THE REPUBLIC OF KENYA

NATIONAL OCCUPATIONAL STANDARDS

FOR

CARPENTRY AND JOINERY CRAFTSPERSON

LEVEL 5

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 in the formulation of the Policy Framework for Reforming Education and Training. A key feature of this policy is the radical change in the design and delivery of the TVET training. This policy document requires that training in TVET 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 a Carpentry and Joinery Level 5. These Occupational Standards will also be the basis 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 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 Sector Skills Advisory Committee (SSAC), have developed these Occupational Standards for a Carpentry and Joinery craftsman. These standards will be the basis for development of competency-based Curriculum for Carpentry and Joinery level 5

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 SSAC, expert workers and all those who participated in the development of these Occupational Standards.

CHAIRPERSON, TVET CDACC

ACKNOWLEDGMENT

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

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

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

CHAIRPERSON

CONSTRUCTION SECTOR SKILLS ADVISORY COMMITTEE

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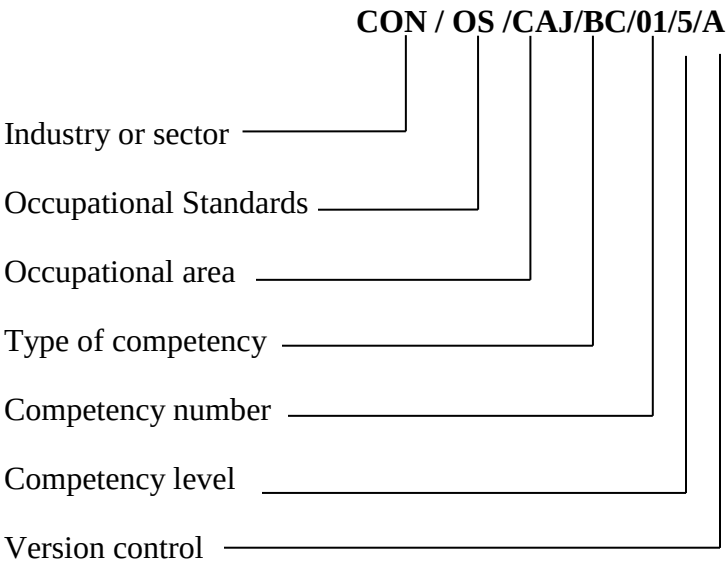
ABBREVIATIONS AND ACRONYMS

CDACC	Curriculum Development Assessment and Certification Council
PPE	Personal Protective Equipment
BS	British Standards
ICT	Information Computer Technology
CON	Construction
OS	Occupational Standards
CAJ	Carpentry and Joinery
BC	Basic Competency
CC	Common Competency
CU	Curriculum
CR	Core Competency
TVET	Technical Vocational Education and Training
2D	Two Dimension
3D	Three Dimension
HIV	Human Immunodeficiency Virus
AIDS	Acquired Immune Deficiency Syndrome
IT	Information Technology
OSHS	Occupational Safety and Health Standards
EMCA	Environmental Management and Coordination Act
K.E	Kinetic Energy
P.E	Potential Energy
ISO	International Organization for Standardization

KEY TO UNIT CODE



OVERVIEW

Carpentry and Joinery Level 5 qualification constis of competencies that a person must achieve to enable him/her to be certified as a Carpentry and Joinery Craftsperson. The units of competency comprising Carpentry and Joinery Craftsperson level 5 include the following basic, common and core units of competency:

BASIC UNITS OF COMPETENCY

Unit Code	Unit Title
CON/OS/CAJ/BC/01/5/A	Demonstrate communication skills
CON/OS/CAJ/BC/02/5/A	Demonstrate numeracy skills
CON/OS/CAJ/BC/03/5/A	Demonstrate digital literacy
CON/OS/CAJ/BC/04/5/A	Demonstrate entrepreneurial skills
CON/OS/CAJ/BC/05/5/A	Demonstrate employability skills
CON/OS/CAJ/BC/06/5/A	Demonstrate environmental literacy
CON/OS/CAJ/BC/07/5/A	Demonstrate occupational safety and health practices

COMMON UNITS OF COMPETENCY

Unit Code	Unit Title
CON/OS/CAJ/CC/01/5/A	Apply basic Mathematics
CON/OS/CAJ/CC/02/5/A	Prepare and Interpret Technical Drawing
CON/OS/CAJ/CC/03/5/A	Apply science
CON/OS/CAJ/CC/04/5/A	Execute temporary works
CON/OS/CAJ/CC/05/5/A	Manage sites and workshops

CORE UNITS OF COMPETENCY

Unit Code	Unit Title
CON/OS/CAJ/CR/01/5/A	Construct doors & door frames
CON/OS/CAJ/CR/02/5/A	Construct windows & window frames
CON/OS/CAJ/CR/03/5/A	Construct furniture items
CON/OS/CAJ/CR/04/5/A	Construct & erect roof structures
CON/OS/CAJ/CR/05/5/A	Perform joiners second fixing
CON/OS/CAJ/CR/06/5/A	Construct timber floors and prefabricated buildings
CON/OS/CAJ/CR/07/5/A	Construct timber Stairs

BASIC UNITS OF COMPETENCY

DEMONSTRATE COMMUNICATION SKILLS

UNIT CODE: CON/OS/CAJ/BC/01/5/A

UNIT DESCRIPTION

This unit covers the competencies required to demonstrate communication skills. It involves meeting communication needs of clients and colleagues, contributing to the development of communication strategies, conducting workplace interviews, facilitating group discussions and representing the organisation

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function	**PERFORMANCE CRITERIA** These are assessable statements which specify the required level of performance for each of the elements. ***Bold and italicized terms are elaborated in the Range***
1. Meet communication needs of clients and colleagues	1.1 Specific communication needs of clients and colleagues are identified and met based on workplace requirements 1.2 Different communication approaches are identified and applied according to clients' needs 1.3 Conflict is identified and addressed as per the standards of the organization
2. Contribute to the development of communication strategies	2.1 Strategies for internal and external dissemination of information are developed, promoted, implemented and reviewed as per organizations' strategic plan 2.2 Channels of communication are established and reviewed based on the workplace needs 2.3 Communication training needs are identified and provided according to SOPs 2.4 Work related network and relationship are maintained based on workplace requirements 2.5 Negotiation and conflict resolution strategies are maintained as per the workplace procedures
3. Conduct workplace interviews	3.1 ***Communication strategies*** are identified and employed in ***interview situations*** based on workplace requirements

	3.2 Records of interviews are made and maintained in accordance with organizational procedures 3.3 Effective questioning, listening and nonverbal communication techniques are used based on needs
4. Facilitate group discussions	4.1 Mechanisms to enhance ***effective group interaction*** are identified and implemented according to workplace requirements 4.2 Strategies to encourage group participation are identified and used as per organizations' procedures 4.3 Meetings objectives and agenda are set and followed based on workplace requirements 4.4 Relevant information is provided and feedback obtained according to set protocols 4.5 Evaluation of group communication strategies is undertaken in accordance with workplace guidelines 4.6 Specific communication needs of individuals are identified and addressed as per individual needs
5. Represent the organization	5.1 Relevant presentation are researched and presented based on internal or external communication forums requirements Presentation is delivered in a clear and sequential manner as per the predetermined time 5.2 Presentation is made as per appropriate media 5.3 Difference views are respected based on workplace procedures 5.4 Written communication is done as per organizational standards 5.5 Inquiries are responded according to organizational standard

RANGE

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

Variable	**Range**
1. Communication strategies may	• Language switch • Comprehension check • Repetition

include but not limited to:	• Asking confirmation • Paraphrase • Clarification request • Translation • Restructuring • Approximation • Generalization
2. Effective group interaction may include but not limited to:	• Identifying and evaluating what is occurring within an interaction in a non-judgmental way • Using active listening • Making decision about appropriate words, behavior • Putting together response which is culturally appropriate • Expressing an individual perspective • Expressing own philosophy, ideology and background and exploring impact with relevance to communication • Openness and flexibility in communication
3. Interview situations may include but not limited to:	• Establishing rapport • Eliciting facts and information • Facilitating resolution of issues • Developing action plans • Diffusing potentially difficult situations

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

The individual needs to demonstrate the following skills:

- Active listening
- Giving/receiving feedback
- Interpretation of information
- Role boundaries setting
- Negotiation
- Communication

Required Knowledge

The individual needs to demonstrate knowledge of:

- Communication process
- Dynamics of groups and different styles of group leadership
- Communication skills relevant to client groups
- Flexibility in communication

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 Met communication needs of clients and colleagues 1.2 Contributed to the development of communication strategies 1.3 Conducted interviews 1.4 Facilitated group discussions 1.5 Represented the organization
2. Resource Implications	The following resources should be provided: 2.1 Access to relevant workplace or appropriately simulated environment where assessment can take place 2.2 Materials relevant to the proposed activity or tasks
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Observation 3.2 Oral questioning 3.3 Written test 3.4 Portfolio of Evidence 3.5 Interview 3.6 Third party report
4. Context of Assessment	Competency may be assessed: 4.1 On the job 4.2 Off the job 4.3 During industrial attachment
5. Guidance information	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

for assessment	

DEMONSTRATE NUMERACY SKILLS

UNIT CODE: CON/OS/CAJ/BC/02/5/A

UNIT DESCRIPTION

This unit covers the competencies required to demonstrate numeracy skills. it involves calculating with whole numbers and familiar fractions, decimals, and percentages for work estimating, measuring, and calculating with routine metric measurements for work, using routine maps and plans for work, interpreting, drawing and constructing 2D and 3D shapes for work, interpreting routine tables, graphs and charts for work, collecting data and constructing routine tables and graphs for work and using basic functions of calculator.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function.	**PERFORMANCE CRITERIA** These are assessable statements which specify the required level of performance for each of the elements. ***Bold and italicized terms are elaborated in the Range.***
1. Calculate with whole numbers and familiar fractions, decimals and percentages for work	1.1 Mathematical information that may be partly embedded in routine workplace tasks and texts is selected and interpreted as per SOPs 1.2 Whole numbers and routine or familiar fractions, decimals and percentages including familiar rates are interpreted and comprehended as per SOPs 1.3 Calculations which may involve a number of steps are performed as per SOPs 1.4 Calculations done with whole numbers and routine or familiar fractions, decimals and percentages as per SOPs 1.5 Conversion between equivalent forms of fractions, decimals and percentages is done as per SOPs 1.6 Order of operations is applied to solve multi-step calculations as per SOPs 1.7 Problem solving strategies are appropriately applied as per SOPs 1.8 Estimations are made to check reasonableness of problem solving process, outcome and its appropriateness to the context and task as per SOPs

	1.9	Formal and informal mathematical language and symbolism are used to communicate the result of the task as per SOPs.
2. Estimate, measure, and calculate with routine metric measurements for work	2.1	Measurement information in workplace tasks and texts are selected and interpreted in accordance with workplace requirements
	2.2	Appropriate routine measuring equipment are identified and selected in accordance with workplace requirements
	2.3	Measurements are estimated and made using correct units as per measurement manuals.
	2.4	Estimations and calculations done as per routine measurements
	2.5	Conversions performed routinely as per metric units
	2.6	Problem solving processes are used to undertake the tasks as per workplace procedures.
	2.7	Estimations are made to check reasonableness of problem solving process, outcome and its appropriateness to the context and task as per workplace procedures
	2.8	Information is recorded using mathematical language and symbols appropriate to discuss the task as per workplace procedures.
3. Use routine maps and plans for work	3.1	Features are identified in routine maps and plans as per SOPs
	3.2	Symbols and keys in routine maps and plans are clearly explained as per SOPs
	3.3	Orientation of map to North is identified and interpreted as per SOPs
	3.4	Understanding of direction and location is clearly demonstrated as per SOPs
	3.5	Simple scale is applied to estimate length of objects, or distance to location or object as per SOPs
	3.6	Directions are given and received using both formal and informal language as per SOPs
4. Interpret, draw and construct 2D and 3D shapes for work	4.1	Two dimensional shapes and routine three dimensional shapes identified in everyday objects and in different orientations in accordance with job specifications

	4.2 The use and application of shapes elaborately explained as per SOPs 4.3 Formal and informal mathematical language and symbols used to describe and compare the features of two dimensional shapes and routine three dimensional shapes as per workplace procedures. 4.4 Common angles identified in accordance with SOPs 4.5 Common angles in everyday objects are appropriately estimated as per SOPs 4.6 Formal and informal mathematical language are used to describe and compare common angles as per workplace procedures. 4.7 Common geometric instruments used to draw two dimensional shapes as per SOPs 4.8 Routine three dimensional objects constructed from given nets as per SOPs.
5. Interpret routine tables, graphs and charts for work	5.1 Routine tables, graphs and charts identified in predominately familiar texts and contexts as per tables and graph manuals 5.2 Common types of graphs and their different uses identified as per SOPs 5.3 Features of tables, graphs and charts identified as per workplace procedures 5.4 Information in routine tables, graphs and charts located and interpreted as per workplace procedures 5.5 Calculations are perform to interpret information as per SOPs 5.6 How statistics can inform and persuade interpretations is explained as per SOPs 5.7 Misleading statistical information is identified as per workplace procedures. 5.8 Information relevant to the workplace is discussed as per workplace procedures.
6. Collect data and construct routine tables and graphs for work	6.1 Features of common tables and graphs identified as per SOPs 6.2 Uses of ***different tables and graphs*** identified as per job specifications 6.3 Data and variables to be collected are determined as per workplace procedures.

