****

**REPUBLIC OF KENYA**

**NATIONAL OCCUPATIONAL STANDARDS**

**FOR**

**CONSTRUCTION MANAGER**

**LEVEL 6**

****

TVET CDACC

P.O. BOX 15745-00100

NAIROBI

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**Council Secretary/CEO**

**TVET Curriculum Development, Assessment and Certification Council**

**P.O. Box 15745–00100**

**Nairobi, Kenya**

**Email:** info@tvetcdacc.go.ke

# 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 (Sessional Paper No. 4 of 2016). 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 shall be competency based, curriculum development shall be industry led, certification shall be based on demonstration of competence and mode of delivery shall allow 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 Construction Management Level 6. 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 Building and Construction 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 and Sessional Paper No. 4 of 2016 on Reforming Education and Training in Kenya, emphasized the need to reform curriculum development, assessment and certification in TVET. This called for 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 Construction Management Sector Skills Advisory Committee (SSAC), have developed these Occupational Standards for a Construction Manager. These standards will be the bases for development of competency-based curriculum for Construction Management level 6.

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, Construction Management SSAC, expert workers and all those who participated in the development of these occupational standards.

**CHAIRPERSON,**

**TVET CDACC**

# ACKNOWLEDGMENT

These Occupational Standards were developed through combined effort of various stakeholders from private and public organizations. I am thankful to the management of these 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 (TVETCDACC) for providing guidance on the development of these Standards. My gratitude goes to Construction Management 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.

**CHAIRPERSON**

**CONSTRUCTION MANAGEMENT SECTOR SKILLS ADVISORY COMMITTEE**

# ABBREVIATION AND ACRONYMS

|  |  |
| --- | --- |
| CDACC PPEBQSCADEHSEMSICTNEMANOSTVETBRC | Curriculum Development Assessment and Certification CouncilPersonal Protective EquipmentBill of QuantitiesComputer Aided DesignEnvironment, health and safetyEnvironmental Management System Information Computer TechnologyNational Environment Management AuthorityNational Occupational StandardsTechnical and vocational education and trainingBritish reinforcement concrete |

# KEY TO UNIT CODE

 **CON / OS /CM/BC/01/6 A**

Industry or sector

Occupational Standards

Occupational area

Type of competency

Competency number

Competency level

Version control

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# OVERVIEW

Construction Manager Level 6 consists of competencies that a person must achieve to enable him/her to be certified as a Construction Manager. It entails managing of project time, construction project quality,project site, safety, health and security, construction project cost, project labor and project contracts

**BASIC COMPETENCIES**

|  |  |
| --- | --- |
| **Unit of Competency Code** | **Unit of Competency Title** |
| CON/OS/CM/BC/01/6/A | Demonstrate communication skills |
| CON/OS/CM/BC/02/6/A | Demonstrate numeracy skills |
| CON/OS/CM/BC/03/6/A | Demonstrate digital literacy |
| CON/OS/CM/BC/04/6/A | Demonstrate entrepreneurial skills |
| CON/OS/CM/BC/05/6/A | Demonstrate employability skills |
| CON/OS/CM/BC/06/6/A | Demonstrate environmental literacy |
| CON/OS/CM/BC/07/6/A | Demonstrate occupational health and safety practices |

# COMMON COMPETENCIES

|  |  |
| --- | --- |
| **Unit of Competency Code** | **Unit of Competency Title** |
| CON/OS/CM/CC/01/6/A | Prepare and interpret technical drawings |
| CON/OS/CM/CC/02/6/A | Conduct engineering survey |
| CON/OS/CM/CC/03/6/A | Execute construction works |
| CON/OS/CM/CC/04/6/A | Manage construction materials, plant, tools and equipment |

**CORE COMPETENCIES**

|  |  |
| --- | --- |
| **Unit of Competency Code** | **Unit of Competency Title** |
| CON/OS/CM/CR/01/6/A | Manage project time |
| CON/OS/CM/CR/02/6/A | Manage construction Project quality |
| CON/OS/CM/CR/03/6/A | Manage project site, safety, health and security |
| CON/OS/CM/CR/04/6/A | Manage construction project cost |
| CON/OS/CM/CR/05/6/A | Manage project labor |
| CON/OS/CM/CR/06/6/A | Manage project contracts |

# BASIC COMPETENCIES

## DEMONSTRATE COMMUNICATION SKILLS

**UNIT CODE:** CON/OS/CM/BC/01/6/A

**UNIT DESCRIPTION**

This unit covers the competencies required to demonstrate communication skills. It involves meeting communication needs of clients and colleagues, developing communication strategies, establishing and maintaining communication pathways, conducting interviews, facilitating group discussion and representing the organization.

**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. Meet communication needs of clients and colleagues
 | 1. Specific communication needs of clients and colleagues are identified and met based on workplace requirements
2. Different communication approaches are identified and applied according to clients’ needs
3. Conflict is identified and addressed as per the standards of the organization
 |
| 1. Develop communication strategies
 | * 1. Strategies for effective internal and external dissemination of information are developed as per organization’s requirements
	2. Special communication needs are considered in developing strategies according workplace procedures
	3. ***Communication strategies*** are analyzed, evaluated and revised based the workplace needs
 |
| 1. Establish and maintain communication pathways
 | * 1. Pathways of communication are established as per organization policy
	2. Pathways are maintained and reviewed according to organization procedures
 |
| 1. Promote use of communication strategies
 | * 1. Information is provided to all areas of the organization as per strategy requirements
	2. Effective communication techniques are articulated and modeled according work requirements
	3. Personnel are given guidance about adapting communication strategies as per organization procedures
 |
| 1. Conduct interview
 | 1. A range of appropriate communication strategies are employed in ***interview situations*** based on the workplace requirements
2. Records of interviews are made and maintained in accordance with organizational procedures
3. Effective questioning, listening and nonverbal communication techniques are used as per needs
 |
| 1. Facilitate group discussion
 | 1. Mechanisms to enhance ***effective group interaction*** are identified and implemented according to workplace requirements
2. Strategies to encourage group participation are identified and used as per organizations’ procedures
3. Meetings objectives and agenda are set and followed based on workplace requirements
4. Relevant information is provided and feedback obtained according to set protocols
5. Evaluation of group communication strategies is undertaken in accordance with workplace guidelines
6. Specific communication needs of individuals are identified and addressed as per individual needs
 |
| 1. Represent the organization
 | 1. 7Relevant presentation are researched and presented based on internal or external communication forums requirements
2. Presentation is delivered in a clear and sequential manner as per the predetermined time
3. Presentation is made as per appropriate media
4. Difference views are respected based on workplace procedures
5. Written communication is done as per organizational standards
6. Inquiries are responded according to organizational standard
 |

**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** |
| 1. Communication strategies may include but not limited to:
 | * Language switch
* Comprehension check
* Repetition
* Asking confirmation
* Paraphrase
* Clarification request
* Translation
* Restructuring
* Approximation
* Generalization
 |
| 1. Effective group interaction may include but not limited to:
 | * Identifying and evaluating what is occurring within an interaction in a nonjudgmental way
* Using active listening
* Making decision about appropriate words, behavior
* Putting together response which is culturally appropriate
* Expressing an individual perspective
* Expressing own philosophy, ideology and background and exploring impact with relevance to communication
 |
| 1. Situations may include but not limited to:
 | * Establishing rapport
* Eliciting facts and information
* Facilitating resolution of issues
* Developing action plans
* Diffusing potentially difficult situations
 |

**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
* Active listening
* Interpretation
* Negotiation
* Writing

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Communication process
* Dynamics of groups
* Styles of group leadership
* Key elements of communications strategy

**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. Developed communication strategies to meet the organization requirements and applied in the workplace
2. Established and maintained communication pathways for effective communication in the workplace
3. Used communication strategies involving exchanges of complex oral information
 |
| 1. Resource Implications
 | The following resources should be provided: 1. Access to relevant workplace or appropriately simulated environment where assessment can take place
2. Materials relevant to the proposed activity or tasks
 |
| 1. Methods of Assessment
 | Competency in this unit may be assessed through: 1. Direct observation
2. Oral questioning
3. Written texts
 |
| 1. Context of Assessment
 | Competency may be assessed1. On-the-job
2. Off-the –job
3. During Industrial attachment
 |
| 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:** CON/OS/CM/BC/02/6/A

**UNIT DESCRIPTION**

This unit describes the competencies required to demonstrate numeracy skills. It involves; applying a wide range of mathematical calculations for work; applying ratios, rates and proportions to solve problems; estimating, measuring and calculating measurement for work; using detailed maps to plan travel routes for work; using geometry to draw and construct 2D and 3D shapes for work; collecting, organizing and interpreting statistical data; using routine formula and algebraic expressions for work and using common functions of a scientific calculator.

