

REPUBLIC OF KENYA

NATIONAL OCCUPATIONAL STANDARDS

FOR

CONSTRUCTION MANAGER

LEVEL 6



**TVET CDACC
P.O. BOX 15745-00100
NAIROBI**

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FOREWORD

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

Reforms in the education sector are necessary for the achievement of Kenya Vision 2030 and meeting the provisions of the Constitution of Kenya 2010. The education sector had to be aligned to the Constitution of Kenya 2010 and this resulted to the formulation of the Policy Framework for Reforming Education and Training (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 Manager. 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.

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

CHAIRMAN

CONSTRUCTION MANAGEMENT SECTOR SKILLS ADVISORY COMMITTEE

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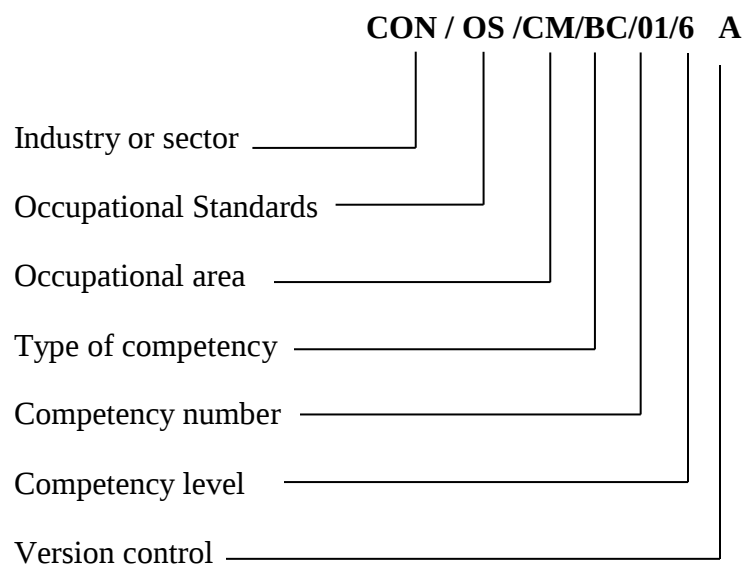
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ACRONYMS

CDACC	Curriculum Development Assessment and Certification Council
PPE	Personal Protective Equipment
BQS	Bill of Quantities
CAD	Computer Aided Design
EHS	Environment, health and safety
EMS	Environmental Management System
ICT	Information Computer Technology
NEMA	National Environment Management Authority
NOS	National Occupational Standards
TVET	Technical and vocational education and training
BRC	British reinforcement concrete

KEY TO UNIT CODE



OVERVIEW

Construction Management Level 6 qualification consists of competencies that a person must achieve to enable him/her to be certified as a Construction Manager. The units of competency comprising Construction Management certificate level 6 qualifications include the following basic and core competencies:

BASIC COMPETENCIES

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

COMMON COMPETENCIES

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

CORE COMPETENCIES

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

BASIC COMPETENCIES

DEMONSTRATE COMMUNICATION SKILLS

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

UNIT DESCRIPTION

This unit covers the competencies required to gather, interpret and convey information in response to workplace requirements.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace function	These are assessable statements which specify the required level of performance for each of the elements. <i>Bold and italicized terms are elaborated in the Range</i>
1. Obtain and convey workplace information	1.1 Specific and relevant information is accessed from <i>appropriate sources</i> 1.2 Effective questioning, active listening and speaking skills are used to gather and convey information 1.3 Appropriate <i>medium</i> is used to transfer information and ideas 1.4 Appropriate non- verbal communication is used 1.5 Appropriate lines of communication with supervisors and colleagues are identified and followed 1.6 Defined workplace procedures for the location and <i>storage</i> of information are used 1.7 Personal interaction is carried out clearly and concisely
2. Speak English at a basic operational level	2.1 Simple conversations on familiar topics with work colleagues is participated 2.2 Simple verbal instructions or requests are responded to according to workplace guidelines 2.3 Simple requests are made in accordance with workplace procedure 2.4 <i>Routine procedures</i> are described in accordance with workplace policy 2.5 Likes, dislikes and preferences are expressed 2.6 Different forms of expression in English are identified
3. Participate in workplace meetings and discussions	3.1 Team meetings are attended on time 3.2 Own opinions are clearly expressed and those of others are listened to without interruption

	3.3 Meeting inputs are consistent with the meeting purpose and established protocols 3.4 Workplace interactions are conducted in a courteous manner 3.5 Questions about simple routine workplace procedures and matters concerning working conditions of employment are asked and responded to 3.6 Meetings outcomes are interpreted and implemented
4. Complete relevant work-related documents	4.1 Range of forms relating to conditions of employment are completed accurately and legibly 4.2 Workplace data is recorded on standard workplace forms and documents 4.3 Basic mathematical processes are used for routine calculations 4.4 Errors in recording information on forms/ documents are identified and properly acted upon 4.5 Reporting requirements to supervisor are completed according to organizational guidelines

RANGE

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

Variable	Range
Appropriate Sources include but not limited to:	Various department heads, organization documents
Medium include but not limited to:	Method of communication 1. Physical media 2. Mechanical media (everything that is not No. 1)
Routine procedures include but not limited to:	Day to day activities
Protocols include but not limited to:	Procedures for doing a task
Workplace interactions include but not limited to:	Official inter relations

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

The individual needs to demonstrate the following skills:

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

Required Knowledge

The individual needs to demonstrate knowledge of:

- Minutes
- Meetings
- Report writing

EVIDENCE GUIDE

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

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Prepared written communication following standard format of the organization 1.2 Accessed information using communication equipment 1.3 Spoken English at a basic operational level 1.4 Made use of relevant terms as an aid to transfer information effectively 1.5 Conveyed information effectively adopting the formal or informal communication
2. Resource Implications	2.1 Telephone 2.2 Writing materials 2.3 Internet
3. Methods of Assessment	3.1 Direct Observation 3.2 Oral interview and written test
4. Context of Assessment	Competency may be assessed individually in the actual

	workplace or through accredited institution
5. 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

UNIT DESCRIPTION

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

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Use whole numbers and money up to one hundred thousand for work	1.1 Whole numbers and money amount up to 100,000 in highly familiar workplace documents and tasks are named and read 1.2 Understanding of place value and the role of zero is demonstrate 1.3 Halves are recognised and understood in workplace 1.4 Whole numbers and money amounting up to 100,000 are organised in size order and are compared 1.5 Counting done in number groups 1.6 Addition and subtraction of whole numbers and money up to 100,000 done in accordance with workplace requirement 1.7 Links between operations of addition and subtraction are clearly described 1.8 Reasonableness of outcome with prompting and support is checked 1.9 Numerical information is recorded and the result of the task is communicated using informal language and symbolism
2. Locate, compare and use highly familiar measurement for work	2.1 Measurements in highly familiar workplace documents and tasks are located 2.2 Different units of measurements and their uses are identified 2.3 The comparative relationship between the units of measurement identified 2.4 Understanding of conservation of amounts is demonstrated 2.5 Informal language is used to compare measurements 2.6 Digital time is well read and am and pm used in reference to time

