



THE REPUBLIC OF KENYA

NATIONAL OCCUPATIONAL STANDARDS
FOR
BUILDING TECHNICIAN

KNQF LEVEL 6
ISCED PROGRAM CODE: 0732 554B



TVET CDACC
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NAIROBI

APPLY WORKSHOP TECHNOLOGY PRACTICES

UNIT CODE: CON/OS/BUT/CC/04/6/A

UNIT DESCRIPTION

This unit describes the competence in applying workshop technology practices. It entails performing masonry, plumbing and carpentry tasks. It also involves performing electrical and mechanical operations.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA <i>(Bold and italicized terms are elaborated in the Range)</i>
1 Perform masonry tasks	1.1 Safety requirements in the workshop environment are identified 1.2 <i>Masonry hand tools</i> are used appropriately to perform tasks in masonry workshop 1.3 <i>Masonry machine tools</i> are used appropriately to perform tasks in masonry workshop 1.4 Masonry tools used in construction works are maintained as per manufacturer's specifications
2 Perform plumbing tasks	2.1 Safety requirements in the workshop environment are identified 2.2 <i>Plumbing hand tools</i> are used appropriately to perform tasks in plumbing workshop 2.3 <i>Plumbing machine tools</i> are used appropriately to perform tasks in plumbing workshop 2.4 Plumbing tools used in construction works are maintained as per manufacturer's specifications
3 Perform carpentry tasks	3.1 Safety requirements in the workshop environment are identified 3.2 <i>Carpentry hand tools</i> are used appropriately to perform tasks in carpentry workshop 3.3 <i>Carpentry machine tools</i> are used appropriately to perform tasks in carpentry workshop 3.4 Carpentry tools used in construction works are maintained as per manufacturer's specifications
4 Perform electrical operations	4.1 Safety requirements in the workshop environment are identified as per SOPs 4.2 <i>Conventional tools</i> used in electrical workshop are identified as per SOPs

ELEMENT	PERFORMANCE CRITERIA <i>(Bold and italicized terms are elaborated in the Range)</i>
	<p>4.3 Power supply sources are identified as per SOPs</p> <p>4.4 Basic electrical circuits are installed and maintained as per IEE regulations</p>
5 Perform mechanical operations	<p>5.1 Safety requirements in the workshop environment are identified as per SOPs</p> <p>5.2 Mechanical hand tools are used appropriately to perform tasks in mechanical workshop</p> <p>5.3 Diesel and petrol engine components are identified based on their functions and engine system</p> <p>5.4 Diesel and petrol engines are operated based on manufacturer's manual</p> <p>5.5 Simple engine maintenance is performed as per manufacturer's specifications</p> <p>5.6 Water pumps are identified based on working principle</p> <p>5.7 Basic maintenance is performed on water pumps as per SOPs</p>

RANGE

Variable	Range
1. Masonry hand tools may include but is not limited to:	<ul style="list-style-type: none"> • Mason's trowel • Wood float • Cold chisels • Mason's square • Spade • Shovel • Plumb bob
2. Masonry machine tools may include but is not limited to:	<ul style="list-style-type: none"> • Concrete mixer • Block cutter • Vibrator • Pneumatic hammer • compactors
3. Plumbing hand tools may include but is not limited to:	<ul style="list-style-type: none"> • Bench shears • Anvil • Pipe wrench • Pliers

4. Plumbing machine tools may include but is not limited to:	<ul style="list-style-type: none"> ● Bending machine ● Welding ● Sheet metal holding machine ● Portable power drill ● Hand grinder
5. Carpentry hand tools may include but is not limited to:	<ul style="list-style-type: none"> ● Saws ● Planes ● Hammer ● Carpenter square ● Marking gauges ● Hand drill ● Screw drivers
6. Carpentry machine tools may include but is not limited to:	<ul style="list-style-type: none"> ● circular saw ● Thicknesser ● Portable sander ● Close cut saw ● Portable drill machine
7. Conventional tools may include but is not limited to:	<ul style="list-style-type: none"> ● phase tester ● screw driver ● pliers ● long nose ● side cutter ● draw in wire ● electrical knife ● electrical hammer
8. Mechanical hand tools may include but is not limited to:	<ul style="list-style-type: none"> ● Arc welding shields ● Leather gloves ● Chipping hammers ● Welding goggles ● Tongs ● Hand vices ● Mole punch ● Pliers ● Vernier callipers ● Scribes ● Hacksaw ● Tinsnips ● Pullers

9. Water pumps may include but is not limited to:	<ul style="list-style-type: none"> ● Centrifugal ● Submersible ● Reciprocating pump ● Hand pumps
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REQUIRED KNOWLEDGE

- Tools and equipment
- Safety regulations
- Mathematics
- Electrical installation
- Power supply
- Engine operations
- Plumbing
- Water pump operation
- Masonry
- Mortar mixing
- Carpentry and joinery
- Firefighting
- Circuit interpretation

SKILLS

- Analytical
- Critical thinking
- Problem solving
- Firefighting
- Quality control
- Circuit interpretation

EVIDENCE GUIDE

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

1. Critical Aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Identified safety requirements in the workshop environment 1.2 Performed masonry tasks 1.3 Performed plumbing tasks 1.4 Performed carpentry tasks 1.5 Identified power supply sources 1.6 Installed basic electrical circuits 1.7 Identified diesel and petrol engine components 1.8 Operated diesel and petrol engines 1.9 Identified water pumps
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	<p>1.10 Demonstrated knowledge on maintenance of water pumps and engines</p> <p>1.11 Appropriately used workshop tools</p>
2. Resource Implications	<p>The following resources should be provided:</p> <p>2.1 Working tools and equipment</p> <p>2.2 Diesel and petrol engines</p> <p>2.3 Water pumps</p> <p>2.4 Electrical appliances</p> <p>2.5 Training Workshops</p> <p>2.6 Plumbing materials</p> <p>2.7 Masonry materials</p> <p>2.8 Carpentry materials</p>
3. Methods of Assessment	<p>Competency may be assessed through:</p> <p>3.1 Written text</p> <p>3.2 Interview</p> <p>3.3 Observation</p>
4. Context of Assessment	<p>Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment.</p>
5. Guidance information for assessment	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.</p>