**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. Apply a wide range of mathematical calculations for work
 | * 1. Mathematical information embedded in a range of workplace tasks and texts is extracted as per workplace procedures.
	2. Mathematical information is interpreted and comprehended as per job specifications
	3. A range of mathematical and problem solving processes are selected and used as per job specification
	4. Different forms of fractions, decimals and percentages are flexibly used as per SOPs
	5. Calculation performed with positive and negative numbers as per SOPs
	6. Numbers are expressed as powers and roots and are used in calculations as per SOPs
	7. Calculations done using routine formulas as per SOPs
	8. Estimation and assessment processes are used to check outcome as per workplace procedures
	9. Mathematical language is used to discuss and explain the processes, results and implications of the task as per workplace procedures
 |
| 1. Use and apply ratios, rates and proportions for work
 | * 1. Information regarding ratios, rates and proportions extracted from a range of workplace tasks and texts as per SOPs
	2. Mathematical information related to ratios, rate and proportions is analysed as per SOPs
	3. Problem solving processes are used to undertake the task as per workplace procedures
	4. Equivalent ratios and rates are simplified as per SOPs
	5. Quantities are calculated using ratios, rates and proportions as per SOPS
	6. Graphs, charts or tables are constructed to represent ratios, rates and proportions as per SOPs
	7. The outcomes reviewed and checked as per job specifications
	8. Information is record using mathematical language and symbols as per workplace procedures
 |
| 1. Estimate, measure and calculate measurement for work
 | * 1. Measurement information embedded in workplace texts and tasks are extracted and interpreted as per job specifications
	2. Appropriate workplace measuring equipment are identified and selected as per job specifications
	3. Accurate measurements are estimated and made as per SOPs
	4. The area of ***2D shapes*** including compound shapes are calculated as per SOPs
	5. The volume of 3D shapes is calculated using relevant formulas as per SOPs
	6. Sides of right angled triangles are calculated using Pythagoras’ theorem as per SOPs
	7. conversions are perform between units of measurement as per job specification
	8. Problem solving processes are used to undertake the task as per workplace Procedures
	9. The measurement outcomes are reviewed and checked as per workplace procedures
	10. Information is recorded using mathematical language and symbols appropriate for the task as per workplace procedures
 |
| 1. Use detailed maps to plan travel routes for work
 | * 1. Different types of maps are identified and interpreted as per job requirements
	2. Key features of maps are identified as per job requirements
	3. Scales are identified and interpreted as per job requirements
	4. Scales are applied to calculate actual distances
	5. Positions or locations are determined using directional information as per job requirements
	6. Routes are planned by determining directions and calculating distances, speeds and times as per job requirements
	7. Information is gathered and identified and relevant factors related to planning a route checked as per job requirements
	8. Relevant equipment is select and checked for accuracy and operational effectiveness as per job requirements
	9. Task is planned and recorded using specialized mathematical language and symbols appropriate for the task as per job requirements
 |
| 1. Use geometry to draw 2D shapes and construct 3D shapes for work
 | * 1. A range of 2D shapes and 3D shapes and their uses in work contexts is identified as per job specifications
	2. Features of 2D and 3D shapes are named and described as per job specifications
	3. Types of angles in 2D and 3D shapes are identified as per job specifications
	4. Angles are drawn, estimated and measured using geometric instruments as per job requirements
	5. Angle properties of 2D shapes are named and identified as per SOPs
	6. Angle properties are used to evaluate unknown angles in shapes as per SOPs
	7. Properties of perpendicular and parallel lines are applied to shapes as per SOPs
	8. Understanding and use of symmetry is demonstrated as per SOPs
	9. Understanding and use of similarity is demonstrated as per SOPs
	10. The workplace tasks and mathematical processes required are identified as per workplace procedures
	11. 2D shapes is drawn for work as per job specification
	12. 3D shapes is constructed for work as per job specification
	13. The outcomes are reviewed and checked as per workplace procedures
	14. Specialized mathematical language and symbols appropriate for the task are used as per SOPs
 |
| 1. Collect, organize, and interpret statistical data for work
 | * 1. Workplace issue requiring investigation are identified as per workplace procedures
	2. Audience / population / sample unit is determined as per workplace procedures as per workplace procedures
	3. Data to be collected is identified as per workplace procedures
	4. Data collection method is selected as per workplace procedures
	5. Appropriate statistical data is collected and organized as per SOPs
	6. Data is illustrated in appropriate formats as per SOPs
	7. The effectiveness of different types of graphs are compared as per SOPs
	8. The summary statistics for collected data is calculated as per SOPs
	9. The results / findings are interpreted as per SOPs
	10. Data is checked to ensure that it meets the expected results and content as per workplace procedures
	11. Information from the results including tables, graphs and summary statistics is extracted and interpreted as per workplace procedure
	12. Mathematical language and symbols are used to report results of investigation as per workplace procedure
 |
| 1. Use routine formula and algebraic expressions for work
 | * 1. Understanding of informal and symbolic notation, representation and conventions of algebraic expressions is demonstrated as per SOPs
	2. Simple algebraic expressions and equations are developed as per job specification
	3. Operate on algebraic expressions as per job requirement
	4. Algebraic expressions are simplified as per job requirement
	5. Substitution into simple routine equations is done as per SOPs
	6. Routine formulas used for work tasks are identified and comprehended as per SOPs
	7. Routine formulas are evaluate by substitution as per SOPs
	8. Routine formulas transposed as per SOPs
	9. Appropriate formulas are identified and used for work related tasks as per workplace procedures
	10. Outcomes are checked and result of calculation used as per workplace procedures
 |
| 1. Use common functions of a scientific calculator for work
 | * 1. Required numerical information to perform tasks is located as per job specification
	2. The order of operations and function keys necessary to solve mathematical calculation are determined as per job specification
	3. Function keys on a scientific calculator are identified and used as per SOPs
	4. Estimations are referred to check reasonableness of problem solving process as per workplace procedures
	5. Appropriate mathematical language, symbols and conventions are used to report results as per workplace 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** |
| 1. 2D shapes may include but not limited may include but not limited to:
 | * Triangles
* Square
* Rectangle
* 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:

* Measuring
* Logical thinking
* Computing
* Drawing of graphs
* Applying mathematical formulas
* Analytical

**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. Developed communication strategies to meet the organization requirements and applied in the workplace
2. Established and maintained communication pathways for effective communication in the workplace
3. Used communication strategies involving exchanges of complex oral information
 |
| 1. Resource Implications
 | The following resources should be provided:1. Access to relevant workplace or appropriately simulated environment where assessment can take place
2. Materials relevant to the proposed activity or tasks
 |
| 1. Methods of Assessment
 | Competency in this unit may be assessed through:3.1 Written texts  |
| 1. Context of Assessment
 | Competency may be assessed1. On-the-job
2. Off-the –job
3. During Industrial attachment
 |
| 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:** CON/OS/CM/BC/03/6/A

**UNIT DESCRIPTION**

This unit describes competencies required to demonstrate digital literacy. It involves, identifying computer software and hardware, applying security measures to data, hardware, and software in automated environment, applying computer software in solving task, applying internet and email in communication at workplace, applying desktop publishing in official assignments and preparing presentation packages.

**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 appropriate computer software and hardware
 | * 1. Concepts of ICT are determined in accordance with computer equipment
	2. Classifications of computers are determined in accordance with manufacturers specification
	3. Appropriate computer software is identified according to manufacturer’s specification
	4. Appropriate computer hardware is identified according to manufacturer’s specification
	5. Functions and commands of operating system are determined in accordance with manufacturer’s specification
 |
| 1. Apply security measures to data, hardware, software in automated environment
 | * 1. ***Data security and privacy are classified*** in accordance with the prevailing technology
	2. ***Security threats*** reidentified ***and control measures*** are applied in accordance with laws governing protection of ICT
	3. Computer threats and crimes are detected in accordance to Information Management security guidelines
	4. Protection against computer crimes is undertaken in accordance with laws governing protection of ICT
 |
| 1. Apply computer software in solving tasks
 | * 1. ***Word processing concepts*** are applied in resolving workplace tasks, report writing and documentation as per the job requirements
	2. ***Word processing utilities*** are applied in accordance with workplace procedures
	3. Worksheet layout is prepared in accordance with work procedures
	4. Worksheet is build and data manipulated in the worksheet in accordance with workplace procedures
	5. Continuous data manipulated on worksheet is undertaken in accordance with work requirements
	6. Database design and manipulation is undertaken in accordance with office procedures
	7. Data sorting, indexing, storage, retrieval and security is provided in accordance with workplace procedures
 |
| 1. Apply internet and email in communication at workplace
 | * 1. Electronic mail addresses are opened and applied in workplace communication in accordance with office policy
	2. Office internet functions are defined and executed in accordance with office procedures
	3. ***Network configuration*** is determined in accordance with office operations procedures
	4. Official World Wide Web is installed and managed according to workplace procedures
 |
| 1. Apply Desktop publishing in official assignments
 | * 1. Desktop publishing functions and tools are identified in accordance with manufactures specifications
	2. Desktop publishing tools are developed in accordance with work requirements
	3. Desktop publishing tools are applied in accordance with workplace requirements
	4. Typeset work is enhanced in accordance with workplace standards
 |
| 1. Prepare presentation packages
 | * 1. Types of presentation packages are identified in accordance with office requirements
	2. Slides are created and formulated in accordance with workplace procedures
	3. Slides are edited and run in accordance with work procedures
	4. Slides and handouts are printed according to work requirements
 |

**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** |
| 1. Appropriate computer hardware may include but not limited to:
 | Collection of physical parts of a computer system such as;* Computer case, monitor, keyboard, and mouse
* All the parts inside the computer case, such as the hard disk drive, motherboard and video card
 |
| 1. Data security and privacy may include but not limited to:
 | * Confidentiality of data
* Cloud computing
* Integrity -but-curious data surfing
 |
| 1. Security and control measures may include but not limited to:
 | * Counter measures against cyber terrorism
* Risk reduction
* Cyber threat issues
* Risk management
* Pass-wording
 |
| 1. Security threats may include but not limited to:
 | * Cyber terrorism
* Hacking
 |

**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:

* Software concept
* Functions of computer software and hardware
* Data security and privacy
* Computer security threats and control measures
* Technology underlying cyber-attacks and networks
* Cyber terrorism
* 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 sheets;
* Meaning, formulae, function and charts, uses and layout
* Data formulation, manipulation and application to cells
* Database;
* Database design, data manipulation, sorting, indexing, storage retrieval and security
* Desktop publishing;
* Designing and developing desktop publishing tools
* Manipulation of desktop publishing tools
* Enhancement of typeset work and printing documents
* Presentation Packages;
* Types of presentation Packages
* Creating, formulating, running, editing, printing and presenting slides and handouts
* Networking and Internet;
* Computer networking and internet.
* Electronic mail and world wide web
* Emerging trends and issues in ICT;
* Identify and integrate 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 and controlled security threats
	2. Detected and protected computer crimes
	3. Applied word processing in office tasks
	4. Designed, prepared work sheet and applied data to the cells in accordance to workplace procedures
	5. Opened electronic mail for office communication as per workplace procedure
	6. Installed internet and World Wide Web for office tasks in accordance with office procedures
	7. Integrated emerging issues in computer ICT applications
	8. Applied laws governing protection of ICT
 |
| 1. Resource Implications
 |  The following resources should be provided:* 1. Access to relevant workplace where assessment can take place
	2. Appropriately simulated environment where assessment can take place
 |
| 1. Methods of Assessment
 | Competency may be assessed through:* 1. Written Test
	2. Demonstration
	3. Practical assignment
	4. Interview/Oral Questioning
 |
| 1. Context of Assessment
 | Competency may be assessed1. On-the-job
2. Off-the –job
3. During Industrial attachment
 |
| 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 :** CON/OS/CM/BC/04/6/A

**UNIT DESCRIPTION**

This unit covers the competencies required to Demonstrate Entrepreneurial Skills. It involves demonstrating understanding of an entrepreneur, entrepreneurship, and self-employment, identifying entrepreneurship opportunities, creating entrepreneurial awareness, applying entrepreneurial motivation, developing business innovative strategies and developing business plan.

