

## **ELECTRICAL INSTALLATION**

**ENG/OS/EI/CR/01/3/MA**

**Install PVC Sheathed Cable System**

**July/August 2025**



## **TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION COUNCIL (TVET CDACC)**

### **PRACTICAL ASSESSMENT**

#### **INSTRUCTIONS TO THE ASSESSOR:**

1. This assessment is to take place in the prescribed order as arranged in the tool.
2. Capture clear **photographs** and/or **videos** of each candidate's work at critical points as they perform the tasks and label all media files with: Candidate Registration Number, Unit Code, Practical Session Number, and Date.
3. Record candidate scores and assessor remarks in the observation checklists for each session.
4. Store all completed checklists, media files, and candidate drawings in a secure digital/physical folder per candidate.
5. All measurements are in millimeters (mm)

**1. CANDIDATE & ASSESSOR DETAILS**

<b>Candidate Name:</b>	<b>CDACC Reg. No.:</b>
<b>Assessor Name:</b>	<b>Assessor ID Number:</b>

**2. PROJECT BRIEF**

In this project, you will be required to demonstrate competence in all five elements by completing three hands-on sessions (each ~4 hours) and an oral assessment (~1 hour). Follow the working drawings and specifications provided.

**3. SECTION 1 (SESSION 1 – 4 HOURS): CABLES AND ACCESSORIES**

<b>Assessment Date:</b>	
<b>Assessment Venue:</b>	

**Elements Covered:**

- Identify Cables and Accessories

**3.1 Tasks**

1. Identify Electrical cable types and sizes from a variety provided by the assessor
2. Match cables colours to their uses.
3. Identify various accessories from a variety provided by the assessor

**3.2 Practical Checklist**

No.	Items of Evaluation	Max Marks	Awarded	Comment
1	<b>Identified type of PVC-sheathed cables</b> <ul style="list-style-type: none"> <li>• <i>single core</i></li> <li>• <i>twin with earth</i></li> <li>• <i>Twisted</i></li> </ul>	3		

	<ul style="list-style-type: none"> <li>• <i>Flex</i></li> </ul> <p><b>(Award 4x1)</b></p> <p><b>Sizes</b></p> <p>1.0 mm<sup>2</sup>, 1.5mm<sup>2</sup>, 2.5 mm<sup>2</sup>, 4.0 mm<sup>2</sup> and 6.0 mm<sup>2</sup></p> <p><b>(award 5x1)</b></p>	5		
2	<p>Matched cable colours to their uses</p> <ul style="list-style-type: none"> <li>• <i>Brown/Red – live/phase</i></li> <li>• <i>Green/Yellow – Earthing</i></li> <li>• <i>Black - Neutral</i></li> </ul> <p><b>(award 3x1)</b></p>	3		
3	<p>Identified accessories:</p> <p><b>(Any 4 award 4x1)</b></p>	4		
4	<p><b>Wore correct PPE</b></p> <ul style="list-style-type: none"> <li>a) <i>goggles</i></li> <li>b) <i>Gloves</i></li> <li>c) <i>safety boots</i></li> <li>d) <i>dust coat, helmet</i></li> </ul> <p><b>(Award 1 make per each)</b></p>	4		
5	<p><b>Performed housekeeping as per EH standard</b></p> <ul style="list-style-type: none"> <li>a) <i>cleaned workshop after practical</i></li> <li>b) <i>cleaned tools and returned to the previous position</i></li> </ul> <p><b>(Award 5 marks each)</b></p>	10		
	<b>Total Section 1</b>	<b>29</b>		

**4. SECTION 2 (SESSION 2 – 4 HOURS): CABLE JOINTS & ELECTRICAL SYMBOLS**

<b>Assessment Date:</b>	
<b>Assessment Venue:</b>	

**Elements Covered:**

- Make Cable Joints

**4.1 Tasks**

1. Make the following cable joints
  - T-Joint
  - Married Joint
  - Straight Twist Joint
2. Insulate and solder the joints
3. Terminate cables using screw terminals and solder-less lugs.

