

**REPUBLIC OF KENYA**

**NATIONAL OCCUPATIONAL STANDARDS**

**FOR**

**EARTH MOVER OPERATOR**

**LEVEL 3**



TVET CDACC

P.O. BOX 15745-00100

NAIROBI

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# FOREWORD

The provision of quality education and training is fundamental to the Government’s overall strategy for social economic development. Quality education and training will contribute to achievement of Kenya’s development blueprint, Vision 2030 and sustainable development goals.

Reforms in the education sector are necessary for the achievement of Kenya Vision 2030 and meeting the provisions of the Constitution of Kenya 2010. The education sector had to be aligned to the Constitution of Kenya 2010 and this resulted to the formulation of the Policy Framework for Reforming Education and Training. A key feature of this policy is the radical change in the design and delivery of the TVET training. This policy document requires that training in TVET be competency based, curriculum development be industry led, certification be based on demonstration of competence and mode of delivery allows for multiple entry and exit in TVET programmes.

These reforms demand that Industry takes a leading role in curriculum development to ensure the curriculum addresses its competence needs. It is against this background that these Occupational Standards were developed for the purpose of developing a competency-based curriculum for Earth Mover Operator. These Occupational Standards will also be the bases for assessment of an individual for competence certification.

It is my conviction that these Occupational Standards will play a great role towards development of competent human resource for the Heavy and Light Machine Operations sector’s growth and sustainable development.

**PRINCIPAL SECRETARY, VOCATIONAL AND TECHNICAL TRAINING**

**MINISTRY OF EDUCATION**

# PREFACE

Kenya Vision 2030 aims to transform the country into a newly industrializing, “middle-income country providing a high-quality life to all its citizens by the year 2030”. Kenya intends to create a globally competitive and adaptive human resource base to meet the requirements of a rapidly industrializing economy through life-long education and training. TVET has a responsibility of facilitating the process of inculcating knowledge, skills and attitudes necessary for catapulting the nation to a globally competitive country, hence the paradigm shift to embrace Competency Based Education and Training (CBET).

The Technical and Vocational Education and Training Act No. 29 of 2013 on Reforming Education and Training in Kenya, emphasized the need to reform curriculum development, assessment and certification. This called for a shift to CBET in order to address the mismatch between skills acquired through training and skills needed by industry as well as increase the global competitiveness of Kenyan labour force.

The TVET Curriculum Development, Assessment and Certification Council (TVET CDACC), in conjunction with Heavy and Light Machine Operations Skills Advisory Committee (SSAC) have developed these Occupational Standards for an earth mover operator. These standards will be the bases for development of competency-based curriculum for earth mover operations level 3.

The occupational standards are designed and organized with clear performance criteria for each element of a unit of competency. These standards also outline the required knowledge and skills as well as evidence guide.

I am grateful to the Council Members, Council Secretariat, Heavy and Light Machine Operations SSAC, expert workers and all those who participated in the development of these Occupational Standards.

**Prof. CHARLES M. M. ONDIEKI, PhD, FIET (K), Con. EngTech.**

**CHAIRMAN, TVET CDACC**

# ACKNOWLEDGMENT

These Occupational Standards were developed through combined efforts of various stakeholders from private and public organizations. I am thankful to the management of the organizations for allowing their staff to participate in this course. I wish to acknowledge the invaluable contribution of industry players who provided inputs towards the development of these Standards.

I thank TVET Curriculum Development, Assessment and Certification Council (TVET CDACC) for providing guidance on the development of these Standards. My gratitude goes to Heavy and Light Machine Operations Sector Skills Advisory Committee (SSAC) members for their contribution to the development of these Standards. I thank all the individuals and organizations who participated in the validation of these Standards.

I acknowledge all other institutions which in one way or another contributed to the development of these Standards.

**CHAIRMAN**

**HEAVY AND LIGHT MACHINE OPERATIONS SECTOR SKILLS ADVISORY COMMITTEE**

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# A**CRONYMS**

CBET Competency Based Education and Training

CDACC Curriculum Development Assessment and Certification Council

OS Occupational Standard

EMO Earth Mover Operations

BC Basic competency

CC Common competency

CR Core competency

OSHA Occupation Safety and Health Act

PPE Personal Protective Equipment

SSAC Sector Skills Advisory Committee

TVETA Technical and Vocational Education and Training Authority

#

# KEY TO UNIT CODE

 **ENG / OS/EMO/BC/01/ 3/A**

Industry or sector

Occupational Standards

Occupational area

Type of competency

Competency number

Competency level

Version Control

#  OVERVIEW

Earth Mover Operations Level 3 qualification constis of competencies that a person must achieve to enable him/her to be certified as an earth mover operator.

It consists of the following units of competencies:

**BASIC COMPETENCIES**

|  |  |
| --- | --- |
| **UNIT OF COMPETENCY CODE**  | **UNIT OF COMPETENCY TITLE**  |
| ENG/OS/EMO/BC/01/3/A | Demonstrate communication skills |
| ENG/OS/EMO/BC/02/3/A | Demonstrate numeracy skills  |
| ENG/OS/EMO/BC/03/3/A | Demonstrate digital literacy |
| ENG/OS/EMO/BC/04/3/A | Demonstrate entrepreneurial skills |
| ENG/OS/EMO/BC/05/3/A | Demonstrate employability skills |
| ENG/OS/EMO/BC/06/3/A | Demonstrate environmental literacy |
| ENG/OS/EMO/BC/07/3/A | Demonstrate occupational safety and health practices |

 **CORE COMPETENCIES**

|  |  |
| --- | --- |
| **UNIT OF COMPETENCY CODE**  | **UNIT OF COMPETENCY TITLE**  |
| ENG/OS/EMO/CR/01/3/A | Operate a Grader |
| ENG/OS/EMO/CR/02/3/A | Operate a Excavator |
| ENG/OS/EMO/CR/03/3/A | Operate a Dozer |
| ENG/OS/EMO/CR/04/3/A | Operate a Backhoe  |
| ENG/OS/EMO/CR/05/3/A | Operate a Forklift  |

.

# BASIC UNITS OF COMPETENCY

**DEMONSTRATE COMMUNICATION SKILLS**

**UNIT CODE:** ENG/OS/EMO/BC/01/3/A

**UNIT DESCRIPTION**

This unit specifies the competencies required to demonstrate communication skills. It involves, obtaining and conveying workplace information, speaking English at a basic operational level, participating in workplace meetings and discussions and completing relevant work-related documents.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT** These describe the key outcomes which make up workplace function | **PERFORMANCE CRITERIA**These are assessable statements which specify the required level of performance for each of the elements.***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Obtain and convey workplace information
 | * 1. Specific and relevant information is accessed from ***appropriate sources***
	2. Effective questioning, active listening and speaking skills are used to gather and convey information
	3. Appropriate ***medium*** is used to transfer information and ideas
	4. Appropriate non- verbal communication is used
	5. Appropriate lines of communicationwith supervisors and colleagues are identified and followed
	6. Defined workplace procedures for the location and ***storage*** of information are used
	7. Personal interaction is carried out clearly and concisely
 |
| 1. Speak English at a basic operational level
 | * 1. Simple conversations on familiar topics with work colleagues is participated
	2. Simple verbal instructions or requests are responded to according to workplace guidelines
	3. Simple requests are made in accordance with workplace procedure
	4. **Routine procedures** are described in accordance with workplace policy
	5. Likes, dislikes and preferences are expressed
	6. Different forms of expression in English are identified
 |
| 1. Participate in workplace meetings and discussions
 | * 1. Team meetings are attended on time
	2. Own opinions are clearly expressed and those of others are listened to without interruption
	3. Meeting inputs are consistent with the meeting purpose and established ***protocols***
	4. ***Workplace interactions*** are conducted in a courteous manner
	5. Questions about simple routine workplace procedures and maters concerning working conditions of employment are asked and responded to
	6. Meetings outcomes are interpreted and implemented
 |
| 1. Complete relevant work-related documents
 | * 1. Range of forms relating to conditions of employment are completed accurately and legibly
	2. Workplace data is recorded on standard workplace forms and documents
	3. Basic mathematical processesare used for routine calculations
	4. Errors in recording information on forms/ documents are identified and properly acted upon
	5. Reporting requirements to supervisor are completed according to organizational guidelines
 |