**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. Demonstrate understanding of an entrepreneur
 | 1. Entrepreneurs and Business persons are distinguished as per principles of entrepreneurship
2. ***Types of entrepreneurs*** are identified as per principles of entrepreneurship
3. Ways of becoming an Entrepreneur are identified as per principles of Entrepreneurship
4. ***Characteristics of Entrepreneurs*** are identified as per principles of Entrepreneurship
5. Factors affecting Entrepreneurship development are explored as per principles of Entrepreneurship
 |
| 1. Demonstrate understanding of Entrepreneurship and self-employment
 | 1. Entrepreneurship and self-employment are distinguished as per principles of entrepreneurship
2. Importance of self-employment is analysed based on business procedures and strategies
3. ***Requirements for entry into self-employment*** are identified according to business procedures and strategies
4. Role of an Entrepreneur in business is determined according to business procedures and strategies
5. Contributions of Entrepreneurs to National development are identified as per business procedures and strategies
6. Entrepreneurship culture in Kenya is explored as per business procedures and strategies
7. Born or made Entrepreneurs are distinguished as per entrepreneurial traits
 |
| 1. Identify Entrepreneurship opportunities
 | 1. Sources of business ideas are identified as per business procedures and strategies
2. Business ideas and opportunities are generated as per business procedures and strategies
3. Business life cycle is analysed as per business procedures and strategies
4. Legal aspects of business are identified as per procedures and strategies
5. Product demand is assessed as per market strategies
6. Types of ***business environment*** are identified and evaluated as per business procedures
7. Factors to consider when evaluating business environment are explored based on business procedure and strategies
8. Technology in business is incorporated as per best practice
 |
| 1. Create entrepreneurial awareness
 | 1. ***Forms of businesses*** are explored as per business procedures and strategies
2. Sources of business finance are identified as per business procedures and strategies
3. Factors in selecting source of business finance are identified as per business procedures and strategies
4. ***Governing policies*** on Small Scale Enterprises (SSEs) are determined as per business procedures and strategies
5. Problems of starting and operating SSEs are explored as per business procedures and strategies
 |
| 1. Apply entrepreneurial motivation
 | 1. ***Internal and external motivation*** factors are determined in accordance with motivational theories
2. Self-assessment is carried out as per entrepreneurial orientation
3. Effective communications are carried out in accordance with communication principles
4. Entrepreneurial motivation is applied as per motivational theories
 |
| 1. Develop innovative business strategies
 | 1. Business innovation strategies are determined in accordance with the organization strategies
2. Creativity in business development is demonstrated in accordance with business strategies
3. ***Innovative business strategies*** are developed as per business principles
4. Linkages with other entrepreneurs are created as per best practice
5. ICT is incorporated in business growth and development as per best practice
 |
| 1. Develop Business Plan
 | 1. Identified Business is described as per business procedures and strategies
2. Marketing plan is developed as per business plan format
3. Organizational/Management plan is prepared in accordance with business plan format
4. Production/operation plan in accordance with business plan format
5. Financial plan is prepared in accordance with the business plan format
6. Executive summary is prepared in accordance with business plan format
7. Business plan is presented as per best practice
 |

**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**  |
| 1. Types of entrepreneurs may include but not limited to:
 | * Innovators
* Imitators
* Craft
* Opportunistic
* Speculators
 |
| 1. Characteristics of Entrepreneurs may include but not limited to:
 | * Creative
* Innovative
* Planner
* Risk taker
* Networker
* Confident
* Flexible
* Persistent
* Patient
* Independent
* Future oriented
* Goal oriented
 |
| 1. Requirements for entry into self-employment may include but not limited to
 | * Technical skills
* Management skills
* Entrepreneurial skills
* Resources
* Infrastructure
 |
| 1. Internal and external motivation may include but not limited to:
 | * Interest
* Passion
* Freedom
* Prestige
* Rewards
* Punishment
* Enabling environment
* Government policies
 |
| 1. Business environment may include but not limited to:
 | * External
* Internal
* Intermediate
 |
| 1. Forms of businesses may include but not limited to:
 | * Sole proprietorship
* Partnership
* Limited companies
* Cooperatives
 |
| 1. Governing policies may include but not limited to:
 | * Increasing scope for finance
* Promoting cooperation between entrepreneurs and private sector
* Reducing regulatory burden on entrepreneurs
* Developing IT tools for entrepreneurs
 |
| 1. Innovative business strategies may include but not limited to:
 | * New products
* New methods of production
* New markets
* New sources of supplies
* Change in industrialization
 |

**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
* Management
* Problem-solving
* Root-cause analysis
* Communication

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Decision making
* Business communication
* Change management
* Competition
* Risk
* Net working
* Time management
* Leadership
* Factors affecting entrepreneurship development
* Principles of Entrepreneurship
* Features and benefits of common operational practices, e. g., continuous improvement (kaizen), waste elimination,
* Conflict resolution
* Health, safety and environment (HSE) principles and requirements
* Customer care strategies
* Basic financial management
* Business strategic planning
* Impact of change on individuals, groups and industries
* Government and regulatory processes
* Local and international market trends
* Product promotion strategies
* Market and feasibility studies
* Government and regulatory processes
* Local and international business environment
* Relevant developments in other industries
* Regional/ County business expansion strategies

**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
 | 1. Assessment requires evidence that the candidate:
2. Distinguished entrepreneurs and businesspersons correctly
3. Identified ways of becoming an entrepreneur appropriately
4. Explored factors affecting entrepreneurship development appropriately
5. Analysed importance of self-employment accurately
6. Identified requirements for entry into self-employment correctly
7. Identified sources of business ideas correctly
8. GeneratedBusiness ideas and opportunities correctly
9. Analysed business life cycle accurately
10. Identified legal aspects of business correctly
11. Assessed product demand accurately
12. Determined Internal and external motivation factors appropriately
13. Carried out communications effectively
14. Identified sources of business finance correctly
15. Determined Governing policy on small scale enterprise appropriately
16. Explored problems of starting and operating SSEs effectively
17. Developed Marketing, Organizational/Management, Production/Operation and Financial plans correctly
18. Prepared executive summary correctly
19. Determined business innovative strategies appropriately
20. Presented business plan effectively
 |
| 1. Resource Implications
 | The following resources should be provided:1. Access to relevant workplace where assessment can take place
2. Appropriately simulated environment where assessment can take place
 |
| 1. Methods of Assessment
 | 1. Written tests
2. Oral questions
3. Third party report
4. Interviews
5. Portfolio
 |
| 1. Context of Assessment
 | Competency may be assessed 1. On-the-job
2. Off-the –job
3. During Industrial attachment
 |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

#

## DEMONSTRATE EMPLOYABILITY SKILLS

**UNIT CODE:** CON/OS/CM/BC/05/6/A

**UNIT DESCRIPTON**

This unit covers competencies required to demonstrate employability skills. It involves conducting self-management, demonstrating interpersonal communication, critical safe work habits, leading a workplace team, planning and organizing work, maintaining professional growth and development, demonstrating workplace learning, problem solving skills and managing ethical performance.

**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. Emotional intelligence is demonstrated as per workplace requirements.
3. Individual performance is evaluated and monitored according to the agreed targets.
4. Assertiveness is developed and maintained based on the requirements of the job.
5. Accountability and responsibility for own actions are demonstrated based on workplace instructions.
6. Self-esteem and a positive self-image are developed and maintained based on values.
7. Time management, attendance and punctuality are observed as per the organization policy.
8. Goals are managed as per the organization’s objective
9. Self-strengths and weaknesses are identified based on personal objectives
 |
| 1. Demonstrate interpersonal communication
 | 1. Writing skills are demonstrated as per communication policy
2. Negotiation and persuasion skills are demonstrated as per communication policy
3. Internal and external stakeholders’ needs are identified and interpreted as per the communication policy
4. Communication networks are established based on workplace policy
5. Information is shared as per communication policy

  |
| 1. Demonstrate critical safe work habits
 | * 1. Stress is managed in accordance with workplace policy.
	2. Punctuality and time consciousness is demonstrated in line with workplace policy.
	3. Personal objectives are integrated with organization goals based on organization’s strategic plan.
	4. ***Resources*** are utilized in accordance with workplace policy.
	5. Work priorities are set in accordance to workplace goals and objectives.
	6. Leisure time is recognized and utilized in line with personal objectives.
	7. ***Drugs and substances of abuse*** are identified and avoided based on workplace policy.
	8. HIV and AIDS prevention awareness is demonstrated in line with workplace policy.
	9. Safety consciousness is demonstrated in the workplace based on organization safety policy.
	10. ***Emerging issues*** are identified and dealt with in accordance with organization policy.
 |
| 1. Lead a workplace team
 | 1. Performance targets for the ***team*** are set based on organization’s objectives
2. Duties are assigned in accordance with the organization policy.
3. ***Forms of communication*** in a team are established according to organization’s policy.
4. Team performance is evaluated based on set targets as per workplace policy.
5. Conflicts are resolved between team members in line with organization policy.
6. Gender related issues are identified and mainstreamed in accordance workplace policy.
7. Human rights and fundamental freedoms are identified and respected as Constitution of Kenya 2010.
8. Healthy relationships are developed and maintained in line with workplace.
 |
| 1. Plan and organize work
 | 1. Work plans are prepared based on activities and budget.
2. Assigned tasks are interpreted and expectations identified as per the workplace instructions.
3. Task occupational safety and health requirements are identified and observed regulations.
4. Work resources are identified, mobilized, allocated and utilized based on organization work plans.
5. Work activities are monitored and evaluated in line with work plans and workplace policy.
6. Work plans are reviewed based on target and available resources.
 |
| 1. Maintain professional growth and development
 | * 1. Personal training needs are identified and assessed in line with the requirements of the job.
	2. ***Training and career opportunities*** are identified and utilized based on job requirements.
	3. Resources for training are mobilized and allocated based organizations and individual skills needs.
	4. Licensees and certifications relevant to job and career are obtained and renewed as per policy.
	5. Work priorities and personal commitments are balanced and managed based on requirements of the job and personal objectives.
	6. Recognitions are sought as proof of career advancement in line with professional requirements.
 |
| 1. Demonstrate workplace learning
 | * 1. Learning opportunities are sought and managed based on job requirement and organization policy.
	2. Improvement in performance is demonstrated based on courses attended.
	3. Application of learning is demonstrated in both technical and non-technical aspects based on requirements of the job
	4. Time and effort is invested in learning new skills based on job requirements
	5. Initiative is taken to create more effective and efficient processes and procedures in line with workplace policy.
	6. New systems are developed and maintained in accordance with the requirements of the job.
	7. Awareness of personal role in workplace ***innovation*** is demonstrated based on requirements of the job.
 |
| 1. Demonstrate problem solving skills
 | * 1. Creative, innovative and practical solutions are developed based on the problem
	2. Independence and initiative in identifying and solving problems is demonstrated based on requirements of the job.
	3. Team problems are solved as per the workplace guidelines
	4. Problem solving strategies are applied as per the workplace guidelines
	5. Problems are analyzed and assumptions tested as per the context of data and circumstances
 |
| 1. Manage ethical performance
 | * 1. Policies and guidelines are observed as per the workplace requirements
	2. Self-worth and professionalism is exercised in line with personal goals and organizational policies
	3. Code of conduct is observed as per the workplace requirements
	4. Integrity is demonstrated as per legal requirement
 |

