



THE REPUBLIC OF KENYA

COMPETENCY BASED CURRICULUM

FOR

CARPENTRY AND JOINERY

LEVEL 4



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 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 and this resulted to the formulation of the Policy Framework for Reforming Education and Training. A key feature of this policy is the radical change in the design and delivery of the TVET training. This policy document requires that training in TVET be competency based, curriculum development be industry led, certification be based on demonstration of competence and mode of delivery allows for multiple entry and exit in TVET programmes.

These reforms demand that Industry takes a leading role in curriculum development to ensure the curriculum addresses its competence needs. It is against this background that this Curriculum has been developed.

It is my conviction that this curriculum will play a great role towards development of competent human resource for the construction sector.

**PRINCIPAL SECRETARY, VOCATIONAL AND TECHNICAL TRAINING
MINISTRY OF EDUCATION**

PREFACE

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

The Technical and Vocational Education and Training Act No. 29 of 2013 on Reforming Education and Training in Kenya, emphasized the need to reform curriculum development, assessment and certification. This called for a shift to CBET 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 Occupational Standards for Carpentry and Joinery Artisan. These standards will be the basis for development of competency-based curriculum for Carpentry and Joinery Level 4.

This curriculum has been developed following the CBET framework policy; the CBETA Standards and guidelines provided by the TVET Authority and the Kenya National Qualification framework designed by the Kenya National Qualification Authority.

This curriculum is designed and organized with an outline of learning outcomes; suggested delivery methods, training/learning resources and methods of assessing the trainee’s achievement. The curriculum is competency-based and allows multiple entry and exit to the course.

I am grateful to the Council Members, Council Secretariat, Construction SSAC, expert workers and all those who participated in the development of this curriculum.

CHAIRPERSON, TVET CDACC

ACKNOWLEDGEMENT

This curriculum has been designed for competency-based training and has independent units of learning that allow the trainee flexibility in entry and exit. In developing the curriculum, significant involvement and support was received from various organizations.

I recognize with appreciation the role of the Construction Sector Skills Advisory Committee (SSAC) in ensuring that competencies required by the industry are addressed in the curriculum. I also thank all stakeholders in the Construction sector for their valuable input and all those who participated in the process of developing this curriculum.

I am convinced that this curriculum will go a long way in ensuring that workers in construction acquire competencies that will enable them to perform their work more efficiently.

CEO /COUNCIL SECRETARY

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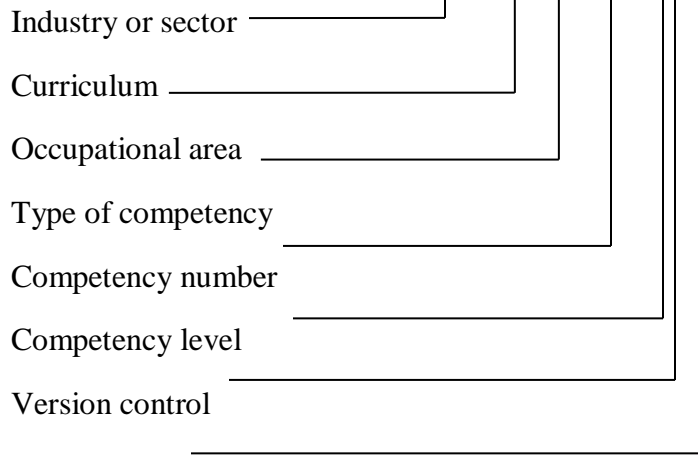
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ABBREVIATIONS AND ACRONYMS

A	Control version
AIDS	Acquired Immunodeficiency Syndrome
BC	Basic Unit
CAJ	Carpentry and Joinery
CBET	Competency Based Education and Training
CC	Common unit
CDACC	Curriculum Development Assessment Certification Council
CEO	Council Secretary
CON	Construction
CR	Core Unit
CU	Curriculum
HIV	Acquired Immunodeficiency Virus
KCSE	Kenya Certificate of Secondary Education
KNQA	Kenya National Qualifications Authority
LCD	Liquid Crystal Display
OSH	Occupational Safety and Health
PESTEL	Political Environmental Social Technological Economic Legal
PPE	Personal Protective Equipment
Q&A	Questions and Answer
SSAC	Sector Skills Advisory Committee
SWOT	Strength Weakness Opportunity Threat
TVET	Technical and Vocational Education and Training

KEY TO UNIT CODE

CON /CU/CAJ/BC/01/4/A



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OVERVIEW

Carpentry and Joinery Level 4 qualification consists of competencies that a person must achieve to enable him/her to construct doors & door frames, construct windows & window frames, construct furniture items, construct & erect roof structures, perform joinery, second fixing and construct timber floors and prefabricated buildings.

Units of Learning

This course consists of basic common and core units of learning as indicated below:

Unit of Learning Code	Unit of Learning Title	Duration in Hours	Credit Factor
CON/CU/CAJ/BC/01/4/A	Communication Skills	20	2.0
CON/CU/CAJ/BC/02/4/A	Numeracy Skills	25	2.5
CON/CU/CAJ/BC/03/4/A	Digital Literacy	35	3.5
CON/CU/CAJ/BC/04/4/A	Entrepreneurial Skills	60	6.0
CON/CU/CAJ/BC/05/4/A	Employability Skills	30	3.0
CON/CU/CAJ/BC/06/4/A	Environmental Literacy	20	2.0
CON/CU/CAJ/BC/07/4/A	Occupational Safety and Health Practices	20	2.0
Subtotal 1		210	21.0

Common Units of Learning

Unit Code	Unit Title	Duration in Hours	Credit factor
CON/CU/CAJ/CC/01/4/A	Basic Mathematics	40	4.0
CON/CU/CAJ/CC/02/4/A	Technical Drawing	40	4.0
CON/CU/CAJ/CC/03/4/A	Science	40	4.0
CON/CU/CAJ/CC/04/4/A	Temporary Works	35	3.5
Subtotal 2		155	15.5

Core units of Learning

Unit Code	Unit Title	Duration in Hrs	Credit factor
CON/OS/CAJ/CR/01/4/A	Doors & Door Frames	90	9.0
CON/OS/CAJ/CR/02/4/A	Windows & Window Frames	80	8.0
CON/OS/CAJ/CR/03/4/A	Furniture Items	90	9.0
CON/OS/CAJ/CR/04/4/A	Roof Structures	90	9.0

CON/OS/CAJ/CR/05/4/A	Joiners Second Fixing	85	8.5
CON/OS/CAJ/CR/06/4/A	Timber Floors and Prefabricated Buildings	90	9.0
	Industrial Attachment	300	30
Subtotal 3		825	82.5
GRAND TOTAL		1190	119.0

Entry Requirements

An individual entering this course should have any of the following minimum requirements:

a) Kenya Certificate of Secondary Education (KCSE) –Grade E

Or

b) Carpentry and Joinery Certificate Level 3

Or

c) Equivalent qualifications as determined by Kenya National Qualifications Authority (KNQA)

And/or

d) As may be guided by relevant regulatory body

Provision for Industrial attachment

It is envisaged that the trainee will undergo an industrial attachment training and assessment with a recognised construction services provider as a prerequisite for completion of this training course.

Attachment/Internship:

Attachment (Internship) is an opportunity for a learner to integrate career related experience by participating in planned, supervised work. This curriculum anticipates at least 200h of attachment as integral part of the training. In addition, the training comprises practical learning activities (estimated to be >60% of the time) which are meant to reinforce trainees' smooth access to employment or self-employment.