	6.4 The audience is determined as per the workplace procedures 6.5 Method of data collection is select as per job requirement 6.6 Data is collected as per SOPs 6.7 Information is collated in a table as per SOPs 6.8 Suitable scale and axes determined as per job specifications 6.9 Graph to present information is drafted and drawn as per SOPs 6.10 Data checked to ensure that it meets the expected results and context as per workplace procedures 6.11 Information is reported or discussed using formal and informal mathematical language as per workplace procedures
7. Use basic functions of calculator	*7.1* Keys are identified and used for ***basic functions on a calculator*** as per SOPs 7.2 Calculation is done using whole numbers, money and routine decimals and percentages as per SOPs 7.3 Calculation done with routine fractions and percentages as per SOPs 7.4 Order of operations is applied to solve multi-step calculations as per SOPs 7.5 Results are interpreted, displayed and recorded as per workplace procedures 7.6 Estimations are made to check reasonableness of problem solving process, outcome and its appropriateness to the context and task as per workplace procedures 7.7 Formal and informal mathematical language and appropriate symbolism and conventions used to communicate the result of the task as per workplace procedures.

RANGE

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

Variable	Range
1. Use basic functions of calculator may include but not limited to:	• Addition • Multiplication • Calculate ratios • Conversion of ratios into percentages
2. Different tables and graphs may include but not limited to:	• Bar Graphs • Flow Charts • Pie Charts • Pictograph • Line Graphs • Time Series Graphs • Stem and Leaf Plot • Histogram • Dot Plot • Scatter plot

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

The individual needs to demonstrate the following skills:

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

Required knowledge

The individual needs to demonstrate knowledge of:

- Types of common shapes
- Differentiation between two dimensional shapes / objects
- Formulae for calculating area and volume

- Types and purpose of measuring instruments
- Units of measurement and abbreviations
- Fundamental operations (addition, subtraction, division, multiplication)
- Rounding techniques
- Types of fractions
- Different types of tables and graphs
- Meaning of graphs, such as increasing, decreasing, and constant value
- Preparation of basic data, tables & graphs

EVIDENCE GUIDE

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

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Calculated correctly with whole numbers and routine or familiar fractions, decimals and percentages 1.2 Estimated, measured and calculated with routine metric measurements 1.3 Applied simple scale to estimate length of objects or distance to location or object 1.4 Used formal and informal mathematical language to describe and compare common angles 1.5 Used common geometric instruments to draw two dimensional shapes 1.6 Collected data and constructed routine tables and graphs 1.7 Used basic functions of calculator correctly
2. Resource Implications	The following resources should be provided: 2.1 Access to relevant workplace or appropriately simulated environment where assessment can take place 2.2 Materials relevant to the proposed activity or tasks
3. Methods of Assessment	Competency may be assessed through: 3.1 Observation 3.2 Oral questioning 3.3 Written test 3.4 Portfolio of Evidence 3.5 Interview

	3.6 Third party report
4. Context of Assessment	Competency may be assessed in: 4.1 On the job 4.2 Off the job 4.3 Industrial attachment
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/CAJ/BC/03/5/A

UNIT DESCRIPTION

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

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function	**PERFORMANCE CRITERIA** These are assessable statements which specify the required level of performance for each of the elements. ***Bold and italicized terms are elaborated in the Range***
1. Identify appropriate computer software and hardware	1.1 Concepts of ICT are determined in accordance with computer equipment 1.2 Classifications of computers are determined in accordance with manufacturers specification 1.3 ***Appropriate computer software*** is identified according to manufacturer's specification 1.4 ***Appropriate computer hardware*** is identified according to manufacturer's specification 1.5 Functions and commands of operating system are determined in accordance with manufacturer's specification
2. Apply security measures to data, hardware, software in automated environment	2.1 ***Data security and privacy are classified*** in accordance with the prevailing technology 2.2 ***Security threats*** are identified, **and** ***control measures*** are applied in accordance with laws governing protection of ICT 2.3 Computer threats and crimes are detected in accordance with Information security management guidelines 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 ***Word processing concepts*** are applied in resolving workplace tasks, report writing and documentation as per job requirements 3.2 ***Word processing utilities*** are applied in accordance with workplace procedures 3.3 Worksheet layout is prepared in accordance with work procedures 3.4 Worksheet is build and data manipulated in the worksheet in accordance with workplace procedures 3.5 Continuous data manipulated on worksheet is undertaken in accordance with work requirements 3.6 Database design and manipulation is undertaken in accordance with office procedures 3.7 Data sorting, indexing, storage, retrieval and security is provided in accordance with workplace procedures
4. Apply internet and email in communication at workplace	4.1 Electronic mail addresses are opened and applied in workplace communication in accordance with office policy 4.2 Office internet functions are defined and executed in accordance with office procedures 4.3 ***Network configuration*** is determined in accordance with office operations procedures 4.4 Official World Wide Web is installed and managed according to workplace procedures
5. Apply desktop publishing in official assignments	5.1 Desktop publishing functions and tools are identified in accordance with manufactures specifications 5.2 Desktop publishing tools are developed in accordance with work requirements 5.3 Desktop publishing tools are applied in accordance with workplace requirements 5.4 Typeset work is enhanced in accordance with workplace standards
6. Prepare presentation packages	6.1 Types of presentation packages are identified in accordance with office requirements 6.2 Slides are created and formulated in accordance with workplace procedures 6.3 Slides are edited and run in accordance with work procedures 6.4 Slides and handouts are printed according to work requirements

RANGE

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

Variable	Range
1. Appropriate computer hardware may include but not limited to:	• Computer case • Monitor • keyboard • mouse
2. Data security and privacy may include but not limited to:	• Confidentiality of data • Cloud computing • Integrity -but-curious data surfing
3. Security and control measures may include but not limited to:	• Counter measures against cyber terrorism • Risk reduction • Cyber threat issues • Risk management • Pass wording
4. Security threats may include but not limited to:	• Cyber terrorism • Hacking

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

The individual needs to demonstrate the following skills:

- Analytical skills
- Interpretation
- Typing
- Communication
- Basic ICT skills

Required Knowledge

The individual needs to demonstrate knowledge of:

- Software concept
- Functions of computer software and hardware
- Data security and privacy
- Computer security threats and control measures
- Technology underlying cyber-attacks and networks
- Cyber terrorism
- Computer crimes
- Detection and protection of computer crimes
- Laws governing protection of ICT
- Microsoft suite

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 and controlled security threats 1.2 Detected and protected computer crimes 1.3 Applied word processing in office tasks 1.4 Designed, prepared work sheet and applied data to the cells in accordance to workplace procedures 1.5 Opened electronic mail for office communication as per workplace procedure 1.6 Installed internet and World Wide Web for office tasks in accordance with office procedures 1.7 Integrated emerging issues in computer ICT applications 1.8 Applied laws governing protection of ICT
2. Resource Implications	The following resources should be provided: 2.1 Tablets 2.2 Laptops 2.3 Desktop computers 2.4 Calculators 2.5 Internet 2.6 Smart phones 2.7 Operation Manuals

3. Methods of Assessment	Competency may be assessed through: 3.1 Written Test 3.2 Observation 3.3 Practical assignment 3.4 Interview/Oral Questioning
4. Context of Assessment	Competency may be assessed in: 4.1 Off the job 4.2 On the job setting 4.3 Industrial attachment
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/CAJ/BC/04/5/A

UNIT DESCRIPTION

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

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
1. Demonstrate understanding of an Entrepreneur	1.1 Entrepreneurs and Businesspersons are distinguished as per principles of entrepreneurship 1.2 ***Types of entrepreneurs*** are identified as per principles of entrepreneurship 1.3 Ways of becoming an Entrepreneur are identified as per principles of Entrepreneurship 1.4 ***Characteristics of Entrepreneurs*** are identified as per principles of Entrepreneurship 1.5 Factors affecting Entrepreneurship development are explored as per principles of Entrepreneurship
2. Demonstrate understanding of Entrepreneurship and self-employment	2.1 Entrepreneurship and self-employment are distinguished as per principles of entrepreneurship 2.2 Importance of self-employment is analysed based on business procedures and strategies 2.3 ***Requirements for entry into self-employment*** are identified according to business procedures and strategies 2.4 Role of an Entrepreneur in business is determined according to business procedures and strategies

	2.5 Contributions of Entrepreneurs to National development are identified as per business procedures and strategies 2.6 Entrepreneurship culture in Kenya is explored as per business procedures and strategies 2.7 Born or made Entrepreneurs are distinguished as per entrepreneurial traits
3. Identify Entrepreneurship opportunities	3.1 Sources of business ideas are identified as per business procedures and strategies 3.2 Business ideas and opportunities are generated as per business procedures and strategies 3.3 Business life cycle is analysed as per business procedures and strategies 3.4 Legal aspects of business are identified as per procedures and strategies 3.5 Product demand is assessed as per market strategies 3.6 Types of ***business environment*** are identified and evaluated as per business procedures 3.7 Factors to consider when evaluating business environment are explored based on business procedure and strategies 3.8 Technology in business is incorporated as per best practice
4. Create entrepreneurial awareness	4.1 ***Forms of businesses*** are explored as per business procedures and strategies 4.2 Sources of business finance are identified as per business procedures and strategies 4.3 Factors in selecting source of business finance are identified as per business procedures and strategies 4.4 ***Governing policies*** on Small Scale Enterprises (SSEs) are determined as per business procedures and strategies 4.5 Problems of starting and operating SSEs are explored as per business procedures and strategies

5. Apply entrepreneurial motivation	5.1 ***Internal and external motivation*** factors are determined in accordance with motivational theories 5.2 Self-assessment is carried out as per entrepreneurial orientation 5.3 Effective communications are carried out in accordance with communication principles 5.4 Entrepreneurial motivation is applied as per motivational theories
6. Develop innovative business strategies	6.1 Business innovation strategies are determined in accordance with the organization strategies 6.2 Creativity in business development is demonstrated in accordance with business strategies 6.3 ***Innovative business strategies*** are developed as per business principles 6.4 Linkages with other entrepreneurs are created as per best practice 6.5 ICT is incorporated in business growth and development as per best practice
7. Develop Business Plan	7.1 Identified Business is described as per business procedures and strategies 7.2 Marketing plan is developed as per business plan format 7.3 Organizational/Management plan is prepared in accordance with business plan format 7.4 Production/operation plan in accordance with business plan format 7.5 Financial plan is prepared in accordance with the business plan format 7.6 Executive summary is prepared in accordance with business plan format 7.7 Business plan is presented as per best practice

RANGE

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

1. Variable	Range
2. Types of entrepreneurs may include but not limited to:	• Innovators • Imitators • Craft • Opportunistic • Speculators
3. Characteristics of Entrepreneurs may include but not limited to:	• Creative • Innovative • Planner • Risk taker • Networker • Confident • Flexible • Persistent • Patient • Independent • Future oriented • Goal oriented
4. Requirements for entry into self-employment may include but not limited to	• Technical skills • Management skills • Entrepreneurial skills • Resources • Infrastructure
5. Internal and external motivation may include but not limited to:	• Interest • Passion • Freedom • Prestige • Rewards • Punishment • Enabling environment • Government policies
6. Business environment may include but not limited to:	• External • Internal • Intermediate
7. Forms of businesses may include but not limited to:	• Sole proprietorship • Partnership • Limited companies • Cooperatives