**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** |
| 1. Drug and substance abuse may include but not limited to:
 | Commonly abused* Alcohol
* Tobacco
* Miraa
* Over-the-counter drugs
* Cocaine
* Bhang
* Glue
 |
| 1. Feedback may include but not limited to:
 | * Verbal
* Written
* Informal
* Formal
 |
| 1. Relationships may include but not limited to:
 | * Man/Woman
* Trainer/trainee
* Employee/employer
* Client/service provider
* Husband/wife
* Boy/girl
* Parent/child
* Sibling relationships
 |
| 1. Forms of communication may include but not limited to:
 | * Written
* Visual
* Verbal
* Non verbal
* Formal and informal
 |
| 1. Team may include but not limited to:
 | * Small work group
* Staff in a section/department
* Inter-agency group
 |
| 1. Personal growth may include but not limited to:
 | * Growth in the job
* Career mobility
* Gains and exposure the job gives
* Net workings
* Benefits that accrue to the individual as a result of noteworthy performance
 |
| 1. Personal objectives may include but not limited to:
 | * Long term
* Short term
* Broad
* Specific
 |
| 1. Trainings and career opportunities may include but not limited to
 | * Participation in training programs
* Serving as Resource Persons in conferences and workshops
 |
| 1. Resource may include may but not limited to:
 | * Human
* Financial
* Technology
 |
| 1. Innovation may include but not limited to:
 | * New ideas
* Original ideas
* Different ideas
* Methods/procedures
* Processes
* New tools
 |
| 1. Emerging issues may include but not limited to:
 | * Terrorism
* Social media
* National cohesion
* Open offices
 |
| 1. Range of media for learning may include but not limited to:
 | * Mentoring
* peer support and networking
* IT and courses
 |

**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:

* Interpersonal
* Communication
* Critical thinking
* Organisational
* Negotiation
* Monitoring
* Evaluation
* Record keeping
* Problem solving
* Decision Making
* Resource utilization
* Resource mobilization

**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
* Workplace communication
* Concept of time
* Time management
* Decision making
* Types of resources
* Work planning
* Organizing work
* Monitoring and evaluation
* Record keeping
* Gender mainstreaming
* HIV and AIDS
* Drug and substance abuse
* Professional growth and development
* Technology in the workplace
* Innovation
* Emerging 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. Conducted self-management
	2. Demonstrated interpersonal communication
	3. Demonstrated critical safe work habits
	4. Demonstrated the ability to lead a workplace team
	5. Planned and organized work
	6. Maintained professional growth and development
	7. Demonstrated workplace learning
	8. Demonstrated problem solving skills
	9. Demonstrated the ability to manage performance ethically
 |
| 1. Resource Implications
 | The following resources should be provided:1. Access to relevant workplace where assessment can take place
2. Appropriately simulated environment where assessment can take place
 |
| 1. Methods of Assessment
 | Competency in this unit may be assessed through: 1. Oral questioning
2. Portfolio of evidence
3. Third Party Reports
4. Written tests
 |
| 1. Context of Assessment
 | Competency may be assessed 1. On-the-job
2. Off-the –job
3. During Industrial attachment
 |
| 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:** CON/OS/CM/BC/06/6/A

**UNIT DESCRIPTION**

This unit specifies the competencies required to demonstrate environmental literacy. It involves, controlling environmental hazard and environmental pollution, demonstrating sustainable resource use, evaluating current practices in relation to resource usage, identifying environmental legislations/conventions for environmental concerns, implementing specific environmental programs, monitoring activities on environmental protection/Programs , analyzing resource use and developing resource conservation plans

**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
 | 1.1 Storage methods for environmentally hazardous materials are strictly followed according to environmental regulations and OSHS. 1.2 Disposal methods of hazardous wastes are followed according to environmental regulations and OSHS.1.3 ***PPE*** is used according to OSHS.  |
| 1. Control environmental Pollution
 | * 1. Environmental pollution ***control measures*** are implemented in accordance with international protocols.
	2. Procedures for solid waste management are observed according Environmental Management and Coordination Act 1999
	3. Methods for minimizing noise pollution is complied with based on Noise and Excessive Vibration Pollution and Control Regulations, 2009
 |
| 1. Demonstrate sustainable resource use
 | * 1. Methods for minimizing wastage are complied with based on organizational waste management guide
	2. Waste management procedures are employed following principles of 3Rs (Reduce, Reuse, Recycle)
	3. Methods for economizing and reducing resource consumption are practiced as per the Constitution of Kenya 2010 Article 69 .
 |
| 1. Evaluate current practices in relation to resource usage
 | * 1. Information on resource efficiency systems and procedures are collected and provided as per work groups/sector
	2. Current resource usage is measured and recorded as per work group
	3. Current purchasing strategies are analyzed and recorded according to industry procedures.
	4. Current work processes to access information and data is analyzed following enterprise protocol.
 |
| 1. Identify environmental legislations/conventions for environmental concerns
 | 5.1 Environmental legislations/conventions and local ordinances are identified according to the different environmental aspects/impact5.2 Industrial standard/environmental practices are described according to the different environmental concerns |
| 1. Implement specific environmental programs
 | 6.1 Programs/Activities are identified according to organizations policies and guidelines.6.2 Individual roles/responsibilities are determined and performed based on the activities identified.6.3 Problems/constraints encountered are resolved in accordance with organizations’ policies and guidelines6.4 Stakeholders are consulted based on company guidelines |
| 1. Monitor activities on Environmental protection/Programs
 | 7.1 Activities are periodically monitored and Evaluated according to the objectives of the environmental program7.2 Feedback from stakeholders are gathered and considered in Proposing enhancements to the program based on consultations7.3 Data gathered are analyzed based on Evaluation requirements7.4 Recommendations are submitted based on the findings7.5 Management support systems are set/established to sustain and enhance the program7.6 Environmental incidents are monitored and reported to concerned/proper authorities |
| 1. Analyze resource use
 | 8.1. All resource consuming processes are Identified as per the organizational work plan8.2. Quantity and nature of resource consumed is determined based on processes 8.3. Resource flow is analyzed as per different parts of the process.8.4. Wastes are classified according to NEMA regulations on waster management . |
| 1. Develop resource Conservation plans
 | 9.1. Efficiency of use/conversion of resources is determined according to industry protocol.9.2. Causes of low efficiency of use of resources are Determined based on industry protocol.9.3. Plans for increasing the efficiency of resource use are developed based on findings. |

**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** |
| 1. PPE may include but not limited to
 | * + Mask
	+ Gloves
	+ Goggles
	+ Safety hat
	+ Overall
* Hearing protector
 |
| 1. Control measures may include but 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
 |

**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:

* Measuring
* Recording
* Analytical
* Monitoring
* Communication
* Writing

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* PPEs
* Environmental regulations
* OSHS
* Pollution
* Waste management
* Principle of 3Rs
* Types of resources
* Techniques in measuring current usage of resources
* Environmental hazards
* Regulatory requirements

**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. Controlled environmental hazard
	2. Controlled environmental pollution
	3. Demonstrated sustainable resource use
	4. Evaluated current practices in relation to resource usage
	5. Demonstrated knowledge of environmental legislations and local ordinances according to the different environmental issues /concerns.
	6. Described industrial standard environmental practices according to the different environmental issues/concerns.
	7. Resolved problems/ constraints encountered based on management standard procedures
	8. Implemented and monitored environmental practices on a periodic basis as per company guidelines
	9. Recommended solutions for the improvement of the program
	10. Monitored and reported to proper authorities any environmental incidents
 |
| 1. Resource Implications
 | The following resources should be provided:* 1. Workplace with storage facilities
	2. Tools, materials and equipment relevant to the tasks (e.g. Cleaning tools, cleaning materials, trash bags)
	3. PPE, manuals and references
	4. Legislation, policies, procedures, protocols and local ordinances relating to environmental protection
	5. Case studies/scenarios relating to environmental Protection
 |
| 1. Methods of Assessment
 | Competency in this unit may be assessed through:* 1. Oral questioning
	2. Written examination
	3. Interview/Third Party Reports
	4. Portfolio of Evidence
 |
| 1. Context of Assessment
 | Competency may be assessed 1. On-the-job
2. Off-the –job
3. During Industrial attachment
 |
| 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:** CON/OS/CM/BC/07/6/A

**UNIT DESCRIPTION**

This unit specifies the competencies required to demonstrate occupational health and safety practices. It involves identifying workplace hazards and risks, identifying and implementing appropriate control measures to hazards and risks and implementing OSH programs, procedures and policies/guidelines.