Trainer qualification

The trainer for this course must have a qualification higher than these course

Assessment

Assessment is the process of gathering and judging evidence in order to decide whether a person has attained a standard of performance. The course will be assessed at two levels:

- Internal assessment is continuous and is conducted by the trainer who is monitored by an internal accredited verifier
- External assessment is the responsibility of TVET CDACC

Certification

On successful completion of a unit of learning, a trainee will be issued with a Certificate of the competence and on successful completion of all units of learning a trainee will be awarded a National Certificate in Carpentry and Joinery Level 4. These certificates will be issued by TVET CDACC in conjunction with training provider

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BASIC UNITS OF LEARNING

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COMMUNICATION SKILLS

UNIT CODE: CON/CU/CAJ/BC/01/4/A

Relationship to Occupational Standards

This unit addresses the Unit of Competency: Demonstrate Communication Skills

Duration of Unit: 20 Hours

Unit Description

This unit covers the competencies required demonstrate communication skills. It involves obtaining and conveying workplace information, completing relevant work-related documents, communicating information about workplace processes, leading workplace discussion and communicating workplace issues.

Summary of Learning Outcomes

1. Obtain and convey workplace information
2. Complete relevant work-related documents
3. Communicate information about workplace processes
4. Lead workplace discussions
5. Identify and communicate issues arising in the workplace

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Obtain and convey workplace information	<ul style="list-style-type: none">• Communication process• Modes of communication• Medium of communication• Effective communication• Barriers to communication• Flow of communication• Sources of information• Types of questions• Organizational policies• Workplace etiquette• Ethical work practices in handling communication	<ul style="list-style-type: none">• Interview• Third party reports

<p>2. Complete relevant work-related documents</p>	<ul style="list-style-type: none"> • Types and purposes of workplace documents and forms • Methods used in filling forms and documents • Recording workplace data • Process of distributing workplace forms and documents • Report writing • Types of workplace reports 	<ul style="list-style-type: none"> • Interview • Third party reports
<p>3. Communicate information about workplace processes</p>	<ul style="list-style-type: none"> • Communication process • Modes of communication • Medium of communication • Effective communication • Barriers to communication • Flow of communication • Sources of information • Organizational policies • Organization requirements for written and electronic communication methods • Report writing • Effective questioning techniques (clarifying and probing) • Workplace etiquette • Ethical work practices in handling communication 	<ul style="list-style-type: none"> • Interview • Portfolio
<p>4. Lead workplace discussion</p>	<ul style="list-style-type: none"> • Methods of discussion e.g. <ul style="list-style-type: none"> ✓ Coordination meetings ✓ Toolbox discussion ✓ Peer-to-peer discussion • Solicitation of response 	<ul style="list-style-type: none"> • Interview • Third party reports

5. Identify and communicate issues arising in the workplace	<ul style="list-style-type: none"> • Identification of problems and issues • Organizing information on problems and issues • Relating problems and issues • Communication barriers affecting workplace discussions 	<ul style="list-style-type: none"> • Interview • Portfolio
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Suggested Methods of Instruction

- Direct instruction
- Demonstration
- Practice assignment
- Discussion
- Role play
- Brainstorming

Recommended Resources

- Desktop computers/laptops
- Internet connection
- Projectors
- Telephone
- Report writing templates

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NUMERACY SKILLS

UNIT CODE: CON/CU/CAJ/BC/02/4/A

Relationship to Occupational Standards:

This unit addresses the Unit of Competency: Demonstrate Numeracy Skills

Duration of Unit: 25 hours

Unit Description

This unit covers the competencies required to demonstrate numeracy skills. It involves identifying and using whole numbers and simple fractions, decimals and percentages for work, identifying, measuring and estimating familiar quantities for work, reading and using familiar maps, plans and diagrams for work, identifying and describing common 2D and some 3D shapes for work, constructing simple tables and graphs for work using familiar data and identifying and interpreting information in familiar tables, graphs and charts for work.

Summary of Learning Outcomes

1. Identify and use whole numbers and simple fractions, decimals and percentages for work
2. Identify, measure and estimate familiar quantities for work
3. Read and use familiar maps, plans and diagrams for work
4. Identify and describe common 2D and some 3D shapes for work
5. Construct simple tables and graphs for work using familiar data
6. Identify and interpret information in familiar tables, graphs and charts for work

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Identify and use whole numbers and simple fractions, decimals and percentages for work	<ul style="list-style-type: none">• Whole numbers• Simple fractions• Decimals• Percentages• Sizes• Problem solving methods• Calculations using the 4 operations	<ul style="list-style-type: none">• Written• Practice assignments

	<ul style="list-style-type: none"> Recording and communicating numerical information 	
2. Identify, measure and estimate familiar quantities for work	<ul style="list-style-type: none"> Measurement information Units of measurement Estimate familiar and simple amounts Selection of appropriate measuring equipment Calculate using familiar units of measurement Check measurements and results against estimates Using informal and some formal mathematical and general language Record or report results 	<ul style="list-style-type: none"> Written Practice assignments
3. Read and use familiar maps, plans and diagrams for work	<ul style="list-style-type: none"> Maps, plans and diagrams Locate items and places in familiar maps, plans and diagrams Recognize common symbols and keys in familiar maps, plans and diagrams Direction and location of objects, or route or places Use of informal and some formal oral mathematical language and symbols 	<ul style="list-style-type: none"> Practical test Written
4. Identify and describe common 2D and some 3D shapes for work	<ul style="list-style-type: none"> Common 2D shapes and 3D shapes Classification of common 2D shapes and designs Description of Use informal and some formal language to describe common two-dimensional 	<ul style="list-style-type: none"> Written Practical test

	<p>shapes and some common three-dimensional shapes</p> <ul style="list-style-type: none"> • Construction of common 2D shapes • Match common 3D shapes to their 2D sketches or nets 	
5. Construct simple tables and graphs for work using familiar data	<ul style="list-style-type: none"> • Types of graphs • Determination of data to be collected • Selection of data collection method • Collection of data • Determination of variables from the data collected • Order and collate data • Construct a table and enter data • Construct a graph using data from table • Check results • Report or discuss graph information related to work using informal and some formal mathematical and general language 	<ul style="list-style-type: none"> • Written • Practical test
6. Identify and interpret information in familiar tables, graphs and charts for work	<ul style="list-style-type: none"> • Tables construction and labeling • i.e. title, headings, rows and columns • Interpreting information and data in simple tables • Relaying information of relevant workplace tasks on/in a table • Identify familiar graphs and charts in familiar texts and contexts • Locate title, labels, axes, scale and key from familiar graphs and charts 	<ul style="list-style-type: none"> • Written • Practical test

	<ul style="list-style-type: none"> • Identify and interpret information and data in familiar graphs and charts • Relate information to relevant workplace tasks 	
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Suggested Methods of Instruction

- Instructor led facilitation of theory
- Practical demonstration of tasks by trainer
- Practice by trainees/ role play
- Discussion
- Observations and comments and corrections by trainers

Recommended Resources

- Computers
- Stationery
- Charts
- Video clips
- Audio tapes
- LCD projectors
- Standard operating and/or other workplace procedures manuals
- Specific job procedures manuals
- Projectors
- Writing boards
- Mathematical tables

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DIGITAL LITERACY

UNIT CODE: CON/CU/CAJ/BC/03/4/A

Relationship to Occupational Standards

This unit addresses the Unit of Competency: Demonstrate Digital Literacy

Duration of Unit: 35 hours

Unit Description

This unit covers the competencies required to demonstrate digital literacy in a working environment. It entails identifying computer software and hardware, applying security measures to data, hardware, software, applying computer software in solving task sand applying internet and email in communication at workplace.

