



REPUBLIC OF KENYA

NATIONAL OCCUPATIONAL STANDARDS

FOR

ELECTRICAL INSTALLATION ARTISAN

KNQF LEVEL 4

ISCED OCCUPATIONAL STANDARD CODE:07130454B



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

PERFORM WORKSHOP PROCESSES

UNIT CODE: ENG/OS/EI/CC/02/4/B

UNIT DESCRIPTION

This unit covers the competencies required to perform workshop practices. Competencies include applying workshop Safety, use of workshop tools, instruments and equipment, preparation of workshop materials, preparation of workshop for Electrical installation, Storage of Electrical tools and materials, troubleshoot and repair/replace workshop tools and equipment.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace function	These are assessable statements which specify the required level of performance for each of the elements. <i>(Bold and italicised terms are elaborated in the Range)</i>
1. Apply workshop safety precautions	1.2 Proper use of PPE is adhered to as per standard operating procedure 1.3 Workshop rules are followed as per standard operating procedure 1.4 Proper use of safety equipment are followed as per the manufacturer's recommendations 1.5 First Aid procedures are adhered to
2. Use workshop tools, Instruments and equipment	2.1 Workshop tools , Instruments and equipment are identified as per required installation 2.2 Tools, Instruments and equipment are used as per the manufacturer's manuals 2.3 Proper handling of workshop tools, Instruments and equipment as per standard operating procedure 2.4 Care and Maintenance of workshop tools, Instruments and equipment as per standard operating procedure
3. Prepare workshop tools and instruments for an Electrical installation	2.5 List of required tools and instruments is prepared per the required installation 2.6 Issuing of required tools and instruments is performed as per standard operating procedure 2.7 Functionality of tools and instruments is checked in line with the standard operating procedure 2.8 Calibration of workshop instruments are performed as per the standard operating procedure
4. Store electrical tools and materials	2.9 Tools are checked against the issuing list as standard operating procedures

ELEMENT These describe the key outcomes which make up workplace function	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements. <i>(Bold and italicised terms are elaborated in the Range)</i>
	<p>2.10 Tools are stored as per the standard operating procedure</p> <p>2.11 Tools are cleaned as per the workshop standard operating procedure</p> <p>2.12 Waste materials are disposed as per the EHS</p>
5. Troubleshoot and repair/replace workshop tools and equipment	<p>2.13 Faulty tools are identified as per their expected functionality</p> <p>2.14 Faulty equipment are diagnosed in line with the fault diagnosis procedures</p> <p>2.15 Repair/Replace faulty components as per standard operating procedure</p> <p>2.16 Repaired/Replaced tool and equipment are tested as per the expected functionality</p>

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. Workshop tools may include but is not limited to:	<ul style="list-style-type: none"> • Pliers • Hacksaws • Hammer • Spirit levels • Phase Tester • Side cutters
2. Electrical workshop instruments may include but not limited to	<ul style="list-style-type: none"> • Voltmeters • Ammeters • Multimeters • Oscilloscope
3. Parameters	<ul style="list-style-type: none"> • Light intensity • Sound • Speed • Efficiency • Temperature

Variable	Range
	<ul style="list-style-type: none">• Electrical quantities e.g. Voltage, current and resistance levels• Expected output

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:

- Use of basic Electrical tools and instruments
- Interpret workshop manuals
- Proper use of PPEs
- Apply safety precautions
- Perform various unit conversions of electrical quantities
- Logical thinking
- Problem solving
- Drawing graphs
- Using different measuring tools

Required knowledge

The individual needs to demonstrate knowledge of:

- Electrical power calculations
- Various regulations in electrical engineering
- Electrical formulas
- SI units of various electrical parameters
- Earthing testing
- Lightening arrestor testing
- Selecting the correct type of electrical equipment for various uses
- Types and purpose of measuring instruments

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 Adhered to the proper use of PPE 1.2 Observed the workshop rules 1.3 Performed the First Aid procedures in the workshop 1.4 Observed workshop procedures in the storage of tools 1.5 Safely used testing equipment and tools 1.6 Observed EHS in the waste disposal 1.7 Proper storage of tools, equipment and materials
----------------------------------	---

	1.8 Properly demonstrated care and maintenance of workshop tools 1.9 Obtained, recorded and interpreted test results accurately 1.10 Identified faulty tools and instruments 1.11 Repaired/Replaced faulty tools and equipment
2 Resource Implications	The following resources must be provided during assessment: 2.1 A functional workshop 2.2 A simulated environment equipped with welding tools, equipment and machines 2.3 Materials relevant to the task 2.4 Manufacturer's specifications and manuals relevant to the task
3 Methods of Assessment	Competency may be assessed through: 3.1 Oral questioning 3.2 Observation 3.3 Written tests 3.4 Portfolio 3.5 Third party reports
4 Context of Assessment	Competency may be assessed individually: 4.1 On-the-job, 4.2 Off-the-job or a combination of these. 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.