



Republic of Rwanda
Ministry of Education



RTB | RWANDA
TVET BOARD

BASICS KNOWLEDGE OF DOMESTIC ELECTRICITY

BDCDE301

DEMONSTRATE BASICS KNOWLEDGE OF DOMESTIC ELECTRICITY

Competence

RQF Level: 3

Learning Hours



Credits: 3

Sector: Construction and Building Services

Trade: Building construction

Module Type: Specific

Curriculum: CBSBDC3001- TVET Certificate 3 in Building Construction

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Purpose statement	This module describes the skills, knowledge and attitudes required to perform basic domestic electricity. It is intended to be pursued by learners at TVET Certificate III in building construction. At the end of this module, the learner will be able to select tools, materials, PPE and equipment, apply basic domestic installation and perform testing of installed circuits. The learner deemed competent to this module may work at construction site in basic domestic electrical installation stage under minimum supervision.				
Learning assumed to be in place	Safety, Health and environment at workplace, Construction basic technical drawing, Building Set out, Fundamentals of building materials.				
Delivery modality	Training delivery	100%	Assessment	Total 100%	
	Theoretical content	30%	Formative assessment	100%	
	Practical work:	70%			70%
	<ul style="list-style-type: none"> Group project and presentation 20% Individual project /Work 50% 				
				Summative Assessment	N/A

Elements of Competency and Performance Criteria

Elements of competency	Performance criteria
1. Prepare materials, tools and PPE	1.1. Materials are selected properly according to the work to be done.
	1.2. Tools and equipment are selected properly based on their intended use.
	1.3. PPE is selected appropriately according to the work to be performed.
2. Apply basic domestic installation	2.1. Hazard control and safety measures is effectively implemented according to the activities to be done.
	2.2. Electrical circuits are prepared effectively according to the types of installation.
	2.3. Switches and sockets are effectively installed by respecting marked position.
	2.4. Bulbs and protective device are correctly installed in its proper position.
3. Perform basic testing of	3.1. Testing instruments are used properly according to the standards.

circuits.	3.2. Electrical circuits are properly tested according to the standard requirements.
	3.3. Accurate reading and interpretation of measured results
	3.4. Workplace is correctly cleaned by respecting cleaning method.

Course content

Learning outcomes	At the end of the module the learner will be able to: <ol style="list-style-type: none"> 1. Prepare materials, tools, equipment and PPE 2. Apply basic domestic installation 3. Perform basic testing of circuits
Learning outcome 1: Prepare materials, tools, equipment and PPE	Learning hours: 5
Indicative content	
<ul style="list-style-type: none"> • Identification of electrical materials • Identification of hand tools • Identification of power tools • Identification of electrical equipment • Use and storage of PPE 	
Resources required for the learning outcome	
Equipment	Pipe bender, Electric drill, Tubing cutter, Steel pipe threading , RS EAS 1022: Hacksaw blades — Specification, PPE
Materials	Handouts, Projector, Flipchart, Marker pen, Black board, Chalk, Internet, Cables/ Wires, Bulbs, Sockets, Switches, Fuses, Circuit breaker, Junction boxes RS IEC 60304: Standard colours for insulation for low-frequency cables and wire RS 116-1: Electrical wiring of premises — Part 1: Low voltage installations RS IEC 60064: Tungsten lamps for general lighting service — Specification RS IEC 60064: Tungsten lamps for general lighting service — Specification RS IEC 60309-1: Plugs, socket-outlets, and socket-outlets and couplers for industrial purposes — Part1: General requirements colors insulation of cables RS IEC 60228: Conductors of insulated cables
Tools	Internet , Ammeter ,Electrical pliers ,Voltmeter ,Vernier caliper ,Screw driver kit ,Multi-meter , Hammer ,Knife ,Hack saw, Drilling machine ,PPE
Facilitation techniques	<ul style="list-style-type: none"> • Group discussion • Trainer guided • Matching questions • Multiple choice • Practical exercises • Short questions • Essay • Open ended questions

Formative assessment methods	<ul style="list-style-type: none"> • Written assessment • Performance assessment
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Learning outcome 2: Apply basic domestic electricity installation	Learning hours: 20
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Indicative content

- Identification of electrical hazards:
- Apply Safety rules for working with electrical equipment
- Identification of domestic electrical symbols
- Description of electrical circuit
- Types of electrical circuit
- Interpretation of domestic electrical drawing
- Types of installation and areas of application
- Differentiation of electrical lighting circuit and electrical power outlet circuit
- Installation of electrical switches
- Installation of electrical power socket outlet devices
- Identification of types of bulbs:
 - Compact fluorescent (CFL)
 - Incandescent bulb
 - light-emitting diode (LED)
- Fixation of Bulbs
- Identification of Protective Devices:
 - Compact fluorescent (CFL),
 - Fuse Wire or Fuse
 - MCB – Miniature circuit breaker
 - LCB – Earth Leakage Circuit Breaker
 - ELCB & MCB. Earthing or Grounding
- Fixation of Protective Device

Resources required for the indicative content

Equipment	Pipe bender, Electric drill, Tubing cutter, Steel pipe threading , RS EAS 1022: Hacksaw blades — Specification, PPE
Materials	Handouts, Projector, Flipchart, Marker pen, Black board, Chalk, Internet, Cables/ Wires, Bulbs, Sockets, Switches, Fuses, Circuit breaker, Junction boxes RS IEC 60304: Standard colours for insulation for low-frequency cables and wire RS 116-1: Electrical wiring of premises — Part 1: Low voltage installations RS IEC 60064: Tungsten lamps for general lighting service — Specification RS IEC 60064: Tungsten lamps for general lighting service — Specification RS IEC 60309-1: Plugs, socket-outlets, and socket-outlets and couplers for industrial purposes — Part1: General requirements colors insulation of cables RS IEC 60228: Conductors of insulated cables

Tools	Internet , Ammeter ,Electrical pliers ,Voltmeter ,Vernier caliper ,Screw driver kit ,Multi-meter , Hammer ,Knife ,Hack saw, Drilling machine ,PPE
Facilitation techniques	<ul style="list-style-type: none"> • Group discussion • Trainer guided • Matching questions • Multiple choice • Practical exercises • Short questions • Essay • Open ended questions
Formative assessment methods	<ul style="list-style-type: none"> • Written assessment • Performance assessment • Product based assessment

Learning outcome 3: Perform basic testing of electrical circuits	Learning hours: 5
Indicative content	
<ul style="list-style-type: none"> • Identification of testing instruments • Functions of testing instruments • Procedures of testing electrical circuit • Techniques of electrical installations testing • Identification of acceptable range of results from testing instruments • Faults that occur in electrical installations • Identification of objects to be cleaned <ul style="list-style-type: none"> ➤ Remove all rest materials ➤ Remove all debris at the surface • Method of cleaning <ul style="list-style-type: none"> ➤ Manual Method ➤ Mechanical Method 	
Resources required for the indicative content	
Equipment	Pipe bender, Electric drill, Tubing cutter, Steel pipe threading , RS EAS 1022: Hacksaw blades — Specification, PPE
Materials	Handouts, Projector, Flipchart, Marker pen, Black board, Chalk, Internet, Cables/ Wires, Bulbs, Sockets, Switches, Fuses, Circuit breaker, Junction boxes RS IEC 60304: Standard colours for insulation for low-frequency cables and wire RS 116-1: Electrical wiring of premises — Part 1: Low voltage installations

	<p>RS IEC 60064: Tungsten lamps for general lighting service — Specification</p> <p>RS IEC 60064: Tungsten lamps for general lighting service — Specification</p> <p>RS IEC 60309-1: Plugs, socket-outlets, and socket-outlets and couplers for industrial purposes — Part1: General requirements colors insulation of cables</p> <p>RS IEC 60228: Conductors of insulated cables</p>
Tools	<p>Internet , Ammeter ,Electrical pliers ,Voltmeter ,Vernier caliper ,Screw driver kit ,Multi-meter , Hammer ,Knife ,Hack saw, Drilling machine ,PPE</p>
Facilitation techniques	<ul style="list-style-type: none"> • Lectures • Demonstration and simulation • Individual and group work • Practical exercise • Individualized • Trainer guided • Group discussion
Formative assessment methods	<ul style="list-style-type: none"> • Written assessment • Performance assessment • Product based assessment • Project based assessment

References:

1. https://www.instrumart.com/assets/Flukebasic_electrical_installation_testing.PDF(Accessed on the 24 May , 2018)
2. <https://electrical-testing-safety.co.uk/electrical-testing/domestic-electricaltesting>(Accessed on the 24 May June 2018)
3. http://www.hellermannntyton.co.za/binaries/content/assets/downloads/za/manualsand-operatinginstructions/testing_of_electrical_installations_guide.pdf(Accessed on the 1st June 2018)
4. <https://www.electricaltechnology.org/2015/05/earthing-and-electrical-groundingtypes-of-earthing.html>
5. "Electrical Safety Testing" (PDF). Quad Tech. Retrieved 1 May 2013.
6. Jump up^ "Electrical Inspection and Testing". Orrell Electrics. Retrieved 1 May 2013.
7. Jump up^ "Periodic Inspection Explained". NNS keuringen BV. Archived from the original on 8 January 2014. Retrieved 11 August 2013.
8. Jump up^ "Electrical Services". Electrical Specialist. Retrieved 2 May 2013.