

ELECTRICAL INSTALLATION WORK PLANNING

UNIT CODE: ENG/CU/EI/CR/01/6

Relationship to Occupational Standards

This unit addresses the unit of competency: Plan Electrical Installation Work

Duration of Unit: 60 hours

Unit Description

This unit specifies the competencies required for planning an electrical installation, ranging from surveying the site, determining system size, preparation of materials, tools, and drawings, arranging for logistics, obtaining installation drawings, preparation of work plans, establishing installation team, obtaining necessary work permit and licenses and finally preparation of work site.

Summary of Learning Outcomes

1. Conduct site survey
2. Perform system sizing
3. Prepare list of tools, equipment and materials
4. Arrange for logistics
5. Obtain installation drawings
6. Prepare installation work plan
7. Establish installation team
8. Obtain necessary permit and licences
9. Prepare work site

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Conduct site survey	<ul style="list-style-type: none"> <input type="checkbox"/> Type of installations <ul style="list-style-type: none"> • Domestic installations • Industrial installations • Commercial installations <input type="checkbox"/> Type of building e.g. <ul style="list-style-type: none"> • Permanent building • Semi-permanent buildings <input type="checkbox"/> Utilities available <ul style="list-style-type: none"> • Water • Electricity • Communication e.g. Phones • Installation conditions e.g. temperature, humidity, moisture <input type="checkbox"/> Taking measurements on site <ul style="list-style-type: none"> • Length e.g. conduits size • Total area • Temperature • Humidity 	<ul style="list-style-type: none"> <input type="checkbox"/> Written tests <input type="checkbox"/> Observation <input type="checkbox"/> Oral questioning
2. Perform system sizing	<ul style="list-style-type: none"> <input type="checkbox"/> Introduction to standards <ul style="list-style-type: none"> • IEE regulations. • Kenya bureau of standards (KEBS) • British standards • KPLC by-laws • ERC regulations • County by-laws • National Construction Authority (NCA) <input type="checkbox"/> Reference to relevant IEE regulation tables <input type="checkbox"/> Determining cable: <ul style="list-style-type: none"> ✓ Types ✓ Ratings ✓ sizes ✓ Insulation type • Protective devices 	<ul style="list-style-type: none"> <input type="checkbox"/> Written tests <input type="checkbox"/> Observation <input type="checkbox"/> Oral questioning

Learning Outcome	Content	Suggested Assessment Methods
	<ul style="list-style-type: none"> ✓ Types ✓ Ratings <input type="checkbox"/> Reference to relevant regulations 	
3. Prepare list of tools, equipment and materials	<ul style="list-style-type: none"> <input type="checkbox"/> Identification of tools and materials e.g. <ul style="list-style-type: none"> • Cutting tools • Measuring tools • Measuring equipment • Cables and conductors • Crimping tools • Conduits • Trunking • Consumables 	<ul style="list-style-type: none"> <input type="checkbox"/> Oral questioning <input type="checkbox"/> Written tests <input type="checkbox"/> Observation <input type="checkbox"/> Practicals
4. Arrange for logistics	<ul style="list-style-type: none"> <input type="checkbox"/> Transport for: <ul style="list-style-type: none"> • Materials and their safety • Personnel <input type="checkbox"/> Storage of materials on site <input type="checkbox"/> Site security <input type="checkbox"/> Human resource <ul style="list-style-type: none"> • Skills required <input type="checkbox"/> Communication <ul style="list-style-type: none"> • Purpose • Modes 	<ul style="list-style-type: none"> <input type="checkbox"/> Written tests <input type="checkbox"/> Oral questioning
5. Prepare installation work plan	<ul style="list-style-type: none"> <input type="checkbox"/> Identification of scope of installation work <input type="checkbox"/> Preparation of work schedules <ul style="list-style-type: none"> • Bar charts • Gantt charts • Critical path networks 	<ul style="list-style-type: none"> <input type="checkbox"/> Written tests <input type="checkbox"/> Oral questioning <input type="checkbox"/> Observation
6. Establish installation team	<ul style="list-style-type: none"> <input type="checkbox"/> Team building <ul style="list-style-type: none"> • Team members familiarization • Collaboration • Task distribution • Communication protocol 	<ul style="list-style-type: none"> <input type="checkbox"/> Written tests <input type="checkbox"/> Oral questioning

Learning Outcome	Content	Suggested Assessment Methods
7. Obtain the necessary permit and licences	<input type="checkbox"/> Permit to work <ul style="list-style-type: none"> • Meaning of terms • Types e.g. gate pass, name tag • Sources • Application procedure <input type="checkbox"/> Classes of ERC licences <ul style="list-style-type: none"> • C2, C1, B, A2, A1 	<input type="checkbox"/> Written tests <input type="checkbox"/> Oral questioning
8. Prepare work site	<input type="checkbox"/> Identification of hazards and safety requirements for the site <input type="checkbox"/> Reference to relevant regulations e.g. <ul style="list-style-type: none"> • Occupational Safety and Health Act (OSHA) • County by-laws <input type="checkbox"/> Utilities <ul style="list-style-type: none"> • Access roads • Water • Electricity 	<input type="checkbox"/> Written tests <input type="checkbox"/> Oral questioning

Suggested Methods of Delivery

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

Recommended Resources

Tools <ul style="list-style-type: none"> • Measuring tools • Cutting tools 	Materials and supplies <ul style="list-style-type: none"> • Stationery • Assorted Cables • Assorted protective devices
Equipment <ul style="list-style-type: none"> • PPEs (Personal Protective Equipment) • Measuring equipment • Communication equipment 	Reference materials <ul style="list-style-type: none"> • Standards • County by-laws • Occupational Safety and Health Act (OSHA) • National Environmental

	<p>Management Authority (NEMA) regulations</p> <ul style="list-style-type: none">• National Construction Authority (NCA) regulations• IEE tables
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