8. Governing policies may include but not limited to:	• Increasing scope for finance • Promoting cooperation between entrepreneurs and private sector • Reducing regulatory burden on entrepreneurs • Developing IT tools for entrepreneurs
9. Innovative business strategies may include but not limited to:	• New products • New methods of production • New markets • New sources of supplies • Change in industrialization

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

The individual needs to demonstrate the following skills:

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

Required Knowledge

The individual needs to demonstrate knowledge of:

- Decision making
- Business communication
- Change management
- Competition
- Risk
- Net working
- Time management

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

EVIDENCE GUIDE

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

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Distinguished entrepreneurs and business persons correctly 1.2 Identified ways of becoming an entrepreneur appropriately 1.3 Explored factors affecting entrepreneurship development appropriately 1.4 Analysed importance of self-employment accurately 1.5 Identified requirements for entry into self-employment correctly 1.6 Identified sources of business ideas correctly 1.7 Generated Business ideas and opportunities correctly

	1.8 Analysed business life cycle accurately 1.9 Identified legal aspects of business correctly 1.10 Assessed product demand accurately 1.11 Determined Internal and external motivation factors appropriately 1.12 Carried out communications effectively 1.13 Identified sources of business finance correctly 1.14 Determined Governing policy on small scale enterprise appropriately 1.15 Explored problems of starting and operating SSEs effectively 1.16 Developed Marketing, Organizational/Management, Production/Operation and Financial plans correctly 1.17 Prepared executive summary correctly 1.18 Determined business innovative strategies appropriately 1.19 Presented business plan effectively
2. Resource Implications	The following resources should be provided: 2.1 Access to relevant workplace where assessment can take place 2.2 Appropriately simulated environment where assessment can take place
3. Methods of Assessment	Competency may be assessed through: 3.1 Written tests 3.2 Oral questions 3.3 Third party report 3.4 Interviews 3.5 Portfolio
4. Context of Assessment	Competency may be assessed: 4.1 On-the-job 4.2 Off-the –job 4.3 During Industrial attachment
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

DEMONSTRATE EMPLOYABILITY SKILLS

UNIT CODE: CON/OS/CAJ/BC/05/5/A

Unit Description

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

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function.	**PERFORMANCE CRITERIA** These are assessable statements which specify the required level of performance for each of the elements. ***Bold and italicized terms are elaborated in the Range***
1. Conduct self-management	1.1 Personal vision, mission and goals are formulated based on potential and in relation to organization objectives 1.2 Emotional intelligence is demonstrated as per workplace requirements. 1.3 Individual performance is evaluated and monitored according to the agreed targets. 1.4 Assertiveness is developed and maintained based on the requirements of the job. 1.5 Accountability and responsibility for own actions are demonstrated based on workplace instructions. 1.6 Self-esteem and a positive self-image are developed and maintained based on values. 1.7 Time management, attendance and punctuality are observed as per the organization policy. 1.8 Goals are managed as per the organization's objective 1.9 Self-strengths and weaknesses are identified based on personal objectives

2. Demonstrate interpersonal communication	2.1 Writing skills are demonstrated as per communication policy 2.2 Negotiation and persuasion skills are demonstrated as per communication policy 2.3 Internal and external stakeholders' needs are identified and interpreted as per the communication policy 2.4 Communication networks are established based on workplace policy 2.5 Information is shared as per communication policy
3. Demonstrate critical safe work habits	3.1 Stress is managed in accordance with workplace policy. 3.2 Punctuality and time consciousness is demonstrated in line with workplace policy. 3.3 Personal objectives are integrated with organization goals based on organization's strategic plan. 3.4 ***Resources*** are utilized in accordance with workplace policy. 3.5 Work priorities are set in accordance to workplace goals and objectives. 3.6 Leisure time is recognized and utilized in line with personal objectives. 3.7 ***Drugs and substances of abuse*** are identified and avoided based on workplace policy. 3.8 HIV and AIDS prevention awareness is demonstrated in line with workplace policy. 3.9 Safety consciousness is demonstrated in the workplace based on organization safety policy. 3.10 ***Emerging issues*** are identified and dealt with in accordance with organization policy.
4. Lead small teams	4.1 Performance targets for the ***team*** are set based on organization's objectives 4.2 Duties are assigned in accordance with the organization policy. 4.3 ***Forms of communication*** in a team are established according to organization's policy. 4.4 Team performance is evaluated based on set targets as per workplace policy. 4.5 Conflicts are resolved between team members in line with organization policy.

	4.6 Gender related issues are identified and mainstreamed in accordance workplace policy. 4.7 Human rights and fundamental freedoms are identified and respected as Constitution of Kenya 2010. 4.8 Healthy relationships are developed and maintained in line with workplace.
5. Plan and organize work	5.1 Task requirements are identified as per the workplace objectives 5.2 Task is interpreted in accordance with safety (OHS), environmental requirements and quality requirements 5.3 Work activity is organized with other involved personnel as per the SOPs 5.4 Resources are mobilized, allocated and utilized to meet project goals and deliverables. 5.5 Work activities are monitored and evaluated in line with organization procedures. 5.6 Job planning is documented in accordance with workplace requirements. 5.7 Time is managed achieve workplace set goals and objectives.
6. Maintain professional growth and development	6.1 Personal training needs are identified and assessed in line with the requirements of the job. 6.2 ***Training and career opportunities*** are identified and utilized based on job requirements. 6.3 Resources for training are mobilized and allocated based organizations and individual skills needs. 6.4 Licensees and certifications relevant to job and career are obtained and renewed as per policy. 6.5 Work priorities and personal commitments are balanced and managed based on requirements of the job and personal objectives. 6.6 Recognitions are sought as proof of career advancement in line with professional requirements.
7. Demonstrate workplace learning	7.1 Learning opportunities are sought and managed based on job requirement and organization policy. 7.2 Improvement in performance is demonstrated based on courses attended. 7.3 Application of learning is demonstrated in both technical and non-technical aspects based on requirements of the job

	7.4 Time and effort is invested in learning new skills based on job requirements 7.5 Initiative is taken to create more effective and efficient processes and procedures in line with workplace policy. 7.6 New systems are developed and maintained in accordance with the requirements of the job. 7.7 Awareness of personal role in workplace ***innovation*** is demonstrated based on requirements of the job.
8. Demonstrate problem solving skills	8.1 Creative, innovative and practical solutions are developed based on the problem 8.2 Independence and initiative in identifying and solving problems is demonstrated based on requirements of the job. 8.3 Team problems are solved as per the workplace guidelines 8.4 Problem solving strategies are applied as per the workplace guidelines 8.5 Problems are analyzed and assumptions tested as per the context of data and circumstances
9. Demonstrate workplace ethics	9.1 Policies and guidelines are observed as per the workplace requirements 9.2 Self-worth and professionalism is exercised in line with personal goals and organizational policies 9.3 Code of conduct is observed as per the workplace requirements 9.4 Integrity is demonstrated as per legal requirement

RANGE

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

Range	**Variable**
1. Drug and substance abuse may include but not limited to:	Commonly abused • Alcohol • Tobacco • Miraa • Over-the-counter drugs • Cocaine

	• Bhang • Glue
2. Feedback may include but not limited to:	• Verbal • Written • Informal • Formal
3. Relationships may include but not limited to:	• Man/Woman • Trainer/trainee • Employee/employer • Client/service provider • Husband/wife • Boy/girl • Parent/child • Sibling relationships
4. Forms of communication may include but not limited to:	• Written • Visual • Verbal • Non verbal • Formal and informal
5. Team may include but not limited to:	• Small work group • Staff in a section/department • Inter-agency group
6. Personal growth may include but not limited to:	• Growth in the job • Career mobility • Gains and exposure the job gives • Net workings • Benefits that accrue to the individual as a result of noteworthy performance
7. Personal objectives may include but not limited to:	• Long term • Short term • Broad • Specific
8. Trainings and career opportunities may include but not limited to	• Participation in training programs • Technical • Supervisory • Managerial • Continuing Education • Serving as Resource Persons in conferences and workshops

9. Resource may include but not limited to:	• Human • Financial • Hardware • Software
10. Innovation may include but not limited to:	• New ideas • Original ideas • Different ideas • Methods/procedures • Processes • New tools
11. Emerging issues may include but not limited to:	• Terrorism • Social media • National cohesion • Open offices
12. Range of media for learning may include but not limited to:	• Mentoring • peer support and networking • IT and courses

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

The individual needs to demonstrate the following skills:

- Communication
- Critical thinking
- Observation
- Organizing
- Negotiation
- Monitoring
- Evaluation
- Record keeping
- Problem solving
- Decision Making
- Resource utilization
- Resource mobilization

Required Knowledge

The individual needs to demonstrate knowledge of:

- Work values and ethics
- Company policies
- Company operations, procedures and standards
- Occupational Health and safety procedures
- Fundamental rights at work
- Personal hygiene practices
- Workplace communication
- Concept of time
- Time management
- Decision making
- Types of resources
- Work planning
- Resources and allocating resources
- Organizing work
- Monitoring and evaluation
- Record keeping
- Workplace problems and how to deal with them
- Gender mainstreaming
- HIV and AIDS
- Drug and substance abuse
- Leadership
- Safe work habits
- Professional growth and development
- Technology in the workplace
- 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 Conducted self-management 1.2 Demonstrated interpersonal communication 1.3 Demonstrated critical safe work habits

	1.4 Led small teams 1.5 Planned and organized work 1.6 Maintained professional growth and development 1.7 Demonstrated workplace learning 1.8 Demonstrated problem solving skills 1.9 Demonstrated workplace ethics
2. Resource Implications	The following resources should be provided: 2.1 Access to relevant workplace where assessment can take place 2.2 Appropriately simulated environment where assessment can take place
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Oral questioning 3.2 Portfolio of evidence 3.3 Third Party Reports 3.4 Written tests
4. Context of Assessment	Competency may be assessed: 4.1 On-the-job 4.2 Off-the –job 4.3 During Industrial attachment
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/CAJ/BC/06/5/A

UNIT DESCRIPTION

This unit describes the competencies required to demonstrate understanding of environmental literacy. It involves controlling environmental hazard, controlling control environmental pollution, complying with workplace sustainable resource use, evaluating current practices in relation to resource usage, identifying environmental legislations/conventions for environmental concerns, implementing specific environmental programs and monitoring activities on environmental protection/programs.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function.	**PERFORMANCE CRITERIA** These are assessable statements which specify the required level of performance for each of the elements. ***Bold and italicized terms are elaborated in the Range***
1. Control environmental hazard	1.1 ***Storage methods*** for environmentally ***hazardous*** materials are strictly followed according to environmental regulations and OSHS. 1.2 ***Disposal methods*** of hazardous wastes are followed always according to environmental regulations and OSHS. 1.3 ***PPE*** is used according to OSHS.
2. Control environmental Pollution control	2.1 Environmental pollution ***control measures*** are compiled following standard protocol. 2.2 Procedures for solid waste management are observed according to Environmental Management and Coordination Act 1999 2.3 Methods for minimizing ***noise pollution*** is complied with based on *Noise* and Excessive Vibration *Pollution and Control Regulations*, 2009

3. Demonstrate sustainable resource use	3.1 Methods for minimizing wastage are complied with. 3.2 Waste management procedures are employed following principles of 3Rs (Reduce, Reuse, Recycle) 3.3 Methods for economizing and reducing resource consumption are practiced as per the Environmental Management and Coordination Act 1999
4. Evaluate current practices in relation to resource usage	4.1 Information on resource efficiency **systems and procedures** are collected and provided to the work group where appropriate. 4.2 Current resource usage is measured and recorded by members of the work group. 4.3 Current purchasing strategies are analyzed and recorded according to industry procedures. 4.4 Current work processes to access information and data is analyzed following enterprise protocol.
5. Identify Environmental legislations/conventions for environmental concerns	5.1 Environmental ***legislations/conventions*** and local ordinances are identified according to the different ***environmental aspects/impact*** 5.2 ***Industrial standard/environmental practices*** are described according to the different environmental concerns
6. Implement specific environmental programs	6.1 Programs/Activities are identified according to organizations policies and guidelines. 6.2 Individual roles/responsibilities are determined and performed based on the activities identified. 6.3 Problems/constraints encountered are resolved in accordance with organizations' policies and guidelines 6.4 Stakeholders are consulted based on company guidelines
7. Monitor activities on Environmental protection/Programs	7.1 Activities are periodically monitored and evaluated according to the objectives of the environmental Program

