



REPUBLIC OF KENYA

COMPETENCY BASED CURRICULUM

FOR

CARPENTRY AND JOINERY

LEVEL 5

PROGRAMME CODE:0722 554B



TVET CDACC

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

ROOF STRUCTURES

UNIT CODE:CON/CU/CAJ/CR/04/5/B

Relationship to Occupational Standards

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

Duration of Unit: 120 hours

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

Summary of Learning Outcomes

1. Interpret Architectural drawings
2. Select and prepare tools, materials and equipment
3. Set out roof trusses
4. Cut out the joints
5. Assemble of truss members
6. Erect roof trusses
7. Perform fixing of purlins
8. Perform trimming of roof members
9. Fix roof covering material
10. Perform finishing at the eaves
11. Construct ceiling
12. Perform finishing processes

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Methods	Assessment

1. Interpret Architectural drawings	<ul style="list-style-type: none"> • Draw the details of roofs • Elevations • Sections • Scales • Dimensions • Symbols • Sketching <ul style="list-style-type: none"> • Types of roofs • Joints • Details of eaves • Cross-section through the ceiling and roofs <ul style="list-style-type: none"> • By-law requirements on roofs 	<ul style="list-style-type: none"> • Written Tests • Oral Questioning • Practical tests
2. Select and prepare tools, materials and equipment	<ul style="list-style-type: none"> • Roof materials <ul style="list-style-type: none"> • Types of roofs <ul style="list-style-type: none"> • Single • Double • Triple • Trussed • Selection of timber <ul style="list-style-type: none"> • Defects in timber • Availability • Common timber used in Kenya • Nominal sizes of timber <ul style="list-style-type: none"> • 150*50 • 50*100 • 75*50 • 50*50 • 200*25 	<ul style="list-style-type: none"> • Written tests • Oral Questioning • Practical tests

	<ul style="list-style-type: none"> • Tools and materials <ul style="list-style-type: none"> • Bolts and nuts • Timber connectors • Carpentry and joinery hand tools • Care and maintenance of tools • Methods of preservation of timber 	
3. Set out roof trusses	<ul style="list-style-type: none"> • Types of setting out tools <ul style="list-style-type: none"> • Saws • Woollen tape • Hammers • Squares • Procedure of setting out • Types of roof trusses 	<ul style="list-style-type: none"> • Written tests • Oral Questioning • Practical tests
4. Cut out the joints	<ul style="list-style-type: none"> • Plumb cut • Seat cut • $\frac{1}{2}$ lapped halved dovetail • Scarf joints 	<ul style="list-style-type: none"> • Written tests • Oral Questioning • Practical tests
5. Assemble of truss members	<ul style="list-style-type: none"> • Types of truss members <ul style="list-style-type: none"> • Ridge piece • Rafters • King post • Braces • Ties • Assemble of truss members 	<ul style="list-style-type: none"> • Written tests • Oral Questioning • Practical tests
6. 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 Questioning

		<ul style="list-style-type: none"> Practical tests
7. 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 Questioning Practical tests
8. 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 	<ul style="list-style-type: none"> Written tests Oral Questioning Practical tests
9. 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 Fixing procedure 	<ul style="list-style-type: none"> Written tests Oral Questioning Practical tests
10. Perform finishing at the eaves	<ul style="list-style-type: none"> Details of eaves Finishing procedures <ul style="list-style-type: none"> Cut bevels of roof members Fix the fascial board 	<ul style="list-style-type: none"> Written tests Oral Questioning Practical tests

	<ul style="list-style-type: none"> • Fix the soffit board • Fix the gutter and down pipes 	
11. Construct ceiling	<ul style="list-style-type: none"> • Constructing a ceiling framework • Fixing ceiling covering material to framework <ul style="list-style-type: none"> • Type of ceiling material • Methods of fixing 	<ul style="list-style-type: none"> • Written tests • Oral Questioning • Practical tests
12. Perform finishing processes	<ul style="list-style-type: none"> • Application of varnish/paint • Housekeeping procedures 	<ul style="list-style-type: none"> • Written tests • Oral Questioning • Practical tests

Suggested Methods of Instruction

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

Recommended Resources

Tools and equipment

- Carpentry tools
- Reference materials
- Occupational Safety and health manuals

Materials and supplies

- Timber
- Nails
- Screws
- Nuts and bolts

Personal protective equipment (PPEs)

- Safety boots
- Gloves
- Dust coats
- First aid kit
- Ear muffs
- Dust mask