Summary of Learning Outcomes

1. Identify computer software and hardware
2. Apply security measures to data, hardware and software
3. Apply computer software in solving tasks
4. Apply internet and email in communication at workplace

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Identify computer hardware and software	<ul style="list-style-type: none">• Meaning of a computer• Functions of a computer• Components of a computer• Classification of computers	<ul style="list-style-type: none">• Written tests• Oral• Observation
2. Apply security measures to data, hardware and software	<ul style="list-style-type: none">• Data security and control• Security threats and control measures• Types of computer crimes• Detection and protection against computer crimes	<ul style="list-style-type: none">• Written tests• Oral presentation• Observation• Projects
3. Apply computer software in solving tasks	<ul style="list-style-type: none">• Operating system• Word processing• Spread sheets• Data base	<ul style="list-style-type: none">• Oral questioning• Observation• Project

4. Apply internet and email in communication at workplace	<ul style="list-style-type: none"> • Computer networks • Uses of internet • Electronic mail (e-mail) concept 	<ul style="list-style-type: none"> • Oral questioning • Observation • Oral presentation • Written report
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Suggested Methods of Instruction

- Instructor led facilitation of theory
- Demonstration by trainer
- Practical assignment
- Viewing of related videos
- Project
- Group discussions

Recommended Resources

- Desktop computers
- Laptop computers
- Other digital devices
- Printers
- Storage devices
- Internet access
- Computer software

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ENTREPRENEURIAL SKILLS

UNIT CODE: CON/CU/CAJ/BC/04/4/A

Relationship to occupational standards

This unit addresses the Unit of Competency: Demonstrate Entrepreneurial Skills

Duration of unit: 60 hours

Unit description

This unit covers the competencies required for creating and maintaining small scale business, establishing small business customer base, managing and growing a micro/small-scale business.

Summary of Learning Outcomes

1. Create and maintain small scale business
2. Establish small scale business customer base
3. Manage small scale business
4. Grow/expand small scale business

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Create and maintain small scale business	<ul style="list-style-type: none">• Starting a small business• Legal regulatory requirements in starting a small business• SWOT/ PESTEL analysis• Conducting market/industry survey• Generation and evaluation of business ideas• Matching competencies with business opportunities• Forms of business ownership• Location of a small business• Legal and regulatory requirement	<ul style="list-style-type: none">• Individual/group assignments• projects• Written• Oral

	<ul style="list-style-type: none"> • Resources required to start a small business • Common terminologies in entrepreneurship • Entrepreneurship in national development • Self-employment • Formal and informal employment • Entrepreneurial culture • Myths associated with entrepreneurship • Types, characteristics, qualities & role of entrepreneurs • History, development and importance of entrepreneurship • Theories of entrepreneurship • Quality assurance for small businesses • Policies and procedures on occupational safety and health and environmental concerns 	
<p>2. Establish small scale business customer base</p>	<ul style="list-style-type: none"> • Good staff/workers and customer relations • Marketing strategy • Identifying and maintain new customers and markets • Product/ service promotions • Products / services diversification • SWOT / PESTEL analysis • Conducting a business survey 	<ul style="list-style-type: none"> • Individual/group assignments • projects • Written • Oral

	<ul style="list-style-type: none"> • Generating Business ideas • Business opportunities 	
3. Manage small scale business	<ul style="list-style-type: none"> • Organization of a small business • Small business' business plan • Marketing for small businesses • Managing finances for small business • Production/ operation process for goods/services • Small business records management • Book keeping and auditing for small businesses • Business support services • Small business resources mobilization and utilization • Basic business social responsibility • Management of small business • Word processing concepts in small business management • Computer application software • Monitoring and controlling business operations 	<ul style="list-style-type: none"> • Oral • Individual/group assignments • projects • Written
4. Grow/expand small scale business	<ul style="list-style-type: none"> • Methods of growing small business • Resources for growing small business • Small business growth plan • Computer software in business development 	<ul style="list-style-type: none"> • Individual/group assignments • projects • Written

	<ul style="list-style-type: none">• ICT and business growth	
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Suggested Methods of Instruction

- Instructor led facilitation of theory
- Demonstration by trainer
- Practice by trainee
- Role play
- Case study

Recommended Resources

- Case studies for small businesses
- Business plan templates
- Lap top/ desk top computer
- Internet
- Telephone
- Writing materials

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EMPLOYABILITY SKILLS

UNIT CODE: CON/CU/CAJ/BC/05/4/A

Relationship to Occupational Standards

This unit addresses the Unit of Competency: Demonstrate Employability Skills

Duration of Unit: 30 hours

Unit Description

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

Summary of Learning Outcomes

1. Conduct self-management
2. Demonstrate critical safe work habits
3. Demonstrate workplace learning
4. Demonstrate workplace ethics

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Conduct self-management	<ul style="list-style-type: none">• Self-awareness• Formulating personal vision, mission and goals• Strategies for overcoming life challenges• Emotional intelligence• Assertiveness• Expressing personal thoughts, feelings and beliefs• Developing and maintaining high self-esteem• Developing and maintaining positive self-image• Articulating ideas and aspirations• Accountability and responsibility• Good work habits	<ul style="list-style-type: none">• Written tests• Oral questioning• Portfolio of evidence• Third party report

	<ul style="list-style-type: none"> • Self-awareness • Self-development • Financial literacy • Healthy lifestyle practices 	
2. Demonstrate critical safe work habits	<ul style="list-style-type: none"> • Stress and stress management • Punctuality and time consciousness • Interpersonal communication • Sharing information • Leisure • Integrating personal objectives into organizational objectives • Resources utilization • Setting work priorities • HIV and AIDS • Drug and substance abuse • Handling emerging issues 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Portfolio of evidence • Third party report
3. Demonstrate workplace learning	<ul style="list-style-type: none"> • Personal training needs identification and assessment • Managing own learning • Contributing to the learning community at the workplace • Cultural aspects of work • Variety of learning context • Application of learning • Safe use of technology • Identifying opportunities • Workplace innovation • Performance improvement • Handling emerging issues • Future trends and concerns in learning 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Portfolio of evidence • Third party report
4. Demonstrate workplace ethics	<ul style="list-style-type: none"> • Meaning of ethics • Ethical perspectives • Principles of ethics • Values and beliefs • Ethical standards • Organization code of ethics • Common ethical dilemmas 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Portfolio of evidence • Third party report

	<ul style="list-style-type: none"> • Organization culture • Corruption, bribery and conflict of interest • Privacy and data protection • Diversity, harassment and mutual respect • Financial responsibility/accountability • Etiquette • Personal and professional integrity • Commitment to jurisdictional laws • Emerging issues in ethics 	
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Suggested Methods of Instruction

- Simulation/Role play
- Group Discussion
- Presentations
- Q&A
- Case studies
- Assignments

Recommended Resources

- Computers
- Stationery
- Charts
- Video clips
- Audio tapes
- Radio sets
- TV sets
- LCD projectors

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ENVIRONMENTAL LITERACY

UNIT CODE: CON/CU/CAJ/BC/06/4/A

Relationship to Occupational Standards

This unit addresses the Unit of Competency: Demonstrate Environmental Literacy

Duration of Unit: 20 hours

Unit Description

This unit specifies the competencies required to demonstrate environmental literacy. It involves controlling environmental hazard, controlling environmental pollution, demonstrating sustainable resource use and evaluating current practices in relation to resource usage.

Summary of Learning Outcomes

1. Control environmental hazard
2. Control environmental pollution
3. Demonstrate sustainable use of resources
4. Evaluate current practices in relation to resource usage

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Control environmental hazard	<ul style="list-style-type: none">• Purposes and content of Environmental Management and Coordination Act 1999• Purposes and content of Solid Waste Act• Storage methods for environmentally hazardous materials• Disposal methods of hazardous wastes• Types and uses of PPE in line with environmental regulations• Occupational Safety and Health Standards (OSHS)	<ul style="list-style-type: none">• Written tests• Oral questions• Observation of work procedures

<p>2. Control environmental Pollution</p>	<ul style="list-style-type: none"> • Types of pollution • Environmental pollution control measures • Types of solid wastes • Procedures for solid waste management • Different types of noise pollution • Methods for minimizing noise pollution 	<ul style="list-style-type: none"> • Written tests • Oral questions • Observation of work procedures • Role play
<p>3. Demonstrate sustainable resource use</p>	<ul style="list-style-type: none"> • Types of resources • Techniques in measuring current usage of resources • Calculating current usage of resources • Methods for minimizing wastage • Waste management procedures • Principles of 3Rs (Reduce, Reuse, Recycle) • Methods for economizing or reducing resource consumption 	<ul style="list-style-type: none"> • Written tests • Oral questions • Observation of work procedures
<p>4. Evaluate current practices in relation to resource usage</p>	<ul style="list-style-type: none"> • Collection of information on environmental and resource efficiency systems and procedures, • Measurement and recording of current resource usage • Analysis and recording of current purchasing strategies. • Analysis of current work processes to access information and data • Identification of areas for improvement 	<ul style="list-style-type: none"> • Written tests • Oral questions • Observation of work procedures
<p>5. Identify Environmental legislations/conventions for environmental concerns</p>	<ul style="list-style-type: none"> • Environmental issues/concerns • Environmental legislations /conventions and local ordinances 	<ul style="list-style-type: none"> • Written tests • Oral questions

	<ul style="list-style-type: none"> • Industrial standard /environmental practices • International Environmental Protocols (Montreal, Kyoto) • Features of an environmental strategy 	<ul style="list-style-type: none"> • Observation of work procedures
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Suggested Methods of Instruction

- Instructor led facilitation of theory
- Practical demonstration of tasks by trainer
- Practice by trainees/ role play
- Discussion
- Observations and comments and corrections by trainers

Recommended Resources

- Computers
- Stationery
- Charts
- Video clips
- Audio tapes
- Radio sets
- TV sets
- LCD projectors
- Standard operating and/or other workplace procedures manuals
- Specific job procedures manuals
- Machine/equipment manufacturer's specifications and instructions
- Personal Protective Equipment (PPE)

OCCUPATIONAL SAFETY AND HEALTH PRACTICES

UNIT CODE: CON/CU/CAJ/BC/07/4/A

Relationship to Occupational Standards

This unit addresses the unit of competency: Demonstrate Occupational Safety and Health Practices

Duration of Unit: 20 hours

Unit Description

This unit specifies the competencies required to practice safety and health and comply with OSH requirements relevant to work. It involves adhering to workplace procedures for hazards and risk prevention and participating in arrangements for workplace safety and health maintenance.

Summary of Learning Outcomes

1. Adhere to workplace procedures for hazards and risk prevention
2. Participate in arrangements for workplace safety and health maintenance

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Adhere to workplace procedures for hazards and risk prevention	<ul style="list-style-type: none">• Arrangement of work area and items in accordance with Company housekeeping procedures• Adherence to work standards and procedures• Application of preventive and control measures, including use of safety gears/PPE• Study and apply standards and procedures for incidents and emergencies.	<ul style="list-style-type: none">• Oral questions• Written tests• Portfolio of evidence• Third party report
2. Participate in arrangements for workplace safety and health maintenance	<ul style="list-style-type: none">• Participating in orientations on OSH requirements/regulations of tasks• Providing feedback on health, safety, and security concerns to	<ul style="list-style-type: none">• Oral questions• Written tests• Portfolio of evidence

	<p>appropriate personnel as required in a sufficiently detailed manner</p> <ul style="list-style-type: none"> • Practice workplace procedures for reporting hazards, incidents, injuries and sickness • OSH requirements/ regulations and workplace safety and hazard control procedures are reviewed, and compliance reported to appropriate personnel • Identification of needed OSH-related trainings are proposed to appropriate personnel 	<ul style="list-style-type: none"> • Third party report
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Suggested Methods of Instruction

- Assignments
- Discussion
- Q&A
- Role play
- Viewing of related videos

Recommended Resources

- Computers
- Stationery
- Charts
- Video clips
- Audio tapes
- Radio sets
- TV sets
- LCD projectors
- Standard operating and/or other workplace procedures manuals
- Specific job procedures manuals
- Machine/equipment manufacturer's specifications and instructions
- Personal Protective Equipment (PPE) e.g.
 - Mask
 - Face mask/shield
 - Safety boots
 - Safety harness
 - 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

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COMMON UNITS OF LEARNING

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BASIC MATHEMATICS

UNIT CODE: CON/CU/CAJ/CC/01/4/A

Relationship to Occupational Standards

This unit addresses the unit of competency: Apply Basic mathematics

Duration of Unit: 40 hours

Unit Description

This unit describes the competencies required applying basic mathematics in carpentry and joinery. It involves applying algebra, applying trigonometry, performing geometrical calculations, carrying out mensuration, applying statistics and applying linear graphs

Summary of Learning Outcomes

1. Apply algebra
2. Apply trigonometry
3. Perform geometrical calculations
4. Carry out mensuration
5. Apply statistics
6. Apply linear graphs

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Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Apply Algebra	<ul style="list-style-type: none"> • Simple quadratic equations • Methods of solving quadratic equations • Algebraic expressions • Use of calculator • Solution of equations reduced to quadratic form • Solutions of simultaneous linear equations in one unknown 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Assignments • Supervised exercises
2. Apply Trigonometry	<ul style="list-style-type: none"> • Tangent • Sine • Cosine • State the tangent, sine and cosine of an angle from a right-angled triangle • Use of tables to find trigonometric ratios • Use of trigonometrical calculations <ul style="list-style-type: none"> ✓ Lengths of sides ✓ Heights ✓ angles 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Assignments • Supervised exercises
3. Perform geometrical calculations	<ul style="list-style-type: none"> • Areas of quadrilaterals, triangles and circles • Application of Pythagoras' theorem • Areas of figures <ul style="list-style-type: none"> ✓ Parallelogram ✓ Trapezium ✓ Circle 	<ul style="list-style-type: none"> • Assignments • Oral questioning • Supervised exercises • Written tests

	<ul style="list-style-type: none"> ✓ Annulus ✓ Sector ✓ Curved surface of a cylinder ✓ Surface area of a pyramid and cones • Volumes of cones and pyramids 	
4. Carry out mensuration	<ul style="list-style-type: none"> • Common units of measurement <ul style="list-style-type: none"> ✓ Length in metres (m) ✓ Mass in kilograms (kg) ✓ Time in second (s) • Conversion of units: <ul style="list-style-type: none"> ✓ Mm to m ✓ M to km ✓ G to kg ✓ Metric to SI • Perimeters, areas and volumes <ul style="list-style-type: none"> ✓ Perimeters ✓ Surface areas ✓ Volume of solid and hollow figures ✓ Circumference • Sketching of regular figures, solids and nets 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Assignments • Supervised exercises
5. Apply statistics	<ul style="list-style-type: none"> • Data collection • Data organization • Data representation • Median of ungrouped data 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Assignments • Supervised exercises

	<ul style="list-style-type: none"> • Interpretation of data from given charts 	
6. Apply linear graphs	<ul style="list-style-type: none"> • Plotting linear graphs for given set of data • Using information from given linear graphs • Types of linear graphs <ul style="list-style-type: none"> ✓ Distance- time ✓ Temperature- time ✓ Area of cross section- volume ✓ Velocity- distance ✓ Ready reckoners 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Assignments • Supervised exercises

Suggested Methods of Instruction

- Group discussions
- Demonstration by trainer
- Exercises by trainee

Recommended Resources

- Scientific Calculators
- Rulers, pencils, erasers
- Charts with presentations of data
- Graph books
- Dice
- Computers with internet connection

TECHNICAL DRAWINGS

UNIT CODE: CON/CU/CAJ/CC/02/4/A

Relationship to Occupational Standards

This unit addresses the unit of competency: Prepare and interpret technical drawings

Duration of Unit: 40 hours

Unit Description

This unit covers the competencies required to prepare and interpret technical drawings. It involves competencies to select, use and maintain drawing equipment and materials. It also involves producing plain geometry drawings, solid geometry drawings, pictorial and orthographic drawings

Summary of Learning Outcomes

1. Select, use and maintain drawing equipment and materials
2. Produce plane geometry drawings
3. Produce solid geometry drawings
4. Produce pictorial and orthographic drawings

Learning Outcomes, Content and Suggested Assessment Methods:

Learning Outcome	Content	Suggested Assessment Methods
1. Select, use and maintain drawing equipment and materials	<ul style="list-style-type: none">• Identification and care of drawing equipment• Identification and care of drawing materials• Reference to manufacturer's instructions and work place procedures on use and maintenance of drawing equipment and materials• Reference to relevant environmental legislations• Use of Personal Protective Equipment (PPEs)	<ul style="list-style-type: none">• Observation• Oral questioning• Written tests

2. Produce plane geometry drawings	<ul style="list-style-type: none"> • Types of lines in drawings • Construction of geometric forms e.g. squares, circles • Construction of different angles • Measurement of different angles • Bisection of different angles and lines • Standard drawing conventions 	<ul style="list-style-type: none"> • Oral questioning • Practical tests • Observation • Written tests
3. Produce solid geometry drawings	<ul style="list-style-type: none"> • Interpretation of sketches and drawings of patterns e.g. cylinders, prisms and pyramids • Sectioning of solids e.g. prisms, cones • Development and interpretations of solids e.g. cylinder to cylinder and cylinder to triangular, prism 	<ul style="list-style-type: none"> • Observation • Practical tests • Oral questioning • Written tests
4. Produce orthographic drawings	<ul style="list-style-type: none"> • Meaning of pictorial and orthographic drawings • Meaning of sectioning • Meaning of symbols and abbreviations • Drawing and interpretation of orthographic elevations • Dimensioning of orthographic elevations • Sectioning of views • Drawing objects in isometric view • Drawing objects in oblique view • Free hand sketching 	<ul style="list-style-type: none"> • Observation • Practical tests • Oral questioning • Written tests

Suggested Methods of Instruction

- Demonstration by trainer
- Practice by the trainee

- Discussions

Recommended Resources

- Drawing room
- Drawing instruments e.g. T-squares, set squares, drawing sets
- Drawing tables
- Pencils, papers, erasers
- Masking tapes

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SCIENCE

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

Relationship to Occupational Standards

This unit addresses the unit of competency: Apply Science

Duration of Unit: 40 Hours

Unit Description

This unit describes the competence in applying 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

Summary of Learning Outcomes

- 1 Apply units and measurements
- 2 Apply Force, work, energy and power
- 3 Apply Friction
- 4 Apply Light and sound
- 5 Apply Linear motion
- 6 Apply General chemistry
- 7 Apply primary and secondary cells
- 8 Apply thermal properties of matter
- 9 Apply pressure in fluids

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1 Apply units and measurements	<ul style="list-style-type: none">• Selection of units of measurement• Conversion of units from one form to another	<ul style="list-style-type: none">• Written tests• Oral• Practical tests
2 Apply Force, work, energy and power	<ul style="list-style-type: none">• Definition of force, work, energy and power• Application of force, work, energy and power	<ul style="list-style-type: none">• Written tests• Oral• Practical tests

3 Apply Friction	<ul style="list-style-type: none"> • Definition of friction • Causes of friction • Advantages and disadvantages of friction • Application of friction in construction 	<ul style="list-style-type: none"> • Written tests • Oral • Practical tests
4 Apply Light and sound	<ul style="list-style-type: none"> • Sources of lights and sound • Laws of reflection and refraction • Characteristics of images formed by plane curved mirrors • Colours and mixing colours • Solving simple problems involving location of images formed by curved mirrors • Velocity of sound in air • Propagation of sound in a given medium properties of sound 	<ul style="list-style-type: none"> • Written tests • Oral • Practical tests
5 Apply Linear motion	<ul style="list-style-type: none"> • Definition of distance, displacement, speed and velocity and acceleration • Plotting and sketching motion graphs • Interpretation of motion graphs • Solving simple problems involving bodies in linear motion 	<ul style="list-style-type: none"> • Written tests • Oral • Practical tests
6 Apply General chemistry	<ul style="list-style-type: none"> • Knowledge of experimental techniques • Recognize the structure of atoms • Strength of chemical bonds 	<ul style="list-style-type: none"> • Written tests • Oral • Practical tests

7 Apply primary and secondary cells	<ul style="list-style-type: none"> • Difference between primary and secondary cells • Construction of primary and secondary cells • Principles and operation of primary and secondary cells • Advantages of primary and secondary cells • Uses of primary and secondary cells 	<ul style="list-style-type: none"> • Written tests • Oral • Practical tests
8 Apply thermal properties of matter	<ul style="list-style-type: none"> • Sources of heat • Effects of heat on matter • Change of matter as heat varies • methods of heat transfer • Water heating 	<ul style="list-style-type: none"> • Written tests • Oral • Practical tests
9 Apply pressure in fluids and liquids	<ul style="list-style-type: none"> • Definition of air pressure • Experiments on air pressure • Units of measurements of pressure • Application of air pressure in relation to objects in everyday life • Definition of density • Variations of pressure • Laws of floatation • Solving simple problems involving liquids of different densities 	<ul style="list-style-type: none"> • Written tests • Oral • Practical tests

Suggested Methods of Instruction

- Demonstration by trainer
- Practical work by trainee
- Demonstration videos
- Trainee group discussions

Recommended Resources

- Laboratory testing equipment
- Laboratory apparatus
- Hand tools
- Machine tools
- Construction materials
- Stationery
- Oils
- Cells
- Pins
- Candles
- Acids and bases
- Steel rods
- Iron fillings
- Safety boots

- Goggles
- Gas masks²⁵
- Helmets
- Gloves
- Dust coats
- First aid kit
- Ear muffs
- Dust masks
- Overalls

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CONSTRUCTION OF TEMPORARY WORKS

UNIT CODE: CON/CU/CAJ/04/4/A

Relationship to Occupational Standards

This unit addresses the unit of competency: construct temporary works.

Duration of Unit: 35 hours

Unit Description

This unit describes the competencies required to construct temporary works. It involves constructing and dismantling trench timbering, constructing and dismantling building formwork/shuttering, erecting, and dismantling scaffold, constructing and dismantling building shores,

Summary of Learning Outcomes

1. Construct and dismantle trench timbering
2. Construct and dismantle building formwork/shuttering
3. Erect and dismantle building scaffold
4. Erect and dismantle building shores

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Construct and dismantle trench timbering	<ul style="list-style-type: none">• Personal protective equipment• Trench timbering materials• Construction of trench timbering• Procedure of dismantling trench timbering• Housekeeping practices	<ul style="list-style-type: none">• Practical assignment• Oral• written
2. Construct and dismantle building formwork/shuttering	<ul style="list-style-type: none">• Observation of safety and precautions• Personal protective equipment• Formwork dimensions	<ul style="list-style-type: none">• Practical assignment• Oral• Written

	<ul style="list-style-type: none"> • Formwork types • Oiling timber formwork surface • Procedure of fixing formwork into position • Procedure of dismantling formwork • Housekeeping practices 	
3. Erect and dismantle building scaffold	<ul style="list-style-type: none"> • Observation of safety and precautions • Personal protective equipment • Types of scaffold system • Procedure of erecting scaffold • Inspection and commission of scaffolds • Procedure of dismantling scaffolds • Housekeeping procedure 	<ul style="list-style-type: none"> • Practical assignment • Oral • Written
4. Erect and dismantle building shores	<ul style="list-style-type: none"> • Observation of safety and precautions • Personal protective equipment • Shoring materials • Types of shores • Procedure of erecting shoring • Inspection and commission of shoring • Procedure of dismantling shoring 	<ul style="list-style-type: none"> • Written • Oral • practical assignment

	<ul style="list-style-type: none">• Housekeeping procedures	
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Suggested Methods of Instruction

- Demonstration by trainer
- Practical work by trainee
- Demonstration videos
- Group discussions

Recommended Resources

- measuring and drawing tools
- carpentry and joinery tools and equipment
- saws
- hammers
- tape measures
- Building Codes
- Timber
- Props
- Nails
- Plywood
- dust coat
- First aid kits
- Overalls
- Gum boots
- Safety goggles
- Helmets
- Gloves

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CORE UNITS OF LEARNING

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DOORS AND DOOR FRAMES

UNIT CODE: CON/CU/CAJ/CR/01/4/A

Relationship to Occupational Standards

This unit addresses the unit of competency: Construct doors and door frames

Duration of Unit: 90 hours

Unit Description

This unit describes the competence required to construct doors and door frames. 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

Summary of Learning Outcomes

1. Interpret working drawing
2. Prepare construction materials
3. Mark out product profile
4. Cut out product profile
5. Perform fixing of the joints
6. Perform finishing processes
7. Examine quality of the finished product
8. Perform workplace Housekeeping

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Interpret working drawing	<ul style="list-style-type: none">• Elevation• Sections• Dimensions• Scale• Symbols• Sketching battened doors• Types of battened door• Types of panelled doors• Types of flush doors	<ul style="list-style-type: none">• Practical assignment• Oral/written tests

<p>2. Prepare Construction materials</p>	<ul style="list-style-type: none"> • Interpretation of working drawing • Preparation of a cutting list • Criteria for selection of timber • Types of construction materials <ul style="list-style-type: none"> ✓ Timber ✓ Ply wood ✓ Nails and screws ✓ Wood glue ✓ Sand paper • Uses and specifications of materials, tools and equipment • Safety Practices <ul style="list-style-type: none"> ✓ PPE ✓ Handling of tools, materials and equipment ✓ Good housekeeping 	<ul style="list-style-type: none"> • Practical assignment • Oral • Written tests
<p>3. Mark out product profile</p>	<ul style="list-style-type: none"> • Marking out tools <ul style="list-style-type: none"> ✓ Tape measure ✓ Try square ✓ Marking gauge ✓ Workshop rod • Marking out procedures <ul style="list-style-type: none"> ✓ Mark mortise ✓ Mark tenons ✓ Mark grooves ✓ Mark rebate ✓ Mark chamfer 	<ul style="list-style-type: none"> • Practical assignment • Oral • Written tests
<p>4. Cut out product profile</p>	<ul style="list-style-type: none"> • Types of cutting out tools <ul style="list-style-type: none"> ✓ Saws ✓ Chisels ✓ Mallet ✓ Planes • Cutting procedure <ul style="list-style-type: none"> ✓ Cut out mortises 	<ul style="list-style-type: none"> • Practical assignment • Oral • Written tests

	<ul style="list-style-type: none"> ✓ Cut out tenons ✓ Cut out the grooves ✓ Cut out rebates ✓ Cut out chamfers 	
5. Perform fitting of the joints	<ul style="list-style-type: none"> • Types of fitting tools <ul style="list-style-type: none"> ✓ Hammers ✓ Screw drivers ✓ Wood glue ✓ Nails ✓ Screws ✓ Clamps ✓ Dowels • Types of joints <ul style="list-style-type: none"> ✓ Mortise and tenon ✓ Tongue and grooves ✓ Scribes joints ✓ Rebate • Procedure of fitting joints <ul style="list-style-type: none"> ✓ Apply glue to tenons and mortises ✓ Fit tenons to mortises ✓ Fit battens to grooves ✓ Fit stiles ✓ Clamp the door ✓ Fix the joints ✓ Cut and fix the braces • Criteria for selecting fixing devices 	<ul style="list-style-type: none"> • Written tests • Oral • practical assignment
6. Perform finishing processes	<ul style="list-style-type: none"> • Types of finishing processes <ul style="list-style-type: none"> ✓ Wiping excessive glue ✓ Applying filler to any dent ✓ Sanding and applying coat of varnish 	<ul style="list-style-type: none"> • Oral • practical assignments • Written tests

	<ul style="list-style-type: none"> • Hanging door in the frame • Fixing ironmongery /hardware <ul style="list-style-type: none"> ✓ Lock ✓ Tower bolts ✓ Door closers ✓ Door pullers 	
7. Examine quality of the finished product	<ul style="list-style-type: none"> • Fitness and joint quality • Final appearance • Function-ability of the door 	<ul style="list-style-type: none"> • Oral • practical assignments • Written
8. Perform workplace Housekeeping	<ul style="list-style-type: none"> • Housekeeping procedures <ul style="list-style-type: none"> ✓ Gather off cuts ✓ Gather shavings/ saw dust ✓ Clean the floor return tools to the store 	<ul style="list-style-type: none"> • Oral • practical assignments • Written

Suggested Methods of Instruction

- Demonstration by trainer
- Practical work by trainee
- Demonstration videos
- Group discussions

Recommended Resources

- Carpentry and joinery hand tools
 - ✓ Saws
 - ✓ Hammers
 - ✓ Planes
 - ✓ Gauges
 - ✓ Chisels
 - ✓ Squares
 - ✓ Tape measure
- Codes of practice

- Reference books
- Timber nails
- Screws
- Sand papers
- Varnish
- Wood glue
- dust coat

- First aid kits

- Googles

- Glooves

- Safety boots

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WINDOWS & WINDOW FRAMES

UNIT CODE: CON/CU/CAJ/CR/02/4/A

Relationship to Occupational Standards

This unit addresses the unit of competency: construct windows and window frames

Duration of Unit: 80 hours

Unit Description

This Unit describes the competencies required to construct windows and window frames. 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

Summary of Learning Outcomes

1. Interpret working drawing
2. Prepare construction materials
3. Mark out product profile
4. Cut out product profile
5. Perform fixing of the joints
6. Perform finishing processes
7. Examine quality of the finished product
8. Perform workplace Housekeeping

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Interpret working drawing	<ul style="list-style-type: none">• Elevation• Sections• Dimensions• Scale• Symbols	<ul style="list-style-type: none">• Practical assignment• Oral/written tests
2. Prepare Construction materials	<ul style="list-style-type: none">• Interpretation of working drawing• Types of windows• Preparation of a cutting list• Types of construction materials	<ul style="list-style-type: none">• Practical assignment• Oral/ Written tests

	<ul style="list-style-type: none"> ✓ Timber ✓ Ply wood ✓ Nails and screws ✓ Wood glue ✓ Sand paper <ul style="list-style-type: none"> • Uses and specifications of materials, tools and equipment • Safety Practices <ul style="list-style-type: none"> ✓ PPE ✓ Handling of tools, materials and equipment ✓ Good housekeeping 	
3. Mark out product profile	<ul style="list-style-type: none"> • Marking out tools <ul style="list-style-type: none"> ✓ Tape measure ✓ Try square ✓ Marking gauge ✓ Workshop rod • Marking out procedures <ul style="list-style-type: none"> ✓ Mark mortise ✓ Mark tenons ✓ Mark grooves ✓ Mark rebate ✓ Mark chamfer 	<ul style="list-style-type: none"> • Practical assignment • Oral/ Written tests
4. Cut out product profile	<ul style="list-style-type: none"> • Types of cutting out tools <ul style="list-style-type: none"> ✓ Saws ✓ Chisels ✓ Mallet ✓ Planes • Cutting procedure <ul style="list-style-type: none"> ✓ Cut out mortises ✓ Cut out tenons ✓ Cut out the grooves ✓ Cut out rebates ✓ Cut out chamfers 	<ul style="list-style-type: none"> • Practical assignment • Oral/ Written tests
5. Perform fitting of the joints	<ul style="list-style-type: none"> • Types of fitting tools <ul style="list-style-type: none"> ✓ Hammers ✓ Screw drivers ✓ Wood glue 	<ul style="list-style-type: none"> • Written tests • Oral tests

	<ul style="list-style-type: none"> ✓ Nails ✓ Screws ✓ Clamps ✓ Dowels • Types of joints <ul style="list-style-type: none"> ✓ Mortise and tenon ✓ Tongue and grooves ✓ Scribes joints ✓ Rebate • Procedure of fitting joints <ul style="list-style-type: none"> ✓ Apply glue to tenons and mortises ✓ Fit tenons to mortises ✓ Fit battens to grooves ✓ Fit stiles ✓ Clamp the window ✓ Fix the joints ✓ Cut and fix the braces 	<ul style="list-style-type: none"> • practical assignment
6. Perform finishing processes	<ul style="list-style-type: none"> • Types of finishing processes <ul style="list-style-type: none"> ✓ Wipe excessive glue ✓ Apply filler to any dent ✓ Sanding and applying coat of varnish • Hanging window in the frame • Fixing ironmongery /hardware <ul style="list-style-type: none"> ✓ Lock ✓ Tower bolts ✓ Fasteners ✓ Stays ✓ Hooks 	<ul style="list-style-type: none"> • Oral assignment • practical assignments • Written tests

7. Examine quality of the finished product	<ul style="list-style-type: none"> • Fitness and joint quality • Final appearance • Function-ability of the door 	<ul style="list-style-type: none"> • Practical assignments • Oral/ written tests
8. Perform workplace Housekeeping	<ul style="list-style-type: none"> • Housekeeping procedures <ul style="list-style-type: none"> ✓ Gather off cuts ✓ Gather shavings/ saw dust ✓ Clean the floor return tools to the store 	<ul style="list-style-type: none"> • Practical assignments • Oral/ written

Suggested Methods of Instruction

- Demonstration by trainer
- Practical work by trainee
- Demonstration videos
- Group discussions

Recommended Resources

- Carpentry and joinery hand tools
 - ✓ Saws
 - ✓ Hammers
 - ✓ Planes
 - ✓ Gauges
 - ✓ Chisels
 - ✓ Squares
 - ✓ Tape measure
- Codes of practice
- Reference books
- Timber
- Screws
- Nails
- Wood glue
- Varnish

- dust coat
- First aid kits
- Overalls
- Gum boots
- Safety goggles
- Helmets
- Gloves

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FURNITURE ITEMS

UNIT CODE: CON/CU/CAJ/CR/03/4/A

Relationship to Occupational Standards

This unit addresses the unit of competency: Construct furniture items

Duration of Unit: 90 hours

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.

Summary of Learning Outcomes

1. Interpret working drawing
2. Prepare construction materials
3. Marking out product profile
4. Cut out product profile
5. Perform fixing of the joints
6. Perform finishing processes
7. Examining quality of the finished product
8. Performing workplace housekeeping.

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Interpret working drawing	<ul style="list-style-type: none">• Elevation• Sections• Dimensions• Scale• Symbols	<ul style="list-style-type: none">• Practical assignment• Oral/written

<p>2. Prepare Construction materials</p>	<ul style="list-style-type: none"> • Interpretation of working drawing • Examples of furniture items • Preparation of a cutting list • Types of construction materials <ul style="list-style-type: none"> ✓ Timber ✓ Ply wood ✓ Nails and screws ✓ Wood glue ✓ Sand paper • Uses and specifications of materials, tools and equipment • Safety Practices <ul style="list-style-type: none"> ✓ PPE ✓ Handling of tools, materials and equipment ✓ Good housekeeping 	<ul style="list-style-type: none"> • Practical assignment • Oral • Written
<p>3. Mark out product profile</p>	<ul style="list-style-type: none"> • Marking out tools <ul style="list-style-type: none"> ✓ Tape measure ✓ Try square ✓ Marking gauge ✓ Workshop rod • Marking out procedures <ul style="list-style-type: none"> ✓ Mark mortise ✓ Mark tenons ✓ Mark grooves ✓ Mark rebate ✓ Mark chamfer 	<ul style="list-style-type: none"> • Practical assignment • Oral • Written
<p>4. Cut out product profile</p>	<ul style="list-style-type: none"> • Types of cutting out tools <ul style="list-style-type: none"> ✓ Saws ✓ Chisels ✓ Mallet ✓ Planes • Cutting procedure <ul style="list-style-type: none"> ✓ Cut out mortises ✓ Cut out tenons 	<ul style="list-style-type: none"> • Practical assignment • Oral • Written

	<ul style="list-style-type: none"> ✓ Cut out the grooves ✓ Cut out rebates ✓ Cut out chamfers 	
5. Perform fitting of the joints	<ul style="list-style-type: none"> • Types of fitting tools <ul style="list-style-type: none"> ✓ Hammers ✓ Screw drivers ✓ Wood glue ✓ Nails ✓ Screws ✓ Clamps ✓ Dowels • Types of joints <ul style="list-style-type: none"> ✓ Mortise and tenon ✓ Tongue and grooves ✓ Scribes joints ✓ Rebate • Procedure of fitting joints <ul style="list-style-type: none"> ✓ Apply glue to tenons and mortises ✓ Fit tenons to mortises ✓ Fit battens to grooves ✓ Clamp the product ✓ Fix the joints ✓ Cut and fix the braces 	<ul style="list-style-type: none"> • Written • Oral • practical assignment
6. Perform finishing processes	<ul style="list-style-type: none"> • Types of finishing processes <ul style="list-style-type: none"> ✓ Wipe excessive glue ✓ Apply filler to any dent ✓ Sanding and applying coats of finishes • Fixing ironmongery /hardware 	<ul style="list-style-type: none"> • Oral • practical assignments • Written

	<ul style="list-style-type: none"> ✓ Lock ✓ Tower bolts ✓ Door closers ✓ Door pullers 	
7. Examine quality of the finished product	<ul style="list-style-type: none"> • Fitness and joint quality • Final appearance • Function-ability of the furniture 	<ul style="list-style-type: none"> • Oral • practical assignments • Written
8. Perform workplace Housekeeping	<ul style="list-style-type: none"> • Housekeeping procedures <ul style="list-style-type: none"> ✓ Gather off cuts ✓ Gather shavings/ saw dust ✓ Clean the floor return tools to the store 	<ul style="list-style-type: none"> • Oral • practical assignments • Written

Suggested Methods of Instruction

- Demonstration by trainer
- Practical work by trainee
- Demonstration videos
- Group discussions

Recommended Resources

- Carpentry tools
- Soil testing tools and kits
- Masonry tools
- Reference materials
- Occupational Safety and health manuals
- Overalls
- Gum boots
- First aid kits
- Safety goggles
- Helmets

- Gloves
- Dust coats

ROOF STRUCTURES

UNIT CODE: CON/CU/CAJ/CR/04/4/A

Relationship to Occupational Standards

This unit addresses the unit of competency: construct and erect roof structures

Duration of Unit: 90 hours

Unit Description

This unit describes the competence in constructing and erecting roof structures. It involves interpreting architectural drawings, 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

Summary of Learning Outcomes

1. Interpret architectural drawings
2. Set out roof trusses
3. Cut out the joints
4. Assemble of truss members
5. Erect roof trusses
6. Perform fixing of purlins
7. Perform trimming of roof members
8. Fix roof covering material
9. Perform finishing at the eaves
10. Perform finishing processes

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Interpret Architectural drawings	<ul style="list-style-type: none"> • Elevations • Sections • Scales • Dimensions • Symbols • Sketching and labelling types of roof 	<ul style="list-style-type: none"> • Written tests • Oral • Practical tests
2. Set out roof trusses	<ul style="list-style-type: none"> • Types of roofs <ul style="list-style-type: none"> ✓ Single ✓ Double ✓ Triple ✓ Trussed • Procedure of setting out • Types of roof trusses 	<ul style="list-style-type: none"> • Written tests • Oral • Practical tests
3. Cut out the joints	<ul style="list-style-type: none"> • Plumb cut • Seat cut • ½ lapped halved dovetail • Scarf joints 	<ul style="list-style-type: none"> • Written tests • Oral • Practical tests
4. Assemble of truss members	<ul style="list-style-type: none"> • Types of truss members <ul style="list-style-type: none"> ✓ Rafters ✓ King post ✓ Braces ✓ Ties 	<ul style="list-style-type: none"> • Written tests • Oral • Practical tests
5. Erect roof trusses	<ul style="list-style-type: none"> • Plumb the trusses • Fixing truss on purlin 	<ul style="list-style-type: none"> • Written tests • Oral • Practical tests

6. Perform fixing of purlins	<ul style="list-style-type: none"> • Fixing tools <ul style="list-style-type: none"> ✓ Plumb-bob ✓ Hammer ✓ Saws ✓ Tape measure ✓ Try square • Fixing procedures <ul style="list-style-type: none"> ✓ Cut joints ✓ Align the purlins to the truss ✓ Fix the purlins ✓ Remove temporary support 	<ul style="list-style-type: none"> • Written tests • Oral • Practical tests
7. Perform trimming of roof members	<ul style="list-style-type: none"> • Procedure of trimming roof members <ul style="list-style-type: none"> ✓ Trim the purlins ✓ Trim the rafters • Trimming tools and equipment 	<ul style="list-style-type: none"> • Written tests • Oral • Practical tests
8. Fix roof covering material	<ul style="list-style-type: none"> • Types of roof covering materials <ul style="list-style-type: none"> ✓ Corrugated sheets ✓ Asbestos sheets ✓ Tiles ✓ Shingles • Estimation of materials • Fixing procedure 	<ul style="list-style-type: none"> • Written tests • Oral • Practical tests
9. Perform finishing at the eaves	<ul style="list-style-type: none"> • Definition of eaves • Types of eaves • Measuring sizes of the eaves • Marking plumb cuts • Cutting eaves plumb as marked 	<ul style="list-style-type: none"> • Written tests • Oral • Practical tests
10. Perform finishing processes	<ul style="list-style-type: none"> • Finishing procedures <ul style="list-style-type: none"> ✓ Cut bevells of roof members ✓ Fix the fascial board 	<ul style="list-style-type: none"> • Written tests • Oral

	✓ Fix the soffits board Fix the gutter and down pipes	<ul style="list-style-type: none"> • Practical tests
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Suggested Methods of Instruction

- Demonstration by trainer
- Practical work by trainee
- Demonstration videos
- Group discussions

Recommended Resources

- Carpentry tools
- Reference materials
- Occupational Safety and health manuals
- Nails
- Nuts and bolts
- Timber
- Screws
- Gum boots
- Gloves
- Dust coats
- First aid kit
- Ear muffs
- Dust mask

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JOINERS SECOND FIXING

UNIT CODE: CON/CU/CAJ/CR/05/4/A

Relationship to Occupational Standards

This unit addresses the unit of competency: Perform joiners second fixing

Duration of Unit: 85 hours

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.

Summary of Learning Outcomes

1. Interpret architectural drawings
2. Select materials, tools and equipment
3. Perform fixing the fixtures
4. Examine the quality of the finished product
5. Perform work place housekeeping

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Interpret architectural drawings	<ul style="list-style-type: none">• Elevations• Sections• Scales• Dimensions	<ul style="list-style-type: none">• practical assignment• Written• Oral
2. Select materials, tools and equipment	<ul style="list-style-type: none">• Cutting list• Materials requirement<ul style="list-style-type: none">✓ Timber✓ Wood glue✓ Nails and screws• Tools and equipment	<ul style="list-style-type: none">• practical assignment• Written• Oral

	<ul style="list-style-type: none"> ✓ Hammers ✓ Drills ✓ Plugging chisels ✓ Saws ✓ Tape measures 	
3. Perform fixing the fixtures	<ul style="list-style-type: none"> • Procedure of fixing fixtures <ul style="list-style-type: none"> ✓ Mark joints and cut ✓ Mark and drill hole for plugs ✓ Fix the plugs ✓ Fix the fixtures • Tools and equipment 	<ul style="list-style-type: none"> • practical assignment • Written • Oral
4. Examine the quality of the finished product	<ul style="list-style-type: none"> • Quality of the joints • Final appearance 	<ul style="list-style-type: none"> • practical assignment • Written • Oral
5. Perform work place housekeeping	<ul style="list-style-type: none"> • Housekeeping procedures <ul style="list-style-type: none"> ✓ Gather off-cuts ✓ Gather wood shavings ✓ Clean the floor • Tools and equipment 	<ul style="list-style-type: none"> • Practical assignment • Written • Oral

Suggested Methods of Instruction

- Demonstration by trainer
- Practical work by trainee
- Demonstration videos
- Group discussions

Recommended Resources

- Hammers
- Drills
- Plugging chisels
- Saws
- Tape measures
- Timber

- Wood glue
- Nails and screws
- Overall

- Helmet
- Safety boots
- Masks
- Gloves
- First aid kit
- Reflectors
- Safety goggles

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TIMBER FLOORS AND PREFABRICATED BUILDINGS

UNIT CODE: CON/CU/CAJ/CR/06/4/A

Relationship to Occupational Standards

This unit addresses the unit of competency: Construct timber floors and prefabricated buildings

Duration of Unit: 90 hours

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, erecting the timber prefabricated structure, constructing timber floors and performing finishing activities.

Summary of Learning Outcomes

1. Interpret structural drawing
2. Select materials, tools and equipment
3. Set and construct timber prefabricated structures
4. Construct timber floors
5. Perform finishing activities.

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Interpret structural drawing	<ul style="list-style-type: none">• Elevations• Sections• Scale• Dimensions•	<ul style="list-style-type: none">• Written tests• Oral• Practical tests
2. Select materials, tools and equipment	<ul style="list-style-type: none">• Materials required<ul style="list-style-type: none">✓ Timber✓ Nails and screws✓ Bolts✓ Nuts and washers• Tools and equipment required<ul style="list-style-type: none">✓ Hammer	<ul style="list-style-type: none">• Written tests• Oral• Practical tests

	<ul style="list-style-type: none"> ✓ Drills ✓ Saws ✓ Tape measure 	
3. Set and construct timber prefabricated structures	<ul style="list-style-type: none"> • Setting out prefabricated structure • Erecting prefabricated structure • Fixing the prefabricated structure 	<ul style="list-style-type: none"> • Written tests • Oral • Practical tests
4. Construct timber floors	<ul style="list-style-type: none"> • Laying out of joists • Strutting of the joists • Fixing of the floor boards 	<ul style="list-style-type: none"> • Written tests • Oral • Practical tests
5. Perform finishing activities	<ul style="list-style-type: none"> • Procedure of finishing <ul style="list-style-type: none"> ✓ Smooth plane the boards ✓ Sand the boards ✓ Application of varnish • Housekeeping procedures 	<ul style="list-style-type: none"> • Written tests • Oral • Practical tests

Suggested Delivery Methods

- Demonstration by trainer
- Practical work by trainee
- Demonstration videos
- Group discussions

Recommended Resources

Tools and equipment

- Hammers
- Drills
- Saws
- Tape measures

Materials and supplies

- Timber
- Nails and screws
- Bolts
- Nuts and washers

Personal protective equipment (PPEs)

- Gum boots
- Helmets
- Gloves
- Dust coats
- First aid kits

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