	7.2 Feedback from stakeholders are gathered and considered in proposing enhancements to the program based on consultations 7.3 Data gathered are analyzed based on evaluation requirements 7.4 Recommendations are submitted based on the findings 7.5 Management support systems are set/established to sustain and enhance the program 7.6 Environmental incidents are monitored and reported to concerned/proper authorities

RANGE

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

Variable	**Range**
1. PPE may include but not limited to:	• Mask • Gloves • Goggles • Safety hat • Overall • Hearing protector • Safety boots
2. Environmental pollution control measures may include but not limited to:	• Methods for minimizing or stopping spread and ingestion of airborne particles • Methods for minimizing or stopping spread and ingestion of gases and fumes • Methods for minimizing or stopping spread and ingestion of liquid wastes

3. Waste management procedures may include but not limited to:	• Sorting • Storing of items • Recycling of items • Disposal of items
4. Resources may include but not limited to:	• Electric • Water • Fuel • Telecommunications • Supplies • Materials
5. Workplace environmental hazards may include but not limited to:	• Biological hazards • Chemical and dust hazards • Physical hazards
6. Organizational systems and procedures may include but not limited to:	• Supply chain, procurement and purchasing • Quality assurance • Making recommendations and seeking approvals

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:

- Observation
- Measuring
- Writing
- Communication
- Analytical
- Monitoring
- Evaluation

Required Knowledge

The individual needs to demonstrate knowledge of:

- Storage methods of environmentally hazardous materials
- Disposal methods of hazardous wastes

- Usage of PPE Environmental regulations
- OSHS
- Types of pollution
- Environmental pollution control measures
- Different solid wastes
- Solid waste management
- Different noise pollution
- Methods of minimizing noise pollution
- Solid Waste Act
- Methods of minimizing wastage
- Waste management procedures
- Economizing of resource consumption
- 3Rs principle
- Types of resources
- Techniques in measuring current usage of resources
- Calculating current usage of resources
- Types of workplace environmental hazards
- Environmental regulations
- Environmental regulations applying to the enterprise.
- Measurement and recording of current resource usage
- Analysis current work processes to access information and data Analysis of data and information
- Identification of areas for improvement
- Resource consuming processes
- Determination of quantity and nature of resource consumed
- Analysis of resource flow of different parts of the resource flow process
- Use/conversion of resources
- Causes of low efficiency of use
- Increasing the efficiency of resource use
- Inspection of resource use plans
- Regulations/licensing requirements
- Determine benefit/cost for alternative resource sources
- Benefit/costs for different alternatives
- Components of proposals
- Criteria on ranking proposals
- Regulatory requirements
- Proposals for improving resource efficiency
- Implementation of resource efficiency plans

- Procedures in monitor implementation
- Adjustments of implementation plan
- Inspection of new resource usage

EVIDENCE GUIDE

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

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Controlled environmental hazard 1.2 Controlled environmental pollution 1.3 Demonstrated sustainable resource use 1.4 Evaluated current practices in relation to resource usage 1.5 Demonstrated knowledge of environmental legislations and local ordinances according to the different environmental issues /concerns. 1.6 Described industrial standard environmental practices according to the different environmental issues/concerns. 1.7 Resolved problems/ constraints encountered based on management standard procedures 1.8 Implemented and monitored environmental practices on a periodic basis as per company guidelines 1.9 Recommended solutions for the improvement of the Program 1.10 Monitored and reported to proper authorities any environmental incidents
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 (ex. Cleaning tools, cleaning materials, trash bags, etc.) 2.3 PPE 2.4 Manuals and references 2.5 Legislation, policies, procedures, protocols and local ordinances relating to environmental protection 2.6 Case studies/scenarios relating to environmental Protection
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Observation 3.2 Oral questioning 3.3 Written test

	3.4 Interview/Third Party Reports 3.5 Portfolio of evidence
4. Context of Assessment	Competency may be assessed: 4.1 On-the-job 4.2 Off-the –job 4.3 During Industrial attachment
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/CAJ/BC/07/5/A

UNIT DESCRIPTION

This unit specifies the competencies required to identify workplace hazards and risk, identify and implement appropriate control measures and implement OSH programs, procedures and policies/ guidelines

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function.	**PERFORMANCE CRITERIA** These are assessable statements which specify the required level of performance for each of the elements. ***Bold and italicized terms are elaborated in the Range***
1. Identify workplace hazards and risk	1.1 ***Hazards*** in the workplace are identified ***based their indicators*** 1.2 Risks and hazards are evaluated based on legal requirements. 1.3 ***OSH concerns*** raised by workers are addressed as per legal requirements.
2. Control OSH hazards	2.1 Hazard prevention ***and control measures*** are implemented as per legal requirement. 2.2 Risk assessment is conducted and a risk matrix developed based on likely impact. 2.3 ***Contingency measures***, including ***emergency procedures*** during workplace ***incidents and emergencies*** are recognized and established in accordance with organization procedures.
3. Implement OSH programs	3.1 Company OSH program are identified, evaluated and reviewed based on legal requirements. 3.2 Company OSH programs are implemented as per legal requirements. 3.3 Workers are capacity built on OSH standards and procedures as per legal requirements 3.4 ***OSH-related records*** are maintained as per legal requirements.

RANGE

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

Variable	Range
1. Hazards may include but are not limited to:	• Physical hazards • Biological hazards • Chemical hazards • Ergonomics • Psychological factors • Physiological factors • Safety hazards • Unsafe workers' act
2. Indicators may include but are not limited to:	• Increased of incidents of accidents, injuries • Increased occurrence of sickness or health complaints/ symptoms • Common complaints of workers related to OSH • High absenteeism for work-related reasons
3. Evaluation and/or work environment measurements may include but are not limited to:	• Health Audit • Safety Audit • Work Safety and Health Evaluation • Work Environment Measurements of Physical and Chemical Hazards
4. OSH issues and/or concerns may include but are not limited to:	• Workers' experience/observance on presence of work hazards • Unsafe/unhealthy administrative arrangements (prolonged work hours, no break time, constant overtime, scheduling of tasks) • Reasons for compliance/non-compliance to use of PPEs or other OSH procedures/policies/guidelines

5. Prevention and control measures may include but are not limited to:	• Eliminate the hazard • Isolate the hazard • Substitute the hazard with a safer alternative • Use administrative controls to reduce the risk • Use engineering controls to reduce the risk • Use personal protective equipment • Safety, Health and Work Environment Evaluation • Periodic and/or special medical examinations of workers
6. Safety gears /PPE (Personal Protective Equipment's) may include but are not limited to:	• Arm/Hand guard, gloves • Eye protection (goggles, shield) • Hearing protection (ear muffs, ear plugs) • Hair Net/cap/bonnet • Hard hat • Face protection (mask, shield) • Apron/Gown/coverall/jump suit • Anti-static suits • High-visibility reflective vest
7. Appropriate risk controls	• Eliminate the hazard altogether • Isolate the hazard from anyone who could be harmed • Substitute the hazard with a safer alternative • Use administrative controls to reduce the risk • Use engineering controls to reduce the risk • Use personal protective equipment
8. Contingency measures may include but are not limited to:	• Evacuation • Isolation • Decontamination • Emergency personnel

9. Emergency procedures may include but are not limited to:	• Fire drill • Earthquake drill • Basic life support/CPR • First aid • Spillage control • Decontamination of chemical and toxic • Disaster preparedness/management • Set of fire-extinguisher
10. Incidents and emergencies may include but are not limited to:	• Chemical spills • Equipment/vehicle accidents • Explosion • Fire • Gas leak • Injury to personnel • Structural collapse • Toxic and/or flammable vapors emission.
11. OSH-related Records may include but are not limited to:	• Medical/Health records • Incident/accident reports • Sickness notifications/sick leave application • OSH-related trainings obtained

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

The individual needs to demonstrate the following skills:

- Communication
- Interpersonal
- Presentation
- Risk assessment
- Evaluation
- Critical thinking
- Problem solving
- Negotiation

Required Knowledge

The individual needs to demonstrate knowledge of:

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

EVIDENCE GUIDE

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

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Identified hazards in the workplace based their indicators 1.2 Evaluated workplace hazards based on legal requirements. 1.3 Addressed OSH concerns raised by workers as per legal requirements. 1.4 Implemented hazard prevention and control measures as per legal requirement. 1.5 Conducted risk assessment as per legal requirement. 1.6 Developed risk matrix based on likely impact. 1.7 Recognized and established contingency measures in accordance with organization procedures. 1.8 Identified, evaluated and reviewed company OSH program based on legal requirements. 1.9 Implemented company OSH programs as per legal requirements. 1.10 Capacity built workers on OSH standards and procedures as per legal requirements

	1.11 Maintained OSH-related records as per legal requirements.
2. Resource Implications	The following resources should be provided: 2.1 Access to relevant workplace where assessment can take place 2.2 Appropriately simulated environment where assessment can take place
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Observation 3.2 Oral questioning 3.3 Written test 3.4 Portfolio of Evidence 3.5 Interview 3.6 Third party report
4. Context of Assessment	Competency may be assessed: 4.1 On-the-job 4.2 Off-the –job 4.3 During Industrial attachment
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

COMMON UNITS OF COMPETENCY

APPLY BASIC MATHEMATICS

UNIT CODE:CON/OS/CAJ/CC/01/5/A

UNIT DESCRIPTION:

This unit describes the competencies required in order to apply basic mathematics. It involves applying algebra, performing geometrical calculations, carrying out mensuration, applying statistics, applying graphs and charts, applying number series and indices and logarithms. It also entails applying Ratios, applying matrices, applying probability, performing commercial calculations, applying trigonometry and applying vectors.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function.	**PERFORMANCE CRITERIA** These are assessable statements which specify the required level of performance for each of the elements.(***Bold and italicized terms are elaborated in the Range)***
1. Apply Algebra	1.1 Calculations involving Indices are performed as per the concept 1.2 Linear equations are represented based on the concept 1.3 Scientific calculator is used in solving mathematical problems in line with manufacturer's manual 1.4 Simultaneous equations are performed as per the rules 1.5 Simple algebraic equations are solved as per the concept 1.6 Simple algebraic equations are formed as per the concept 1.7 Transpose formulae is applied as per the concept 1.8 Quadratic equations are solved
2. Perform geometrical calculations	2.1 Calculated areas of figures as per the given formulae 2.2 Applied Pythagoras' theorem based on the concept

ELEMENT These describe the key outcomes which make up workplace function.	**PERFORMANCE CRITERIA** These are assessable statements which specify the required level of performance for each of the elements.(***Bold and italicized terms are elaborated in the Range)***
3. Carry out Mensuration	3.1 Identified various ***units of measurements*** as per the course requirements 3.2 Converted units from one form to another 3.3 Perimeter and areas of ***figures*** are obtained as per the correct formulae 3.4 Volume and Surface area of solids are obtained 3.5 Area of irregular figures are obtained
4. Apply Statistics	4.1 Identified grouped and ungrouped data 4.2 Organized ungrouped data as per the concept 4.3 Represented data in frequency tables 4.4 Calculated the median of grouped and ungrouped data 4.5 Tabulated statistical data 4.6 Represented data in a chart form 4.7 Interpreted data from a given chart
5. Apply graphs and charts	5.1 Plotted a ***linear graph*** for given set of data 5.2 Read and used information from a given linear graph 5.3 Plotted parabolic curves 5.4 Solved simultaneous and quadratic equations by the graphical method 5.5 Presented data in appropriate charts
6. Apply number series	6.1 Distinguished between a sequence and series 6.2 Solved problems involving series 6.3 Calculated simple and compound interest
7. Apply Indices and Logarithms	7.1 Converted numbers from one base to another 7.2 Applied the laws of indices in solving exponential equations 7.3 Applied the laws of logarithms in solving logarithmic equations
8. Apply Ratios	8.1 Differentiated between rational and irrational numbers 8.2 Expressed ratios as percentages

ELEMENT These describe the key outcomes which make up workplace function.	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements.(***Bold and italicized terms are elaborated in the Range)***
	8.3 Solved problems involving direct and inverse proportions
9. Apply matrices	9.1 Operated on matrices 9.2 Calculated the determinant of a 2*2 matrix 9.3 Calculated the inverse of a 2*2 matrix 9.4 Applied matrices in solving simultaneous equations
10. Apply probability	10.1 Deduced whether two events are dependent or independent 10.2 Applied the laws of probability in finding the changes of an event occurring
11. Perform commercial calculations	11.1 Converted one currency to another 11.2 Calculated exchange rates 11.3 Calculated income 11.4 Calculated of taxes 11.5 Calculated average sales
12. Apply Trigonometry	12.1 Calculations are performed using trigonometric rules 12.2 Calculated circular measure 12.3 Applied trigonometric ratios 12.4 Calculated simple trigonometric identities 12.5 Applied trigonometry of angles greater than a right angle 12.6 Applied sine and cosine rules 12.7 Performed phasor representation
13. Apply vectors	13.1 Performed manipulation of vectors 13.2 Performed resolution of vectors