**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 workplace hazards and risk
 | 1.1 ***Hazards*** in the workplace are identified ***based their indicators*** 1.2 Risks and hazards are evaluated based on legal requirements.1.3 ***OSH concerns*** raised by workers are addressed as per legal requirements.  |
| 1. Control OSH hazards
 | 2.1 Hazard prevention ***and control measures*** are implemented as per legal requirement.2.2 Risk assessment is conductedand a risk matrix developed based on likely impact.2.3 ***Contingency measures***, including ***emergency procedures*** during workplace ***incidents and emergencies*** are recognized and established in accordance with organization procedures. |
| 1. Implement OSH programs
 | 3.1 Company OSH program are identified, evaluated and reviewed based on legal requirements.3.2 Company OSH programs are implemented as per legal requirements.3.3 Workers are capacity built on OSH standards and procedures as per legal requirements3.4 ***OSH-related records*** are maintained as per legal requirements. |

**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** |
| 1. Hazards may include but not limited to:
 | * Physical hazards – impact, illumination, pressure, noise,
* vibration, extreme temperature, radiation
* Biological hazards- bacteria, viruses, plants, parasites, mites, molds, fungi, insects
* Chemical hazards – dusts, fibers, mists, fumes, smoke, gasses, vapors
* Ergonomics
* Psychological factors – over exertion/ excessive force,

awkward/static positions, fatigue, direct pressure,* varying metabolic cycles
* Physiological factors – monotony, personal relationship, work out cycle
* Safety hazards (unsafe workplace condition) –confined space, excavations, falling objects, gas leaks, electrical, poor storage of materials and waste, spillage, waste and debris
* Unsafe workers’ act (Smoking in off-limited areas, Substance and alcohol abuse at work)
 |
| 1. Indicators may include but not limited to:
 | * Increased of incidents of accidents, injuries
* Increased occurrence of sickness or health complaints/ symptoms
* Common complaints of workers related to OSH
* High absenteeism for work-related reasons
 |
| 1. OSH concerns may include but not limited to:
 | * Workers’ experience/observance on presence of work hazards
* Unsafe/unhealthy administrative arrangements (prolonged work hours, no break time, constant overtime, scheduling of tasks)
* Reasons for compliance/non-compliance to use of PPEs or other OSH procedures/policies/guidelines
 |
| 1. Safety gears /PPE (Personal Protective Equipment) may include but 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
 |
| 1. Appropriate risk controls

may include but not limited to: | * Appropriate risk controls in order of impact are as follows:
* Eliminate the hazard altogether (i.e., get rid of the dangerous machine)
* Isolate the hazard from anyone who could be harmed (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., train workers how to use equipment safely; train workers about the risks of harassment; issue signage)
* Use engineering controls to reduce the risk (i.e., attach guards to the machine to protect users)
* Use personal protective equipment (i.e., wear
* gloves and goggles when using the machine)
 |
| 1. Contingency measures may include but not limited to:
 | * Evacuation
* Isolation
* Decontamination
* (Calling designed) emergency personnel
 |
| 1. Incidents and emergencies may include but not limited to:
 | * Chemical spills
* Equipment/vehicle accidents
* Explosion
* Fire
* Gas leak
* Injury to personnel
* Structural collapse
* Toxic and/or flammable vapors emission.
 |
| 1. OSH-related Records may include but not limited to:
 | * Medical/Health records
* Incident/accident reports
* Sickness notifications/sick leave application
* OSH-related trainings obtained
 |

**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
* Interpersonal
* Presentation
* Risk assessment
* Evaluation
* Critical thinking
* Problem solving
* Negotiation

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* General OSH Principles
* Occupational hazards/risks recognition
* OSH organizations providing services on OSH evaluation and/or work environment measurements (WEM)
* National OSH regulations; company OSH policies and protocols
* Systematic gathering of OSH issues and concerns
* General OSH principles
* National OSH regulations
* Company OSH and recording protocols, procedures and policies/guidelines
* Training and/or counseling methodologies and strategies

**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 hazards in the workplace based their indicators
2. Evaluated workplace hazards based on legal requirements.
3. Addressed OSH concerns raised by workers as per legal requirements.
4. Implemented hazard prevention and control measures as per legal requirement.
5. Conducted risk assessment as per legal requirement.
6. Developed risk matrix based on likely impact.
7. Recognized and established contingency measures in accordance with organization procedures.
8. Identified, evaluated and reviewed company OSH program based on legal requirements.
9. Implemented company OSH programs as per legal requirements.
10. Capacity built workers on OSH standards and procedures as per legal requirements
11. Maintained OSH-related records as per legal requirements.
 |
| 1. Resource Implications
 | The following resources should be provided:1. Access to relevant workplace where assessment can take place
2. Appropriately simulated environment where assessment can take place
 |
| 1. Methods of Assessment
 | Competency in this unit may be assessed through: 1. Oral questioning
2. Portfolio of evidence
3. Third Party Reports
4. Written tests
 |
| 1. Context of Assessment
 | Competency may be assessed1. On-the-job
2. Off-the –job
3. During Industrial attachment
 |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# COMMON COMPETENCIES

## PREPARE AND INTERPRET TECHNICAL DRAWINGS

**UNIT CODE:** CON/OS/CM/CC/01/6/A

**UNIT DESCRIPTION**

This unit covers the competencies required to prepare and interpret technical drawings. It involves competencies to select, use and maintain drawing equipment and materials. It also involves producing plain geometry drawings, solid geometry drawings, pictorial and orthographic drawings and application of Computer Aided Design (CAD) packages.

**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. Use and maintain drawing equipment and materials
 | 1.1 ***Drawing equipment*** are identified and gathered according to task requirements1.2 ***Drawing materials*** are identified and gathered according to task requirements 1.3 Drawing equipment are used and maintained as per manufacturer’s instructions1.4 Drawing materials are used as per workplace procedures1.5 Waste materials are disposed in accordance with workplace procedures and ***environmental legislations***1.6 ***Personal Protective Equipment*** is used according to occupational safety and health regulations |
| 1. Produce plane geometry drawings
 | 2.1 Different types of lines used in drawing and their meanings are identified according to standard drawing conventions2.2 Different types of ***geometric forms*** are constructed according to standard conventions2.3 Different types of angles are constructed according to principles of trigonometry2.4 Different types of angles are measured using appropriate measuring tools2.6 Angles are bisected according to standard conventions2.7 Freehand sketching of different types of geometric forms, tools, equipment, diagrams is conducted |
| 1. Produce solid geometry drawings
 | 3.1 Drawings of patterns are interpreted according to standard conventions3.2 Patterns are developed in accordance with standard conventions  |
| 1. Produce orthographic and pictorial drawings
 | 4.1 Symbols and abbreviations are identified and their meaning interpreted according to standard drawing conventions4.2 First and third angle orthographic drawings are interpreted and produced in accordance with the standard conventions4.3 Orthographic elevations are dimensioned in accordance with standard conventions4.4 Isometric drawings are interpreted and produced in accordance with standard conventions  |
| 1. Apply CAD packages
 | * 1. CAD packages are selected according to task requirements
	2. CAD packages are applied in production of engineering drawings
 |

**RANGE**

| **Variable** | **Range** |
| --- | --- |
| 1. Drawing equipment may include but is not limited to:
 | * Drawing boards
* T and set squares
* Drawing sets
* Computers with CAD packages
 |
| 1. Drawing materials may include but is not limited to:
 | * Drawing papers
* Pencils
* Pens
* Erasers
* Masking tapes
* Paper clips
 |
| 1. Environmental legislations may include but is not limited to:
 | * EMCA 1999
 |
| 1. Personal Protective Equipment may include but is not limited to:
 | * Dust coats
* Closed leather shoes
 |
| 1. Geometric forms may include but is not limited to:
 | * Circles
* Triangles
* Rectangles
* Parallelogram
* Polygons
* Pyramids
* Conic sections
* Prisms
* Loci
 |
| 1. Standard conventions may include but is not limited to:
 | * Anatomy of engineering drawing (title block, coordinate grid system, revision block, notes and legends)
* Drawing scale (paper size and drawing symbols)
* International drawing standards
 |

**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:

* Critical thinking
* Drawing
* Interpretation
* Drawing equipment handling
* Analysis and synthesis
* Communication
* Inter personal

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Drawing equipment and materials
* Freehand sketching
* Lettering
* Geometrical constructions
* Signs and symbols used in technical drawing
* Types of drawings
* Types of lines
* Isometric drawing conventions, features, characteristics, components
* Orthographic drawing conventions, features, characteristics, components
* Sketches and drawings of simple patterns

**EVIDENCE GUIDE**

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

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency
 | Assessment requires evidence that the candidate:* 1. Applied and adhered to safety procedures
	2. Cared and maintained drawing equipment
	3. Interpreted circuit, assembly and lay out diagrams
	4. Applied appropriate technical standards, used proper tools and equipment for a given task
	5. Produced sketches and drawings
	6. Applied CAD packages in production of drawings
 |
| 1. Resource Implications
 | Resources the same as that of workplace are advised to be applied.* 1. Drawing room
	2. Drawing equipment and materials
	3. Computers
	4. CAD packages
	5. Store
 |
| 1. Methods of Assessment
 | Competency may be assessed through:* 1. Practical tests
	2. Observation
 |
| 1. Context of Assessment
 | Competency may be assessed individually in the actual workplace or a simulated work place setting or during industrial attachment |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

## CONDUCT ENGINEERING SURVEY

**UNIT CODE:** CON/OS/CM/CC/02/6/A

**UNIT DESCRIPTION**

This unit describes the competence in conducting engineering survey. It involves conducting area levelling, setting out a building, performing earthworks and carrying out road surveys.

**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 area levelling
 | * 1. Site clearance is carried out based on the ***conditions of the site***
	2. Reduced levels are determined based on the ***nature of the ground***
	3. Contours are plotted as per SOPs
	4. Longitudinal profiles are produced based on the reduced levels
	5. Mass haul diagram is produced based on the contours plotted
	6. Ground levelling is carried out based on the mass haul diagram
 |
| 1. Set out a building
 | * 1. ***Nature of the building*** is determined based on the working drawings
	2. Site layout plan is obtained and interpreted as per SOPs
	3. Building plan is obtained and interpreted as per SOPs
	4. Building line is established according to the local authority
	5. Building base line is established based on the site plan
	6. First corner/centre of the building is located based on the site plan
	7. Building is set out based on the ***setting out methods***
	8. Profile boards are erected as per SOPs
	9. Trench and wall dimensions are transferred to the ground as per SOPs
 |
| 1. Perform earthworks
 | 1. Survey drawings are interpreted as per SOPs
2. Site clearance works are carried out based on site conditions and project scope
3. Cross sections are set out based on the working drawings
4. Top soil is removed as per SOPs
5. Excavation to formation level/reduced level is carried out based on the working drawings
6. Embankments are formed as per working drawings
7. Formation level is compacted as per SOPs
8. Excess earthworks materials are disposed as per SOPs
 |
| 1. Carry out road survey
 | * 1. Tacheometry survey is carried out as per SOPs
	2. Survey maps and photographs are scaled as per SOPs
	3. Circular curves are set out as per SOPs
	4. Traverse details are plotted as per SOPs
 |

