction

Qualifications Pack-Assistant Mine Surveyor

SECTOR: MINING

SUB-SECTOR: Open Cast and Underground Mines

OCCUPATION: Mine Surveying

REFERENCE ID: MIN/Q 0426

ALIGNED TO: NCO-2004/2148.40

An Assistant Mine Surveyor provides requisite support in surveying the mine site and taking measurements

Brief Job Description: Assistant Mine Surveyor supports the mine surveyor with making measurements and determining property boundaries. This role will further support in making accurate Surveys, Levelling, Contouring,(Traversing, Triangulation, Co-relation, Setting out Curves etc.) and for preparing such Plans, sections and tracing etc. as required under Provision/Statute

Personal Attributes: This job requires the individual to have technical knowledge of surveying & levelling ,representing & preparing a plan, section, tracings, knowledge of Auto CAD, ability to plan and prioritize, quality consciousness, sensitivity to problem solving, quick decision making





Qualification Pack Code	MIN/Q 0426		
Job Role	Assistant Mine Surveyor		
Credits(NSQF)	TBD	Version number	1.0
Industry	Mining	Drafted on	15/12/2014
Sub-sector	Open Cast and Underground Mines	Last reviewed on	24/03/2015
Occupation	Mine Surveying	Next review date	24/03/2017

Job Role	Assistant Mine Surveyor	
	The role is responsible for supporting mine surveyor in	
	various activities towards land surveying like positioning	
Role Description	tracts of land, natural and constructed features and	
	managing related information systems	
NSQF level	4	
Minimum Educational Qualification	ITI in Draughtsmanship, ITI Civil	
Maximum Educational Qualification	NA	
	1. Mine Surveying	
Training	2. 5S	
(Suggested but not mandatory)	3. Safety	
Experience	2 years for ITIs and 6 months for diploma holders	
	Compulsory:	
	Click on the hyperlink to read/download the required NOS	
	1. MIN/ N 0473 (Assist in measuring and setting out	
	dimensional control for the mining requirements)	
Applicable National Competional	2. MIN/ N 0474 (Set out secondary dimensional work	
Applicable National Occupational Standards	<u>control)</u>	
Standards	3. MIN/ N 0475 (Move and handle resources to assist	
	surveyor)	
	4. MIN/ N0901 (Health and Safety)	
	Optional:	
	Not Applicable	
Performance Criteria	As described in the relevant OS units	



Qualifications Pack For Assistant Mine Surveyor



Keywords /Terms	Description
Sector	Sector is a conglomeration of different business operations having similar businesses 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.
Function	Function is an activity necessary for achieving the key purpose of the sector, occupation, or area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of OS.
Job Role	Job role defines a unique set of functions that together form a unique employment opportunity in an organization.
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 they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria	Performance Criteria are statements that together specify the standard of performance required when carrying out a task.
NOS	NOS are Occupational Standards which apply uniquely in the Indian context.
Qualification Pack Code	Qualification Pack Code is a unique reference code that identifies a qualification pack.
Qualification Pack	Qualification Pack comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A Qualification Pack is assigned a unique qualification 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.
Knowledge and Understanding	Knowledge and Understanding are statements which together specify the technical, generic, professional and organizational specific knowledge that an individual needs in order to perform to the required standard.
Organizational Context	Organizational Context includes the way the organization 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 or Generic Skills	Core Skills or Generic Skills are a group of skills that are key to learning and working 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.



Qualifications Pack For Assistant Mine Surveyor



Acronyms

Keywords /Terms	Description
SCMS	Skill council for Mining Sector
NOS	National Occupational Standards
NSQF	National Skills Qualification Framework
NVEQF	National Vocational Educational Qualification Framework
NVQF	National Vocational Qualification Framework
OS	Occupational Standards
PC	Performance Criteria
QP	Qualification Pack
SSC	Sector Skill Council





National Occupational Standard



<u>Overview</u>

This unit is about supporting mine surveyor in various activities towards land surveying like positioning tracts of land, natural and constructed features and managing related information systems