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. Units of measurement may include but not limited to:	• Millimetres • Centimetres • Metres • Kilometres
2. Figures may include but not limited to:	• square • rectangle • triangle • polygons • circles
3. Linear graphs may include but not limited to:	• Distance against time • Temperature against time • Velocity against distance

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 and applying mathematical formulas
- Logical thinking
- Problem solving
- Applying statistics
- Drawing graphs
- Using different measuring tools

Required knowledge

The individual needs to demonstrate knowledge of:

- Fundamental operations (addition, subtraction, division, multiplication)
- Calculating area and volume
- Types and purpose of measuring instruments
- Units of measurement and abbreviations
- Rounding techniques
- Types of fractions
- Types of tables and graphs
- Presentation of data in tables and 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 Applied Algebra 1.2 Performed geometrical calculations 1.3 Carried out Mensuration based on the concept 1.4 Demonstrated knowledge of applied Statistics 1.5 Applied graphs and charts 1.6 Applied number series 1.7 Applied Indices and Logarithms 1.8 Applied Ratios 1.9 Applied matrices 1.10 Applied probability accurately 1.11 Performed commercial calculations accurately 1.12 Applied Trigonometry appropriately 1.13 Applied vectors according to the concept
2. Resource Implications	The following resources should be provided: 2.1 Access to relevant workplace or appropriately simulated environment where assessment can take place 2.2 Measuring equipment 2.3 Materials relevant to the proposed activity or tasks
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Observation 3.2 Oral questioning

	3.3 Written test 3.4 Portfolio of Evidence 3.5 Interview 3.6 Third party report
4. Context of Assessment	Competency may be assessed 4.1 On job 4.2 Off job 4.3 During industrial attachment
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

PREPARE AND INTERPRET TECHNICAL DRAWINGS

UNIT CODE: CON/OS/CAJ/CC/02/5/A

UNIT DESCRIPTION

This unit covers the competencies required to prepare and interpret technical drawings. It involves competencies to perform general communication. It also involves producing plain geometry drawings, orthographic and pictorial drawings, solid geometry, working drawings for building and producing perspective drawing.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	**PERFORMANCE CRITERIA** ***(Bold and italicised terms are elaborated in the Range)***
1. Perform General Communication	1.1 Role of drawing as means of communication is stated according to task requirements 1.2 ***Drawing equipment*** are identified and gathered according to task requirements 1.3 ***Drawing materials*** are identified and gathered according to task requirements 1.4 Drawing equipment are used and maintained as per manufacturer's instructions 1.5 Drawing materials are used as per workplace procedures 1.6 Waste materials are disposed in accordance with workplace procedures and ***environmental legislations*** 1.7 ***Personal Protective Equipment*** is used according to occupational safety and health regulations 1.8 Demonstrated procedure of laying out and folding drawing paper 1.9 Drew and printed quality lines and letters as per building standards 1.10 Identified dimensions of given drawing according to building standards 1.11 Drew given figures to a given scale as per the task requirements

ELEMENT	PERFORMANCE CRITERIA *(Bold and italicised terms are elaborated in the Range)*
	1.12 Different types of angles are constructed according to principles of trigonometry
2. Produce plane geometry drawings	2.1 Constructed pre-determined scale for a given task 2.2 Reduced/ Enlarged figures by construction method 2.3 Constructed given figures to other shapes of equal area 2.4 Constructed ellipse using different methods of construction 2.5 Constructed the loci of a point of sliding and rotating mechanism 2.6 Constructed a parabola from given lines and a fixed point 2.7 Constructed helix using given dimensions 2.8 Determined the true length of lines in space and lamina
3. Produce orthographic and pictorial drawings	3.1 Symbols and abbreviations are identified and their meaning interpreted according to standard drawing conventions 3.2 Converted pictorial views into orthographic projections 3.3 First and third angle orthographic drawings are interpreted and produced in accordance with the standard conventions 3.4 Orthographic elevations are dimensioned in accordance with standard conventions 3.5 Produced orthographic views of assembled drawing 3.6 Assembled exploded views and drew in orthographic projection 3.7 Isometric drawings are interpreted and produced in accordance with standard conventions 3.8 Oblique drawings are interpreted as per standard conventions

ELEMENT	PERFORMANCE CRITERIA *(Bold and italicised terms are elaborated in the Range)*
	3.9 Freehand sketching of different types of geometric forms, tools, equipment, diagrams is conducted
4. Produce solid geometry drawings	4.1 Drew the front elevation and plan of a sectioned solid 4.2 Produced an auxiliary view from a given elevation and plan 4.3 Developed surfaces of truncated regular solids 4.4 Projected the points of intersecting solids 4.5 Developed surfaces of intersecting solids
5. Produced working drawings for building	5.1 Identified symbols for building materials 5.2 Drew details of foundations, walls, floors and openings 5.3 Drew details of roofs and trusses as per the given scale 5.4 Drew floor plans of simple domestic houses 5.5 Constructed the elevations of a simple domestic house 5.6 Designed simple and functional objects as per the working drawing 5.7 Designed drawings of a simple building as per the working drawing
6. Produced perspective drawing	6.1 Defined meaning of perspective drawings 6.2 Drew objects using one-point perspective drawing 6.3 Drew points using two-point perspective drawing

RANGE

Variable	Range
1. Drawing equipment may include but is not limited to:	• Drawing boards, T and set squares, drawing sets,
2. Drawing materials may include but is not limited to:	• Drawing papers, pencils, erasers, masking tapes, paper clips
3. Environmental legislations may include but is not limited to:	• EMCA 1999
4. Personal Protective Equipment may include but is not limited to:	• Dust coats, closed leather shoes

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:

- Drawing
- Interpretation
- Drawing equipment handling
- Communication
- Dimensions

Required knowledge

The individual needs to demonstrate knowledge of:

- Drawing equipment and materials
- Freehand sketching
- Lettering

- Geometrical constructions
- Types of drawings
- Types of lines
- Isometric drawing conventions, features, characteristics, components
- Orthographic drawing conventions, features, characteristics, components
- Sketches and drawings of simple patterns
- Simple calculations

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 Performed General Communication appropriately 1.2 Demonstrated ability to produce plane geometry drawings 1.3 Produced orthographic and pictorial drawings accurately 1.4 Produced solid geometry drawings correctly 1.5 Produced working drawings for building 1.6 Produced perspective drawing
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
3. Methods of Assessment	Competency may be assessed through: 3.1 Observation 3.2 Oral questioning 3.3 Written test 3.4 Portfolio of Evidence 3.5 Interview 3.6 Third party report
4. Context of Assessment	Competency may be assessed 4.1 On job

	4.2 Off job 4.3 During industrial Attachment
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

APPLY SCIENCE

UNIT CODE: CON/OS/CAJ/CC/03/5/A

UNIT DESCRIPTION

This unit describes the competence in apply science. It involves applying units and measurements, applying force, work, energy and power, applying friction, applying light and sound, applying Linear motion, applying general chemistry, applying primary and secondary cells, applying thermal properties of matter and applying pressure in fluids

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA *(Bold and italicized terms are elaborated in the Range)*
1 Apply units and measurements	1.1 Selected appropriate units of measurements as per the given task 1.2 Converted units from one form to another as required by the task
2 Apply Force, work, energy and power	2.1 Defined force, work, energy and power 2.2 Described forms of energy (K.E &P. E) based on the state of the matter 2.3 Converted energy from one form to another according to scientific rules 2.4 Solved simple calculations on work, energy and power as per the task requirements 2.5 Identified examples of simple machines 2.6 Solved simple problems on moments of force
3 Apply Friction	3.1 Defined meaning of friction 3.2 Identified the advantages and disadvantages of friction 3.3 Solved simple problems on friction as per task requirements 3.4 Solved simple problems involving coefficient of friction
4 Apply Light and sound	4.1 Identified ***sources of light*** and sound 4.2 Applied laws of reflection and refraction 4.3 Identified types of images formed by plane and curved mirrors 4.4 Identified primary and secondary colours 4.5 Mixed two or more colours to form other colours 4.6 Solved simple calculations of location of images formed by plane and curved mirrors 4.7 Determined velocity of sound in air

ELEMENT	PERFORMANCE CRITERIA *(Bold and italicized terms are elaborated in the Range)*
	4.8 Identified the properties of sound
5 Apply Linear motion	5.1 Defined and performed simple calculations on distance, displacement, speed, acceleration, velocity, scalar and vector 5.2 Differentiated scalar and vector quantities 5.3 Applied newton's law of motion 5.4 Applied law of conservation of momentum 5.5 Performed simple calculations of motion
6 Apply General chemistry	6.1 Applied the knowledge of experimental techniques correctly and safely 6.2 Stated the ***classification of matter*** 6.3 Identified the structure of atoms 6.4 Identified properties of elements and compounds, acids and bases 6.5 Described how given alloys are made 6.6 Identified magnetic and non-magnetic materials 6.7 Identified ***sources of electricity*** and causes of electric currents
7 Apply primary and secondary cells	7.1 Defined terms used in electrolysis 7.2 Identified the process of electrolysis 7.3 Applied the electrolysis process
8 Apply thermal properties of matter	***8.1*** Identified ***sources of heat*** 8.2 Identified the effects of heat on matter 8.3 Identified applications of thermal expansion 8.4 Described ***methods of heat transfer*** 8.5 Identified the applications of good and bad conductors of heat
9 Apply pressure in fluids	9.1 Defined density and variation of pressure 9.2 Described laws of floatation 9.3 Performed simple calculations on pressure in liquids

RANGE

Variable	Range
1. Sources of light may include but is not limited to:	• Artificial • Natural
2. Classification of matter may include but is not limited to:	• Solid • Liquid • Gas
3. Sources of electricity may include but is not limited to:	• fossil fuels (coal, natural gas, and petroleum) • nuclear energy • renewable energy sources
4. Sources of heat may include but is not limited to:	• Solar • Biomass • Geothermal • Fossil fuel
5. Methods of heat transfer may include but is not limited to:	• Conduction • Convection • Radiation

REQUIRED KNOWLEDGE

- Construction materials
- Scientific knowlwdge in area of specialization
- Friction
- Basic electricity
- Force, work, energy and power
- Metals and alloys
- Moments of force
- Magnetism
- Elements and compounds

SKILLS

- Solving problems
- Scientific calculations
- General calculations

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 Applied units and measurements correctly 1.2 Applied Force, work, energy and power accurately 1.3 Demonstrated knowledge of applying Friction 1.4 Applied Light and sound based on the concept 1.5 Applied Linear motion 1.6 Applied General chemistry 1.7 Applied primary and secondary cells 1.8 Applied thermal properties of matter 1.9 Applied pressure in fluids accurately
2. Resource Implications	The following resources should be provided: 2.1 Samples of construction materials 2.2 Material Testing Laboratories 2.3 Safety equipment 2.4 Computers 2.5 Calculators 2.6 Materials testing tools and 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 4.1 On job 4.2 Off job 4.3 During Industrial Attachment.
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

EXECUTE TEMPORARY WORKS

UNIT CODE: CON/OS/CAJ/CC/04/5/A

UNIT DESCRIPTION

This Unit describes the competencies required to execute temporary works. It involves selecting, preparing and using materials, tools and equipment, constructing and dismantling trench timbering, constructing and dismantling building formwork/shuttering erecting and dismantling building scaffold and erecting and dismantling building shores

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	**PERFORMANCE CRITERIA** *(Bold and italicized terms are elaborated in the Range)*
1. Select, prepare and use materials, tools and equipment	1.1 Selected appropriate materials for a given temporary work 1.2 Prepared cutting list of materials, tools and equipment as per job requirement 1.3 Constructed given temporary work as per the job requirement 1.4 Exercised ***economy*** in the use of materials, tools and equipment as per the work place procedures 1.5 Demonstrated ***safety*** and health practices as per the work place procedures
2. Construct and dismantle trench timbering	2.1 ***Trench timbering materials and tools*** are determined according to the construction rules and regulations 2.2 Personal protective equipment is selected, fitted and used according to safety rules and regulations 2.3 Trench timbering is constructed as per ***soil type*** and site topography 2.4 Trench timbering is dismantled according to site procedures and critical structural safety requirements *2.5* Constructed timbering to a given deep trench *2.6* Housekeeping is conducted as per work place procedures