**Range**

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Conditions of the site may include but is not limited to:
 | * + Bushy
	+ Plain
	+ Forest
	+ Shrubs
	+ Structures
	+ Marshy
 |
| 1. Nature of the ground may include but is not limited to:
 | * + Slope
	+ Flat
 |
| 1. Nature of the building may include but is not limited to:
 | * + Single storey
	+ Multi storey
	+ Basement
	+ Irregular shaped
	+ Regular shaped
	+ Circular
 |
| 1. Setting out methods may include but is not limited to:
 | * + 3-4-5 method/Pythagoras theorem
	+ Builder’s square method
	+ Site square method
	+ Traditional method
 |

**REQUIRED SKILLS AND KNOWLEDGE**

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

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Mathematics
* Measurements
* Surveying instruments
* Surveying methods
* Tabulation of data
* Site clearance methods
* Use of surveying instruments
* Plan interpretation
* Technical drawing
* Use of setting out equipment
* Surveying
* Construction
* Setting out methods
* Local authority by-laws
* Surveying
* Soil mechanics
* Waste disposal
* Land use
* Mapping
* Photogrammetry
* Data interpretation

**Required skills**

The individual needs to demonstrate the following skills:

* Surveying
* Masonry
* Technical drawing
* Analytical

**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. Determined reduced levels
	2. Plotted contour maps
	3. Produced mass haul diagram
	4. Determined setting out method
	5. Set out a building
	6. Interpreted survey drawings
	7. Set out cross sections
	8. Carried out road survey
 |
| 1. Resource Implications
 | The following resources should be provided:* 1. Survey instruments
	2. Storage facilities
	3. Surveying technician
 |
| 1. Methods of Assessment
 | Competency may be assessed through:1. Written text
2. Interview
3. 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. |

## EXECUTE CONSTRUCTION WORKS

**UNIT CODE:** CON/OS/CM/CC/03/6/A

**UNIT DESCRIPTION**

This unit describes the competence in executing construction works. It involves investigating construction site, performing substructure works, performing superstructure works, installing building windows and doors, applying building finishes and carrying out building maintenance.

**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. Investigate construction site
 | * 1. Site boundary is determined based on land survey maps
	2. ***Auxiliary services*** are identified as per site location
	3. Trial pits are excavated based on ground conditions
	4. ***Existing services*** are determined based on service provider’s information
	5. ***Existing structures*** are identified based on the site location
	6. Labour and construction materials sources are identified based on the project scope and site location
 |
| 1. Perform substructure works
 | * 1. Site clearance is carried out based on the nature of the site
	2. Excavation method is determined based on the nature of the works
	3. Vegetable/top soil is excavated based on working drawings and nature of the site
	4. Excavation to formation level/reduced level is carried out based on the working drawings
	5. Foundation is marked based on ***profile board measurements*** and working drawings
	6. Foundation is excavated based on the working drawings
	7. Foundation is levelled as per SOPs
	8. ***Substructure concrete works*** is carried out as per SOPs
	9. Foundation walling is constructed based on the working drawings
	10. Hard core is placed and compacted as per SOPs
	11. Blinding layer is applied based on design specifications
	12. Anti-termite treatment is carried out as per SOPs
	13. Damp proofing is carried out as per design specifications
	14. Vibrated Reinforced Concrete (VRC) is cast as per SOPs
 |
| 1. Perform superstructure works
 | * 1. ***Setting out of superstructure works*** is carried out as per SOPs
	2. ***Superstructure concrete works*** is carried out as per SOPs
	3. Superstructure walling is constructed based on the working drawings
	4. ***Roof construction*** is carried out as per working drawings
	5. ***Roof cover*** is applied as per design specifications
	6. ***Eaves and verges*** are constructed as per design specifications
	7. ***Rain water goods*** are installed as per SOPs
 |
| 1. Install building doors and windows
 | * 1. Door and window schedule is prepared based on design specifications
	2. Door and window frames are set in position as per design details
	3. Doors and windows are fitted and fixed based on the design details
 |
| 1. Apply building finishes
 | * 1. Schedule of finishes is prepared as per design specifications
	2. ***Method of application*** is determined based on the ***type of finish*** and place of application
	3. Application surface is prepared based on the type of finish
	4. Building finishes are applied as per SOPs
 |
| 1. Carry out building maintenance
 | * 1. ***Building inspection*** is carried out based on the type of facility and Occupational Safety and Health Act
	2. Inspection report is prepared based on inspection carried out
	3. ***Maintenance program*** is prepared based on inspection report
	4. Building maintenance is carried out as per maintenance program
 |

**Range**

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Auxiliary services may include but is not limited to:
 | * + Banks
	+ Hospitals
	+ Access roads
	+ Electricity
	+ Sewer lines
	+ Water pipes
 |
| 1. Existing services may include but is not limited to:
 | * + Telecommunication
	+ Electrical
	+ Sewer lines
	+ Water supply lines
	+ Mechanical services
 |
| 1. Existing structures may include but is not limited to:
 | * + Buildings
	+ Tunnels
	+ Railway tracks
	+ Bridges
 |
| 1. Profile board measurements may include but is not limited to:
 | * + Trench width
	+ Wall thickness
	+ Column sizes
	+ Column base sizes
 |
| 1. Substructure concrete works may include but is not limited to:
 | * + Blinding
	+ concrete to
	+ bases
	+ strip footing
	+ wall
	+ columns
	+ slabs
	+ ground beams
	+ formwork to
	+ bases
	+ strip footing
	+ wall
	+ columns
	+ slabs
	+ ground beams
	+ reinforcement to
	+ bases
	+ strip footing
	+ wall
	+ columns
	+ slabs
	+ ground beams
 |
| 1. Setting out of superstructure works may include but is not limited to:
 | * + Superstructure walls
	+ Columns
	+ Suspended slabs
	+ Stairs
	+ Chimneys
	+ Roofs
 |
| 1. Superstructure concrete works may include but is not limited to:
 | * + Concrete to
	+ Walling
	+ Columns
	+ Suspended slabs
	+ Beams
	+ Formwork to
	+ Walling
	+ Columns
	+ Suspended slabs
	+ Beams
	+ reinforcement to
	+ Walling
	+ Columns
	+ Suspended slabs
	+ Beams
 |
| 1. Roof construction may include but is not limited to:
 | * + Tie beams
	+ Wall plates
	+ Rafters
	+ Ties and struts
	+ Purlins
	+ Ridge piece/boards
	+ Hangers
	+ King post
 |
| 1. Roof cover may include but is not limited to:
 | * + Tiles
	+ Sheets
	+ Roof underlays
 |
| 1. Eaves and verges may include but is not limited to:
 | * + Fascia board
	+ Barge board
	+ Runners
	+ Bearers
	+ Hanger
	+ Boarding
 |
| 1. Rain water goods may include but is not limited to:
 | * + Gutters
	+ Down pipes
	+ Shoe
	+ Swan neck
	+
 |
| 1. Method of application may include but is not limited to:
 | * + Spraying
	+ Fixing
	+ Dipping
 |
| 1. Type of finish may include but is not limited to:
 | * + Tiles
	+ Terrazzo
	+ Granolithic finish
	+ Cladding
	+ Painting
	+ Timber parquet
	+ Carpet
	+ Plaster
	+ Marble chips
 |
| 1. Building inspection may include but is not limited to:
 | * + Functionality
	+ Condition of the facility
	+ Physical examination
	+ Mechanical examination
 |
| 1. Maintenance program may include but is not limited to:
 | * + Routine
	+ Ad hoc (emergency)
	+ Planned
 |

**REQUIRED SKILLS AND KNOWLEDGE**

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

**Required knowledge**

The individual needs to demonstrate knowledge of:

* + Soil analysis
	+ Map interpretation
	+ Local Culture
	+ Construction by-laws
	+ Construction
	+ Occupational Safety and Health
	+ Construction plant
	+ Work programs
	+ Materials science
	+ Specifications
	+ Construction drawings
	+ Code of practice
	+ Formwork
	+ Bar bending
	+ Masonry
	+ Construction tools and equipment
	+ Method of application
	+ Construction technology
	+ Tools and equipment
	+ Carpentry and joinery
	+ Building diagnosis
	+ Report writing
	+ Computer literacy
	+ MS Project

**Required skills**

The individual needs to demonstrate the following skills:

* + Report writing
	+ Digital
	+ Planning
	+ Painting
	+ Plastering
	+ Tile fixing
	+ Screeding
	+ Masonry
	+ Carpentry and joinery
	+ Management
	+ Bar bending
	+ Brick laying
	+ Management
	+ Analytical
	+ Map interpretation

**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 site investigation
	2. Carried out site clearance
	3. Performed excavation
	4. Carried out substructure concrete works
	5. Constructed substructure walls
	6. Carried out anti termite treatment
	7. Carried out setting out of superstructure works
	8. Carried out superstructure concrete works
	9. Executed roofing works
	10. Constructed superstructure walling
	11. Installed rain water goods
	12. Installed building doors and windows
	13. Applied building finishes
	14. Carried out building maintenance
 |
| 1. Resource Implications
 | The following resources should be provided:* Workshop
* Storage facilities
* Construction materials
* Stationery
* Construction tools and equipment
* Workshop technician
 |
| 1. Methods of Assessment
 | Competency may be assessed through:1. Written text
2. Interview
3. 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 or during industrial attachment.  |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

## MANAGE CONSTRUCTION MATERIALS, PLANT, TOOLS AND EQUIPMENT

**UNIT CODE:** CON/OS/CM/CC/04/6/A

**UNIT DESCRIPTION**

This unit describes the competence in Managing Construction Materials, Tools and Equipment. It involves preparation of site facility for storage, building material and equipment scheduling, ordering and receiving materials and equipment and preparing periodic construction material and equipment report.

**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 site facility for storage
 | * 1. Building materials, tools, plant and equipment are assembled as per facility specifications.
	2. Facility site is cleared and levelled
	3. Storage facility is erected as per working drawing
 |
| 1. Prepare building material schedule
 | * 1. ***Types of materials***to be used be used are identified and listed.
	2. Building materials are quantified and recorded on a standard schedule
	3. Quoted rates are included in the material schedule
 |
| 1. Prepare building equipment schedule
 | * 1. ***Types of equipment***to be used are identified and listed.
	2. Building equipment are numbered and recorded on a standard schedule.
	3. Quoted rates are included in the equipment schedule
 |
| 1. Procure building materials and equipment
 | * 1. List of materials and equipment scheduled are verified.
	2. Best suppliers are identified as per their price lists and catalogues.
	3. Building materials and equipment are ordered.
	4. Supplied building materials and equipment are verified.
	5. Building materials and equipment are received.
	6. Received building materials are recorded and stored.
 |
| 1. Issue building materials and equipment
 | * 1. Site material and equipment requirement list is obtained
	2. Required materials and equipment are issued.
	3. Issued materials and equipment are recorded
 |

**Range**

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Types of materials may include but is not limited to:
 | * + Roofing
	+ Walling
	+ Flooring
	+ Finishing
	+ Reinforcing
 |
| 1. Types of equipment may include but is not limited to:
 | * Excavation
* Lifting
* Transporting
 |

**REQUIRED SKILLS AND KNOWLEDGE**

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

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Record Keeping
* Construction Material
* Building Tools And Equipment
* Site Management
* Safety rules and precautions
* Bills of quantities
* Concrete mixing
* Batching
* Compacting concrete

**Required skills**

The individual needs to demonstrate the following skills:

* Record Keeping
* Management
* Use of tools and equipments
* Safety
* Procurement
* Concrete mixing
* Batching
* Compacting concrete

**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 building site facility
	2. Prepared building material and equipment schedule
	3. Ordered building materials and equipment.
	4. Received building materials and equipment.
	5. Record and store received materials and equipment
	6. Issued building materials and equipment.
 |
| 1. Resource Implications
 | The following resources should be provided:* 1. Stationery
	2. Computers
	3. Calculators
	4. Printers
	5. Telephone
	6. Price list and catalogue
 |
| 1. Methods of Assessment
 | Competency may be assessed through:1. Written text
2. Interview
3. 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. |

# CORE COMPETENCIES

## MANAGE PROJECT TIME

**UNIT CODE:** CON/OS/CM/CR/01/6/A

**UNIT DESCRIPTION**

This unit describes the competence in managing project time. It involves preparing work plans, schedules and time programmes, monitoring and evaluating project timelines, controlling project time schedules and preparing and disseminating project timeline reports

**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 work schedules and time programmes
 | * 1. ***Project statutory approvals*** are acquired as per legal requirements.
	2. Project scope is defined based on project drawings
	3. ***Work activities*** are identified based on ***project drawings.***
	4. Previous similar jobs are reviewed based on best practice.
	5. Work schedules and plans are prepared based on project activities.
	6. Project ***time programme*** is drawn based on schedules and plans.
 |
| 1. Monitor and evaluate project timelines
 | 1. ***Project monitoring and evaluating tools*** are prepared based on baseline plans.
2. Project appraisal reports are prepared based on project status.
3. Project time risks are identified and mitigation measures developed based on projects status report.
 |
| 1. Control project time schedules
 | 1. Project control tools are prepared based on project baseline plans
2. Alternative corrective measures are identified and evaluated based project status report.
3. Remedial measures are implemented and monitored as per project control plan.
 |
| 1. Prepare and disseminate project timeline reports
 | * 1. Project progress reports are prepared based on project baseline plans.
	2. Project progress reports are disseminated to the project team.
	3. Report recommendations are implemented as per baseline plan.
 |

**Range**

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Project statutory approvals may include but is not limited to:
 | * 1. NEMA
	2. WARMA
	3. NCA
	4. County Government by-laws
 |
| 1. Work activities may include but is not limited to:
 | * 1. Substructure
	2. Superstructure
 |
| 1. Project drawings may include but is not limited to:
 | * 1. Architectural
	2. Structural
	3. Civil
	4. Services (mechanical, electrical etc)
 |
| 1. Time programme may include but is not limited to:
 | * 1. Gant chart
	2. Critical path method
	3. PERT
 |
| 1. Project monitoring and evaluating tools may include but is not limited to:
 | * 1. Gant chart
	2. Critical path method
	3. PERT
 |

**REQUIRED SKILLS AND KNOWLEDGE**

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

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Survey
* Technical drawing
* Time Estimation
* Construction technology and building
* Construction material and testing
* Construction tools and equipment
* Architectural communication
* Tender preparation
* Legal aspects related to construction
* Industrial relations
* Planning and control
* Human resource management
* Project financial management
* Law of contracts and tort
* Building drawing interpretation

**Required skills**

The individual needs to demonstrate the following skills:

* Communication
* Drawing
* ICT skills
* Problem solving
* Critical thinking
* Team work
* Managerial
* Conflict resolution
* Negotiation
* Analytical
* Observation
* Inspection
* Leadership
* Mentorship

**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. Demonstrated understanding of project legal requirements
	2. Prepared and analysed work plans
	3. Identified project work activities
	4. Prepared work schedules and time programmes
	5. Identified project time risks and mitigation measures
	6. Monitored and evaluated project timelines
	7. Identified corrective measures
	8. Implemented corrective measures
	9. Prepared project progress report
 |
| 1. Resource Implications
 | The following resources should be provided:* 1. Computer with software
	2. Stationery
	3. Office furniture
	4. files
	5. calculators
	6. internet connectivity
	7. reprographic equipment
 |
| 1. Methods of Assessment
 | Competency may be assessed through:1. Written text
2. Interview
3. 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 or during industrial attachment.  |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

## MANAGE CONSTRUCTION PROJECT QUALITY

**UNIT CODE:** CON/OS/CM/CR/02/6/A

**UNIT DESCRIPTION**

This unit describes the competence in managing construction project quality. It involves developing project quality plans and project methodology, acquiring project resources, undertaking project quality control and preparing project quality reports

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENT**  | **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 construction project quality plans
 | * 1. Construction project quality management plans are developed based on ***project documents.***
	2. Quality management plans are disseminated to the project team as per communication structure
	3. ***Construction project team*** is sensitized and initiated on project quality management plans as per SOPs.
 |
| 1. Develop construction project methodology
 | 1. ***Project activities*** are identified based on project documents and environment.
2. Quality checklists are developed based on identified project activities.
3. Construction project methodology statement is formalised based on identified activities and quality checklist.
 |
| 1. Acquire Construction project resources
 | 1. ***Construction project resource schedule*** is prepared based project quality management plan and methodology.
2. Credible sources of resources are identified based on best practice.
3. Construction project procurement plan is prepared based on resource schedule.
 |
| 1. Undertake Construction project quality control
 | 1. Construction Projects materials are tested as per quality management plan.
2. Construction Projects materials are procured based on specifications.
3. Construction Project team is trained and supervised based on project labour requirements.
4. Construction Project plant and equipment are duly sourced and maintained based on selected project specifications and methodology.
5. Work quality inspections are conducted as per quality assurance plan.
6. Work quality remedial measures are identified, evaluated and implemented as per project quality management plan.
 |
| 1. Prepare Construction project quality reports
 | 1. Construction Project quality information and data is collected and evaluated based on site inspections.
2. Construction Project quality report is documented based on site inspection data and information.
3. Construction Project quality report is disseminated to project team as per quality management plan.
 |

**Range**

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Project documents may include but is not limited to:
 | * + Drawings
	+ Bill of Quantities
	+ Specifications
 |
| 1. Project team may include but is not limited to:
 | * + Client
	+ Consultants
	+ Site workers
	+ Contractor
 |
| 1. Project activities may include but is not limited to:
 | * + Substructure
	+ Superstructure
 |
| 1. Project resource schedule may include but is not limited to:
 | * + Labour schedule
	+ Plant and equipment schedule
	+ Materials schedule
 |

**REQUIRED SKILLS AND KNOWLEDGE**

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

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Survey
* Technical drawing
* Estimation and costing
* Construction technology and building
* Construction material and testing
* Construction tools and equipment
* Soil
* Architectural communication
* Legal aspects related to construction
* Industrial relations
* Planning and control
* Human resource management
* Project financial management
* Theory of structures
* Law of contracts and tort
* Land and property law
* Environment management
* Building drawing interpretation

**Required skills**

The individual needs to demonstrate the following skills:

* Communication
* Drawing
* ICT skills
* Problem solving
* Critical thinking
* Team work
* Managerial
* Conflict resolution
* Negotiation
* Analytical
* Observation
* Inspection
* Leadership
* Mentorship

**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. Analysed project contract documents
	2. Assessed constructability of the project design
	3. Identified project quality standards
	4. Developed project quality management plans
	5. Demonstrated ability to communicate quality standards
	6. Developed project methodology
	7. Prepared project resource schedule
	8. Identified credible sources of resources
	9. Prepared project procurement plan
	10. Demonstrated ability to undertake project quality control
	11. Prepared project quality reports
 |
| 1. Resource Implications
 | The following resources should be provided:* 1. Computer with software
	2. Stationery
	3. Office furniture
	4. Files
	5. Calculators
	6. Internet connectivity
	7. Reprographic equipment
 |
| 1. Methods of Assessment
 | Competency may be assessed through:1. Written text
2. Interview
3. 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. |

## MANAGE PROJECT SITE SAFETY, HEALTH AND SECURITY

**UNIT CODE:** CON/OS/CM/CR/03/6/A

**UNIT DESCRIPTION**

This unit describes the competence in managing project site safety, health and security. It involves developing project health and safety guidelines, conducting site health and safety inspections and coordinating project site security

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENT**  | **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 project health, safety and security guidelines
 | * 1. Review existing ***occupational safety and health laws and regulations.***
	2. Formulate project site occupational safety, health and security guidelines.
	3. Disseminate and sensitize construction project team on site safety, health and security guidelines.
 |
| 1. Conduct site health, safety and security inspections
 | 1. Site safety and health inspection parameters are formulated based project safety and health guidelines.
2. Regular safety parades are conducted as per health and safety guidelines
3. Site safety and health audits are conducted as per legal requirements.
4. Safety and health audit reports are prepared based on inspection findings.
5. Safety health and security guidelines are enforced as per SOPs
 |
| 1. Coordinate and monitor project site security
 | * 1. ***Security hot spots*** are mapped based on site plan and area history.
	2. Site security plans and guidelines are formulated in line SOPs
	3. Sources of security personnel are identified based on firm expertise and history.
	4. Mitigation measures are identified and issued as per SOPs
 |

**Range**

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Occupational safety and health laws and regulations may include but is not limited to:
 | * + OSH Act 2007
	+ Labour law
	+ County council by-laws
	+ NCA Act
	+ NEMA Act
 |
| 1. Security hot spots may include but is not limited to:
 | * + Theft
	+ Vandalism
	+ Pilferage
	+ Illegal access
 |

**REQUIRED SKILLS AND KNOWLEDGE**

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

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Estimation and costing
* Construction technology and building
* Construction material and testing
* Construction tools and equipment
* Legal aspects related to construction
* Industrial relations
* Planning and control
* Human resource management
* Theory of structures
* Law of contracts and tort
* Land and property law
* Environment management
* Building drawing interpretation

**Required skills**

The individual needs to demonstrate the following skills:

* Communication
* ICT skills
* Problem solving
* Critical thinking
* Team work
* Managerial
* Conflict resolution
* Negotiation
* Analytical
* Observation
* Inspection
* Leadership

**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:* Developed project safety and health guidelines
* Conducted site health and safety inspections
* Identified and mapped site security hotspots
* Prepared regular security audit reports
 |
| 1. Resource Implications
 | The following resources should be provided:Functional office equipped with:1. Computer with software
2. Stationery
3. Office furniture
4. files
5. calculators
6. internet connectivity
7. reprographic equipment
 |
| 1. Methods of Assessment
 | Competency may be assessed through:1. Written text
2. Interview
3. 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. |

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## MANAGE CONSTRUCTION PROJECT COST

**UNIT CODE:** CON/OS/CM/CR/04/6/A

**UNIT DESCRIPTION**

This unit describes the competence in managing construction project costs. It involves preparing project budgets, procuring, allocating and monitoring site resource utilization, controlling project cost variation and preparing project financial report

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENT**  | **PERFORMANCE CRITERIA*****(Bold and italicized terms are elaborated in the Range)*** |
| --- | --- |
| 1. Prepare project budget
 | * 1. Project BQs, specifications and drawings are analysed as per SOPs
	2. Rate analysis is conducted as per SOPs
	3. Materials schedules are developed and priced based on project requirements and specification.
	4. Project plant and equipment schedules are developed and priced based on project needs.
	5. Project labour schedules are prepared and priced on project needs.
	6. Project budgets are harmonised, consolidated and prioritized based on program of works and financing.
 |
| 1. Procure, allocate and monitor site resource utilization
 | 1. Project resources are procured based on schedules.
2. Resource allocation and levelling is done based on schedules.
3. Project resource utilization is tracked based on resource schedules.
 |
| 1. Control project cost variation
 | 1. Project cost control plan is developed based on project plan and progress.
2. Cost variation approval procedure is developed based on contract documents
3. Cost variation centres are identified, analysed, priced and approved based on contract documents.
 |
| 1. Prepare project financial report
 | 1. Financial records are analysed based on budget, cumulative payments, materials and plant on site, variation, project status and price fluctuations.
2. Consolidated financial appraisal report is prepared and disseminated based contract documents
 |

**Range**

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Cost variation centres may include but is not limited to:
 | * Client
* Consultants
 |

**REQUIRED SKILLS AND KNOWLEDGE**

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

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Estimation and costing
* Construction technology and building
* Construction material and testing
* Construction tools and equipment
* Legal aspects related to construction
* Industrial relations
* Planning and control
* Human resource management
* Theory of structures
* Law of contracts and tort
* Land and property law
* Environment management
* Building drawing interpretation

**Required skills**

The individual needs to demonstrate the following skills:

* Communication
* ICT skills
* Problem solving
* Critical thinking
* Team work
* Managerial
* Conflict resolution
* Negotiation
* Analytical
* Observation
* Inspection
* Leadership

**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 project budget
	2. Procured, allocated and monitored site resource utilization
	3. Controlled project cost variation
	4. Prepared project financial report
	5. Carried out resource levelling
	6. Priced materials, plant and labour schedules
	7. Prepared rate analysis report
 |
| 1. Resource Implications
 | The following resources should be provided:* 1. Computer with software (MS Project, PRIMAVERA)
	2. Stationery
	3. Office furniture
	4. files
	5. calculators
	6. internet connectivity
	7. reprographic equipment
 |
| 1. Methods of Assessment
 | Competency may be assessed through:1. Written text
2. Interview
3. 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. |

## MANAGE PROJECT LABOUR

**UNIT CODE:** CON/OS/CM/CR/05/6/A

**UNIT DESCRIPTION**

This unit describes the competence in managing project labour. It involves developing project site labour guidelines, establishing project human resource needs based on time and resource schedules, managing project team welfare and preparing project labour report

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENT**  | **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 project labour guidelines
 | * 1. Existing human resource policy documents are reviewed as per SOPs.
	2. Project site labour guidelines are developed as per SOPs.
	3. Construction labour guidelines are disseminated and construction project team is sensitized on project labour guidelines.
	4. Project labour guidelines are implemented as per workplace policy.
 |
| 1. Establish labour levelling plan
 | 1. ***Construction project activities*** are mapped based on project methodology.
2. Project labour requirement plan is prepared based on schedules.
3. Project labour matrix is prepared based on human resource plan.
 |
| 1. Allocate staff
 | 1. Staff are allocated and organised based on the labour matrix
2. Project staff is deployed based on the ***labour matrix.***
3. Project staff performance is monitored based on performance targets.
4. Project staff performance is appraised based on performance targets.
5. Productivity appraisal report is prepared as per SOPs
 |
| 1. Manage labour welfare
 | * 1. Existing staff welfare documents are reviewed based on due diligence.
	2. Labour welfare needs are identified based on experience.
	3. Labour welfare guidelines are formulated and disseminated.
	4. Labour welfare issues are handled based on staff welfare policy.
 |
| 1. Prepare project labour report
 | * 1. Information on project staff is collected and recorded based on labour guidelines.
	2. Project labour report is prepared and disseminated based on labour guidelines and site activities/ events.
 |

**Range**

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Project activities may include but is not limited to:
 | * + Substructure
	+ Superstructure
	+ Finishes
 |
| 1. Labour matrix may include but is not limited to:
 | * + Hierarchy of authority
	+ Communication lines
 |

**REQUIRED SKILLS AND KNOWLEDGE**

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

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Estimation and costing
* Construction technology and building
* Construction tools and equipment
* Architectural communication
* Legal aspects related to construction
* Industrial relations
* Planning and control
* Human resource management
* Project financial management
* Law of contracts and tort
* Land and property law
* Environment management
* Building drawing interpretation

**Required skills**

The individual needs to demonstrate the following skills:

* Communication
* Drawing
* ICT skills
* Problem solving
* Critical thinking
* Team work
* Managerial
* Conflict resolution
* Negotiation
* Analytical
* Observation
* Inspection
* Leadership
* mentorship

**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. Developed project site labour guidelines
	2. Established labour levelling plan
	3. allocated labour
	4. Managed labour welfare
	5. Prepared project labour report
 |
| 1. Resource Implications
 | The following resources should be provided:* 1. Computer with software (MS Project, PRIMAVERA)
	2. Stationery
	3. Office furniture
	4. files
	5. calculators
	6. internet connectivity
	7. reprographic equipment
 |
| 1. Methods of Assessment
 | Competency may be assessed through:1. Written text
2. Interview
3. 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 or during industrial attachment.  |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

## MANAGE PROJECT CONTRACTS

**UNIT CODE:** CON/OS/CM/CR/06/6/A

**UNIT DESCRIPTION**

This unit describes the competence in managing project contracts. It involves managing project documentations, engaging project stakeholders, inspecting project works, managing project information and preparing project implementation report

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENT**  | **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. Manage project documentations
 | 1. ***Contract documents*** are assembled based on nature of the project.
2. ***Site statutory documents*** are sought based on legal requirements.
3. Project documents register and file register are developed and maintained as per workplace policy.
 |
| 1. Engage project stakeholders
 | 1. Project implementation stakeholders are identified and contracts drawn based on project needs.
2. Project ***implementation stakeholders*** are engaged based on contracts.
 |
| 1. Inspect construction project works
 | 1. Project inspection plan is developed based on contractual agreement.
2. Construction project is commissioned based on project work plan.
3. Project works are inspected based on contractual agreement.
4. Delivery of ***project elements/phases*** is controlled based on project time, cost and quality plans
 |
| 1. Manage project information
 | 1. Project information management plan is developed based on best practice.
2. Project information management plan is disseminated, and project team sensitized based on workplace policy.
3. Request for information schedule is prepared based on project work activities.
4. Project incoming information is received, analysed, disseminated and feedback received and recorded based on request for information schedule.
 |
| 1. Prepare project implementation report
 | * 1. Information on project implementation is collected and analysed based on set activities and contractual documents.
	2. ***Project implementation report*** is prepared and disseminated as per workplace policy.
	3. Project implementation report recommendations are analysed, evaluated and implemented based on implementation plan.
 |

**Range**

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Contract documents may include but is not limited to:
 | * + BQ
	+ Specifications
	+ Drawings
	+ Form of tender
 |
| 1. Site statutory documents may include but is not limited to:
 | * + NEMA
	+ WRA
	+ County council approval
	+ NCA
 |
| 1. Implementation stakeholders may include but is not limited to:
 | * + Sub-contractors
	+ Suppliers
	+ Project consultants
 |
| 1. Project elements/phases may include but is not limited to:
 | * + Foundation
	+ Walling
	+ Windows and doors
	+ Roofing
	+ Finishes
	+ Civil works
 |
| 1. Project implementation report may include but is not limited to:
 | * + Daily
	+ Monthly
	+ Project progress report
 |

**REQUIRED SKILLS AND KNOWLEDGE**

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

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Standard forms of contract
* Survey
* Technical drawing
* Estimation and costing
* Construction technology and building
* Construction material and testing
* Construction tools and equipment
* Architectural communication
* Tender preparation
* Legal aspects related to construction
* Industrial relations
* Planning and control
* Human resource management
* Project financial management
* Theory of structures
* Law of contracts and tort
* Land and property law
* Environment management
* Building drawing interpretation

**Required skills**

The individual needs to demonstrate the following skills:

* Communication
* Drawing
* ICT skills
* Problem solving
* Critical thinking
* Team work
* Managerial
* Conflict resolution
* Negotiation
* Analytical
* Observation
* Inspection
* Leadership
* Mentorship

**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. Managed project documentations
	2. Identified project implementation stakeholders
	3. Demonstrate an understanding of standard forms of contract
	4. Demonstrated ability to prepare documentation checklist
	5. Inspected project works
	6. Managed project information
	7. Prepared project implementation report
 |
| 1. Resource Implications
 | The following resources should be provided:* 1. Computer with software (Building Information Modelling)
	2. Secondary storage devices
	3. Stationery
	4. Office furniture
	5. Office equipment
	6. files
	7. calculators
	8. internet connectivity
	9. reprographic equipment
 |
| 1. Methods of Assessment
 | Competency may be assessed through:1. Written text
2. Interview
3. 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 or during industrial attachment.  |
| 1. Guidance information for assessment
 | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |