

## PERFORM ELECTRICAL INSTALLATION

**UNIT CODE: ENG/OS/RAC/CC/02/5/A**

### UNIT DESCRIPTION

This unit covers the competencies needed to prepare materials, tools and equipment, Select correct types and sizes of cables, Perform cable jointing and termination test electrical components and perform basic electrical repair based on the required performance standards.

### ELEMENTS AND PERFORMANCE CRITERIA

<b>ELEMENT</b> These describe the key outcomes which make up workplace function.	<b>PERFORMANCE CRITERIA</b> These are assessable statements which specify the required level of performance for each of the elements. <i><b>Bold and italicized terms are elaborated in the Range</b></i>
1. Prepare tools, equipment and instruments	1.1 Drawings are interpreted to determine job requirements 1.2 Tools, <i><b>equipment and instruments</b></i> are identified and prepared according to job requirements 1.3 Instruments are checked and tested for conditions and calibrated as required
2. Select correct types and sizes of cables	2.1 Drawings are read and interpreted to determine job requirements 2.2 Correct type, size and quantity of cables and related consumables are determined in line with job requirements 2.3 Correct PPE are identified and selected in line with safety requirements
3. Perform cable jointing and termination	3.1 Correct PPE are identified and selected in line with safety requirements 3.2 IEE regulations are adhered to. 3.3 Various types of cable joints are performed 3.4 Various types of cable termination are conducted
4. Perform installation of electrical circuits	4.1 Correct PPE are identified and selected in line with safety requirements 4.2 IEE regulations are adhered to. 4.3 Draw and interpreted simple electrical circuits 4.4 Carried out installation of simple electrical circuits 4.5 Electrical circuits are tested
5. Test power supply and electrical	5.1 Safety precautions are adhered to. 5.2 Power supply and electrical components are checked in accordance with manufacturer's specifications

components	5.3 Defects of power supply and electrical components are identified and recorded
6. Perform basic electrical repair	6.1 <b>Work instructions</b> are followed to ensure safety 6.2 Loose connections are tightened 6.3 Defective electrical components are tested and replaced or repaired 6.4 Tools and equipment are stored in accordance with work place procedures. 6.5 Work place is cleaned in line with OSH regulations

### 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. Materials may include but not limited to:	<ul style="list-style-type: none"> <li>• Solid wires</li> <li>• Stranded wires</li> <li>• Power outlets</li> <li>• Service plug</li> <li>• Soldering lead</li> <li>• Terminal clips</li> <li>• Fuses</li> <li>• PVC</li> <li>• Electrical tapes</li> </ul>
2. Tools, equipment and instruments may include but not limited to:	<ul style="list-style-type: none"> <li>• Clamp ammeters</li> <li>• Multi-meters</li> <li>• Phase testers</li> <li>• Insulation testers</li> <li>• PPEs</li> <li>• Soldering guns</li> <li>• Wire strippers</li> <li>• Measuring tapes</li> <li>• Scribers</li> <li>• Crimping tools</li> <li>• Screw drivers</li> <li>• Pliers</li> <li>• Drills</li> </ul>
3. Work instructions may include but not limited to:	<ul style="list-style-type: none"> <li>• Work plans</li> <li>• Working drawings</li> <li>• Schematic diagrams</li> </ul>

	• Installation instructions
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## 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:

- Installing and repairing electrical components
- Communicating effectively
- Planning and organizing
- Working safely
- Proper handling of materials, tools, equipment and instruments
- Preparing materials, tools, equipment and instruments
- Wiring electrical components
- Testing power supply and electrical components

### Required Knowledge

The individual needs to demonstrate knowledge of:

- Measurements
- Dimensioning
- Unit conversion
- Basic electrical principles
- Basic electrical repair
- Usage of PPEs
- Handling of tools, equipment and instruments
- Good housekeeping

## EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

<p>1. Critical aspects of competency</p>	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Adhered to safety procedures</p> <p>1.2 Interpreted work plan to determine job requirements</p> <p>1.3 Selected and used appropriate processes, tools and equipment to carry out task</p> <p>1.4 Tested electrical instruments</p> <p>1.5 Replaced defective tools and instruments</p>
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	<p>1.6 Checked power supply and electrical components</p> <p>1.7 Cleaned work place in line with OSH regulations</p> <p>1.8 Communicated effectively</p> <p>1.9 Planned and organized work effectively</p>
2. Resource implications	<p>The following resources must be provided:</p> <p>2.1 Work plans</p> <p>2.2 Working drawings</p> <p>2.3 Materials, tools, equipment and instruments relevant to the proposed activity</p>
3. Methods of assessment	<p>Competency may be assessed through:</p> <p>3.1 Demonstration</p> <p>3.2 Direct observation and oral questioning</p> <p>3.3 Written tests</p>
4. Context of assessment	<p>4.1 Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment or during industrial attachment.</p>
5. Guidance information for assessment	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.</p>