ELEMENT	PERFORMANCE CRITERIA
	2.7 Calendar used appropriately to record information 2.8 Basic measurement information is well read and recorded 2.9 Additions and subtraction of simple quantities done in workplace
3. Use highly familiar maps and diagrams for work	3.1 Familiar items or places are located in highly familiar maps and diagrams 3.2 Simple symbols and pictorial representations are identified in highly familiar maps and diagrams 3.3 Simple oral directions are given to locate objects 3.4 Simple oral directions followed to locate objects 3.5 Understanding of informal directional language is demonstrated
4. Identify and use some common 2D shapes for work	4.1 Familiar two-dimensional shapes are identified and named 4.2 Common objects are described in terms of size and shape 4.3 Common, every day, informal language is used to compare objects 4.4 Common objects are grouped based on shape, size, colour and features
5. Locate specific Information in highly familiar tables, graphs and charts for work	5.1 Features of simple tables identified 5.2 Specific numerical information located in highly familiar tables using grid movement (up and down columns and across rows) and key 5.3 Numerical information and data in highly familiar tables compared using appropriate informal language 5.4 Information related to relevant workplace tasks 5.5 Features of simple graphs and charts identified 5.6 Specific numerical information located in highly familiar graphs and charts 5.7 Numerical information and data compared using appropriate informal language

RANGE

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

Variable	Range
1. Measuring instruments	May include but not limited to:

	1.1 Rulers 1.2 Watches/clocks 1.3 Scales 1.4 Thermometers 1.5 AVO meter
2. Common two - dimensional shapes	May include but not limited to: 1.1 Round/circle 1.2 Square 1.3 Rectangular 1.4 Triangle

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

The individual needs to demonstrate the following skills:

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

Required knowledge

The individual needs to demonstrate knowledge of:

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

EVIDENCE GUIDE

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

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Measured objects or materials as per job requirements 1.2 Used calculator to perform the four fundamental operations 1.3 Performed calculations involving money up to one hundred thousand 1.4 Performed conversions between hours, minutes and seconds 1.5 Calculated area and volume of regular shapes 1.6 Created tables and graphs to represent and interpret information
2. Resource Implications	2.1 Calculator 2.2 Basic measuring instruments
3. Methods of Assessment	Competency may be assessed through: 3.1 Written Test 3.2 Interview/Oral Questioning 3.3 Demonstration
4. Context of Assessment	Competency may be assessed in an off the job setting
5. 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

UNIT DESCRIPTION

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

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace function	These are assessable statements which specify the required level of performance for each of the elements. <i>Bold and italicized terms are elaborated in the Range</i>
1. Identify computer software and hardware	1.1 <i>Computer software</i> are identified according to manufacturer's specification 1.2 <i>Appropriate computer hardware</i> is identified according to manufacturer's specification
2. Apply security measures to data, hardware, software	2.1 <i>Data security and privacy are classified</i> in accordance with the technological situation 2.2 <i>Security and control measures</i> are applied in accordance with laws governing protection of ICT 2.3 Computer threats and crimes are detected 2.4 Protection against computer crimes is undertaken in accordance with laws governing protection of ICT
3. Apply computer software in solving tasks	3.1 Basic <i>word processing concepts</i> are applied in resolving workplace tasks 3.2 <i>Word processing utilities</i> are applied in accordance with workplace procedures 3.3 Data is manipulated on worksheet in accordance with office procedures
4. Apply internet and email in communication at workplace	4.1 Electronic mail is applied in workplace communication in accordance with office procedures 4.2 Office internet functions are defined and executed in accordance with office procedures 4.3 <i>Network configuration</i> and uses are determined in accordance with office operations procedures

RANGE

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

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

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

The individual needs to demonstrate the following skills:

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

Required Knowledge

The individual needs to demonstrate knowledge of:

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

EVIDENCE GUIDE

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

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Identified input, output, CPU and storage media devices of computers in accordance to computer specification 1.2 Identified concepts, types and functions of computer software according to operation manual 1.3 Identified and controlled security threats 1.4 Detected and protected computer crimes 1.5 Applied word processing in office tasks
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1.6 Prepared work sheet and applied data to the cells in

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	accordance to workplace procedures 1.7 Used Electronic Mail for office communication as per workplace procedure 1.8 Applied internet and World Wide Web for office tasks in accordance with office procedures 1.9 Applied laws governing protection of ICT
2. Resource Implications	2.1 Smartphones 2.2 Tablets 2.3 Laptops 2.4 Desktop computers 2.5 Calculators 2.6 Internet 2.7 Operation Manuals
3. Methods of Assessment	Competency may be assessed through: 3.1 Written Test 3.2 Demonstration 3.3 Practical assignment 3.4 Interview/Oral Questioning 3.5 Demonstration
4. Context of Assessment	Competency may be assessed in an off and on the job setting
5. 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

UNIT DESCRIPTION

This unit covers the competencies required to start, operate and grow a micro/small-scale enterprise.

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. <i>Bold and italicized terms are elaborated in the Range</i>
1. Develop entrepreneurial culture	1.1 Entrepreneurship terminologies are defined following established procedures. 1.2 Contribution of entrepreneurship towards national development is identified in accordance to national development goals 1.3 Self-employment benefit are identified and emphasized to help create a positive attitude 1.4 Cultural factors that promote or inhibit entrepreneurial development are identified and emphasis made on entrepreneurial promotion 1.5 Ways of managing factors that inhibit development of entrepreneurial culture are identified in accordance with cultural background and national social economic situation
2. Identify entrepreneurial opportunities	2.1 Myths associated with entrepreneurship, types of entrepreneurs and characteristics of entrepreneurship are determined in accordance with the set procedures 2.2 Identification of sources of business ideas , generation of business ideas is undertaken in accordance with the existing procedure 2.3 Evaluation of business opportunities is undertaken according to prevailing office procedures

	2.4 Competencies are matched with business opportunities in accordance with business practices.
3. Start a small business	3.1 Factors to consider when starting a small business are identified according to business sector. 3.2 Forms of business ownership are identified and procedure of starting a small business stipulated according to relevant legal requirements 3.3 Procedure of starting a small business is identified as per the legal requirements 3.3 Challenges faced when starting a small business are identified and mitigating factors provided for in accordance prevailing legal and regulatory requirement 3.4 Resource requirement for a small business are specified according to nature of business 3.5 Business life cycle is projected as per the nature of business and national social economic situation
4. Operate a small business	4.1 Relevant terms are defined in accordance with the set rules 4..3 Small business record is maintained in accordance with office procedures 4.4 Business support services are set up in accordance with the nature and size of business 4.5 Marketing activities are effected according to the nature and size of business 4.6 Small enterprise business plan is prepared depending on the size and nature of business and the client specification 4.6 Small business resources are run for efficiency and profitability 4.6 Small business records are kept for decision making purposes 4.7 Word processing concepts are applied in the management of small business according to office procedures 4.8 Basic computer application software and emerging trends and concerns are applied in small business management in accordance with office procedures
5. Grow a small business	5.1 Methods of growing/expanding a small business are identified and implemented in accordance with growth schedule

	5.2 Resources for growing small business are identified and implementing 5.3 Small business growth plans are prepared according to growth schedule 5.4 ICT and small business growth schedule is prepared in accordance with office procedures 5.5 Use of computers and technology is incorporated in small scale business growth schedule in accordance with technological trends 5.6 Social media is used for business growth and profitability 5.7 Emerging issues and trends are considered in accordance with business growth schedule and activities 5.8 Community interest is built in product/service according to growth plan 5.9 Business communication is enhanced according to business communication plan and profitability 5.10 Basic business growth strategies are identified and implemented for increased profitability 5.11 Word processing concepts are applied in growing of small business according to office procedures 5.12 Basic computer application software, programming and emerging trends and concerns are applied in small business growth in accordance with office procedures for growth and profitability
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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
Entrepreneurship terminologies include but not limited to:	• Intrapreneurship • Enterprise • Business vision. Mission, core values, objectives
Sources of business ideas include but not limited to:	• Brainstorming • Personal hobbies • Newspapers, magazines, • Friends and relatives • Accounting/Administrative work • Modern trends and concerns

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

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:

- Individual marketing skills
- Using basic advertising (posters/ tarpaulins, flyers, social media)
- Basic book keeping/ accounting skills
- Communication skills

Required Knowledge

The individual needs to demonstrate knowledge of:

- Public relations concepts
- Basic product promotion strategies
- Basic market and feasibility studies
- Basic business ethics
- Building customer relations
- Business models and strategies
- Types and categories of businesses
- Business internal controls
- Relevant national and local legislation and regulations

- Basic quality control and assurance concepts
- Building relations with customer and employees
- Building competitive advantage of the enterprise

EVIDENCE GUIDE

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

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Demonstrated basic entrepreneurial skills 1.2 Demonstrated ability to conceptualize and plan a micro/small enterprise 1.3 Demonstrated ability to manage/operate a micro/small-scale business 1.4 Demonstrated basic marketing skills
2. Resource Implications	The following resources should be provided: 2.1 Case problems on micro/small-scale enterprises 2.2 Materials and location relevant to the proposed activity and tasks
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Case problems 3.2 Oral Questioning 3.3 Portfolio
4. Context of Assessment	4.1 Competency may be assessed in workplace or in a simulated workplace setting 4.2 Assessment shall be observed while tasks are being undertaken whether individually or in-group

DEMONSTRATE EMPLOYABILITY SKILLS

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

UNIT DESCRIPTION

This unit covers competencies required to demonstrate employability skills. It involves competencies for exuding self-awareness and dealing with everyday life challenges; applying critical safe work habits and working harmoniously in a team; participating in planning and organizing work activities; applying learning, creativity and innovativeness in workplace functions; pursuing professional growth and managing time effectively in the workplace.

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. <i>Bold and italicized terms are elaborated in the Range</i>
1. Develop self-awareness and ability to deal with life challenges	1.1 Personal goals and objectives are written based on potential and in relation to organization objectives 1.2 Emotions are handled as per workplace requirement. 1.3 Thoughts, feelings and beliefs are shared with superiors in direct and honest ways in line with organization policy 1.4 Assertiveness is developed and maintained based on the requirements of the job 1.5 Individual performance is recorded and monitored according to the agreed targets 1.6 Ideas that generate excitement, interest and commitment are shared with immediate supervisors in line with workplace policy 1.7 Accountability for assigned duties is demonstrated 1.8 Self-esteem and a positive self-image are developed and demonstrated based on job requirements

2. Demonstrate critical safe work habits for employees	2.1 Stress is handled at the workplace in accordance with standard procedures 2.2 Punctuality and time consciousness is demonstrated in line with organization policy 2.3 Personal objectives are integrated with organization objectives in accordance with organization's policy 2.4 Resources are effectively and efficiently utilized in accordance with workplace policy 2.5 Work activities are prioritized based on standard operating procedures 2.6 Task objectives are met in according to workplace procedures 2.7 Individual performance targets are set in line with organization objectives 2.8 Performance targets are met based on targets agreed as per workplace policy 2.9 Assertiveness is demonstrated based on the requirements of the job 2.10 Leisure time is used positively and productively in line with workplace policy 2.11 Abstinence from drug and substance abuse is demonstrated as per workplace policy 2.12 Awareness of HIV and AIDS is demonstrated in line with workplace policy and requirements of the job 2.13 Emerging issues are dealt with in accordance with organization policy
3. Demonstrate workplace teamwork	3.1 Roles and objectives of the team are identified in accordance organization policy 3.2 Team parameters and relationships are identified according to workplace policy 3.3 Individual activities are identified and followed through in line with job requirements 3.4 Effective and appropriate forms of communication in a team are used according to workplace policy 3.5 Resolution of conflicts between team members is sought promptly in line with organization 3.6 Ability to work in a team with gender diversity is demonstrated in accordance with workplace policy 3.7 Basic human rights are identified, sought after and adhered to in line with workplace policy

	3.8 Respect for team members' human rights is demonstrated in accordance with existing protocol 3.9 Healthy relationships are established and maintained for harmonious co-existence in line with workplace policy
4. Plan and organize work	4.1 Work schedules for given tasks are adhered to within the set time lines and based on workplace policy 4.2 Punctuality and time consciousness are demonstrated based on workplace policy 4.3 Assignment goals/objectives and deliverables are identified and achieved based on instructions from superiors and organizations' policy 4.4 Resources are identified and utilized to meet assignment goals and deliverables as per workplace policy 4.5 Work records are kept and maintained in line with workplace policy 4.6 Situations that require consultation with superiors are identified and consultations made in accordance with workplace policy 4.7 Operational decisions are made and applied based on the requirements of the job 4.8 Problems arising in the course of working are identified and solved or reported according the workplace policies and procedures 4.9 Situations that require negotiation are identified and negotiations done to create win-win situations 4.10 Negotiation techniques are demonstrated to meet client's satisfaction and organizations' objectives
5. Maintain professional growth and development in the workplace	5.1 Personal training needs are assessed and outlined based on requirements of the job 5.2 Career progression opportunities are identified and pursued based on job requirements 5.3 Sponsorship for training for career progression is sought based on organization policy 5.4 Licensees and certifications relevant to job and career are obtained and renewed based on standard operating procedures 5.5 Personal growth is pursued towards improving the qualifications set for the profession in line with organization policy 5.6 Available training opportunities are embraced and

	completed within allowed time limits 5.7 Recognitions for prior learning are sought as proof of career advancement 5.8 Mentorship and coaching programs are attended regularly based on availability and workplace policy
6. Demonstrate learning, creativity and innovativeness in the workplace	6.1 Time and effort is invested in learning new skills based on job requirements and workplace policy 6.2 Willingness to learn under different context is demonstrated based on available learning opportunities arising in the workplace 6.3 Application of learning is demonstrated in both technical and non-technical aspects based on requirements of the job 6.4 Ability to apply a range of basic Information Technology skills is demonstrated based on requirements of the job 6.5 Application of Occupational Health and Safety procedures in use of technology is demonstrated in the workplace 6.6 Initiative is taken to use more effective and efficient processes and procedures in line with job requirements 6.7 Ability to adapt to new systems is demonstrated in accordance with the requirements of the job 6.8 Recognition and support of innovative and creative ideas is demonstrated in the workplace 6.9 Opportunities to carryout functions better are identified and exploited in line with organization objectives 6.10 Ability to discuss new ideas and get consensus is demonstrated in line with job requirements 6.11 Awareness of personal role in workplace innovation is demonstrated

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
<i>Drug and substance abuse</i>	Commonly abused;

includes but not limited to:	• Alcohol • Tobacco • Miraa • Over-the-counter drugs • Cocaine • Bhang • Glue
Feedback includes but not limited to:	• Verbal • Written • Informal • Formal
Clients includes but not limited to:	• New clients • Existing clients • Internal clients • External clients
Relationships includes but not limited to:	• Man/Woman • Trainer/trainee • Employee/employer • Client/service provider • Husband/wife • Boy/girl • Parent/child • Sibling relationships
Communication methods includes but not limited to:	• Written • Talk/presentation • Video • Audio • Graphical • Modelling
Team includes but not limited to:	• Small work group • Staff in a section/department • Inter-agency group
Personal growth includes 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
Personal objectives include but not limited to:	• Long term • Short term • Broad • Specific
Trainings and career opportunities includes but not limited to	• Participation in training programs ○ Technical ○ Supervisory ○ Managerial ○ Continuing Education • Serving as Resource Persons in conferences and workshops
Resource include but not limited to:	• Human • Financial • Technology ○ Hardware ○ Software
Innovation include but not limited to:	• New ideas • Original ideas • Different ideas • Methods/procedures • Processes • New tools
Emerging issues include but not limited to:	• Terrorism • Social media • National cohesion • Open offices

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

The individual needs to demonstrate the following skills:

- Appropriate practice of personal hygiene
- Intra and Interpersonal skills
- Communication skills
- Knowledge management

- Interpersonal skills
- Critical thinking skills
- Observation skills
- Organizing skills
- Record keeping skills
- Negotiation skills
- Problem solving skills
- Decision Making skills
- Resource utilization skills

Required Knowledge

The individual needs to demonstrate knowledge of:

- Work values and ethics
- Company policies
- Occupational Safety and Health
- Company operations, procedures and standards
- Fundamental rights at work
- Personal hygiene practices
- Workplace communication
- Concept of time
- Building relationships
- Training needs assessment
- Time management
- Decision making
- Types of resources
- Work planning
- Record keeping
- Resources and allocating resources
- Organizing work
- Workplace problems areas and how to deal with them
- Negotiation
- Assertiveness
- Team work
- Gender
- HIV and AIDS
- Drug and substance abuse
- Leadership

- Safe work habits
- Professional growth and development
- Technology in the workplace
- Learning
- Creativity
- Innovation
- Emerging issues
 - Social media
 - Terrorism
 - National cohesion

EVIDENCE GUIDE

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

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Attained job targets within key result areas 1.2 Maintained punctuality and time consciousness 1.3 Maintained intra- and inter-personal relationship in the course of managing oneself 1.4 Completed trainings and career progression opportunities within time limits 1.5 Acquired and maintained licenses and/or certifications required for the job 1.6 Planned and organized resources to achieve assigned goals and objectives 1.7 Identified and solved a problem in a particular problem situation 1.8 Displayed critical safe work habits in carrying out work functions 1.9 Innovatively made work processes and procedures more effective and efficient 1.10 Worked harmoniously with people of diverse gender in the workplace 1.11 Participated effectively in team activities 1.12 Demonstrated awareness of HIV and AIDS 1.13 Abstained from drug and substance abuse 1.14 Participated in mentorship and coaching programs 1.15 Demonstrated safety consciousness 1.16 Maintained work records
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	1.17 Demonstrated ability to cope with emerging issues
2. Resource Implications	The following resources should be provided: 2.1 Workplace or assessment location 2.2 Case studies/scenarios
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Oral Interviews 3.2 Observation 3.3 Third Party Reports 3.4 Written tests
4. Context of Assessment	4.1 Competency may be assessed in workplace or in a simulated workplace setting. 4.2 Assessment shall be observed while tasks are being undertaken whether individually or in-group
5. 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

UNIT DESCRIPTION

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

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace function.	These are assessable statements which specify the required level of performance for each of the elements. <i>Bold and italicized terms are elaborated in the range.</i>
1. Control environmental hazard	1.1 <i>Storage and handling methods</i> for environmentally <i>hazardous</i> materials are strictly followed according to environmental regulations and OSHS 1.2 <i>Disposal methods</i> of hazardous wastes are followed at all times according to environmental regulations and OSHS 1.3 <i>PPE</i> is used according to OSHS
2. Control environmental Pollution	2.1 <i>Environmental pollution control measures</i> are complied with following standard protocol 2.2 Procedures for solid waste management are observed according Environmental Management and Coordination Act 1999 2.3 Methods for minimizing <i>noise pollution</i> complied following environmental regulations
3. Demonstrate sustainable resource use	3.1 Methods for minimizing wastage are complied with. 3.2 <i>Waste management procedures</i> are employed following principles of 3Rs (Reduce, Reuse, Recycle) 3.3 Methods for economizing or reducing <i>resource</i> consumption are practiced

RANGE

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

Variable	Range
1. PPE may include but are not limited to:	1.1 Mask 1.2 Gloves 1.3 Goggles 1.4 Safety hat 1.5 Overall 1.6 Hearing protector
2. Environmental pollution control measures may include but are not limited to:	2.1 Methods for minimizing or stopping spread and ingestion of airborne particles 2.2 Methods for minimizing or stopping spread and ingestion of gases and fumes 2.3 Methods for minimizing or stopping spread and ingestion of liquid wastes
3 Waste management procedures may include but are not limited to:	3.1 Sorting 3.2 Storing of items 3.2 Recycling of items 3.3 Disposal of items
4 Resources may include but are not limited to:	4.1 Electric 4.2 Water 4.3 Fuel 4.3 Telecommunications 4.4 Supplies 4.5 Materials

5 Workplace environmental hazards may include but are not limited to:	5.1 Biological hazards 5.2 Chemical and dust hazards 5.3 Physical hazards
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REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

The individual needs to demonstrate the following skills:

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

Required Knowledge

The individual needs to demonstrate knowledge of:

- Storage methods of environmentally hazardous materials
- Disposal methods of hazardous waste
- Usage of PPE Environmental regulations
- OSHS
- Types of pollution
- Environmental pollution control measures
- Different solid wastes
- Solid waste management
- Different noise pollution
- Methods of minimizing noise pollution
- Solid Waste Act
- Methods of minimizing wastage
- Waste management procedures

- Economizing of resource consumption
- Principle of 3Rs

EVIDENCE GUIDE

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

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Controlled environmental hazard 1.2 Controlled environmental pollution 1.3 Demonstrated sustainable resource use
2. Resource Implications	The following resources should be provided: 2.1 Workplace with storage facilities 2.2 Tools, materials and equipment relevant to the tasks (e.g. cleaning tools, cleaning materials, trash bags, etc.) 2.3 PPE 2.4 Manuals and references
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Demonstration 3.2 Oral questioning 3.3 Written examination
4. 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
5. 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

UNIT DESCRIPTION

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

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace function.	These are assessable statements which specify the required level of performance for each of the elements. <i>Bold and italicized terms are elaborated in the range.</i>
1. Prepare to practice safety and health at work	1.1 Awareness of legislation that outlines the minimum standards for occupational safety and health requirements/ regulations are emphasized 1.2 Benefits of implementing an occupational safety and health program are identified 1.3 <i>Safety requirements/ regulations</i> of own work and of other workers are familiarized 1.4 Workplace standards and procedures for incidents and Emergencies are determined 1.5 <i>Prevention and control measures</i> , including use of <i>safety gears/PPE</i> (Personal Protective Equipment) to avoid accident, injuries and sickness are identified
2. Comply and promote compliance of workers to organization's occupational safety and health instructions and requirements	2.1 Safety instructions and safety signs are followed and disseminated to co-workers 2.2 Safe handling of tools, equipment and materials is learned and shared with co-workers 2.3 Execution of own work and of co-workers is monitored in according to safe work procedures 2.4 Use of safe guards and safety devices is monitored

	2.5 Hazards, incidents, injuries and sickness in the workplace are reported properly following standards and procedures
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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. <i>Safety requirements / regulations</i> may include but are not limited to:	1.1 Building code 1.2 Permit to Operate 1.3 Occupational Safety and Health Standards
2. <i>Incidents and emergencies</i> may include but are not limited to:	2.1 Chemical spills 2.2 Equipment/vehicle accidents 2.3 Explosion 2.4 Fire 2.5 Gas leak 2.6 Injury to personnel 2.7 Structural collapse 2.8 Toxic and/or flammable vapours emission.

3. Prevention and control measures may include but are not limited to:	3.1 Eliminate the hazard (i.e., get rid of the dangerous machine) 3.2 Isolate the hazard (i.e. keep the machine in a closed room and operate it remotely; barricade an unsafe area off) 3.3 Substitute the hazard with a safer alternative (i.e., replace the machine with a safer one) 3.4 Use administrative controls to reduce the risk (i.e. give trainings on how to use equipment safely; OSH-related topics, issue warning signages, rotation/shifting work schedule) 3.5 Use engineering controls to reduce the risk (i.e. use safety guards to machine) 3.6 Use personal protective equipment 3.7 Safety, Health and Work Environment Evaluation 3.8 Periodic and/or special medical examinations of workers
4. Safety devices/ PPEs (personal protective equipment) May include but are not limited to:	5.1 Arm/Hand guard, gloves 5.2 Eye protection (goggles, shield) 5.3 Hearing protection (ear muffs, ear plugs) 5.4 Hair Net/cap/bonnet 5.5 Hard hat 5.6 Face protection (mask, shield) 5.7 Apron/Gown/coverall/jump suit 5.8 Anti-static suits 5.9 High-visibility reflective vest

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

The individual needs to demonstrate the following skills:

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

Required Knowledge

The individual needs to demonstrate knowledge of:

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

EVIDENCE GUIDE

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

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Emphasizes awareness of OSH legislations 1.2 Identifies benefits of implementing OSH program 1.3 Identifies safety requirements of own work and of co-workers 1.4 Identifies and shares with co-workers OSH control measures and
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	emergency plan in the workplace 1.5 Identifies and shares with co-workers the control measures to prevent accident, injuries and sickness 1.6 Follows and disseminate to co-workers the safety instructions and safety signs at work 1.7 Learns and shares with co-workers the learnings on safe handling of tools, equipment and materials 1.8 Monitors safe execution of own work and of co-workers 1.9 Monitors compliance to safety measures 1.10 Reports hazards, incidents, injuries and sickness following workplace procedures
2. Resource Implications	The following resources should be provided: 2.1 Facilities, materials tools and equipment necessary for the activity
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Observation/Demonstration with oral questioning 3.2 Third party report
4. 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.
5. 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

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	PERFORMANCE CRITERIA <i>(Bold and italicised terms are elaborated in the Range)</i>
1. Use and maintain drawing equipment and materials	1.1 Drawing equipment are identified and gathered according to task requirements 1.2 Drawing materials are identified and gathered according to task requirements 1.3 Drawing equipment are used and maintained as per manufacturer's instructions 1.4 Drawing materials are used as per workplace procedures 1.5 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
2. Produce plane geometry drawings	2.1 Different types of lines used in drawing and their meanings are identified according to standard drawing conventions 2.2 Different types of geometric forms are constructed according to standard conventions 2.3 Different types of angles are constructed according to principles of trigonometry 2.4 Different types of angles are measured using appropriate measuring tools

ELEMENT	PERFORMANCE CRITERIA <i>(Bold and italicised terms are elaborated in the Range)</i>
	2.6 Angles are bisected according to standard conventions 2.7 Freehand sketching of different types of geometric forms, tools, equipment, diagrams is conducted
3. Produce solid geometry drawings	3.1 Drawings of patterns are interpreted according to standard conventions 3.2 Patterns are developed in accordance with standard conventions
4. Produce orthographic and pictorial drawings	4.1 Symbols and abbreviations are identified and their meaning interpreted according to standard drawing conventions 4.2 First and third angle orthographic drawings are interpreted and produced in accordance with the standard conventions 4.3 Orthographic elevations are dimensioned in accordance with standard conventions 4.4 Isometric drawings are interpreted and produced in accordance with standard conventions
5. Apply CAD packages	5.1 CAD packages are selected according to task requirements 5.2 CAD packages are applied in production of engineering drawings

RANGE

Variable	Range <i>May include but is not limited to:</i>
1. Drawing equipment	Drawing boards, T and set squares, drawing sets, computers with CAD packages
2. Drawing materials	Drawing papers, pencils, pens, erasers, masking tapes, paper clips
3. Environmental legislations	EMCA 1999

4. Personal Protective Equipment	Dust coats, closed leather shoes
5. Geometric forms	Circles, triangles, rectangles, parallelogram, polygons, pyramids, conic sections, prisms, loci
6. Standard conventions	• 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: 1.1 Applied and adhered to safety procedures 1.2 Cared and maintained drawing equipment 1.3 Interpreted circuit, assembly and lay out diagrams 1.4 Applied appropriate technical standards, used proper tools and equipment for a given task 1.5 Produced sketches and drawings 1.6 Applied CAD packages in production of drawings
2. Resource Implications	Resources the same as that of workplace are advised to be applied. 2.1 Drawing room 2.2 Drawing equipment and materials 2.3 Computers 2.4 CAD packages 2.5 Store
3. Methods of Assessment	Competency may be assessed through: 3.1 Practical tests 3.2 Observation
4. Context of Assessment	Competency may be assessed individually in the actual workplace or a simulated work place setting
5. 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

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	PERFORMANCE CRITERIA (<i>Bold and italicized terms are elaborated in the Range</i>)
1 Conduct area levelling	1.1 Site clearance is carried out based on the <i>conditions of the site</i> 1.2 Reduced levels are determined based on the <i>nature of the ground</i> 1.3 Contours are plotted as per SOPs 1.4 Longitudinal profiles are produced based on the reduced levels 1.5 Mass haul diagram is produced based on the contours plotted 1.6 Ground levelling is carried out based on the mass haul diagram
2 Set out a building	2.1 <i>Nature of the building</i> is determined based on the working drawings 2.2 Site layout plan is obtained and interpreted as per SOPs 2.3 Building plan is obtained and interpreted as per SOPs 2.4 Building line is established according to the local authority 2.5 Building base line is established based on the site plan 2.6 First corner/centre of the building is located based on the site plan 2.7 Building is set out based on the <i>setting out methods</i> 2.8 Profile boards are erected as per SOPs 2.9 Trench and wall dimensions are transferred to the ground as per SOPs
3 Perform earthworks	3.1 Survey drawings are interpreted as per SOPs 3.2 Site clearance works are carried out based on site conditions and project scope 3.3 Cross sections are set out based on the working drawings 3.4 Top soil is removed as per SOPs 3.5 Excavation to formation level/reduced level is carried out based on the working drawings 3.6 Embankments are formed as per working drawings 3.7 Formation level is compacted as per SOPs 3.8 Excess earthworks materials are disposed as per SOPs
4 Carry out road survey	4.1 Tacheometry survey is carried out as per SOPs 4.2 Survey maps and photographs are scaled as per SOPs 4.3 Circular curves are set out as per SOPs 4.4 Traverse details are plotted as per SOPs

RANGE

Variable	Range <i>May include but is not limited to:</i>
1. Conditions of the site	1.1 Bushy 1.2 Plain 1.3 Forest 1.4 Shrubs 1.5 Structures 1.6 Marshy
2. Nature of the ground	2.1 Slope 2.2 Flat
3. Nature of the building	3.1 Single storey 3.2 Multi storey 3.3 Basement 3.4 Irregular shaped 3.5 Regular shaped 3.6 Circular
4. Setting out methods	4.1 3-4-5 method/Pythagoras theorem 4.2 Builder's square method 4.3 Site square method 4.4 Traditional method

REQUIRED KNOWLEDGE

- 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

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: 1.1 Determined reduced levels 1.2 Plotted contour maps 1.3 Produced mass haul diagram 1.4 Determined setting out method 1.5 Set out a building 1.6 Interpreted survey drawings 1.7 Set out cross sections 1.8 Carried out road survey
2. Resource Implications	The following resources should be provided: 2.1 Survey instruments 2.2 Storage facilities 2.3 Surveying technician
3. Methods of Assessment	Competency may be assessed through: 3.1 Written text 3.2 Interview 3.3 Observation
4. 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.
5. 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

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	PERFORMANCE CRITERIA (<i>Bold and italicized terms are elaborated in the Range</i>)
1 Investigate construction site	1.1 Site boundary is determined based on land survey maps 1.2 Auxiliary services are identified as per site location 1.3 Trial pits are excavated based on ground conditions 1.4 Existing services are determined based on service provider's information 1.5 Existing structures are identified based on the site location 1.6 Labour and construction materials sources are identified based on the project scope and site location
2 Perform substructure works	2.1 Site clearance is carried out based on the nature of the site 2.2 Excavation method is determined based on the nature of the works 2.3 Vegetable/top soil is excavated based on working drawings and nature of the site 2.4 Excavation to formation level/reduced level is carried out based on the working drawings 2.5 Foundation is marked based on profile board measurements and working drawings 2.6 Foundation is excavated based on the working drawings 2.7 Foundation is levelled as per SOPs 2.8 Substructure concrete works is carried out as per SOPs 2.9 Foundation walling is constructed based on the working drawings 2.10 Hard core is placed and compacted as per SOPs 2.11 Blinding layer is applied based on design specifications 2.12 Anti-termite treatment is carried out as per SOPs 2.13 Damp proofing is carried out as per design specifications 2.14 Vibrated Reinforced Concrete (VRC) is cast as per SOPs
3 Perform superstructure works	3.1 Setting out of superstructure works is carried out as per SOPs 3.2 Superstructure concrete works is carried out as per SOPs 3.3 Superstructure walling is constructed based on the working drawings 3.4 Roof construction is carried out as per working drawings

ELEMENT	PERFORMANCE CRITERIA (<i>Bold and italicized terms are elaborated in the Range</i>)
	3.5 Roof cover is applied as per design specifications 3.6 Eaves and verges are constructed as per design specifications 3.7 Rain water goods are installed as per SOPs
4 Install building doors and windows	4.1 Door and window schedule is prepared based on design specifications 4.2 Door and window frames are set in position as per design details 4.3 Doors and windows are fitted and fixed based on the design details
5 Apply building finishes	5.1 Schedule of finishes is prepared as per design specifications 5.2 Method of application is determined based on the type of finish and place of application 5.3 Application surface is prepared based on the type of finish 5.4 Building finishes are applied as per SOPs
6 Carry out building maintenance	6.1 Building inspection is carried out based on the type of facility and Occupational Safety and Health Act 6.2 Inspection report is prepared based on inspection carried out 6.3 Maintenance program is prepared based on inspection report 6.4 Building maintenance is carried out as per maintenance program

RANGE

Variable	Range <i>May include but is not limited to:</i>
1. Auxiliary services	1.1 Banks 1.2 Hospitals 1.3 Access roads 1.4 Electricity 1.5 Sewer lines 1.6 Water pipes
2. Existing services	2.1 Telecommunication 2.2 Electrical 2.3 Sewer lines 2.4 Water supply lines 2.5 Mechanical services
3. Existing structures	3.1 Buildings 3.2 Tunnels 3.3 Railway tracks 3.4 Bridges
4. Profile board measurements	4.1 Trench width 4.2 Wall thickness 4.3 Column sizes

	4.4 Column base sizes
5. Substructure concrete works	1.1 Blinding 1.2 concrete to • bases • strip footing • wall • columns • slabs • ground beams 1.3 formwork to • bases • strip footing • wall • columns • slabs • ground beams 1.4 reinforcement to • bases • strip footing • wall • columns • slabs • ground beams
6. Setting out of superstructure works	6.1 Superstructure walls 6.2 Columns 6.3 Suspended slabs 6.4 Stairs 6.5 Chimneys 6.6 Roofs
7. Superstructure concrete works	7.1 Concrete to - Walling - Columns • Suspended slabs - Beams • •

7.2 Formwork to

- Walling
- Columns
- Suspended slabs

	• Beams 7.3 reinforcement to • Walling • Columns • Suspended slabs • Beams
8. Roof construction	1.1 Tie beams 1.2 Wall plates 1.3 Rafters 1.4 Ties and struts 1.5 Purlins 1.6 Ridge piece/boards 1.7 Hangers 1.8 King post
9. Roof cover	9.1 Tiles 9.2 Sheets 9.3 Roof underlays
10. Eaves and verges	10.1 Fascia board 10.2 Barge board 10.3 Runners 10.4 Bearers 10.5 Hanger 10.6 Boarding
11. Rain water goods	11.1 Gutters 11.2 Down pipes 11.3 Shoe 11.4 Swan neck 11.5
12. Method of application	12.1 Spraying 12.2 Fixing 12.3 Dipping
13. Type of finish	13.1 Tiles 13.2 Terrazzo 13.3 Granolithic finish 13.4 Cladding 13.5 Painting 13.6 Timber parquet 13.7 Carpet 13.8 Plaster

	13.9 Marble chips
14. Building inspection	14.1 Functionality 14.2 Condition of the facility 14.3 Physical examination 14.4 Mechanical examination
15. Maintenance program	15.1 Routine 15.2 Ad hoc (emergency) 15.3 Planned

REQUIRED KNOWLEDGE

- 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

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 1.1 Conducted site investigation 1.2 Carried out site clearance 1.3 Performed excavation 1.4 Carried out substructure concrete works 1.5 Constructed substructure walls 1.6 Carried out anti termite treatment 1.7 Carried out setting out of superstructure works 1.8 Carried out superstructure concrete works 1.9 Executed roofing works 1.10 Constructed superstructure walling 1.11 Installed rain water goods 1.12 Installed building doors and windows 1.13 Applied building finishes 1.14 Carried out building maintenance
2. Resource Implications	The following resources should be provided: - Workshop - Storage facilities • Construction materials - Stationery • Construction tools and equipment - Workshop technician
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3. Methods of Assessment	Competency may be assessed through: 3.1 3.2 3.3

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Observation

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4. 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.

5. 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 MATERIALS, PLANT, TOOLS AND EQUIPMENT

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

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	PERFORMANCE CRITERIA (<i>Bold and italicized terms are elaborated in the Range</i>)
1. Prepare site facility for storage	1.1 Building materials, tools, plant and equipment are assembled as per facility specifications. 1.2 Facility site is cleared and levelled 1.3 Storage facility is erected as per working drawing
2. Prepare building material schedule	2.1 <i>Types of materials</i> to be used are identified and listed. 2.2 Building materials are quantified and recorded on a standard schedule 2.3 Quoted rates are included in the material schedule
3. Prepare building equipment schedule	3.1 <i>Types of equipment</i> to be used are identified and listed. 3.2 Building equipment are numbered and recorded on a standard schedule. 3.3 Quoted rates are included in the equipment schedule
4. Procure building materials and equipment	4.1 List of materials and equipment scheduled are verified. 4.2 Best suppliers are identified as per their price lists and catalogues. 4.3 Building materials and equipment are ordered. 4.4 Supplied building materials and equipment are verified. 4.5 Building materials and equipment are received. 4.6 Received building materials are recorded and stored.
5. Issue building materials and equipment	5.1 Site material and equipment requirement list is obtained 5.2 Required materials and equipment are issued. 5.3 Issued materials and equipment are recorded

RANGE

Variable	Range <i>May include but is not limited to:</i>
1. Types of materials	1.1. Roofing 1.2. Walling 1.3. Flooring 1.4. Finishing 1.5. Reinforcing
2. Types of equipment	2.1 Excavation 2.2 Lifting 2.3 Transporting

REQUIRED KNOWLEDGE

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

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: 1.1. Prepared building site facility 1.2. Prepared building material and equipment schedule 1.3. Ordered building materials and equipment. 1.4. Received building materials and equipment. 1.5. Record and store received materials and equipment 1.6. Issued building materials and equipment.
2. Resource Implications	The following resources should be provided: 2.1 Stationery 2.2 Computers 2.3 Calculators 2.4 Printers 2.5 Telephone 2.6 Price list and catalogue
3. Methods of Assessment	Competency may be assessed through: 3.1 Written text 3.2 Interview 3.3 Observation
4. 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.
5. 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

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	PERFORMANCE CRITERIA (<i>Bold and italicized terms are elaborated in the Range</i>)
1 Prepare work schedules and time programmes	1.1 <i>Project statutory approvals</i> are acquired as per legal requirements. 1.2 Project scope is defined based on project drawings 1.3 <i>Work activities</i> are identified based on <i>project drawings</i> . 1.4 Previous similar jobs are reviewed based on best practice. 1.5 Work schedules and plans are prepared based on project activities. 1.6 Project <i>time programme</i> is drawn based on schedules and plans.
2 Monitor and evaluate project timelines	2.1 <i>Project monitoring and evaluating tools</i> are prepared based on baseline plans. 2.2 Project appraisal reports are prepared based on project status. 2.3 Project time risks are identified and mitigation measures developed based on projects status report.
3 Control project time schedules	3.1 Project control tools are prepared based on project baseline plans 3.2 Alternative corrective measures are identified and evaluated based project status report. 3.3 Remedial measures are implemented and monitored as per project control plan.
4 Prepare and disseminate project timeline reports	4.1 Project progress reports are prepared based on project baseline plans. 4.2 Project progress reports are disseminated to the project team. 4.3 Report recommendations are implemented as per baseline plan.

RANGE

Variable	Range <i>May include but is not limited to:</i>
1. Project statutory approvals	1.1 NEMA 1.2 WARMA 1.3 NCA

	1.4 County Government by-laws
2. Work activities	2.1 Substructure 2.2 Superstructure
3. Project drawings	3.1 Architectural 3.2 Structural 3.3 Civil 3.4 Services (mechanical, electrical etc)
4. Time programme	4.1 Gant chart 4.2 Critical path method 4.3 PERT
5. Project monitoring and evaluating tools	5.1 Gant chart 5.2 Critical path method 5.3 PERT

REQUIRED KNOWLEDGE

- 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

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: 1.1 Demonstrated understanding of project legal requirements 1.2 Prepared and analysed work plans 1.3 Identified project work activities 1.4 Prepared work schedules and time programmes 1.5 Identified project time risks and mitigation measures 1.6 Monitored and evaluated project timelines 1.7 Identified corrective measures 1.8 Implemented corrective measures 1.9 Prepared project progress report
2. Resource Implications	The following resources should be provided: Functional office equipped with: • Computer with software • Stationery • Office furniture • files • calculators • internet connectivity • reprographic equipment
3. Methods of Assessment	Competency may be assessed through: 3.4 Written text 3.5 Interview 3.6 Observation
4. Context of	Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be

Assessment	undertaken in a closely simulated workplace environment.
5. 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

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 (<i>Bold and italicized terms are elaborated in the Range</i>)
1 Develop construction project quality plans	1.1 Construction project quality management plans are developed based on project documents . 1.2 Quality management plans are disseminated to the project team as per communication structure 1.3 Construction project team is sensitized and initiated on project quality management plans as per SOPs.
2 Develop construction project methodology	2.1 Project activities are identified based on project documents and environment. 2.2 Quality checklists are developed based on identified project activities. 2.3 Construction project methodology statement is formalised based on identified activities and quality checklist.
3 Acquire Construction project resources	3.1 Construction project resource schedule is prepared based project quality management plan and methodology. 3.2 Credible sources of resources are identified based on best practice. 3.3 Construction project procurement plan is prepared based on resource schedule.
4 Undertake Construction project quality control	4.1 Construction Projects materials are tested as per quality management plan. 4.2 Construction Projects materials are procured based on specifications. 4.3 Construction Project team is trained and supervised based on project labour requirements. 4.4 Construction Project plant and equipment are duly sourced and maintained based on selected project specifications and methodology. 4.5 Work quality inspections are conducted as per quality assurance plan.

ELEMENT	PERFORMANCE CRITERIA <i>(Bold and italicized terms are elaborated in the Range)</i>
	4.6 Work quality remedial measures are identified, evaluated and implemented as per project quality management plan.
5 Prepare Construction project quality reports	5.1 Construction Project quality information and data is collected and evaluated based on site inspections. 5.2 Construction Project quality report is documented based on site inspection data and information. 5.3 Construction Project quality report is disseminated to project team as per quality management plan.

RANGE

Variable	Range <i>May include but is not limited to:</i>
1. Project documents	1.1 Drawings 1.2 Bill of Quantities 1.3 Specifications
2. Project team	2.1 Client 2.2 Consultants 2.3 Site workers 2.4 Contractor
3. Project activities	3.1 Substructure 3.2 Superstructure
4. Project resource schedule	4.1 Labour schedule 4.2 Plant and equipment schedule 4.3 Materials schedule

REQUIRED KNOWLEDGE

- 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

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: • • • • • •
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cuments Assessed constructability of the
project design Identified project quality
standards
Developed project quality management plans
Demonstrated ability to communicate quality standards
Developed project methodology
Prepared project resource schedule

	• Identified credible sources of resources • Prepared project procurement plan • Demonstrated ability to undertake project quality control • Prepared project quality reports
2. Resource Implications	The following resources should be provided: Functional office equipped with: • Computer with software • Stationery • Office furniture • Files • Calculators • Internet connectivity • Reprographic equipment
3. Methods of Assessment	Competency may be assessed through: 3.1 Written text 3.2 Interview 3.3 Observation
4. 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.
5. 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

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 (<i>Bold and italicized terms are elaborated in the Range</i>)
1 Develop project health, safety and security guidelines	1.1 Review existing occupational safety and health laws and regulations . 1.2 Formulate project site occupational safety, health and security guidelines. 1.3 Disseminate and sensitize construction project team on site safety, health and security guidelines.
2 Conduct site health, safety and security inspections	2.1 Site safety and health inspection parameters are formulated based project safety and health guidelines. 2.2 Regular safety parades are conducted as per health and safety guidelines 2.3 Site safety and health audits are conducted as per legal requirements. 2.4 Safety and health audit reports are prepared based on inspection findings. 2.5 Safety health and security guidelines are enforced as per SOPs
3 Coordinate and monitor project site security	3.1 Security hot spots are mapped based on site plan and area history. 3.2 Site security plans and guidelines are formulated in line SOPs 3.3 Sources of security personnel are identified based on firm expertise and history. 3.4 Mitigation measures are identified and issued as per SOPs

RANGE

Variable	Range <i>May include but is not limited to:</i>
1. Occupational safety and health laws and regulations	1.1 OSH Act 2007 1.2 Labour law 1.3 County council by-laws 1.4 NCA Act

	1.5 NEMA Act
2. Security hot spots	2.1 Theft 2.2 Vandalism 2.3 Pilferage 2.4 Illegal access

REQUIRED KNOWLEDGE

- 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

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.

2. 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
3. Resource Implications	The following resources should be provided: Functional office equipped with: - Computer with software - Stationery - Office furniture - files - calculators - internet connectivity
4. Methods of Assessment	reprographic equipment Competency may be assessed through: 3.1 Written text 3.2 Interview
5. Context of Assessment	3.3 Observation 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.
6. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

MANAGE CONSTRUCTION PROJECT COST

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

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 <i>(Bold and italicized terms are elaborated in the Range)</i>
7 Prepare project budget	7.1 Project BQs, specifications and drawings are analysed as per SOPs 7.2 Rate analysis is conducted as per SOPs 7.3 Materials schedules are developed and priced based on project requirements and specification. 7.4 Project plant and equipment schedules are developed and priced based on project needs. 7.5 Project labour schedules are prepared and priced on project needs. 7.6 Project budgets are harmonised, consolidated and prioritized based on program of works and financing.
8 Procure, allocate and monitor site resource utilization	2.1 Project resources are procured based on schedules. 2.2 Resource allocation and levelling is done based on schedules. 2.3 Project resource utilization is tracked based on resource schedules.
9 Control project cost variation	3.1 Project cost control plan is developed based on project plan and progress. 3.2 Cost variation approval procedure is developed based on contract documents 3.3 Cost variation centres are identified, analysed, priced and approved based on contract documents.
10 Prepare project financial report	4.1 Financial records are analysed based on budget, cumulative payments, materials and plant on site, variation, project status and price fluctuations. 4.2 Consolidated financial appraisal report is prepared and disseminated based contract documents

RANGE

Variable	Range <i>May include but is not limited to:</i>
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1. Cost variation centres	1.1 Client 1.2 Consultants
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REQUIRED KNOWLEDGE

- 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

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.

6. Critical Aspects of Competency	Assessment requires evidence that the candidate - Prepared project budget - Procured, allocated and monitored site resource utilization - Controlled project cost variation - Prepared project financial report - Carried out resource levelling - Priced materials, plant and labour schedules - Prepared rate analysis report
7. Resource Implications	The following resources should be provided: Functional office equipped with: - Computer with software (MS Project, PRIMAVERA) - Stationery - Office furniture - files - calculators - internet connectivity - reprographic equipment
8. Methods of Assessment	Competency may be assessed through: 3.4 Written text 3.5 Interview 3.6 Observation
9. 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.
10. 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

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 (<i>Bold and italicized terms are elaborated in the Range</i>)
1 Develop project labour guidelines	1.1 Existing human resource policy documents are reviewed as per SOPs. 1.2 Project site labour guidelines are developed as per SOPs. 1.3 Construction labour guidelines are disseminated and construction project team is sensitized on project labour guidelines. 1.4 Project labour guidelines are implemented as per workplace policy.
2 Establish labour levelling plan	2.1 Construction project activities are mapped based on project methodology. 2.2 Project labour requirement plan is prepared based on schedules. 2.3 Project labour matrix is prepared based on human resource plan.
3 Allocate staff	3.1 Staff are allocated and organised based on the labour matrix 3.2 Project staff is deployed based on the labour matrix . 3.3 Project staff performance is monitored based on performance targets. 3.4 Project staff performance is appraised based on performance targets. 3.5 Productivity appraisal report is prepared as per SOPs
4 Manage labour welfare	4.1 Existing staff welfare documents are reviewed based on due diligence. 4.2 Labour welfare needs are identified based on experience. 4.3 Labour welfare guidelines are formulated and disseminated. 4.4 Labour welfare issues are handled based on staff welfare policy.
5 Prepare project labour report	5.1 Information on project staff is collected and recorded based on labour guidelines. 5.2 Project labour report is prepared and disseminated based on labour guidelines and site activities/ events.

RANGE

Variable	Range <i>May include but is not limited to:</i>
1. Project activities	1.1 Substructure 1.2 Superstructure 1.3 Finishes
2. Labour matrix	2.1 Hierarchy of authority 2.2 Communication lines

REQUIRED KNOWLEDGE

- 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

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: - Developed project site labour guidelines - Established labour levelling plan • allocated labour - Managed labour welfare • Prepared project labour report
2. Resource Implications	• • • The following resources should be provided: Functional office equipped with:
	• Computer with software (MS Project, PRIMAVERA) • Stationery • Office furniture • files • calculators
3. Methods of Assessment	• internet connectivity • reprographic equipment Competency may be assessed through: 3.1 Written text
4. Context of Assessment	3.2 Interview 3.3 Observation 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.
5. 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

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 <i>(Bold and italicized terms are elaborated in the Range)</i>
1 Manage project documentations	1.1 Contract documents are assembled based on nature of the project. 1.2 Site statutory documents are sought based on legal requirements. 1.3 Project documents register and file register are developed and maintained as per workplace policy.
2 Engage project stakeholders	2.1 Project implementation stakeholders are identified and contracts drawn based on project needs. 2.2 Project implementation stakeholders are engaged based on contracts.
3 Inspect construction project works	3.1 Project inspection plan is developed based on contractual agreement. 3.2 Construction project is commissioned based on project work plan. 3.3 Project works are inspected based on contractual agreement. 3.4 Delivery of project elements/phases is controlled based on project time, cost and quality plans
4 Manage project information	4.1 Project information management plan is developed based on best practice. 4.2 Project information management plan is disseminated, and project team sensitized based on workplace policy. 4.3 Request for information schedule is prepared based on project work activities. 4.4 Project incoming information is received, analysed, disseminated and feedback received and recorded based on request for information schedule.
5 Prepare project implementation report	5.1 Information on project implementation is collected and analysed based on set activities and contractual documents. 5.2 Project implementation report is prepared and disseminated as per workplace policy. 5.3 Project implementation report recommendations are analysed, evaluated and implemented based on implementation plan.

RANGE

Variable	Range <i>May include but is not limited to:</i>
1. Contract documents	1.1 BQ 1.2 Specifications 1.3 Drawings 1.4 Form of tender
2 Site statutory documents	2.1 NEMA 2.2 WRA 2.3 County council approval 2.4 NCA
3 Implementation stakeholders	3.1 Sub-contractors 3.2 Suppliers 3.3 Project consultants
4 Project elements/phases	4.1 Foundation 4.2 Walling 4.3 Windows and doors 4.4 Roofing 4.5 Finishes 4.6 Civil works
5 Project implementation report	5.1 Daily 5.2 Monthly 5.3 Project progress report

REQUIRED KNOWLEDGE

- 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

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: • • • • • •
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Managed project
documentations
Identified project
implementation
stakeholders
Demonstrate an

understanding of standard forms of contract Demonstrated
ability to prepare documentation checklist Inspected project
works
Managed project information
Prepared project implementation report

2. Resource Implications	The following resources should be provided: Functional office equipped with: • Computer with software (Building Information Modelling) • Secondary storage devices • Stationery • Office furniture • Office equipment • files • calculators • internet connectivity • reprographic equipment
3. Methods of Assessment	Competency may be assessed through: 3.1 Written text 3.2 Interview 3.3 Observation
4. 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.
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.