

# ELECTRICAL INSTALLATION BREAKDOWN MAINTENANCE

**UNIT CODE:** ENG/CU/EI/CR/05/5

## Relationship to Occupational Standards

This unit addresses the unit of competency: Conduct Electrical Installation Breakdown Maintenance

**Duration of Unit:** 70 hours

## Unit Description

This unit specifies the competencies required to conduct breakdown maintenance of an electrical installation. It includes fault identification, repairing, testing and generating maintenance report.

## Summary of Learning Outcomes

1. Identify system failure
2. Troubleshoot cause of failure
3. Test the repaired system
4. Test the repaired system

## Learning Outcomes, Content and Suggested Assessment Methods:

Learning Outcome	Content	Suggested Assessment Methods
1. Identify installation failure	<ul style="list-style-type: none"><li><input type="checkbox"/> Gathering information<ul style="list-style-type: none"><li>• Principle of operation</li><li>• Visual inspection</li><li>• Interview of users</li></ul></li><li><input type="checkbox"/> Types of failures<ul style="list-style-type: none"><li>• Partial</li><li>• Total</li></ul></li><li><input type="checkbox"/> Referring to as-built drawings, Manuals</li></ul>	<ul style="list-style-type: none"><li><input type="checkbox"/> Oral questioning</li><li><input type="checkbox"/> Written tests</li></ul>
2. Troubleshoot cause of failure.	<ul style="list-style-type: none"><li><input type="checkbox"/> Conducting fault diagnosis e.g.<ul style="list-style-type: none"><li>• Open circuit</li><li>• Short circuit</li><li>• Earth fault</li><li>• Mechanical fault</li></ul></li><li><input type="checkbox"/> Identification of tools, equipment and materials for repair/replace</li><li><input type="checkbox"/> Specification of tools</li></ul>	<ul style="list-style-type: none"><li><input type="checkbox"/> Oral questioning</li><li><input type="checkbox"/> Practical tests</li><li><input type="checkbox"/> Written tests</li></ul>

	<input type="checkbox"/> Recording of installation failure results <ul style="list-style-type: none"> <li>• Parameters e.g. <ul style="list-style-type: none"> <li>➤ Voltage</li> <li>➤ Current</li> <li>➤ Resistance</li> </ul> </li> </ul>	
3. Repair the installation	<input type="checkbox"/> Repair/Replace <ul style="list-style-type: none"> <li>• Meaning</li> <li>• Isolating the installation</li> <li>• Conducting repair activities</li> <li>• Recording repair activities</li> </ul>	<input type="checkbox"/> Observation <input type="checkbox"/> Oral questioning <input type="checkbox"/> Practical tests <input type="checkbox"/> Written tests
4. Test the repaired system	<input type="checkbox"/> Identification of test and test points <ul style="list-style-type: none"> <li>• Test parameters e.g. <ul style="list-style-type: none"> <li>➤ Voltage</li> <li>➤ Resistance</li> <li>➤ Current</li> </ul> </li> </ul> <input type="checkbox"/> Testing, documenting results and maintenance report writing	<input type="checkbox"/> Observation <input type="checkbox"/> Oral questioning <input type="checkbox"/> Practical tests <input type="checkbox"/> Written tests

#### **Suggested Methods of Delivery**

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

## Recommended Resources

<b>Tools</b> <ul style="list-style-type: none"><li>• Set of screw drivers</li><li>• Pliers</li><li>• Phase testers</li><li>• Multimeter</li></ul>	<b>Materials and supplies</b> <ul style="list-style-type: none"><li>• Stationery</li><li>• Cables</li><li>• Lubricants</li><li>• Service parts</li></ul>
<b>Equipment</b> <ul style="list-style-type: none"><li>• PPE –hand gloves, dust coat, dust masks</li><li>• Multimeter</li><li>• Clamp meter</li><li>• Earth electrode resistance meter</li><li>• Phase sequence meter</li></ul>	<b>Reference materials</b> <ul style="list-style-type: none"><li>• IEE regulations</li><li>• Organizational procedures manual</li></ul>

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