

PERFORM ELECTRICAL INSTALLATION

UNIT CODE: ENG/CU/EI/CR/01/4/A

Relationship to Occupational Standards

This unit addresses the unit of competency: Perform Electrical Installation

Duration of Unit: 90 hours

Unit Description

This unit specifies the competencies required to perform electrical installation work for single phase systems. It focuses on the application of health, safety and environmental standards, preparation of working drawings, Assemble tools, equipment, materials and drawing instruments, and Perform electrical installation

Summary of Learning Outcomes

1. Apply health, safety and environmental standards
2. Prepare working drawings
3. Assemble tools, equipment and materials
4. Perform electrical installation

Learning Outcomes, Content and Suggested Assessment Methods:

Learning Outcome	Content	Suggested Assessment Methods
1. Apply health, safety and environmental standards	<ul style="list-style-type: none"><input type="checkbox"/> Relevant clauses in appropriate Acts e.g.<ul style="list-style-type: none">• Occupational safety and health act (OSHA)• Work injury benefits act (WIBA)• Environment management and coordination Act (EMCA)<input type="checkbox"/> Relevant regulations:<ul style="list-style-type: none">• IEE regulations	<ul style="list-style-type: none"><input type="checkbox"/> Written tests<input type="checkbox"/> Oral questioning

	<ul style="list-style-type: none"> • KPLC by-laws • County by-laws <input type="checkbox"/> Causes of accidents and sources of danger e.g burns, cuts, electric shock, falling from heights, falling objects, noise, dust, chemicals <input type="checkbox"/> Meaning of PPE <input type="checkbox"/> Purpose of PPE <input type="checkbox"/> Types of PPE <input type="checkbox"/> Safe and correct handling, use, maintenance and storage of different types of PPE <input type="checkbox"/> Classes of fires and fire fighting equipment <input type="checkbox"/> First aid procedures <ul style="list-style-type: none"> • Rescuing electric shock victim • Methods of resuscitation 	
2. Prepare working drawings	<input type="checkbox"/> Meaning of working drawings <input type="checkbox"/> Interpret electrical design drawings <ul style="list-style-type: none"> • Reading and Interpretation of architectural drawings • Relate architectural drawing to the work site <input type="checkbox"/> Take actual measurements <ul style="list-style-type: none"> • Liaise with other service providers <input type="checkbox"/> Produce sketch drawing <input type="checkbox"/> Produce final working drawing	<input type="checkbox"/> Observation <input type="checkbox"/> Oral questioning <input type="checkbox"/> Practical tests <input type="checkbox"/> Written tests
3. Assemble tools, equipment and materials	<input type="checkbox"/> Types, application, care, maintenance and storage of: <ul style="list-style-type: none"> • Tools e.g. <ul style="list-style-type: none"> ➤ Cable strippers ➤ Pliers ➤ Screw drivers ➤ Hammers ➤ Chisels 	<input type="checkbox"/> Observation <input type="checkbox"/> Oral questioning <input type="checkbox"/> Practical tests <input type="checkbox"/> Written tests

	<ul style="list-style-type: none"> ➤ Allen keys ➤ Electrician knives ➤ Crimping tools ➤ Bending springs ➤ Steel tapes ➤ Draw wires ➤ Hack saws ➤ Drills <ul style="list-style-type: none"> • Equipment e.g. ➤ Multimeter ➤ Earth tester ➤ Phase sequence meter <ul style="list-style-type: none"> • Materials e.g. <ul style="list-style-type: none"> ✓ Cables ✓ Fittings ✓ Accessories <input type="checkbox"/> Inventory management 	
4. Perform electrical installation	<ul style="list-style-type: none"> <input type="checkbox"/> Meaning of terms <input type="checkbox"/> Single phase systems <input type="checkbox"/> Cables and cable joints <input type="checkbox"/> Wiring systems and accessories <ul style="list-style-type: none"> • Meaning of terms • Types and applications e.g. ➤ Conduits ➤ Cable trays ➤ Cable ducts ➤ Trunkings <ul style="list-style-type: none"> • Preparation of wiring systems ➤ Marking out, cutting, bending, threading, chiselling, trenching <input type="checkbox"/> Laying of cable routes <input type="checkbox"/> Installation of final circuits <ul style="list-style-type: none"> • Lighting circuits <ul style="list-style-type: none"> ➤ One way, two way, intermediate ➤ Looping in methods at ceiling rose, joint boxes, switches 	<ul style="list-style-type: none"> <input type="checkbox"/> Observation <input type="checkbox"/> Oral questioning <input type="checkbox"/> Practical tests <input type="checkbox"/> Written tests

	<ul style="list-style-type: none"> • Power circuits <ul style="list-style-type: none"> ➤ Radial circuits, ring circuits • Water heating circuits • Electric cooker circuits • Bell and alarm circuits • Electrical machines circuits <ul style="list-style-type: none"> e.g Single phase motors ☐ Relevant technical standards e.g. <ul style="list-style-type: none"> ➤ IEE regulations ➤ British standards ➤ Kenya bureau of standards (KEBS) ➤ Kenya power by-laws ➤ County by-laws 	
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Suggested Methods of Delivery

- Projects
- Demonstration by trainer
- Practice by the trainee
- Field trips
- On-job training
- Discussions

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Recommended Resources

Tools and equipment	Materials and supplies
<ul style="list-style-type: none"> ➤ Cable Strippers ➤ Pliers ➤ Screw drivers ➤ Hammers ➤ Chisels ➤ Allen keys ➤ Electrician knives ➤ Crimping tools ➤ Bending springs ➤ Bending machine ➤ Steel tapes ➤ Draw wires 	<ul style="list-style-type: none"> • Stationery • Cables • Light fittings • Accessories • Conduits and fittings • Cable trays • Cable ducts • Trunkings • Computers • Drawing instruments • Screws

<ul style="list-style-type: none"> ➤ Hack saws ➤ Drilling tools ➤ Stock and die ➤ Bench vice ➤ Machine vice ➤ PPE – hand gloves, dust coats, dust masks, helmets, ear muffs, industrial boots 	
<p>Reference materials</p> <ul style="list-style-type: none"> • IEE regulations • Occupational safety and health act (OSHA) • Work injury benefits act (WIBA) • Manufacturers’ catalogues • British standards • KEBS standards 	

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