**4.2 Practical Checklist**

<b>No.</b>	<b>Items of evaluation</b>	<b>Max Marks</b>	<b>Awarded</b>	<b>Comment</b>
1	<b>Selected the correct tools for the project:</b> <ul style="list-style-type: none"> <li>• <i>Pliers</i></li> <li>• <i>Cutters,</i></li> <li>• <i>Wire strippers,</i></li> <li>• <i>Hacksaws,</i></li> <li>• <i>Soldering iron</i></li> </ul> <b>(Award 1 mark each)</b>	5		
2	<b>Made the following joints:</b> <ul style="list-style-type: none"> <li>• <i>T-joint</i></li> <li>• <i>Straight twist joint</i></li> <li>• <i>Married joint</i></li> </ul> <b>(award 5 or 0 marks each)</b>	15		
3	<b>Insulated &amp; soldered the joints</b> <ul style="list-style-type: none"> <li>• <i>Insulated joint</i></li> <li>• <i>Soldered the joint</i></li> </ul>	15		

	<i>(Award 2 marks for insulation &amp; 3 marks for shinny smooth solder for each joint)</i>			
4	Terminated cables using <ul style="list-style-type: none"> <li>• <i>screw terminals</i></li> <li>• <i>solderless lugs</i></li> </ul> <i>(Award 2 or 0 marks)</i>	2		
5	Cleaned tools and stored them as EH standards  <i>(Award 5 or 0 marks)</i>	5		
	<b>Total Section 2</b>	<b>42</b>		

**NB:** Photos and videos should be taken as the candidate performs items 2 and 3

## 5. SECTION 3 (SESSION 3 – 4 HOURS): SYMBOLS, FIXTURES, FITTINGS & TESTS

<b>Assessment Date:</b>	
<b>Assessment Venue:</b>	

### Elements Covered

1. Interpret electrical symbols
2. Fix electrical accessories
3. Perform Test and Inspection

### 5.1 Tasks

1. Sketch common electrical symbols
2. Figure 1 shows a layout diagram of the final sub-circuit. Draw a wiring diagram such that switches S1, S2, and S3 control lamp Q independently
3. Using PVC sheathed cable, install the circuit on an installation board
4. Perform the following tests
  - Continuity
  - Polarity

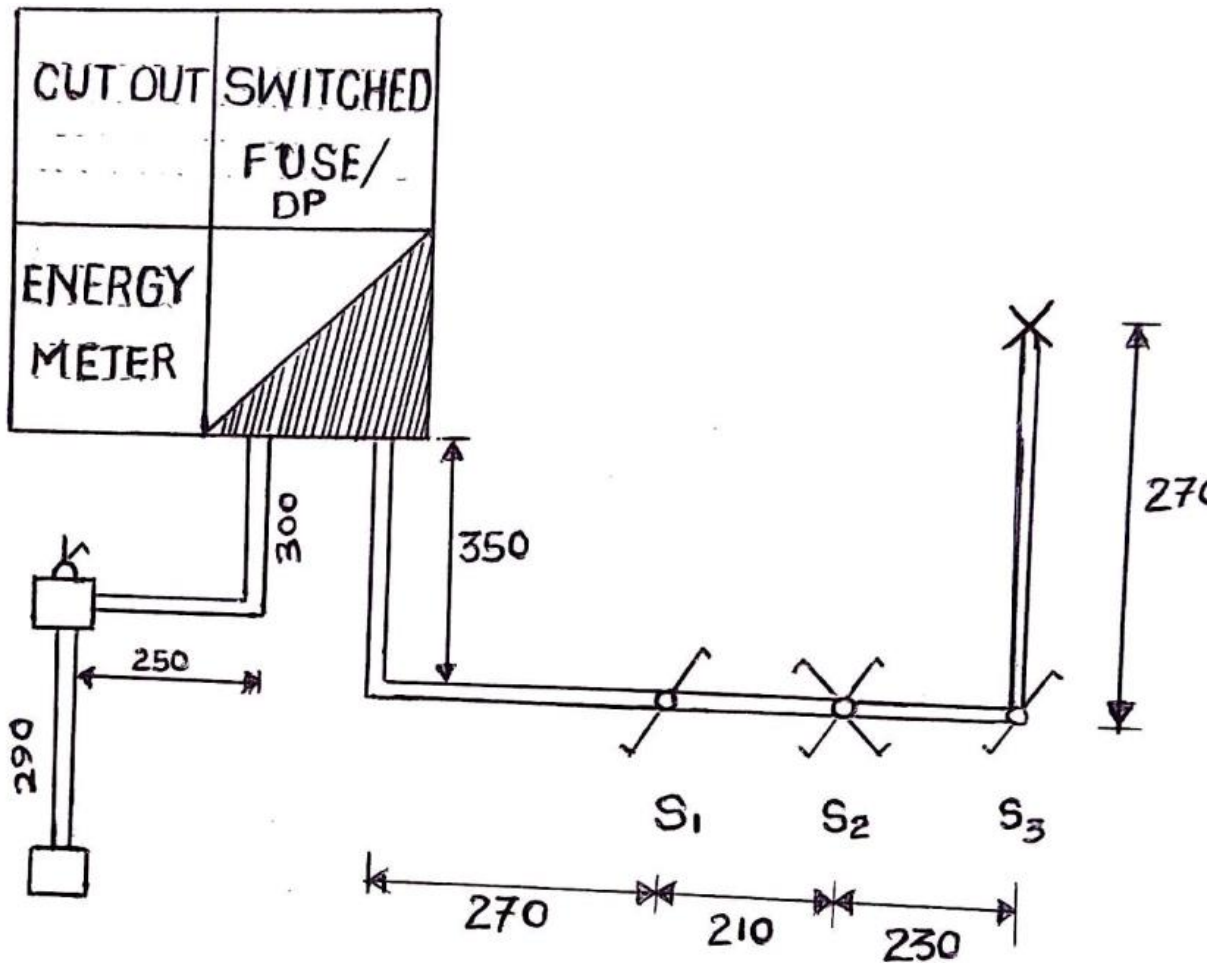


Figure 1

## 6.2 Practical Checklist

No.	Items of Evaluation	Max Marks	Awarded
1	<b>Sketched 4 common electrical symbols</b> <ul style="list-style-type: none"> <li>• switch</li> <li>• socket</li> <li>• lamp</li> <li>• consumer control unit</li> </ul> <i>(Award 1 mark each)</i>	4	
2	<b>Drew the wiring diagram of:</b> <ul style="list-style-type: none"> <li>• lighting,</li> <li>• cooker control unit &amp; connector</li> </ul>		

	<i>(Award 3 marks or 0 for each)</i>	6	
3	<b>Fixed electrical accessories:</b> <ul style="list-style-type: none"> <li>• switch S1, S2, and S3 controls lamp L1 independently</li> <li>• cooker control unit and cooker connector</li> <li>• connected cut-out, energy meter, switch fuse &amp; consumer control unit</li> </ul> <i>(Award 5 marks for lighting system, 2 marks for cooker control unit &amp; connector and 4 marks for cut-out, energy meter, switch fuse and CCU)</i>	10	
4	Socket box flush & conduit chased  <i>(Award 5 or 0 marks)</i>	5	
5	Fittings secure with no loose connections  <i>(Award 5 or 0 marks)</i>	5	
6	Performed the following tests <ul style="list-style-type: none"> <li>• Continuity</li> <li>• Polarity</li> </ul> <i>(Award 5 or 0 marks for each)</i>	10	
	<b>Total Section 3</b>	40	

***NB: Photos and videos should be taken as the candidate performs items 3***

## 6. SECTION 4: ORAL ASSESSMENT (25 MARKS)

Assessor to award marks for each correct response by the candidate in the table below:

Q#	Question	Expected Key response	Max Marks	Awarded
1.	Why is colour coding important?	Prevents wiring errors, IEC compliance	2	
2.	Name THREE examples of PPEs	Gloves, boots, goggles, dust coat	3	
3.	Name THREE PVC sheathed cable types	Single core, Twisted, Flex and Twin with Earth (TWE)	3	
4.	What is the purpose of a CCU?	Power distribution, Controls & protects circuits, control of load demand	2	
5.	Name THREE cable joint types.	Britannia, Married, Tee, straight twist and scarf	3	
6.	Name THREE PVC sheathed cable sizes	1.0mm <sup>2</sup> , 1.5mm <sup>2</sup> , 2.5mm <sup>2</sup> , 4.0mm <sup>2</sup> and 6.0mm <sup>2</sup>	3	
7.	State TWO types of wiring diagram	Single-phase and three-phase wiring diagrams	2	
8.	Name THREE electrical test methods	Continuity, Polarity and Ring test	3	
9.	State FOUR common electrical accessories	Switches, sockets, lampholders, electrical lamps, joint boxes, pattress, circuit breakers, CCU and any other	4	
	<b>Total marks</b>		<b>25</b>	

## 7. SUMMARY OF ASSESSMENT



PRACTICAL ASSESSMENT			
S/N	SECTION	Total Marks	Marks Awarded
1.	Assessment 1	29	
2.	Assessment 2	42	
3.	Assessment 3	40	
	<b>Total</b>	<b>111</b>	
	<b>Percentage (100%)</b>		
ORAL ASSESSMENT			
1.	Oral Assessment	23	
	<b>Percentage (100%)</b>		

ASSESSMENT OUTCOME	
<p>The candidate was found to be:</p> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;"> Competent <input style="width: 50px; height: 30px; border: 1px solid black;" type="checkbox"/> </div> <div style="text-align: center;"> Not yet Competent <input style="width: 50px; height: 30px; border: 1px solid black;" type="checkbox"/> </div> </div> <p style="margin-top: 10px;"><i>(Please tick as appropriate)</i></p> <p>The candidate is competent if the candidate obtains an average of at least 50%</p>	