**RANGE**

This section provides work environment and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| ***Appropriate Sources*** include but not limited to: | * Various department heads,
* organization documents
 |
| ***Medium*** include but not limited to: | * Method of communication
* Physical media
* Mechanical media (everything that is not No. 1)
 |
| ***Routine procedures*** include but not limited to: | * Day to day activities
 |
| ***Protocols*** include but not limited to: | * Procedures for doing a task
 |
| ***Workplace interactions*** include but not limited to: | * Official inter relations
 |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Analytical
* Listening
* Attention to detail
* Communication
* Report writing
* Interpretation
* Basic Information Technology (IT)

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Minutes
* Meetings
* Report writing

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical aspects of Competency
 | Assessment requires evidence that the candidate:1. Prepared written communication following standard format of the organization
2. Accessed information using communication equipment
3. Spoken English at a basic operational level
4. Made use of relevant terms as an aid to transfer information effectively
5. Conveyed information effectively adopting the formal or informal communication
 |
| 1. Resource Implications
 | * 1. Telephone
	2. Writing materials
	3. Internet
 |
| 1. Methods of Assessment
 | * 1. Direct Observation
	2. Oral interview and written test
 |
| 1. Context of Assessment
 | Competency may be assessed individually in the actual workplace or through accredited institution |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

**DEMONSTRATE NUMERACY SKILLS**

**UNIT CODE:** ENG/OS/EMO/BC/02/3/A

**UNIT DESCRIPTION:**

This unit covers the competencies required to identify and undertake simple numerical processes. The person who is competent in this unit shall be able to use / work with whole numbers and money up to one hundred thousand; Locate, compare and use highly familiar measurement; Use highly familiar maps and diagrams; Identify and use some common 2D shapes; and locate specific Information in highly familiar tables, graphs and charts for work.

**Elements and Performance Criteria**

| **Element** | **Performance Criteria** |
| --- | --- |
| Elements describe the essential outcomes. | Performance criteria describe the performance needed to demonstrate achievement of the element. |
| 1. Use whole numbers and money up to one hundred thousand for work
 | 1. Whole numbers and money amount up to 100,000 in highly familiar workplace documents and tasks are named and read
2. Understanding of place value and the role of zero is demonstrate
3. Halves are recognised and understood in workplace
4. Whole numbers and money amounting up to 100,000 are organised in size order and are compared
5. Counting done in number groups
6. Addition and subtraction of whole numbers and money up to 100,000 done in accordance with workplace requirement
7. Links between operations of addition and subtraction are clearly described
8. Reasonableness of outcome with prompting and support is checked
9. Numerical information is recorded, and the result of the task is communicated using informal language and symbolism
 |
| 1. Locate, compare and use highly familiar measurement for work
 | 1. Measurements in highly familiar workplace documents and tasks are located
2. Different units of measurements and their uses are identified
3. The comparative relationship between the units of measurement identified
4. Understanding of conservation of amounts is demonstrated
5. Informal language is used to compare measurements
6. Digital time is well read and am and pm used in reference to time
7. Calendar used appropriately to record information
8. Basic measurement information is well read and recorded
9. Additions and subtraction of simple quantities done in workplace
 |
| 1. Use highly familiar maps and diagrams for work
 | 1. Familiar items or places are in highly familiar maps and diagrams
2. Simple symbols and pictorial representations are identified in highly familiar maps and diagrams
3. Simple oral directions are given to locate objects
4. Simple oral directions followed to locate objects
5. Understanding of informal directional language is demonstrated
 |
| 1. Identify and use some common 2D shapes for work
 | 1. Familiar **two-dimensional shapes** are identified and named
2. Common objects are described in terms of size and shape
3. Common, every day, informal language is used to compare objects
4. Common objects are grouped based on shape, size, colour and features
 |
| 1. Locate specific Information in highly familiar tables, graphs and charts for work
 | 1. Features of simple tables identified
2. Specific numerical information located in highly familiar tables using grid movement (up and down columns and across rows) and key
3. Numerical information and data in highly familiar tables compared using appropriate informal language
4. Information related to relevant workplace tasks
5. Features of simple graphs and charts identified
6. Specific numerical information located in highly familiar graphs and charts
7. Numerical information and data compared using appropriate informal language
 |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| Measuring instruments | May include but not limited to:* + Rulers
	+ Watches/clocks
	+ Scales
	+ Thermometers
	+ AVO meter
 |
| Common two -dimensional shapes | May include but not limited to:* + Round/circle
	+ Square
	+ Rectangular
	+ Triangle
 |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Applying Fundamental operations (addition, subtraction, division, multiplication)
* Using calculator
* Using different measuring tools

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Types of common shapes
* Differentiation between two dimensional shapes / objects
* Formulae for calculating area and volume
* Types and purpose of measuring instruments
* Units of measurement and abbreviations
* Fundamental operations (addition, subtraction, division, multiplication)
* Rounding techniques
* Types of fractions
* Different types of tables and graphs
* Meaning of graphs, such as increasing, decreasing, and constant value
* Preparation of basic data, tables & graphs

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency
 | Assessment requires evidence that the candidate:1.1 Measured objects or materials as per job requirements1.2 Used calculator to perform the four fundamental operations1.3 Performed calculations involving money up to one hundred thousand1.4 Performed conversions between hours, minutes and seconds1.5 Calculated area and volume of regular shapes1.6 Created tables and graphs to represent and interpret information |
| 1. Resource Implications
 | 2.1 Calculator2.2 Basic measuring instruments |
| 1. Methods of Assessment
 | Competency may be assessed through:3.1 Written Test3.2 Interview/Oral Questioning3.3 Demonstration  |
| 1. Context of Assessment
 | Competency may be assessed in an off the job setting  |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