ELEMENT	PERFORMANCE CRITERIA *(Bold and italicized terms are elaborated in the Range)*
	2.7 Safety and health practices are observed based on OSHA
3. Construct and dismantle building formwork/shuttering	3.1 ***Formwork material*** is identified as per structure complexity, job drawings or supervisor instructions 3.2 Formwork dimensions are determined as per the structural elements to be supported 3.3 Personal protective equipment is selected, fitted and used according to safety rules and regulations 3.4 ***Formwork type*** is erected according to the structural element to be cast 3.5 Constructed formwork for stairs 3.6 Oiling of timber formwork surface is carried out for easy dismantling after concrete setting 3.7 Formwork is fixed into position in accordance with the construction rules and regulations 3.8 Formwork is dismantled according to site procedures and critical structural safety requirements
4. Erect and dismantle building scaffold	4.1 ***Scaffold system*** is determined as per complexity of the building, engineering design, job drawings or supervisor instructions 4.2 ***Personal protective equipment*** is selected, fitted and used according to safety rules and regulations and job specifications 4.3 Scaffolds are erected to plan according to safe work practices and engineers' specifications 4.4 Scaffolds are dismantled according to engineers' specifications, site procedures and critical structural safety requirements 4.5 Site cleaned and cleared of all tools, excess material and waste
5. Erect and dismantle building shores	5.1 ***Type of shore*** is selected according to the nature of the work

ELEMENT	PERFORMANCE CRITERIA *(Bold and italicized terms are elaborated in the Range)*
	5.2 ***Shoring materials*** are selected according to the construction rules and regulations 5.3 Personal protective equipment is selected, fitted and used according to safety rules and regulations 5.4 Shoring is erected as per site conditions and building construction rules and regulations 5.5 Shoring is dismantled according to site procedures and critical structural safety requirements

RANGE

Variable	Range
1. Scaffold system may include but is not limited to:	• Dependent • Independent
2. Economy may include but is not limited to:	• Uses and re-uses • Improvisation • Cleaning and preserving
3. Safety may include but is not limited to:	• Working habits • Handling of materials, tools and equipment • Warning signs and lights • Layout at working area
4. Personal protective equipment may include but is not limited to:	• Helmets • Safety boots • Gloves • Overall • Reflectors
5. Formwork material may include but is not limited to:	• Timber • Metal • Plastic

Variable	Range
6. Formwork type may include but is not limited to:	• Column formwork • Beam formwork • Floor formwork • Wall formwork • Permanent formwork
7. Trench timbering materials and tools may include but is not limited to:	• Timber • Hammer • Metal plates • Pliers • Nails • binding wires
8. Soil type may include but is not limited to:	• Firm soil • Loose soil • Water logged soil
9. Type of shore may include but is not limited to:	• Raking/Inclined shore • Flying/horizontal shore • Dead/vertical shore
10. Shoring materials may include but is not limited to:	• Timber • Steel tubes • Bolts and nuts • Screws

REQUIRED KNOWLEDGE AND SKILLS

Knowledge

- Measurement
- Formwork
- Scaffolding
- Soil properties
- Wall construction
- Basic arithmetic
- Technical drawings

Skills

- Measurement skills
- Basic mathematic skills
- Reading skills
- Communication skills
- Construction tools handling skills
- Technical drawing skills

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. Selected, prepared and used appropriate materials, tools and equipment 1.2. Constructed and dismantled trench timbering accordingly 1.3. Constructed and dismantled building formwork/shuttering appropriately 1.4. Erected and dismantled building scaffold accurately 1.5. Erected and dismantled building shores carefully 1.6. Observed occupational health and safety procedures to create a safe working environment
2. Resource Implications	The following resources should be provided: 2.1 Training workshops 2.2 Construction tools and equipment 2.3 Occupational Safety and health manuals 2.4 Construction manuals 2.5 Reference textbooks 2.6 Qualified trainers 2.7 Personal protective equipment
3. Methods of Assessment	Competency may be assessed through: 3.1. Practical assignment 3.2. Written 3.3. Oral interview 3.4. Demonstrations
4. Context of Assessment	Competency may be assessed 4.1 On job 4.2 Off job

	4.3 During industrial attachment.
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

MANAGE SITES AND WORKSHOPS

UNIT CODE: CON/OS/CAJ/CC/05/5/A

UNIT DESCRIPTION

This Unit describes the competencies required to manage sites and workshops. It involves identifying workshop sites, identifying Regulations governing workshop design, planning workshop layout, preparing, using and maintaining materials, tools and equipment and executing contracts. It also entails; managing construction firm, performing office practice and maintaining Labour Relations

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	**PERFORMANCE CRITERIA** *(Bold and italicized terms are elaborated in the Range)*
1. Identify workshop sites	1.1 Selected suitable workshop site according to site access considerations 1.2 Hoarding and fencing of the site is conducted as per the local authority regulations. 1.3 Identified local authority requirements for workshop establishment 1.4 Stated ***essential services*** required for a given workshop 1.5 Selected appropriate mode of transport for a given situation 1.6 Erected site identification boards as per local authority regulations
2. Identify Regulations governing workshop design	2.1 Stated welfare regulations as applied in the workshop 2.2 Stated health regulations as applied in the workshop 2.3 Stated safety regulations based on the factory act
3. Plan workshop layout	3.1 Identified working area as per design specifications 3.2 Identified storage area as per design specifications 3.3 Identified machine shops as per design specifications 3.4 Identified offices as per design specifications

ELEMENT	PERFORMANCE CRITERIA *(Bold and italicized terms are elaborated in the Range)*
	3.5 Tools store identified as per design specifications 3.6 Identified washroom as per design specifications
4. Prepare, use and maintain materials, tools and equipment	4.1 Ordering and supplying documents prepared as per the work place procedures 4.2 Records of incoming and outgoing materials kept as per work place procedures 4.3 Method of storing materials on site identified 4.4 Prepared and maintained inventories for material, tools and equipment 4.5 Exercised control in use of materials 4.6 Security of materials, tools and equipment maintained in workshops and sites as per work place procedures 4.7 Identified sources of capital for purchasing tools, equipment and machines 4.8 Identified methods of maintaining tools, equipment and machines
5. Execute contracts	5.1 Described roles of parties involved in a project 5.2 Identified various ***types of contract*** 5.3 Identified ***types of contract documents*** 5.4 Described ***methods of tendering*** 5.5 Identified site operations and construction method 5.6 Identified types of construction plant to be used for a given contract 5.7 Identified number of required sub-contractors for the project 5.8 Prepared construction programmes
6. Manage construction firm	6.1 Identified structure of a firm 6.2 Identified importance of discipline in firms as per job requirements 6.3 Identified methods of motivating workers in a given firm
7. Perform office practice	7.1 Identified essential office equipment as per job requirements

ELEMENT	PERFORMANCE CRITERIA *(Bold and italicized terms are elaborated in the Range)*
	7.2 Manage ***systems of filing*** as per work place procedures 7.3 Identified ***methods of communication*** according to communication guide 7.4 Described use of office documents as per work place procedures 7.5 Differentiated methods of taxation 7.6 Conducted site meetings as per the work place procedures
8. Maintain Labour Relations	8.1 Identified role of trade unions in the construction industry 8.2 Described importance of industrial training as labour regulations 8.3 Identified regulations governing employment in construction industry 8.4 Identified importance of factories act with regards to construction industry

RANGE

Variable	Range
1. Types of contract may include but is not limited to:	• Labour only contract • Cost reimbursement contract • Target cost contracts • Package deal
2. Essential services may include but is not limited to:	• Water • Gas • Electricity • Telephone • Access roads/ parking areas
3. Types of contract documents may	• Drawings

Variable	Range
include but is not limited to:	• Specifications • Bill of quantities • Conditions of contract • Form of tender
4. Methods of tendering may include but is not limited to:	• Open tendering • Selective tendering • Negotiated tenders
5. Systems of filing may include but is not limited to:	• Numerical filing • Alphabetical filing • Subject filing
6. Methods of communication may include but is not limited to:	• Oral • Written • Graphical

REQUIRED KNOWLEDGE AND SKILLS

Knowledge

- Measurement
- Formwork
- Scaffolding
- Soil properties
- Wall construction
- Basic arithmetic
- Technical drawings

Skills

- Measurement skills
- Basic mathematic skills
- Reading skills
- Communication skills
- Construction tools handling skills
- Technical drawing skills

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 workshop sites 1.2 Identified Regulations governing workshop design 1.3 Planed workshop layout 1.4 Prepared, used and maintained materials, tools and equipment 1.5 Executed contracts 1.6 Managed construction firm 1.7 Performed office practice 1.8 Maintained Labour Relations
2. Resource Implications	The following resources should be provided: 2.1 Training workshops 2.2 Construction tools and equipment 2.3 Occupational Safety and health manuals 2.4 Construction manuals 2.5 Reference textbooks 2.6 Qualified trainers 2.7 Personal protective equipment
3. Methods of Assessment	Competency may be assessed through: 3.1 Practical assignment 3.2 Written 3.3 Oral interview 3.4 Demonstrations
4. Context of Assessment	Competency may be assessed 4.1 On job 4.2 Off job 4.3 During industrial attachment
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

CORE UNITS OF COMPETENCIES

CONSTRUCT DOORS & DOOR FRAMES

UNIT CODE : CON/OS/CAJ/CR/01/5/A

UNIT DESCRIPTION

This unit describes the competence required to construct doors and door frames. It involves; interpreting working drawing, preparing construction materials, constructing basic doors, constructing special doors & door frames, constructing fire check doors & door frames, performing finishing processes, examine quality of the finished product and performing workplace housekeeping.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENTS These describe the key outcomes which make up workplace function	**PERFORMANCE CRITERIA** These are assessable statements which specify the required level of performance for each of the elements *(Bold terms are elaborated in the Range)*
1. Interpret working drawing	1.1 Working drawing interpreted based on building code 1.2 Measurements converted as required 1.3 Symbols are identified and interpreted based on International technical drawing (ISO 128) 1.4 Door opening identified as per the building code 1.5 Choice of door type determined according to position/ properties required of the door
2. Prepare Construction materials	2.1 Cutting list of materials prepared as per the working drawing 2.2 ***Materials, tools and equipment*** selected and prepared as per the working drawing
3. construct basic doors and door frames	3.1 Marking tools are identified as per the job requirements 3.2 Marking is carried out according to the working drawing 3.3 Cutting out tools identified as per the job requirements 3.4 Cutting out joints is carried out as per the working drawing

ELEMENTS These describe the key outcomes which make up workplace function	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements *(Bold terms are elaborated in the Range)*
	3.5 Trial fitting is done as per the working drawing specifications 3.6 Final assembling of the door is done as per the working drawing specification 3.7 Door is fixed in frame as per the drawing specification
4. Construct special doors & door frames	4.1 Marking tools are identified as per the job requirements 4.2 Marking is carried out according to the special shapes 4.3 Special cutting out tools are identified as per the given shapes specifications. 4.4 Cutting out joints is carried out as per the design specifications 4.5 Trial fitting is done as per the working drawing specifications 4.6 Final assembling of the door is done as per the working drawing specification 4.7 Door is fixed in frame as per the drawing specification
5. Construct fire check doors & door frames	5.1 Selected and prepared materials as per the job requirements 5.2 Marked and cut out joints as per working drawing specifications 5.3 Assembled the frame as per the working drawing specifications 5.4 Fixed the fire resisting materials as per Building code of Kenya 5.5 Fixed the face veneer on both sides as per the drawing specifications 5.6 Performed hipping all-round the door
6. Perform finishing processes	1.1 Scrapping is performed as per job requirement 1.2 Sanding is done as per the job requirements

ELEMENTS These describe the key outcomes which make up workplace function	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements *(Bold terms are elaborated in the Range)*
	1.3 Staining is conducted according to job requirement 1.4 Painting/ varnishing is performed based on the manufacturer's instructions
7. Examine quality of the finished product	7.1 Examined finished product as per the job requirements 7.2 Recorded quality check results as per the work place procedures
8. Perform workplace Housekeeping	8.1 ***Housekeeping*** is conducted as per workplace procedures 8.2 Materials, tools and equipment are returned to the store as per work place procedures

RANGE

Variable	Range
1. Materials may include but is not limited to:	• Hard wood • Soft wood • Manufactured boards • Iron mongery
2. Tools & equipment may include but is not limited to:	• Planes • Square • Saws • Chisel saws • Claw hammer • Mallet • Tape measure • Screw driver
3. Housekeeping may include but is not limited to:	• Clearing • Protecting existing work • Keeping work area tidy • Cleaning

REQUIRED KNOWLEDGE AND SKILLS

Knowledge

- Construction dimensions
- Architectural drawing
- Local authority by-laws
- Building code
- Structural elements
- Codes of practice
- Basic arithmetic
- Measurement
- Building drawing
- Functions of doors
- Types of doors

Skills

- Measurement
- Basic arithmetic
- Design
- Computer literacy
- planning

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 Interpreted working drawing correctly 1.2 Prepared Construction materials 1.3 Demonstrated ability to construct basic doors 1.4 Constructed special doors & door frames 1.5 Constructed fire check doors & door frames 1.6 Performed finishing processes 1.7 Examined quality of the finished product

	1.8 Perform workplace Housekeeping
2. Resource Implications	2.1 Specified tools & equipment for the course 2.2 Calculator
3. Methods of Assessment	Competency may be assessed through: 3.1 Demonstration 3.2 Practical assignment/project 3.3 Interview/Oral Questioning 3.4 Written
4. Context of Assessment	Competency may be assessed 4.1 On job 4.2 Off job 4.3 During Industrial Attachment
5. Guidance information for assessment	Holistic assessment with other units relevant to the carpentry and joinery sector workplace and job role is recommended.