Unit Code	MIN/ N0473	
Unit Title (Task)	Assist in measuring and setting out dimensional control for the mining requirements	
Description	This OS unit is about demonstrating competence to measure and set out dimensional	
	control for the mining requirement. It involves correctly interpreting information and	
	instruction to set out the work area and enable the accurate transfer of measurement	
	and dimensional positioning to which the work will be carried out	
Scope	This unit/task covers the following:	
	Measuring and setting out dimensional control	
Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria	
Measuring and	PC1. Information and instructions are interpreted accurately for dimensional	
setting out	position and measurement control of the work program	
dimensional control	PC2. Area to be measured and set out is identified accurately in accordance with	
	the work's specification	
	PC3. Measuring tools and equipment are selected to carry out the measuring and	
	setting-out requirements	
	PC4. Transference of dimensional control requirements are taken from given	
	reference points in accordance with information and instructions	
	PC5. Components for setting out dimensional control are obtained in accordance	
	with regulatory and operational requirements	
	PC6. Clarification and understanding of the information and instructions are	
	confirmed with the appropriate person(s)	
	PC7. Markings and dimensional control components are positioned and secured	
	accurately in accordance with the specifications and work requirement	
	PC8. Variations between the information and instructions and the actual	
	dimensions of work are reported promptly to the authorized person	
	PC9. Corrective actions for variations to the information and instructions are	
	agreed, recorded and confirmed with the appropriate person(s)	
	PC10. Work is carried out to approved procedures and practices and in compliance	
	with statutory requirements	





PC11. Prepare and maintain the plan and sections and related instruments

PC12. Understand/ identify the errors in surveying under the guidance of surveyor

	standing (K) w.r.t. the scope	
A. Regulatory	The user/individual on the job needs to know and understand:	
context	KA1. Different types of mines and detail of the mine he is working in	
(knowledge of	KA2. Mine Organisation, time keeping, need for discipline and punctuality	
safety	KA3. Benching in quarries, Dressing of overhangs, Undercuts, Fencing, First aid and	
guidelines	Hygiene	
specified by	KA4. Standing orders in force at the mine. Safety in the vicinity of machinery	
Director	KA5. Shot-firing and Safety regulations. How and where to take shelter	
General of	KA6. Duties of workmen	
Mine Safety	KA7. Provision of wages, working hours and accident compensation as per	
(DGMS))	Mines act	
	KA8. Knowledge of mining safety procedures	
	KA9. Impact of violation of safely procedures	
B. Organizational	The user/individual on the job needs to know and understand:	
Context	KB1. relevant standards and procedures followed in the company	
(Knowledge of the		
company /		
organization and		
its processes)		
C. Technical	The user/individual on the job needs to know and understand:	
Knowledge	KC1. Measuring and setting-out procedures	
	KC2. Types of measuring tools and equipment used	
	KC3. Information and instruction to measure and set out the work	
	KC4. Methods for transfer of dimensional control	
	KC5. Setting-out procedures used with the work	
	KC6. Types of marking and components used for setting out	
	KC7. Related reference points used in engineers', surveyors' and designers' plans	
	KC8. Interpretation of job sheets and dimensional data and drawings	





MIN/ N0473 Assist in	3 Assist in measuring and setting out dimensional control for the mining requirements		
	KC9. Defects with measuring and marking tools and equipment		
	KC10. Problems that can occur when measuring and/or marking		
	KC11. Reporting/recording methods and procedures		
Skills (S) [Optional]			
Element	Writing Skills		
A. Core Skills/	The user/ individual on the job needs to know and understand how to:		
Generic Skills	SA1. Note down observations (if any)		
	SA2. Write information documents or enter the information in online ERP systems		
	under guidance of the supervisor		
	Reading Skills		
	The user/individual on the job needs to know and understand how to:		
	SA3. Read and interpret symbols and measurements		
	SA4. Read information documents		
	SA5. Understand and analyse the available at about the site		
	Oral Communication (Listening and Speaking skills)		
	The user/individual on the job needs to know and understand how to:		
	SA6. Discuss task lists, schedules and activities		
	SA7. Effectively communicate		
	SA8. Attentively listen with full attention and comprehend the information given by		
	various sources about the site		
B. Professional Skills	Plan and Organize		
	The user/individual on the job needs to know and understand how to:		
	SB1. Plan and organize the work order and jobs		
	SB2. Organize all process manuals so that sorting/ accessing information is easy		
	Judgment and Critical Thinking		
	The user/individual on the job needs to know and understand how to:		
	SB3. Use common sense and make judgments during day to day basis		
	SB4. Use reasoning skills to identify and resolve basic problems		
	SB5. Use intuition to detect any potential problems which could arise		
	Desire to learn and take initiatives		





The user/individual on the job needs to know and understand how to:

- SB6. Follow instructions and work on areas of improvement identified
- SB7. Complete the assigned tasks with minimum supervision
- SB8. Complete the job within timelines and quality norms

Problem Solving and Decision making

The user/individual on the job needs to know and understand how to:

- SB9. Detect problems in day to day tasks
- SB10. Discuss possible solution with the supervisor for problem solving
- SB11. Make decisions in emergency conditions







NOS Version Control

NOS Code	MIN/ N0473		
Credits(NSQF)	TBD	Version number	1.0
Industry	Mining	Drafted on	15/12/2014
Industry Sub-sector	Open Cast and Underground Mines	Last reviewed on	24/03/2015
Occupation	Mine Surveying	Next review date	24/03/2017

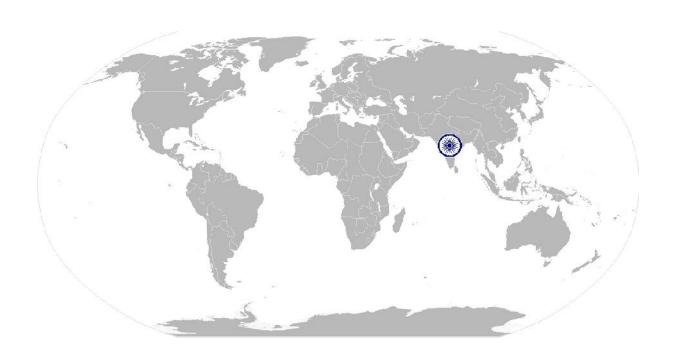








National Occupational Standards



Overview

This unit is about demonstrating competence in interpreting information, selecting setting out equipment and ancillary resources and preparing & setting out secondary dimensional control for survey







Unit Code	MIN/ N0474		
Unit Title (Task)	Set out secondary dimensional work control		
Description	This OS unit is about demonstrating competence in interpreting information,		
	selecting setting out equipment and ancillary resources and preparing & setting out		
	secondary dimensional control for survey		
Scope	This unit/task covers the following:		
	Interpreting information required		
	Selecting and prepare setting out equipment and ancillary resources for		
	secondary dimensional control of the work		
Performance Criteria (PC) w.r.t. the Scope		
Element	Performance Criteria		
Interpret information	To be competent, the candidate needs to demonstrate the following:		
required	PC1. Interpret drawings of the survey area and draw relevant conclusions with		
	respect to contours, markings and drawing symbols		
	PC2. Understand and identify action points from method statements		
	PC3. Clearly understand specifications related to surveying equipment and		
	specific usage intended for the purpose		
	PC4. Understand the operating instructions specified with manufacturer's		
	information		
	PC5. Understand the process of establishing reference points with respect to the		
	work to be carried out		
Selecting and prepare	PC6. Select the required type and quantity of resources: material, components		
setting out equipment	and equipment relating to types, quantity, quality and sizes of standard		
and ancillary resources	and/or specialist:		
for secondary	 measuring tools and instruments 		
dimensional control of	marking equipment		
	1		
the work	 level and alignment tools. 		
the work	 level and alignment tools. PC7. Use given equipment to transfer, transpose, level, measure, mark, position, 		
the work	_		
the work	PC7. Use given equipment to transfer, transpose, level, measure, mark, position,		







1,111,11	To the secondary demonstration of
	PC10. Transfer and set out line, angles and levels to dimensional control
	requirements
	PC11. Use hand tools and measuring and marking equipment
	PC12. Work at height if required to set up equipment

Knowledge and Understa	anding (K) w.r.t. the scope		
Element	Knowledge and Understanding		
A. Regulatory	The user/individual on the job needs to know and understand:		
context	KA1. Different types of mines and detail of the mine he is working in		
(knowledge of	KA2. Mine Organisation, time keeping, need for discipline and punctuality		
safety guidelines	KA3. Benching in quarries, Dressing of overhangs, Undercuts, Fencing, First aid and		
specified by	Hygiene		
Director General	KA4. Standing orders in force at the mine. Safety in the vicinity of machinery		
of Mine Safety	KA5. Shot-firing and Safety regulations. How and where to take shelter		
(DGMS))	KA6. Duties of workmen		
	KA7. Provision of wages, working hours and accident compensation as per		
	Mines act		
	KA8. Knowledge of mining safety procedures		
	KA9. Impact of violation of safely procedures		
B. Organizational	The user/individual on the job needs to know and understand:		
Context (Knowledge	KB1. Relevant standards and procedures followed in the company		
of the company /			
organization and its			
processes)			







IVIIIN	1 NO4/4 Set out secondary dimensional work control	
C. Technical	The user/individual on the job needs to know and understand:	
Knowledge	KC1. Measuring and set out secondary dimensional control for the work	
	KC2. Measuring, aligning and levelling to dimensional control requirements	
	KC3. Transfer and set out line, angles and levels to dimensional control	
	requirements	
	KC4. Usage of hand tools and measuring and marking equipment	
	KC5. Methods of calculating height, depth, angle, length and area associated with	
	the method/procedure to set out for secondary dimensional work control	
	KC6. Interpretation of job sheets and dimensional data and drawings	
	KC7. Defects with measuring and marking tools and equipment	
	KC8. Problems that can occur when measuring and/or marking	
	KC9. Reporting/recording methods and procedures	
	KC10. Techniques of calibration of survey instruments	
Skills (S) [Optional]		
Element	Writing Skills	
A. Core Skills/ Generic	The user/ individual on the job needs to know and understand how to:	

Skills (S) [Optional]	
Element	Writing Skills
A. Core Skills/ Generic	The user/individual on the job needs to know and understand how to:
Skills	SA1. Note down observations (if any)
	SA2. Write information documents or enter the information in online ERP systems under guidance of the supervisor
	Reading Skills
	The user/individual on the job needs to know and understand how to:
	SA3. Read and interpret symbols and measurements
	SA4. Read information documents
	SA5. Understand and analyse the available data about the site
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to:
	SA6. Discuss task lists, schedules and activities
	SA7. Effectively communicate
	SA8. Attentively listen with full attention and comprehend the information given by
	various sources about the site
B. Professional	Plan and Organize







•		llc	
•	vı	ИC	

The user/individual on the job needs to know and understand how to:

- SB1. Plan and organize the work order and jobs
- SB2. Organize all process manuals so that sorting/ accessing information is easy

Judgment and Critical Thinking

The user/individual on the job needs to know and understand how to:

- SB3. Use common sense and make judgments during day to day basis
- SB4. Use reasoning skills to identify and resolve basic problems
- SB5. Use intuition to detect any potential problems which could arise

Desire to learn and take initiatives

The user/individual on the job needs to know and understand how to:

- SB6. Follow instructions and work on areas of improvement identified
- SB7. Complete the assigned tasks with minimum supervision
- SB8. Complete the job within timelines and quality norms

Problem Solving and Decision making

The user/individual on the job needs to know and understand how to:

- SB9. Detect problems in day to day tasks
- SB10. Discuss possible solution with the supervisor for problem solving
- SB11. Make decisions in emergency conditions







NOS Version Control

NOS Code	MIN/ N0474		
Credits(NSQF)	TBD	Version number	1.0
Industry	Mining	Drafted on	15/12/2014
Industry Sub-sector	Open Cast and Underground Mines	Last reviewed on	24/03/2015
Occupation	-Mine Surveying	Next review date	24/03/2017

Back to top

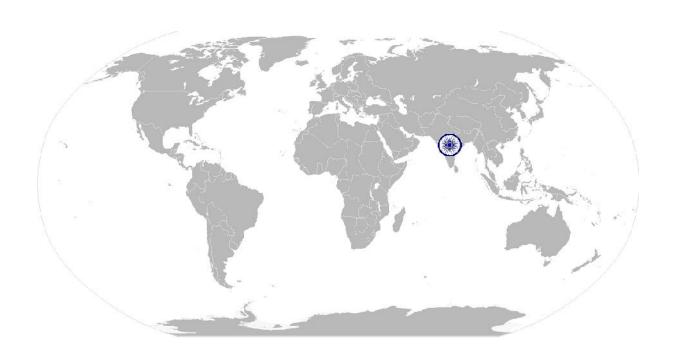






MIN/ N0475 Move and handle resources to assist surveyor

National Occupational Standards



Overview

This unit is about demonstrating competence in in following instructions, selecting materials, components & equipment and handling, moving and storage of materials and components by manual procedures and lifting aids





MIN/ N0475	Move and handle resources to assist surveyor
------------	--

Unit Code	N/ N0475 Move and handle resources to assist surveyor MIN/ N0475
Unit Title	Move and handle resources to assist surveyor
(Task)	•
Description	This OS unit is about demonstrating competence in following instructions, selecting
	materials, components & equipment and handling, moving and storage of materials
	and components by manual procedures and lifting aids
Scope	This unit/task covers the following:
	 Handling, moving and storage of materials and components by manual
	procedures and lifting aids
Performance Criteria (I	PC) w.r.t. the Scope
Element	Performance Criteria
Interpret information	To be competent, the candidate needs to demonstrate the following:
required	PC1. Comply with the given information to move and store resources to maintain
	safe work practice
	PC2. Select the resources to be stored/moved and ensure they conform to the
	given information
	PC3. Comply with the given information to prevent damage to the product and
	surrounding environment
	PC4. Comply with the given product information to carry out the work efficiently
	to the required guidance.
Knowledge and Unders	standing (K) w.r.t. the scope
Element	Knowledge and Understanding
A. Regulatory	The user/individual on the job needs to know and understand:
a a mata mata	KA1. Different types of mines and detail of the mine he is working in
context	KA2. Mine Organisation, time keeping, need for discipline and punctuality
(knowledge of	KA3. Benching in quarries, Dressing of overhangs, Undercuts, Fencing, First aid and
safety	Hygiene
guidelines	KA4. Standing orders in force at the mine. Safety in the vicinity of machinery
specified by	KA5. Shot-firing and Safety regulations. How and where to take shelter
Director	KA6. Duties of workmen
General of	KA7. Provision of wages, working hours and accident compensation as per
Mine Safety	Mines act
(DGMS))	KA8. Knowledge of mining safety procedures







MIN/ N0475 Move and handle resources to assist surveyor

1711	KA9. Impact of violation of safely procedures		
	is at impact of violation of safety procedures		
B. Organizational	The user/individual on the job needs to know and understand:		
Context	KB1. Relevant standards and procedures followed in the company		
(Knowledge of the			
company /			
organization and			
its processes)			
·			
C. Technical	The user/individual on the job needs to know and understand:		
Knowledge	KC1. The characteristics, quality, uses, limitations and defects associated with the		
	resources and how defects should be rectified		
	KC2. How the survey instruments should be handled and how any problems		
	associated with the survey instruments are reported		
	KC3. The hazards associated with the resources and methods of work and how they		
	are overcome		
	KC4. various techniques of record keeping including plan and sections		
	KC5. Application of knowledge for safe work practices, procedures, skills and		
	transference of competence for:		
	Manual handling and storage		
	Maintenance of lifting aids		
Skills (S) [Optional]			
Element	Skills		
Element	Writing Skills		
A. Core Skills/	The user/ individual on the job needs to know and understand how to:		
Generic Skills	SA1. Note down observations (if any)		
	SA2. Write information documents or enter the information in online ERP systems		
	under guidance of the supervisor		
	Reading Skills		
	The user/individual on the job needs to know and understand how to:		
	SA3. Read and interpret symbols and measurements		
	SA4. Read information documents		
	SA5. Understand and analyse the available data about the site		







MI	N/ N0475	Move and handle resources to assist surveyo	r

MIN/ N0475 Move and handle resources to assist surveyor	
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to:
	SA6. Discuss task lists, schedules and activities
	SA7. Effectively communicate
	SA8. Attentively listen with full attention and comprehend the information given by
	various sources about the site
B. Professional Skills	Plan and Organize
	The user/individual on the job needs to know and understand how to:
	SB1. Plan and organize the work order and jobs
	SB2. Organize all process manuals so that sorting/ accessing information is easy
	Judgment and Critical Thinking
	The user/individual on the job needs to know and understand how to:
	SB3. Use common sense and make judgments during day to day basis
	SB4. Use reasoning skills to identify and resolve basic problems
	SB5. Use intuition to detect any potential problems which could arise
	Desire to learn and take initiatives
	The user/individual on the job needs to know and understand how to:
	SB6. Follow instructions and work on areas of improvement identified
	SB7. Complete the assigned tasks with minimum supervision
	SB8. Complete the job within timelines and quality norms
	Problem Solving and Decision making
	The user/individual on the job needs to know and understand how to:
	SB9. Detect problems in day to day tasks
	SB10.Discuss possible solution with the supervisor for problem solving
	SB11.Make decisions in emergency conditions







MIN/ N0475 Move and handle resources to assist surveyor

NOS Version Control

NOS Code	MIN/ N0475		
Credits(NSQF)	TBD	Version number	1.0
Industry	Mining	Drafted on	15/12/2014
Industry Sub-sector	Open Cast and Underground Mines	Last reviewed on	24/03/2015
Occupation	Mine Surveying	Next review date	24/03/2017



Back to top







National Occupational Standards



Overview

This unit is about health and safety measures critical in mines







Willy 10001 Health and Safety		
Unit Code	MIN/N 0901	
Unit Title (Task)	Health and Safety	
Description	This unit is about health and safety measures critical in mines	
Scope	This OS unit/task covers the following:	
	Health and safety measures critical in mines	
Performance Criteria (I	PC) w.r.t. the Scope	
Element	Performance Criteria	
Safety, Security and	To be competent, the user/individual on the job must be able to:	
Administrative	PC1. Comply with occupational health and safety regulations adopted by the	
	employer.	
	PC2. Follow mining operations procedures with respect to materials handling	
	and accidents	
	PC3. Follow the correct safety steps in case of accident or major failure	
	PC4. Comply with safety regulations and procedures in case of fire hazard.	
	PC5. Operate various grades of fire extinguishers.	
	PC6. Work responsibly and as safe and careful as possible so as not to put the	
	health and safety of self or others at risk, including members of the	
	public	
	PC7. Perform storage and transport of hazardous materials compliant with	
	safety guidelines prescribed by DGMS.	
	PC8. Deal with misfires as per statutory requirement	
	PC9. Identify characteristics of post-blast fumes and take necessary	
	precautions.	
	PC10. Wears safety gear such as hard hat, respiratory protection, eye	
	protection, ear protection	
	PC11. Follow the manufacturer's instructions for care and safe operation of the	
	equipment.	

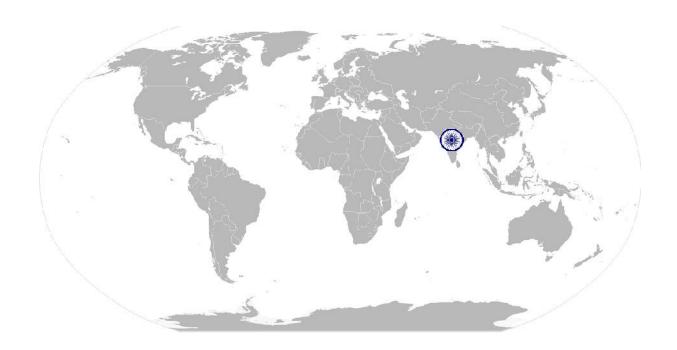
Knowledge and Understanding (K)







A. Regulatory	The user/individual on the job needs to know and understand:	
context (knowledge	KA1. Benching in quarries, Dressing of overhangs, undercuts, Fencing	
of safety guidelines	KA2. First aid and Hygiene	
specified by Director	KA3. Code of traffic in specific areas of mine. Significance of fences	
General of Mine	KA4. Standing orders in force at the mine. Safety in the vicinity of machinery	
Safety (DGMS))	KA5. Shot-firing and Safety regulations. How and where to take shelter	
	KA6. Knowledge of mining safety procedures	









NOS Version Control

NOS Code	MIN/N 0901		
Credits(NSQF)	TBD	Version number	1.0
Sector	Mining	Drafted on	15/12/2014
Sub-sector	Open Cast and Underground Mines	Last reviewed on	24/03/2015
Occupation	Mine Surveying	Next review date	24/03/2017