**DEMONSTRATE DIGITAL LITERACY**

**UNIT CODE:** ENG/OS/EMO/BC/03/3/A

**UNIT DESCRIPTION**

This unit covers the competencies required to effectively demonstrate digital literacy in a working environment. It entails identifying and using digital devices such as smartphones, tablets, laptops and desktop PCs for purposes of communication and performing work related tasks at the work place.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT** These describe the key outcomes which make up workplace function | **PERFORMANCE CRITERIA**These are assessable statements which specify the required level of performance for each of the elements.***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Identify computer software and hardware
 | * 1. ***Computer software*** are identified according to manufacturer’s specification
	2. ***Appropriate computer hardware*** is identified according to manufacturer’s specification
 |
| 1. Apply security measures to data, hardware, software
 | * 1. ***Data security and privacy are classified*** in accordance with the technological situation
	2. ***Security and control measures*** are applied in accordance with laws governing protection of ICT
	3. Computer threats and crimes are detected.
	4. Protection against computer crimes is undertaken in accordance with laws governing protection of ICT
 |
| 1. Apply computer software in solving tasks
 | * 1. Basic ***word processing concepts*** are applied in resolving workplace tasks
	2. ***Word processing utilities*** are applied in accordance with workplace procedures
	3. Data is manipulated on worksheet in accordance with office procedures
 |
| 1. Apply internet and email in communication at workplace
 | * 1. Electronic mail is applied in workplace communication in accordance with office procedures
	2. Office internet functions are defined and executed in accordance with office procedures
	3. ***Network configuration*** and uses are determined in accordance with office operations procedures
 |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Range** | **Variable** |
| ***Computer software*** may include but not limited to: | * A collection of instructions that enable the user to interact with a *computer*, its hardware, or perform tasks.
* Computer tools that will help *computer* users interact with the hardware in a *computer.*
 |
| ***Computer hardware*** may include but not limited to: | Collection of physical parts of a computer system. This includes the computer case, monitor, keyboard, and mouse and all the parts inside the computer case, such as the hard disk drive, motherboard, video card, |
| ***Data security and privacy*** may include but not limited to: | * Confidentiality
* Cloud computing
* Confidentiality
* Cyber terrorism
* Integrity -but-curious data serving
 |
| ***Security and control measures*** may include but not limited to: | * Countermeasures and risk reduction
* Cyber threat issues
* Risk management
 |
| ***Word processing concepts*** may include but not limited to: | Using a special program to create, edit, and print documents |
| ***Network configuration*** may include but not limited to: | Organizing and maintaining information on the components of a computer network |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Analytical skills
* Interpretation
* Typing
* Communication
* Computing (applying fundamental operations such as addition, subtraction, division and multiplication)
* Using calculator
* Basic ICT skills

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Input and output devices
* Central processing Unit (CPU)
* Peripherals
* Storage Media
* Software concept
* Types of concept
* Function of computer software
* Data security and privacy
* Security threats and control measures
* Computer crimes
* Detection and protection of computer crimes
* Laws governing protection of ICT
* Word processing;
* Functions and concepts of word processing.
* Documents and tables creation and manipulations
* Mail merging
* Word processing utilities
* Spread sheet;
* Meaning, formulae, function and charts, uses, layout, data manipulation and application to cell
* Networking and Internet;
* Meaning, functions and uses of networking and internet.
* Electronic mail and world wide web
* Emerging trends and issues in ICT;
* Identify and apply emerging trends and issues in ICT
* Challenges posed by emerging trends and issues

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency
 | Assessment requires evidence that the candidate:* 1. Identified input, output, CPU and storage media devices of computers in accordance to computer specification
	2. Identified concepts, types and functions of computer software according to operation manual
	3. Identified and controlled security threats
	4. Detected and protected computer crimes
	5. Applied word processing in office tasks
	6. Prepared work sheet and applied data to the cells in accordance to workplace procedures
	7. Used Electronic Mail for office communication as per workplace procedure
	8. Applied internet and World Wide Web for office tasks in accordance with office procedures
	9. Applied laws governing protection of ICT
 |
| 1. Resource Implications
 | * 1. Smartphones
	2. Tablets
	3. Laptops
	4. Desktop computers
	5. Calculators
	6. Internet
	7. Operation Manuals
 |
| 1. Methods of Assessment
 | Competency may be assessed through:* 1. Written Test
	2. Demonstration
	3. Practical assignment
	4. Interview/Oral Questioning
	5. Demonstration
 |
| 1. Context of Assessment
 | Competency may be assessed in an off and on the job setting |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

**DEMONSTRATE ENTREPRENEURIAL SKILLS**

**UNIT CODE :** ENG/OS/EMO/BC/04/3/A

**UNIT DESCRIPTION**

This unit specifies the competencies required to demonstrate Entrepreneurial skills. It involves developing entrepreneurial culture, identifying entrepreneurial opportunities, starting a small business, operating a small business and growing a small business.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA** These are assessable statements which specify the required level of performance for each of the elements.Bold and italicized terms are elaborated in the Range |
| 1. Develop entrepreneurial culture
 | 1. **Entrepreneurship terminologies** are defined following established procedures.
2. Contribution of entrepreneurship towards national development is identified in accordance to national development goals
3. Self-employment benefit are identified and emphasized to help create a positive attitude
4. Cultural factors that promote or inhibit entrepreneurial development **are *identified and emphasis made on entrepreneurial promotion***
5. Ways of managing factors that inhibit development of entrepreneurial culture are identified in accordance withcultural background and national social economic situation
 |
| 1. Identify entrepreneurial opportunities
 | 2.1 Myths associated with entrepreneurship, types of entrepreneurs and characteristics of entrepreneurship are determined in accordance with the set procedures2.2 Identification of **sources of business ideas,** generation of business ideas is undertaken in accordance with the existing procedure 2.3 Evaluation of business opportunities is undertaken according to prevailing office procedures2.4 Competencies are matched with business opportunities in accordance with business practices. |
| 1. Start a small business
 | 3.1 Factors to consider when starting a small business are identified according to business sector. 3.2 **Forms of business ownership** are identified and procedure of starting a small business stipulated according to relevant legal requirements3.3 Procedure of starting a small business is identified as per the legal requirements3.3 Challenges faced when starting a small business are identified and mitigating factors provided for in accordance prevailing legal and regulatory requirement3.4 **Resource requirement** for a small business are specified according to nature of business 3.5 **Business life cycle** is projected as per the nature of business and national social economic situation  |
| 1. Operate a small business
 | 4.1 **Relevant terms** are defined in accordance with the set rules4..3 Small business record is maintained in accordance with office procedures 4.4 **Business support services** are set up in accordance with the nature and size of business4.**5 Marketing activities** are effected according to the nature and size of business 4.6 Small enterprise business plan is prepared depending on the size and nature of business and the client specification4.6 Small business resources are run for efficiency and profitability4.6 Small business records are kept for decision making purposes4.7 Word processing concepts are applied in the management of small business according to office procedures4.8 Basic computer application software and emerging trends and concerns are applied in small business management in accordance with office procedures |
| 1. Grow a small business
 | 5.1 Methods of growing/expanding a small business are identified and implemented in accordance with growth schedule 5.2 Resources for growing small business are identified and implementing5.3 Small business growth plans are prepared according to growth schedule5.4 ICT and small business growth schedule is prepared in accordance with office procedures5.5 Use of computers and technology is incorporated in small scale business growth schedule in accordance with technological trends 5.6 Social media is used for business growth and profitability5.7 Emerging issues and trends are considered in accordance with business growth schedule and activities5.8 Community interest is built in product/service according to growth plan5.9 Business communication is enhanced according to business **communication plan** and profitability5.10Basic business growth strategies are identified and implemented for increased profitability 5.11 Word processing concepts are applied in growing of small business according to office procedures5.12 Basic computer application software, programming and emerging trends and concerns are applied in small business growth in accordance with office procedures for growth and profitability |

**RANGE**

This section provides work environment and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

|  |  |
| --- | --- |
| **Range** | **Variable** |
| **Entrepreneurship terminologies** include but not limited to: |

|  |
| --- |
| * Intrapreneurship
* Enterprise
* Business vision. Mission, core values, objectives
 |

 |
| **Sources of business ideas** include but not limited to: |

|  |
| --- |
| * Brainstorming
* Personal hobbies
* Newspapers, magazines,
* Friends and relatives
* Accounting/Administrative work
* Modern trends and concerns
 |

 |
| **Forms of business ownership** include but not limited to: | * Sole proprietorship
* Partnership
* Limited Company
* Unlimited Company
 |
| **Resource requirement** include but not limited to: | Human, equipment, finance |
| **Business life cycle** include but not limited to: | Start-up, growth, expansion and decline of a business |
| **Relevant terms** include but not limited to: | Seed capital, business startup |
| **Marketing activities** include but not limited to: | Digital marketing, social media marketing |

**REQUIRED SKILLS AND KNOWLEDGE**

**Required Skills**

This section describes the skills and knowledge required for this unit of competency.

The individual needs to demonstrate the following skills:

* Individual marketing skills
* Using basic advertising (posters/ tarpaulins, flyers, social media,
* Basic bookkeeping/ accounting skills
* Communication skills

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Public relations concepts
* Basic product promotion strategies
* Basic market and feasibility studies
* Basic business ethics
* Building customer relations
* Business models and strategies
* Types and categories of businesses
* Business internal controls
* Relevant national and local legislation and regulations
* Basic quality control and assurance concepts
* Building relations with customer and employees
* Building competitive advantage of the enterprise

**EVIDENCE GUIDE**

This section describes the required skills which supports performance. These skills will need to be considered in the learning and assessment process.

|  |  |  |
| --- | --- | --- |
| 1. Critical aspects of Competency
 | Assessment requires evidence that the candidate:

|  |
| --- |
| 1.1 Demonstrated basic entrepreneurial skills 1.2 Demonstrated ability to conceptualize and plan a micro/small enterprise 1.3 Demonstrated ability to manage/operate a micro/small-scale business1.4 Demonstrated basic marketing skills  |

 |
| 1. Resource Implications
 |

|  |
| --- |
| The following resources should be provided:  |

2.1 Case problems on micro/small-scale enterprises 2.2 Materials and location relevant to the proposed activity and tasks  |
| 1. Methods of Assessment
 | Competency in this unit may be assessed through:

|  |  |
| --- | --- |
| 3.1 Case problems 3.2 Oral Questioning 3.3 Portfolio  |  |

 |
| 1. Context of Assessment
 |

|  |
| --- |
| 4.1 Competency may be assessed in workplace or in a simulated workplace setting 4.2 Assessment shall be observed while tasks are being undertaken whether individually or in-group  |

 |

**DEMONSTRATE EMPLOYABILITY SKILLS**

**UNIT CODE:** ENG/OS/EMO/BC/05/3/A

**UNIT DESCRIPTON**

This unit covers competencies required to demonstrate employability skills. It involves conducting self-management, demonstrating critical safe work habits, demonstrating workplace learning and workplace ethics.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**These are assessable statements which specify the required level of performance for each of the elements.***Bold and italicized terms are elaborated in the Range*** |
| 1. Conduct self-management
 | 1. Personal vision, mission and goals are formulated based on potential and in relation to organization objectives
2. Emotions are handled as per workplace requirements
3. Assertiveness is developed and maintained based on the requirements of the job.
4. Accountability and responsibility for own actions are demonstrated.
5. Self-esteem and a positive self-image are developed and maintained.
6. Time management, attendance and punctuality are observed as per the organization policy.
7. Interpersonal communication demonstrated
8. Information is shared as per communication structure
 |
| 1. Demonstrate critical safe work habits
 | * 1. Stress is managed in accordance with workplace procedures.
	2. Punctuality and time consciousness is demonstrated in line with workplace policy.
	3. ***Feedback*** on performance is collected based on established ***team*** learning process
	4. Abstinence from ***drug and substance abuse*** is observed as per workplace policy.
	5. Awareness of HIV and AIDS is demonstrated in line with workplace requirements.
	6. Safety consciousness is demonstrated in the workplace based on organization safety policy.
	7. ***Emerging issues*** are dealt with in accordance with organization policy.
 |
| 1. Demonstrate workplace learning
 | * 1. Personal training needs are identified in line with the requirements of the job
	2. Learning opportunities are identified based on job requirement and in line with organization policy.
	3. Contribution to the learning community at the workplace is carried out.
	4. Application of learning is demonstrated in both technical and non-technical aspects based on requirements of the job
	5. Enthusiasm for ongoing learning is demonstrated
	6. Willingness to learn in different context is demonstrated based on available learning opportunities arising in the workplace.
	7. Awareness of personal role in workplace ***innovation*** is demonstrated.
 |
| 1. Demonstrate workplace ethics
 | * 1. Policies and guidelines are observed as per the workplace requirements
	2. Self-worth and profession is exercised in line with personal goals and organizational policies
	3. Code of conduct is observed as per the workplace requirements
	4. Commitment to jurisdictional laws is demonstrated as per the workplace requirements
 |

**RANGE**

This section provides work environment and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

|  |  |
| --- | --- |
| **Range** | **Variable** |
| ***Drug and substance abuse*** includes but not limited to: | Commonly abused* Alcohol
* Tobacco
* Miraa
* Over-the-counter drugs
* Cocaine
* Bhang
* Glue
 |
| ***Feedback*** includes but not limited to: | * Verbal
* Written
* Informal
* Formal
 |
| ***Team*** includes but not limited to: | * Small work group
* Staff in a section/department
* Inter-agency group
 |
| ***Innovation*** include but not limited to: | * New ideas
* Original ideas
* Different ideas
* Methods/procedures
* Processes
* New tools
 |
| ***Emerging issues*** include but not limited to: | * Terrorism
* Social media
* National cohesion
* Open offices
 |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Personal hygiene practices
* Intra and Interpersonal skills
* Communication skills
* Knowledge management
* Interpersonal skills
* Critical thinking skills
* Observation skills
* Organizing skills
* Negotiation skills
* Monitoring skills
* Evaluation skills
* Record keeping skills
* Problem solving skills
* Decision Making skills
* Resource utilization skills
* Resource mobilization skills

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Work values and ethics
* Company policies
* Company operations, procedures and standards
* Occupational Health and safety procedures
* Fundamental rights at work
* Personal hygiene practices
* Workplace communication
* Concept of time
* Time management
* Decision making
* Types of resources
* Work planning
* Resources and allocating resources
* Organizing work
* Monitoring and evaluation
* Record keeping
* Workplace problems and how to deal with them
* Negotiation
* Assertiveness
* Team work
* Gender mainstreaming
* HIV and AIDS
* Drug and substance abuse
* Leadership
* Safe work habits
* Professional growth and development
* Technology in the workplace
* Learning
* Creativity
* Innovation
* Emerging issues
	+ Social media
	+ Terrorism
	+ National cohesion

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical aspects of Competency
 | Assessment requires evidence that the candidate:* 1. Conducted self-management
	2. Demonstrated critical safe work habits
	3. Demonstrated workplace learning
	4. Demonstrated workplace ethics
 |
| 1. Resource Implications
 |

|  |
| --- |
| The following resources should be provided:  |

* 1. Case studies/scenarios
 |
| 1. Methods of Assessment
 | Competency in this unit may be assessed through: * Oral Interview
* Observation
* Third Party Reports
* Written
 |
| 1. Context of Assessment
 | * 1. Competency may be assessed in workplace or in a simulated workplace setting
	2. Assessment shall be observed while tasks are being undertaken whether individually or in-group
 |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

**DEMONSTRATE ENVIRONMENTAL LITERACY**

 **UNIT CODE :** ENG/OS/EMO/BC/06/3/A

**UNIT DESCRIPTION**

This unit specifies the competencies required to follow procedures for environmental hazard control, follow procedures for environmental pollution control and comply with workplace sustainable resource use.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**These are assessable statements which specify the required level of performance for each of the elements.***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Control environmental hazard
 | 1. ***Storage and handling methods*** for environmentally ***hazardous*** materials are strictly followed according to environmental regulations and OSHS.
2. ***Disposal methods*** of hazardous wastes are followed at all times according to environmental regulations and OSHS.
3. ***PPE*** is used according to OSHS.
 |
| 1. Control environmental Pollution
 | * 1. ***Environmental pollution******control measures*** are complied with following standard protocol.
	2. Procedures for solid waste management are observed according Environmental Management and Coordination Act 1999
	3. Methods for minimizing ***noise pollution*** complied following environmental regulations.
 |
| 1. Demonstrate sustainable resource use
 | * 1. Methods for minimizing wastage are complied with.
	2. ***Waste management procedures*** are employed following principles of 3Rs (Reduce, Reuse, Recycle)
	3. Methods for economizing or reducing ***resource*** consumption are practiced.
 |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| ***PPE*** may include but are not limited to: | * + Mask
	+ Gloves
	+ Goggles
	+ Safety hat
	+ Overall
	+ Hearing protector
 |
| ***Environmental pollution control measures*** may include but are not limited to: | * + Methods for minimizing or stopping spread and ingestion of airborne particles
	+ Methods for minimizing or stopping spread and ingestion of gases and fumes
	+ Methods for minimizing or stopping spread and ingestion of liquid wastes
 |
| ***Waste management procedures*** may include but are not limited to: | * Sorting
* Storing of items
* Recycling of items
* Disposal of items
 |
| ***Resources*** may include but are not limited to: | * + Electric
	+ Water
	+ Fuel
	+ Telecommunications
	+ Supplies
	+ Materials
 |
| ***Workplace environmental hazards*** may include but are not limited to: | * Biological hazards
* Chemical and dust hazards
* Physical hazards
 |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Following storage methods of environmentally hazardous materials
* Following disposal methods of hazardous wastes
* Using PPE
* Practicing OSHS
* Complying environmental pollution control
* Observing solid waste management
* Complying methods of minimizing noise Pollution
* Complying methods of minimizing wastage
* Employing waste management procedures
* Economizing resource consumption

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Storage methods of environmentally hazardous materials
* Disposal methods of hazardous wastes
* Usage of PPE Environmental regulations
* OSHS
* Types of pollution
* Environmental pollution control measures
* Different solid wastes
* Solid waste management
* Different noise pollution
* Methods of minimizing noise pollution
* Solid Waste Act
* Methods of minimizing wastage
* Waste management procedures
* Economizing of resource consumption
* Principle of 3Rs

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency
 | Assessment requires evidence that the candidate:1.1 Controlled environmental hazard 1.2 Controlled environmental pollution 1.3 Demonstrated sustainable resource use |
| 1. Resource Implications
 | The following resources should be provided:* 1. Workplace with storage facilities
	2. Tools, materials and equipment relevant to the tasks (ex. Cleaning tools, cleaning materials, trash bags, etc.)
	3. PPE
	4. Manuals and references
 |
| 1. Methods of Assessment
 | Competency in this unit may be assessed through:3.1 Demonstration3.2 Oral questioning3.3 Written examination |
| 1. Context of Assessment
 | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment.  |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

**DEMONSTRATE OCCUPATIONAL SAFETY AND HEALTH PRACTICES**

**UNIT CODE:** ENG/OS/EMO/BC/07/3/A

**UNIT DESCRIPTION**

This unit specifies the competencies required to practice and promote safety and health at work.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**These are assessable statements which specify the required level of performance for each of the elements.***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Prepare to practice safety and health at work
 | 1.1 Awareness of legislation that outlines the minimum standards for occupational safety and health requirements/ regulations are emphasized1.2 Benefits of implementing an occupational safety and health program are identified1.3 ***Safety requirements/ regulations*** of own work and of other workers are familiarized1.4 Workplace standards and procedures for incidents and Emergencies are determined1.5 ***Prevention and control measures***, including use of ***safety gears/PPE*** (Personal Protective Equipment) to avoid accident, injuries and sickness are identified |
| 1. Comply and promote compliance of workers to organization’s occupational safety and health instructions and requirements
 | 2.1 Safety instructions and safety signs are followed and disseminated to co-workers2.2 Safe handling of tools, equipment and materials is learned and shared with co-workers2.3 Execution of own work and of co-workers is monitored in according to safe work procedures 2.4 Use of safe guards and safety devices is monitored2.5 Hazards, incidents, injuries and sickness in the workplace are reported properly following standards and procedures |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| ***Safety requirements / regulations*** may include but are not limited to: | * + Building code
	+ Permit to Operate
	+ Occupational Safety and Health Standards
 |
| ***Incidents and emergencies*** may include but are not limited to: | * + Chemical spills
	+ Equipment/vehicle accidents
	+ Explosion
	+ Fire
	+ Gas leak
	+ Injury to personnel
	+ Structural collapse
	+ Toxic and/or flammable vapors emission.
 |
| ***Prevention and control measures*** may include but are not limited to: | * + Eliminate the hazard (i.e., get rid of the dangerous machine
	+ Isolate the hazard (i.e. keep the machine in a closed room and operate it remotely; barricade an unsafe area off)
	+ Substitute the hazard with a safer alternative (i.e., replace the machine with a safer one)
	+ Use administrative controls to reduce the risk (i.e. give trainings on how to use equipment safely; OSH-related topics, issue warning signages, rotation/shifting work schedule)
	+ Use engineering controls to reduce the risk (i.e. use safety guards to machine)
	+ Use personal protective equipment
	+ Safety, Health and Work Environment Evaluation
	+ Periodic and/or special medical examinations of workers
 |
| ***Safety devices/ PPEs*** (personal protective equipment) May include but are not limited to: | * + Arm/Hand guard, gloves
	+ Eye protection (goggles, shield)
	+ Hearing protection (ear muffs, ear plugs)
	+ Hair Net/cap/bonnet
	+ Hard hat
	+ Face protection (mask, shield)
	+ Apron/Gown/coverall/jump suit
	+ Anti-static suits
	+ High-visibility reflective vest
 |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Communication skills
* Knowledge management
* Interpersonal skills
* Troubleshooting skills
* Critical thinking skills
* Observation skills
* Monitoring skills
* Reporting skills

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Elements of an effective occupational safety and health program
* Benefits of implementing an occupational safety and health program
* Safety requirements of own work and of other workers
* Standard emergency plan and procedures in the workplace
* Different OSH control measures
* General OSH principles
* Work standards and procedures
* Safe handling procedures of tools, equipment’s and materials
* Standard emergency plan and procedures in the workplace
* Different OSH control measures
* Standard accident and illness reporting procedures in the workplace
* Monitoring system on compliance to work safety and health

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency
 | Assessment requires evidence that the candidate:* 1. Emphasizes awareness of OSH legislations
	2. Identifies benefits of implementing OSH program
	3. Identifies safety requirements of own work and of co-workers
	4. Identifies and shares with co-workers OSH control measures and emergency plan in the workplace
	5. Identifies and shares with co-workers the c**ontrol** **measures** to prevent accident, injuries andsickness
	6. Follows and disseminate to co-workers the safety instructions and safety signs at work
	7. Learns and shares with co-workers the learnings on safe handling of tools, equipment and materials
	8. Monitors safe execution of own work and of co-workers
	9. Monitors compliance to safety measures
	10. Reports hazards, incidents, injuries and sickness following workplace procedures
 |
| 1. Resource Implications
 | The following resources should be provided:2.1 Facilities, materials tools and equipment necessary for the activity |
| 1. Methods of Assessment
 | Competency in this unit may be assessed through:3.1 Observation/Demonstration with oral questioning3.2 Third party report |
| 1. Context of Assessment
 | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment.  |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# CORE UNITS OF COMPETENCY

# OPERATE A GRADER

**UNIT CODE: ENG/OS/EMO/CR/01/3/A**

**UNIT DESCRIPTION:**

This unit describes competencies required to operate a grader. It involves planning for work activities, preparing work area, fitting and removing attachments, performing start-up and shutdown procedures and conducting grader operations

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENT**  | **PERFORMANCE CRITERIA*****(Bold and italicized terms are elaborated in the Range)*** |
| --- | --- |
| 1. Plan for work activities
 | * 1. Safe working procedures are followed
	2. ***Work instructions*** are interpreted.
	3. Plans for eliminating, avoiding and/or minimising identified risks are developed according to ***worksite safety*** requirements.
	4. Grader is selected according to job requirements
	5. Sequence of operations is determined according to job requirements.
 |
| 1. Prepare work area
 | * 1. Safe working procedures are followed
	2. Work site equipment is inspected and prepared according to worksite requirements.
	3. Work site safety measures are implemented and maintained according to worksite requirements.
	4. Environmental protection requirements are identified and applied to the allocated task.
 |
| 1. Fit and remove attachments
 | * 1. Safe working procedures are followed
	2. Existing ***attachment*** is removed if need be according to manufacturer’s specifications
	3. Removed attachment is cleaned and stored in designated location according to worksite requirements
	4. Attachment required for the task to be carried out is selected and fitted according to manufacturer’s specifications
	5. Fitting and operation of attachment is tested prior to the commencement of the required task
	6. Attachment is used in accordance with job requirement
 |
| 1. Perform start-up and shutdown procedures
 | * 1. Safe working procedures are followed
	2. **Pre-operational checks** are conducted and documented according to worksite requirements
	3. Routine operator maintenance procedure is performed according to worksite requirements
	4. Start-up and shutdown procedures are performed according to manufacturer’s specifications
	5. **Post-operational checks** are conducted and documented according to worksite requirements
	6. Grader is parked according to worksite requirements
	7. Grader working hours, if required, maintenance and detected faults are documented according to worksite requirements
	8. Housekeeping procedures are performed according to worksite requirements
 |
| 1. Conduct grader operations
 | * 1. Safe working procedures are followed
	2. Grader is moved to the required work area and is positioned for specific operation according to job requirements
	3. Grader activities are performed within industry accepted timeframes and job requirements
	4. Unexpected circumstances are dealt with according to worksite requirements
	5. Grader is moved from the work area to the yard in accordance with Operator’s Safety Manual and current Traffic Act.
 |

**Range**

|  |  |
| --- | --- |
| **Variable** | **Range***May include but is not limited to:* |
| Work instructions | * Plans
* Specifications
* Quality requirements
* Traffic Control requirements
* Task risk assessment forms
* Operational details
 |
| Worksite safety | * PPE
* Working at heights
* Barricades
* Warning, informative and/or prohibitive signs
* Permit work forms duly filled and signed by authorised personnel.
 |
| Pre-operational checks | * Fuel level
* Hydraulic oil level
* Transmission oil level
* Batteries
* Machine faults
* Alarms and signals
* Lights
* Tiers
 |
| Post operational checks | * Shut down
* Parking position.
 |
| Attachment  | * Ripping and scarifying equipment
* Blades.
 |

**REQUIRED KNOWLEDGE**

* Manufacturer’s specifications
* Worksite requirements
* Safety regulations
* Traffic control requirements
* Work instructions
* Types and use of attachments
* Start-up and shutdown procedures
* Grader controls and their functions
* Transport requirements

**SKILLS**

* Communication
* Team work and problem solving
* Planning and organising
* Basic computer knowledge
* Self-management

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency
 | Assessment requires evidence that the candidate* Planned for work activities
* Prepared work area
* Fitted and removed attachments
* Performed start-up and shutdown procedures
* Conducted grader activities
 |
| 1. Resource Implications
 | The following resources should be provided:* PPE
* Grader
* Grader attachments
* Specialised tools.
* Equipment simulator
* Working site
* Work permits
 |
| 1. Methods of Assessment
 | Competency may be assessed through:1. Written text
2. Interview
3. Assignment and Completion of tasks
4. Observation
 |
| 1. Context of Assessment
 | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment.  |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# OPERATE AN EXCAVATOR

**UNIT CODE: ENG/OS/EMO/CR/02/3/A**

**UNIT DESCRIPTION:**

This unit describes competencies required to operate an excavator. It involves planning for work activities, preparing work area, fitting and removing attachments, performing start-up and shutdown procedures and conducting excavator operations

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENT**  | **PERFORMANCE CRITERIA*****(Bold and italicized terms are elaborated in the Range)*** |
| --- | --- |
| 1. Plan for work activities
 | * 1. Safe working procedures are followed
	2. ***Work instructions*** are interpreted.
	3. Plans for eliminating, avoiding and/or minimising identified risks are developed according to ***worksite safety*** requirements.
	4. Excavator is selected according to job requirements
	5. Sequence of operations is determined according to job requirements.
 |
| 1. Prepare work area
 | * 1. Safe working procedures are followed
	2. Work site equipment is inspected and prepared according to worksite requirements.
	3. Work site safety measures are implemented and maintained according to worksite requirements.
	4. Environmental protection requirements are identified and applied to the allocated task.
 |
| 1. Fit and remove attachments
 | * 1. Safe working procedures are followed
	2. Existing ***attachment*** is removed if need be according to manufacturer’s specifications
	3. Removed attachment is cleaned and stored in designated location according to worksite requirements
	4. Attachment required for the task to be carried out is selected and fitted according to manufacturer’s specifications
	5. Fitting and operation of attachment is tested prior to the commencement of the required task
	6. Attachment is used in accordance with job requirement
 |
| 1. Perform start-up and shutdown procedures
 | * 1. Safe working procedures are followed
	2. **Pre-operational checks** are conducted and documented according to worksite requirements
	3. Routine operator maintenance procedure is performed according to worksite requirements
	4. Start-up and shutdown procedures are demonstrated according to manufacturer’s specifications
	5. **Post-operational checks** are conducted and documented according to worksite requirements
	6. Excavator is parked according to worksite requirements
	7. Excavator working hours, if required, maintenance and detected faults are documented according to worksite requirements
	8. Housekeeping procedures are performed according to worksite requirements
 |
| 1. Conduct Excavator operations
 | * 1. Safe working procedures are followed
	2. Excavator is moved to the required work area and is positioned for specific operation according to job requirements
	3. **Excavator activities** are performed within industry accepted timeframes and job requirements
	4. Unexpected circumstances are dealt with according to worksite requirements
	5. Excavator is moved from the work area to the yard in accordance with Operator’s Safety Manual and current Traffic Act.
 |