CONSTRUCT WINDOWS & WINDOW FRAMES

UNIT CODE: CON/OS/CAJ/CR/02/5/A

UNIT DESCRIPTION

This Unit describes the competencies required to construct windows and window frames. It involves interpreting working drawing, preparing construction materials, constructing ordinary casement windows &window frames, constructing special windows and window frames, performing finishing processes, examining quality of the finished product and performing workplace housekeeping.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	**PERFORMANCE CRITERIA** *(Bold and italicized terms are elaborated in the Range)*
1. Interpret working drawing	1.1 Working drawing is interpreted based on building code 1.2 Measurements are converted as required 1.3 Symbols are identified and interpreted based on International technical drawing standards 1.4 Window opening is identified as per the job requirements
2. Prepare Construction materials	2.1 Cutting list of materials is prepared as per the working drawing 2.2 ***Materials, tools and equipment*** are selected and prepared as per the working drawing 2.3 Prepared timber ready for making a window and window frame
3. Construct ordinary casement windows &window frames	3.1 Marking tools are identified as per the job requirements 3.2 Marking is carried out according to the working drawing 3.3 Cutting out tools are identified as per the job requirements 3.4 Cutting out is carried out as per the working drawing 3.5 Final assembling of the window is done as per the working drawing specification

ELEMENT	PERFORMANCE CRITERIA *(Bold and italicized terms are elaborated in the Range)*
	3.6 Trial fitting is done as per the working drawing specifications 3.7 Fixed appropriate ***hardware*** on the window as per working drawing 3.8 Window is fixed in frame as per the drawing specification
4. Construct special windows and window frames	4.1 Identified ***types of special windows*** as per the job requirements 4.2 Identified the functions of the special windows as per job requirements 4.3 Constructed special windows and window frames according to the architectural drawing/design specifications
5. Perform finishing processes	5.1 Scrapping is performed as per job requirement 5.2 Sanding is done as per the job requirements 5.3 Staining is conducted according to job requirement 5.4 Painting/varnishing is performed based on the manufacturer's instructions
6. examine quality of the finished product	6.1 Examined finished product as per the job requirements 6.2 Recorded quality check results as per the work place procedures
7. perform workplace housekeeping.	7.1 ***Housekeeping*** is conducted as per workplace procedures 7.2 Materials, tools and equipment are returned to their respective stores as per work place procedures

RANGE

Variable	Range
1. Materials may include but is not limited to:	• Hard wood • Soft wood • Manufactured boards • Iron mongery
2. Tools & equipment may include but is not limited to:	• Planes • Square • Saws • Chisel saws • Claw hammer • Mallet • Tape measure • Screw driver
3. Hardware may include but is not limited to:	• Fasteners • Hinges • Stays and pins • Caulking lock and handle • Espangnolettes
4. Housekeeping may include but is not limited to:	• Cleaning • Clearing • Keep work place tidy

REQUIRED KNOWLEDGE AND SKILLS

Knowledge

- Construction dimensions
- Architectural drawing
- Local authority by-laws
- Building code
- Structural elements
- Codes of practice
- Basic arithmetic
- Measurement
- Building drawing

Skills

- Measurement
- Basic arithmetic
- Design
- Computer literacy
- planning

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 Interpreted working drawing 1.2 Prepared construction materials 1.3 Constructed ordinary casement windows &window frames 1.4 Construct special windows and window frames 1.5 Performed finishing processes 1.6 Examined quality of the finished product 1.7 Performed workplace housekeeping.
2. Resource Implications	The following resources should be provided: 2.1 Training workshops 2.2 Construction tools and equipment 2.3 Occupational Safety and health manuals 2.4 Construction materials 2.5 Reference textbooks 2.6 Qualified trainers
3. Methods of Assessment	Competency may be assessed through: 3.1. Practical assignment 3.2. Written 3.3. Oral interview 3.4. Demonstrations
4. Context of Assessment	Competency may be assessed 4.1 On job 4.2 Off job 4.3 During Industrial Attachment.
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

CONSTRUCT FURNITURE ITEMS

UNIT CODE: CON/OS/CAJ/CR/03/5/A

UNIT DESCRIPTION

This unit describes the competences required to construct furniture items. It involves interpreting working drawing, preparing construction materials, marking out product profile, cutting out product profile and performing fixing of the joints. It also includes performing finishing processes, examining quality of the finished product and performing workplace housekeeping.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	**PERFORMANCE CRITERIA** *(Bold and italicized terms are elaborated in the Range)*
1. Design/Interpret working drawing	1.1 Identified the ***elements of design*** for a given piece of furniture 1.2 Working drawing is ***designed*** as per the owner's specifications 1.3 Working drawing is interpreted based on the job requirements 1.4 Measurements are converted as required by the working drawing 1.5 Symbols are identified and interpreted based on International technical drawing **(ISO 128)**
2. Prepare Construction materials	2.1 Identified ***types of furniture*** as per the working drawing 2.2 Identified ***hardware*** for a given furniture 2.3 Cutting list of materials is prepared as per the working drawing 2.4 Materials, tools and equipment are selected and prepared as per the working drawing
3. Marking out product profile	3.1 Marking tools are identified as per the job requirements 3.2 Marking is carried out according to the working drawing
4. Cut out product profile	4.1 Cutting out tools identified as per the job requirements

ELEMENT	PERFORMANCE CRITERIA *(Bold and italicized terms are elaborated in the Range)*
	4.2 Cutting out is carried out as per the working drawing
5. Perform fixing of the joints	5.1 Trial fitting is done as per the working drawing specifications 5.2 Final assembling of the furniture is done as per the working drawing specification
6. Perform finishing processes	6.1 Scrapping is performed as per job requirement 6.2 Sanding is done as per the job requirements 6.3 Staining is conducted according to job requirement 6.4 Painting/varnishing is performed based on the manufacturer's instructions 6.5 Conducted upholstery in a given piece of furniture
7. examining quality of the finished product	7.1 Examined finished product as per job requirements 7.2 Recorded quality check results as per the work place procedures
8. performing workplace housekeeping.	8.1 ***Housekeeping*** is conducted as per workplace procedures 8.2 Materials, tools and equipment are returned to their respective stores according to work place procedures

RANGE

Variable	Range
1. Elements of design may include but is not limited to:	• Efficiency • Appearance
2. Design may include but is not limited to:	• Shape • Construction • Appearance • Function • Aesthetics • Operation
3. Types of furniture may include but is not limited to:	• Church • library
4. Hardware may include but is not limited to:	• Caster wheels • Name plates • Hinges • Locks • Handles • Stops • Catches • rails
5. Housekeeping may include but is not limited to:	• Clearing • Cleaning • Keep work place tidy

REQUIRED KNOWLEDGE

- Types of timber
- Simple arithmetic calculations
- Carpentry and joinery tools
- Types of timber
- Furniture construction
- Construction dimensions
- Architectural drawing

SKILLS

- Interpret working drawing
- Communication skills
- Design
- Computer literacy
- Planning
- Enterpreneurship skills

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 Interpreted working drawing correctly 1.2 Prepared construction materials 1.3 Marked out product profile accurately 1.4 Was able to cut out product profile 1.5 Performed fixing of the joints accordingly 1.6 Performed finishing processes 1.7 Examined quality of the finished product 1.8 Performed workplace housekeeping appropriately
2. Resource Implications	2.1 Calculator 2.2 Internet 2.3 Training workshops 2.4 Construction tools and equipment 2.5 Occupational Safety and health manuals 2.6 Construction materials 2.7 Reference textbooks 2.8 Qualified trainers
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
4. Context of Assessment	Competency may be assessed 4.1 On job 4.2 Off job 4.3 During industrial Attachment

5. Guidance information for assessment	Holistic assessment with other units relevant to the building sector, workplace and job role is recommended.

CONSTRUCT & ERECT ROOF STRUCTURES

UNIT CODE: CON/OS/CAJ/CR/04/5/A

UNIT DESCRIPTION

This unit describes the competence in constructing and erecting roof structures. It involves interpreting architectural drawings, selecting and preparing tools, materials and equipment, setting out roof trusses, cutting out the joints, assembling of truss members and erecting roof trusses. It also includes performing fixing of purlins, performing trimming of roof members, fixing roof covering materials, performing finishing at the eaves and other finishing processes

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	**PERFORMANCE CRITERIA** *(Bold and italicized terms are elaborated in the Range)*
1. Interpret Architectural drawings	1.1 Working drawing is interpreted based on ***building code*** 1.2 Measurements are converted as required by the working drawing 1.3 Symbols are identified and interpreted based on International technical drawing standards
2. Select and prepare tools, materials and equipment	2.1 ***Types of roofs*** are identified according to the design/owner specification/ climatic conditions 2.2 Types of timber and nominal sizes are identified 2.3 Selected appropriate materials for a given special roof
3. Set out roof trusses	3.1 Secured tie with pegs according to job requirement 3.2 Marked the center of the truss according to architectural design 3.3 Marked the span of the building based on the architectural drawing 3.4 Marked the king post as per the architectural drawing 3.5 Made plumb cuts on rafters as per the pitch specifications 3.6 Joined the ***truss members*** as per architectural drawing 3.7 Fixed ties and braces according to the structural drawing

ELEMENT	PERFORMANCE CRITERIA *(Bold and italicized terms are elaborated in the Range)*
4. Cut out the joints	4.1 Selected tools and eq1uipment for cutting out as per job requirements 4.2 Cut out the joints as per job requirements
5. Assemble of truss members	5.1 Constructed heads of the two rafters as per truss design specifications 5.2 Joined rafters to the ties based on truss design specification 5.3 Constructed king post to the ties and rafters as per truss design specification 5.4 Joined braces to rafters according to truss design specification 5.5 Fixed struts and braces to ties and rafters based on truss design specification
6. Erect roof trusses	6.1 Identified types of trusses as per the architectural drawing 6.2 Placed the truss on the wall plate as per job requirements 6.3 plumbed first truss on the wall and fixed it to the wall plate based on job requirement 6.4 Plumbed the rest of the trusses temporarily on the wall plate as per the job requirement
7. Perform fixing of purlins	7.1 Cut splice joint on the purlins as per selected roofing material 7.2 Fixed the purlins on the rafters according to the roof covering material 7.3 Trimmed purlin according to eaves details
8. Perform trimming of roof members	8.1 ***Roof members*** are identified as per the selected roof covering materials 8.2 Trimmed the roof members according to the structural drawing

ELEMENT	PERFORMANCE CRITERIA *(Bold and italicized terms are elaborated in the Range)*
9. Fix roof covering material	9.1 Selected ***roof covering materials*** according to design specifications 9.2 Fixed the covering material with appropriate devices
10. Perform finishing at the eaves	10.1 ***Eaves*** are defined as per structural design 10.2 Identified the types of eaves based on structural design 10.3 Measured the sizes of eaves as per job requirement 10.4 Marked the plumb cuts based on the measured sizes 10.5 Cut the eaves plumb as marked
11. Construct ceiling	11.1 Constructed ceiling framework from a given drawing accurately 11.2 Fixed the ***ceiling covering materials*** to a given framework accurately
12. Perform finishing processes	12.1 Cut and fixed the fascial board according to work place procedures 12.2 Cut and fixed the soffits based on job requirements 12.3 Fixed the gutters and the down pipes as per

RANGE

Variable	Range
1. Building Code may include but is not limited to:	• Application of by-laws • Siting and space about buildings • Building materials • Design and erection of certain buildings • Ventilation of buildings
2. Truss members Code may include but is not limited to:	• Rafters • Braces • Struts • Ties • Ridge board
3. Roof members Code may include but is not limited to:	• Beams • purlins • wall plate • ridge plate • hip rafter • valley rafter • battens • reapers
4. Roof covering materials Code may include but is not limited to:	• Thatch covering • Wood shingles • Tiles • Asbestos cement sheets • Galvanized corrugated Iron sheets
5. Eaves Code may include but is not limited to:	• Flush • Open • Closed • Sprocket
6. Ceiling covering materials Code	• Timber • Soft boards • Hard board • Plywood

may include but is not limited to:	• Plastics • Plaster board
7. Types of roofs Code may include but is not limited to:	• Single roofs • Double/ purlins roofs • Trussed rafter roof • Triple/ framed roofs • Special roofs

REQUIRED KNOWLEDGE

- Construction Material
- Carpentry Tools And Equipment
- Site Management
- Safety rules and precautions
- Roof covering materials
- Roof members
- Truss members
- Types of eaves
- Maintenance of roofs
- Interpretation of drawing
- Design
- Calculations
- Estimation and costing

SKILLS

- Communication skills
- Use of tools and equipments
- Safety

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 Interpreted Architectural drawings correctly 1.2 Selected and prepared tools, materials and equipment 1.3 Set out roof trusses appropriately 1.4 Demonstrated ability to cut out the joints 1.5 Assembled truss members 1.6 Erected roof trusses appropriately 1.7 Performed fixing of purlins 1.8 Performed trimming of roof members correctly 1.9 Fixed roof covering material 1.10 Performed finishing at the eaves 1.11 Constructed ceiling 1.12 Performed finishing processes
2. Resource Implications	The following resources should be provided: 2.1 Calculator 2.2 Internet 2.3 Training workshops 2.4 Construction tools and equipment 2.5 Occupational Safety and health manuals 2.6 Construction materials 2.7 Reference textbooks 2.8 Qualified trainers
3. Methods of Assessment	Competency may be assessed through: 3.1 Written text 3.2 Interview 3.3 Observation 3.4 Practical tests
4. Context of Assessment	Competency may be assessed 4.1 On job 4.2 Off job 4.3 During Industrial Attachment.
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

PERFORM JOINERS SECOND FIXING

UNIT CODE: CON/OS/CAJ/CR/05/5/A

UNIT DESCRIPTION

This Unit describes the competencies required to perform joiners second fixing. It involves, interpreting architectural drawings, selecting materials, tools and equipment, performing fixing of the fixtures, examining the quality of the finished product and performing housekeeping.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA *(Bold and italicized terms are elaborated in the Range)*
1. Interpret architectural drawings	1.1 Architectural drawing is interpreted based on building code 1.2 Measurements are converted as required by the Architectural drawing 1.3 Symbols are identified and interpreted based on International technical drawing (ISO 128)
2. Select materials, tools and equipment	2.1 cutting list of materials is prepared as per the working drawing 2.2 materials, tools and equipment are selected and prepared as per the work place procedures
3. Perform fixing the fixtures	3.1 Prepared materials for ***fixtures*** as per the work place procedures 3.2 Plugged in the wall based on the building code 3.3 Cut the joints as per the job requirements 3.4 Undertook fixing of the fixtures according to the engineer's instructions 3.5 Undertook finishing processes as per the job requirements 3.6 Performed workplace housekeeping as per the work place procedures
4. Examine the quality of the finished product	4.1 Examined ***joints*** for well-fitting and tightness 4.2 Examined finished product for protruding nails or screws 4.3 Examined head of the screws

ELEMENT	PERFORMANCE CRITERIA *(Bold and italicized terms are elaborated in the Range)*
1. Interpret architectural drawings	1.1 Architectural drawing is interpreted based on building code 1.2 Measurements are converted as required by the Architectural drawing 1.3 Symbols are identified and interpreted based on International technical drawing (ISO 128)
5. Perform work place housekeeping	5.1 Cleared the off cuts, saw dust, shavings as per job requirements 5.2 Collected remaining nails and screws as per job requirements 5.3 Return all the tools in the tool store as per work place procedures

RANGE

Variable	Range
1. Fixtures may include but is not limited to:	• Skirting • Dado rail • Picture rail • Cornice • Arch trave • Pelmit box
2. Joints may include but is not limited to:	• Mitre • Butt • Scribed • Splice joint

REQUIRED KNOWLEDGE AND SKILLS

Knowledge

- Fixing of nails and screws
- Use of drills

- Use of hammer and rawl plug
- Types of joints
- Types of fixtures

Skills

- Accuracy in cutting of the joints
- Polishing skills
- Moulding
- Operating machines

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 Interpreted architectural drawings correctly 1.2 Selected materials, tools and equipment accordingly 1.3 Was able to prepare cutting list of materials accurately 1.4 Plugged in the wall accurately 1.5 Undertook fixing of the fixtures 1.6 Examined joints for well-fitting and tightness 1.7 Examined the quality of the finished product 1.8 Performed work place housekeeping appropriately
2. Resource Implications	The following resources should be provided: 2.1 Training/assessment workshops 2.2 Construction tools and equipment 2.3 Occupational Safety and health manuals 2.4 Construction manuals 2.5 Construction materials 2.6 Qualified trainers
3. Methods of Assessment	Competency may be assessed through: 3.1 Practical assignment 3.2 Written 3.3 Oral interview
4. Context of Assessment	Competency may be assessed 4.1 On job 4.2 Off job 4.3 During industrial Attachment.

5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

CONSTRUCT TIMBER FLOORS AND PREFABRICATED BUILDINGS

UNIT CODE: CON/OS/CAJ/CR/06/5/A

UNIT DESCRIPTION

This unit describes the competences required to construct timber floors and prefabricated buildings. It entails interpreting structural drawing, selecting materials, tools and equipment, setting and constructing timber prefabricated structures, constructing timber floors and performing finishing activities.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	**PERFORMANCE CRITERIA** *(Bold and italicized terms are elaborated in the Range)*
1. Interpret structural drawing	1.1 Architectural drawing is interpreted based on building code 1.2 Measurements are converted as required by the Architectural drawing 1.3 Symbols are identified and interpreted based on International technical drawing (ISO 128)
2. Select materials, tools and equipment	2.1 cutting list of materials is prepared as per the working drawing 2.2 materials, tools and equipment are selected and prepared as per the work place procedures
3. Set and construct timber prefabricated structures	3.1 ***Prefabricated structures*** are identified as per the building code 3.2 Selected setting out materials, tools and equipment according to the job requirements 3.3 Set angles of the building as per the structural drawing 3.4 Set out the recipients of the prefabricated structure as per the engineer's specifications

ELEMENT	PERFORMANCE CRITERIA *(Bold and italicized terms are elaborated in the Range)*
	3.5 Constructed the prefabricated panels based on the structural drawing 3.6 Transported the prefabricated panels to the site as per the owner's specifications 3.7 Joined and assembled the panels as per the structural drawing 3.8 Treated the panels with ***wood preservatives*** and fire retardants according to job requirements
4. Construct timber floors	4.1 Interpreted working drawing based on the building code 4.2 Prepared material cutting list as per the working drawing 4.3 Prepared the materials, tools and equipment as per the job requirements 4.4 Set the timber floor as per the engineer's instructions 4.5 Applied suitable wood preservatives and fire retardants as per the job requirements
5. perform finishing activities.	5.1 Performed sanding as per the job requirements 5.2 Selected and applied given floor finish as per the owner's specification

RANGE

Variable	Range
1. Prefabricated structures may include but is not limited to:	• Timber building
2. Wood preservatives may include but is not limited to:	• Oil borne • Water borne • Metallic salts

REQUIRED KNOWLEDGE

- Basic calculations
- Selection of materials
- Various types of timber
- Joining materials

SKILLS

- Interpretation of working drawing
- Handling of tools and equipments
- Measuring, cutting, marking skills

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 Interpreted structural drawing correctly 1.2 Selected materials, tools and equipment appropriately 1.3 Set angles of the building accurately 1.4 Was able to set out the recipients of the prefabricated structure 1.5 Demonstrated ability to construct the prefabricated panels 1.6 Sett and constructed timber prefabricated structures 1.7 Erected the timber prefabricated structure correctly 1.8 Set the timber floor as per the engineer's instructions 1.9 Applied suitable wood preservatives and fire retardants 1.10 Constructed timber floors correctly 1.11 Demonstrated ability to perform finishing activities.
2. Resource Implications	The following resources should be provided: 2.1 Training/assessment workshops 2.2 Construction tools and equipment 2.3 Occupational Safety and health manuals 2.4 Construction manuals 2.5 Construction materials 2.6 Qualified trainers
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
4. Context of Assessment	Competency may be assessed 4.1 On job 4.2 Off job 4.3 During industrial attachment.
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

CONSTRUCT TIMBER STAIRS

UNIT CODE: CON/OS/CAJ/CR/07/5/A

UNIT DESCRIPTION

This unit describes the competences required to construct timber stairs. It entails designing timber stairs, selecting materials, tools and equipment, marking out joints, cutting out joints, performing trial and final assembly of staircase and performing finishing processes.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	**PERFORMANCE CRITERIA** *(Bold and italicized terms are elaborated in the Range)*
1. Design timber stairs	1.1 ***Type of stair*** is determined according to design and specifications 1.2 Total going is determined as per the available horizontal distance 1.3 Total rise is determined according to the headroom 1.4 Determined size of risers and treads as per building regulations H1 1.5 Determined the angle of pitch of the stair as per the building regulations 1985: Part K- EUROCODE 1.6 Prepare architectural drawing as per the design specifications
2. Select materials, tools and equipment	2.1 Safety is observed during selection of materials, tools and equipment. 2.2 Cutting list of materials is prepared as per the working drawing 2.3 Materials, tools and equipment are selected and prepared as per the work place procedures
3. Mark out joints	3.1 Marking tools are identified as per the job requirements 3.2 Marking is carried out according to the architectural drawing

ELEMENT	PERFORMANCE CRITERIA *(Bold and italicized terms are elaborated in the Range)*
4. Cut out joints	4.1 Cutting out tools and equipment are identified as per the job requirements 4.2 Cutting out is done as per the job requirements
5. perform trial and final assembly of staircase.	5.1 Trial assemble of all the joints is performed as per the job requirements 5.2 Fixed the staircase using glue, nails or screws
6. perform finishing processes	6.1 Scrapping is performed as per job requirement 6.2 Sanding is done as per the job requirements 6.3 Staining conducted according to job requirement 6.4 Painting/ varnishing is performed based on the manufacturer's instructions

RANGE

Variable	Range
1. Type of stair may include but is not limited to:	• Straight flight • Quarter-turn • Half-turn • Geometrical
2. Tools and equipment may include but is not limited to:	• Planes • Square • Saws • chisel saws • claw hammer • mallet • tape measure • screw driver

REQUIRED KNOWLEDGE

- Basic calculations
- Selection of materials
- Various types of timber
- Joining materials
- Design
- Types of stairs

SKILLS

- Interpretation of working drawing
- Handling of tools and equipments
- Measuring, marking & cutting skills

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 Interpreted structural drawing correctly 1.2 Selected materials, tools and equipment appropriately 1.3 Was able to prepare a cutting list of materials 1.4 Carried out marking accurately 1.5 Demonstrated ability to cut out product profile accurately 1.6 Performed trial assemble of all the joints appropriately 1.7 Fixed the staircase using glue, nails or screws 1.8 Was able to perform scrapping appropriately 1.9 Was able to perform Sanding appropriately 1.10 Was able to perform Staining accordingly 1.11 Was able to perform Painting/ varnishing neatly
2. Resource Implications	The following resources should be provided: 2.1 Training/assessment workshops 2.2 Construction tools and equipment 2.3 Occupational Safety and health manuals 2.4 Construction manuals 2.5 Construction materials 2.6 Qualified trainers

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
4. Context of Assessment	Competency may be assessed 4.1 On job 4.2 Off job 4.3 During industrial attachment.
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.