**Range**

|  |  |
| --- | --- |
| **Variable** | **Range***May include but is not limited to:* |
| Work instructions | * Plans
* Specifications
* Quality requirements
* Traffic Control requirements
* Task risk assessment forms
* Operational details
 |
| Worksite safety | * PPE
* Working at heights
* Barricades
* Warning, informative and/or prohibitive signs
 |
| Pre-operational checks | * Fuel level
* Hydraulic oil level
* Transmission oil level
* Batteries
* Machine faults
* Alarms and signals
* Lights
* Tyres/ chain/ track/ rollers/ shoes
 |
| Post operational checks | * Shut down
* Parking position.
 |
| Attachment  | * Grabbing equipment
* Rock breaking equipment
* Drilling equipment
 |
| Excavator activities | * Digging trenches, holes, foundations
* Demolition
* Material handling
* General grading and/or landscaping
* Brush-cutting with hydraulic attachments
* Lifting and placing of pipes
* Open-pit mining
 |

**REQUIRED KNOWLEDGE**

* Manufacturer’s specifications
* Worksite requirements
* Safety regulations
* Traffic control requirements
* Work instructions
* Types and use of attachments
* Start-up and shutdown procedures
* Excavator controls and their functions
* Transport requirements

**SKILLS**

* Communication
* Team work and problem solving
* Planning and organising
* Basic computer knowledge
* Self-management

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency
 | Assessment requires evidence that the candidate* Planned for work activities
* Prepared work area
* Fitted and removed attachments
* Performed start-up and shutdown procedures
* Conducted excavator activities
 |
| 1. Resource Implications
 | The following resources should be provided:* PPE
* Excavator and attachments
* Specialised tools
* Equipment simulator
* Working site
* Work permits
 |
| 1. Methods of Assessment
 | Competency may be assessed through:1. Written text
2. Interview
3. Assignment and Completion of tasks
4. Observation
 |
| 1. Context of Assessment
 | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment.  |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# OPERATE A DOZER

**UNIT CODE: ENG/OS/EMO/CR/03/3/A**

**UNIT DESCRIPTION:**

This unit describes competencies required to operate a dozer. It involves planning for work activities, preparing work area, fitting and removing attachments, performing start-up and shutdown procedures and conducting dozer operations

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENT**  | **PERFORMANCE CRITERIA*****(Bold and italicized terms are elaborated in the Range)*** |
| --- | --- |
| 1. Plan for work activities
 | * 1. Safe working procedures are followed
	2. ***Work instructions*** are interpreted.
	3. Plans for eliminating, avoiding and/or minimising identified risks are developed according to ***worksite safety*** requirements.
	4. Dozer is selected according to job requirements
	5. Sequence of operations is determined according to job requirements.
 |
| 1. Prepare work area
 | * 1. Safe working procedures are followed
	2. Work site equipment is inspected and prepared according to worksite requirements.
	3. Work site safety measures are implemented and maintained according to worksite requirements.
	4. Environmental protection requirements are identified and applied to the allocated task.
 |
| 1. Fit and remove attachments
 | * 1. Safe working procedures are followed
	2. Existing ***attachment*** is removed if need be according to manufacturer’s specifications
	3. Removed attachment is cleaned and stored in designated location according to worksite requirements
	4. Attachment required for the task to be carried out is selected and fitted according to manufacturer’s specifications
	5. Fitting and operation of attachment is tested prior to the commencement of the required task
	6. Attachment is used in accordance with job requirement
 |
| 1. Perform start-up and shutdown procedures
 | * 1. Safe working procedures are followed
	2. **Pre-operational checks** are conducted and documented according to worksite requirements
	3. Routine operator maintenance procedure is performed according to worksite requirements
	4. Start-up and shutdown procedures are demonstrated according to manufacturer’s specifications
	5. **Post-operational checks** are conducted and documented according to worksite requirements
	6. Dozer is parked according to worksite requirements
	7. Dozer working hours, if required, maintenance and detected faults are documented according to worksite requirements
	8. Housekeeping procedures are performed according to worksite requirements
 |
| 1. Conduct dozer operations
 | * 1. Safe working procedures are followed
	2. Dozer is moved to the required work area and is positioned for specific operation according to job requirements
	3. Dozer activities are performed within industry accepted timeframes and job requirements
	4. Unexpected circumstances are dealt with according to worksite requirements
	5. Dozer is moved from the work area to the yard in accordance with Operator’s Safety Manual and existing Traffic Act.
 |

**Range**

|  |  |
| --- | --- |
| **Variable** | **Range***May include but is not limited to:* |
| Work instructions | * Plans
* Specifications
* Quality requirements
* Traffic Control requirements
* Task risk assessment forms
* Operational details
 |
| Worksite safety | * PPE
* Working at heights
* Barricades
* Warning, informative and/or prohibitive signs
 |
| Pre-operational checks | * Fuel level
* Hydraulic oil level
* Transmission oil level
* Batteries
* Machine faults
* Alarms and signals
* Lights
* Track and shoes
 |
| Post operational checks | * Shut down
* Parking position.
 |
| Attachment  | * Blades
* Fork/rippers
 |
| Dozer activities | * Clearing land
* Stripping surface materials
* Ripping surface materials
* Cutting and filling material
* Establishment of grade profiles
* Creating ditches
* Creating slopes
* Stockpiling material
* Pushing scraper
* Backfilling excavations and/or trenches
* Assisting in demolition projects
 |

**REQUIRED KNOWLEDGE**

* Manufacturer’s specifications
* Worksite requirements
* Safety regulations
* Traffic control requirements
* Work instructions
* Types and use of attachments
* Start-up and shutdown procedures
* Dozer controls and their functions
* Transport requirements

**SKILLS**

* Communication
* Team work and problem solving
* Planning and organising
* Basic computer knowledge
* Self-management

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency
 | Assessment requires evidence that the candidate* Planned for work activities
* Prepared work area
* Fitted and removed attachments
* Performed start-up and shutdown procedures
* Conducted dozer activities
 |
| 1. Resource Implications
 | The following resources should be provided:* PPE
* Dozer
* Equipment simulator
* Working site
* Work permits
 |
| 1. Methods of Assessment
 | Competency may be assessed through:1. Written text
2. Interview
3. Assignment and Completion of tasks
4. Observation
 |
| 1. Context of Assessment
 | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment.  |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# OPERATE A BACKHOE

**UNIT CODE: ENG/OS/EMO/CR/04/3/A**

**UNIT DESCRIPTION:**

This unit describes competencies required to operate a backhoe. It involves planning for work activities, preparing work area, fitting and removing attachments, performing start-up and shutdown procedures and conducting backhoe operations

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENT**  | **PERFORMANCE CRITERIA*****(Bold and italicized terms are elaborated in the Range)*** |
| --- | --- |
| 1. Plan for work activities
 | * 1. Safe working procedures are followed
	2. ***Work instructions*** are interpreted.
	3. Plans for eliminating, avoiding and/or minimising identified risks are developed according to ***worksite safety*** requirements.
	4. Backhoe is selected according to job requirements
	5. Sequence of operations is determined according to job requirements.
 |
| 1. Prepare work area
 | * 1. Safe working procedures are followed
	2. Work site equipment is inspected and prepared according to worksite requirements.
	3. Work site safety measures are implemented and maintained according to worksite requirements.
	4. Environmental protection requirements are identified and applied to the allocated task.
 |
| 1. Fit and remove attachments
 | * 1. Safe working procedures are followed
	2. Existing ***attachment*** is removed if need be according to manufacturer’s specifications
	3. Removed attachment is cleaned and stored in designated location according to worksite requirements
	4. Attachment required for the task to be carried out is selected and fitted according to manufacturer’s specifications
	5. Fitting and operation of attachment is tested prior to the commencement of the required task
	6. Attachment is used in accordance with job requirement
 |
| 1. Perform start-up and shutdown procedures
 | * 1. Safe working procedures are followed
	2. **Pre-operational checks** are conducted and documented according to worksite requirements
	3. Routine operator maintenance procedure is performed according to worksite requirements
	4. Start-up and shutdown procedures are demonstrated according to manufacturer’s specifications
	5. **Post-operational checks** are conducted and documented according to worksite requirements
	6. Backhoe is parked according to worksite requirements
	7. Backhoe working hours, if required, maintenance and detected faults are documented according to worksite requirements
	8. Housekeeping procedures are performed according to worksite requirements
 |
| 1. Conduct backhoe operations
 | * 1. Safe working procedures are followed
	2. Backhoe is moved to the required work area and is positioned for specific operation according to job requirements
	3. Backhoe activities are performed within industry accepted timeframes and job requirements
	4. Unexpected circumstances are dealt with according to worksite requirements
	5. Backhoe is moved from the work area to the yard in accordance with Operator’s Safety Manual and existing Traffic Act.
 |

**Range**

|  |  |
| --- | --- |
| **Variable** | **Range***May include but is not limited to:* |
| Work instructions | * Plans
* Specifications
* Quality requirements
* Traffic Control requirements
* Task risk assessment forms
* Operational details
 |
| Worksite safety | * PPE
* Working at heights
* Barricades
* Warning, informative and/or prohibitive signs
 |
| Pre-operational checks | * Fuel level
* Hydraulic oil level
* Transmission oil level
* Batteries
* Machine faults
* Alarms and signals
* Lights
* Tyres/chain/track/rollers
 |
| Post operational checks | * Shut down
* Parking position.
 |
| Attachment  | * Bucket
* Grabber
* Rock breaker
* clamshell
 |
| Backhoe activities | * Excavation of trenches, ditches
* Stockpiling of material
* Material handling
* Backfilling of trenches, excavations
* Cutting and fitting of material
* Clearing of land
* Demolition of buildings and structures
* Hoisting of objects
* Sorting of material
* Installation and removal of culverts
 |

**REQUIRED KNOWLEDGE**

* Manufacturer’s specifications
* Worksite requirements
* Safety regulations
* Traffic control requirements
* Work instructions
* Types and use of attachments
* Start-up and shutdown procedures
* Backhoe controls and their functions
* Transport requirements

**SKILLS**

* Communication
* Team work and problem solving
* Planning and organising
* Basic computer knowledge
* Self-management

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency
 | Assessment requires evidence that the candidate* Planned for work activities
* Prepared work area
* Fitted and removed attachments
* Performed start-up and shutdown procedures
* Conducted backhoe activities
 |
| 1. Resource Implications
 | The following resources should be provided:* PPE
* Backhoe
* Backhoe attachments
* Equipment simulator
* Working site
 |
| 1. Methods of Assessment
 | Competency may be assessed through:1. Written text
2. Interview
3. Assignment and Completion of tasks
4. Observation
 |
| 1. Context of Assessment
 | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment.  |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# OPERATE A FORKLIFT

**UNIT CODE: ENG/OS/EMO/CR/05/3/A**

**UNIT DESCRIPTION:**

This unit describes competencies required to operate a forklift. It involves planning for work activities, preparing work area, fitting and removing attachments, performing start-up and shutdown procedures and conducting forklift operations

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENT**  | **PERFORMANCE CRITERIA*****(Bold and italicized terms are elaborated in the Range)*** |
| --- | --- |
| 1. Plan for work activities
 | * 1. Safe working procedures are followed
	2. ***Work instructions*** are interpreted.
	3. Plans for eliminating, avoiding and/or minimising identified risks are developed according to ***worksite safety*** requirements.
	4. Forklift is selected according to job requirements
	5. Sequence of operations is determined according to job requirements.
 |
| 1. Prepare work area
 | * 1. Safe working procedures are followed
	2. Work site equipment is inspected and prepared according to worksite requirements.
	3. Work site safety measures are implemented and maintained according to worksite requirements.
	4. Environmental protection requirements are identified and applied to the allocated task.
 |
| 1. Fit and remove attachments
 | * 1. Safe working procedures are followed
	2. Existing ***attachment*** is removed according to manufacturer’s specifications
	3. Removed attachment is cleaned and stored in designated location according to worksite requirements
	4. Attachment required for the task to be carried out is selected and fitted according to manufacturer’s specifications
	5. Fitting and operation of attachment is tested prior to the commencement of the required task
	6. Attachment is used in accordance with job requirement
 |
| 1. Perform start-up and shutdown procedures
 | * 1. Safe working procedures are followed
	2. **Pre-operational checks** are conducted and documented according to worksite requirements
	3. Routine operator maintenance procedure is performed according to worksite requirements
	4. Start-up and shutdown procedures are demonstrated according to manufacturer’s specifications
	5. **Post-operational checks** are conducted and documented according to worksite requirements
	6. Forklift is parked according to worksite requirements
	7. Forklift working hours, if required, maintenance and detected faults are documented according to worksite requirements
	8. Housekeeping procedures are performed according to worksite requirements
 |
| 1. Conduct forklift operations
 | * 1. Safe working procedures are followed
	2. Forklift is moved to the required work area and is positioned for specific operation according to job requirements
	3. Forklift activities are performed within industry accepted timeframes and job requirements
	4. Unexpected circumstances are dealt with according to worksite requirements
	5. Forklift is moved from the work area to the yard in accordance with Operator’s Safety Manual and current Traffic Act.
 |

**Range**

|  |  |
| --- | --- |
| **Variable** | **Range***May include but is not limited to:* |
| Work instructions | * Plans
* Specifications
* Quality requirements
* Traffic Control requirements
* Task risk assessment forms
* Operational details
 |
| Worksite safety | * PPE
* Working at heights
* Barricades
* Warning, informative and/or prohibitive signs
 |
| Pre-operational checks | * Fuel level
* Hydraulic oil level
* Transmission oil level
* Batteries
* Machine faults
* Alarms and signals
* Lights
* Tyres
 |
| Post operational checks | * Shut down
* Parking position.
 |
| Attachment  | * Dimensioning devices
* Side shifter
* Rotator
* Fork positioner
* Roll and barrel clamp attachment
* Pole attachments
* Carton and multipurpose clamp attachments
* Slip sheet attachment (push-pull)
* Drum handler attachment
* Man basket
* Telescopic forks
* Single-double forks
* Snow plough
* Skips
 |
| Forklift activities | * Moving Product Stored Indoors
* Moving Outdoor Product
* Plowing Snow
* Training New Forklift Operators
 |

**REQUIRED KNOWLEDGE**

* Manufacturer’s specifications
* Worksite requirements
* Safety regulations
* Traffic control requirements
* Work instructions
* Types and use of attachments
* Start-up and shutdown procedures
* Forklift controls and their functions
* Transport requirements

**SKILLS**

* Communication
* Team work and problem solving
* Planning and organising
* Basic computer knowledge
* Self-management

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency
 | Assessment requires evidence that the candidate* Planned for work activities
* Prepared work area
* Fitted and removed attachments
* Performed start-up and shutdown procedures
* Conducted forklift activities
 |
| 1. Resource Implications
 | The following resources should be provided:* Forklift
* Forklift attachments
* Equipment simulator
* PPE
* Working site
 |
| 1. Methods of Assessment
 | Competency may be assessed through:1. Written text
2. Interview
3. Assignment and Completion of tasks
4. Observation
 |
| 1. Context of Assessment
 | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment.  |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |