ELECTRICAL INSTALLATION

ENG/OS/EI/CR/03/3/MA

Install Conduit 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.

1. CANDIDATE & ASSESSOR DETAILS

Candidate Name:	**CDACC Reg. No.:**
Assessor Name:	**Assessor ID Number:**

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 HOURS 1-4 HOURS): CONDUIT ACCESSORIES

Element covered

1. Identify Conduit Accessories

3.1 Tasks

1. Identify conduit types and sizes from a variety provided by the assessor
2. Identify various conduit accessories from a variety provided by the assessor

3.2 Practical Checklist

No.	Items of Evaluation	Max Marks	Awarded	Comment
1	**Identified conduit type** *a) PVC conduit* b) *Metallic/steel conduit* (***Award 1 mark each)***	2		
2	**Identified conduit sizes** *a) 20mm* *b) 25mm* *c) 32mm* ***(Award 1 mark for each)***	3		
3	Identified accessories per IEC standard ***(Award any 5×1)***	5		

No.	Items of Evaluation	Max Marks	Awarded	Comment
5	**Maintained workshop clean & organized** a) *Cleaned workshop after practical* b) *Organized workshop after practical* ***(Award 1 mark each)***	2		
	Total Section 1	**12**		

4. SECTION 2 (SESSION HOURS 4-8 HOURS): CONDUIT WORK PIECES

Elements covered

1. Prepare Conduit Work Pieces,
2. Mount Conduit Work Pieces

4.1 Tasks

1. Prepare PVC conduit work pieces for the installation of Figure 1
2. Mount PVC conduit work pieces for the installation of Figure 1

4.2 Practical Checklist

No.	Items of Evaluation	Max Marks	Awarded	Comment
1	**Selected tools for conduiting** a) *Hacksaw* b) *Bending spring* c) *Tape measure* d) *Steel tape* e) *Marker* ***(Give 1 mark for each tool)***	5		
2	**Prepared conduit work pieces for Figure 1** **Measured and marked PVC conduit routes** a) *Plan the route first*	6		

No.	Items of Evaluation	Max Marks	Awarded	Comment
	b) Take accurate measurement c) *Mark the conduit* ***(Award 2 marks each)***			
3	**PVC conduit cuts and bends** a) 90^0 b) 45^0 **(award 2 marks each)**	4		
4	**Used couplers and bushes** PVC bushes and couplers ***(award 4 marks for any 2)***	4		
5	**Mounted PVC conduit and boxes** *a) Firmly mounted* *b) Correct measurement* c) *Straight both vertically & horizontally* ***(Give 2 marks for each)***	6		
6	**Maintained cleanliness in workplace** *a) Cleaned workshop after practical* b) *Returned tools & accessories to their previous position* ***(Give 2 marks for each)***	4		
	Total Section 2	**29**		

NB: ***Photos and videos should be taken for items 2, 3 and 5.***

5. SECTION 3 (SESSION HOURS 1-4 HOURS): ELECTRICAL CABLES AND ACCESSORIES

Elements covered

1. Install Electrical Cables and Accessories
2. Perform Test and Inspection

5.1 Tasks

1. Figure 1 shows a layout diagram of final sub-circuits. Draw a wiring diagram such that:
    i. Lamp L1 and L2 are controlled from two different points
    ii. socket outlets are connected in radial
2. Using PVC conduit wiring system, install the circuit in Figure 1
3. Perform the following tests
    i. Continuity
    ii. Polarity

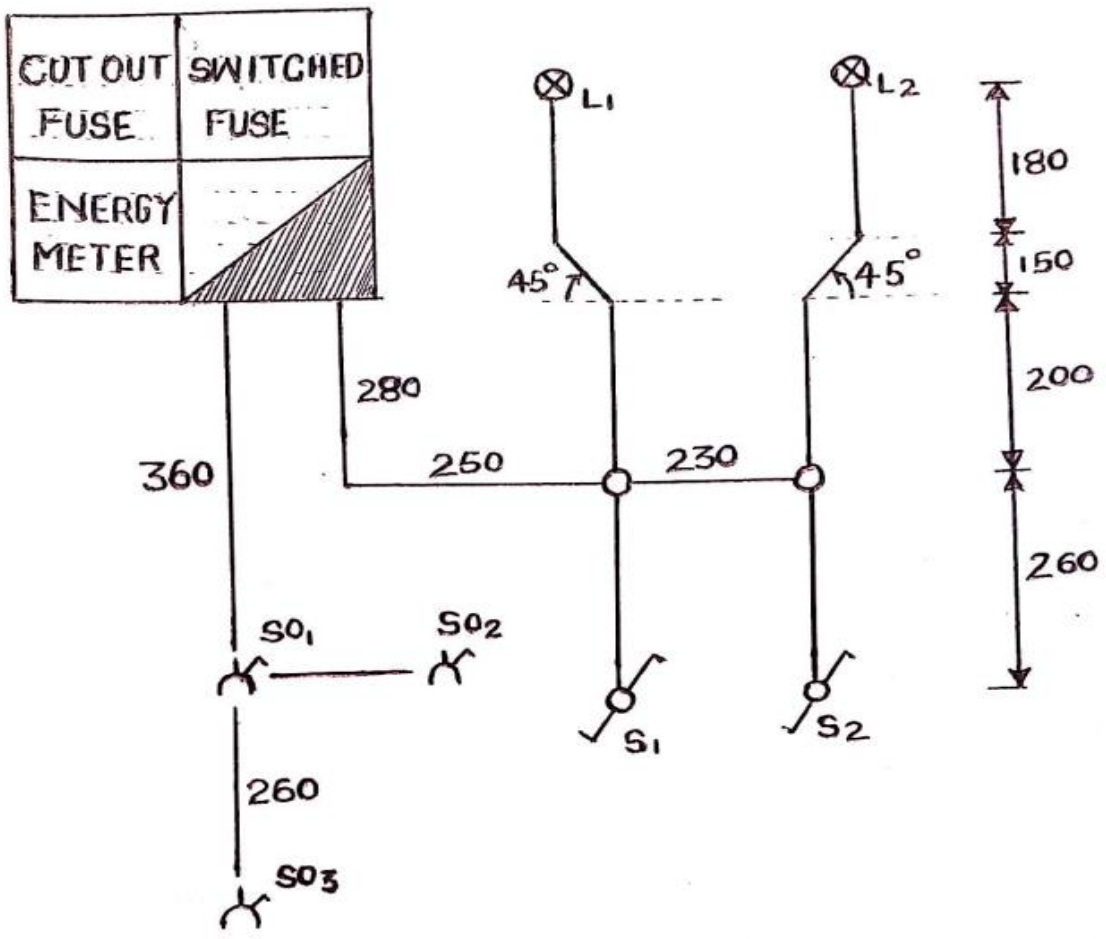

Figure 1

5.2 Practical Checklist

No.	Items of Evaluation	Max Marks	Awarded	Comment
1	**Wore PPE** • *Helmet* • *safety boots* • *dust coat/overall* • *safety goggles* ***(award 2x1)***	2		
2	**Drew the wiring diagram of Figure 1** • Lighting circuit • Power circuit **(Award 3 marks each)**	6		
3	**Identified cable colour codes and sizes to use** a) Cable colour *Brown* *Black* *Green/yellow* b) Cable size $1.5mm^2$ $2.5mm^2$ ***(Award 1 mark for each)***	5		
4	Drew cables in conduit as per the wiring diagram drawn	4		
5	**Installed electrical intake system** *a) Cut-out* *b) Energy meter* c) *Consumer control unit* ***(award 2 marks each)***	6		
6	**Installed**	10		

No.	Items of Evaluation	Max Marks	Awarded	Comment
	i. Lighting circuit ii. power circuit ***(Award 5 marks each)***			
7	**Implemented proper looping-in wiring method** *i. Lighting point* *ii. Switch connection* ***(Award 2 mark each)***	4		
8	**Performed the following tests** i. Continuity ii. Polarity ***(award 2 marks each)***	4		
9	**Cleaned up and stores tools as per EH standard** i. Cleaned the workshop ii. Cleaned tools & stored them ***(award 2 marks each)***	4		
	Total Section 3	**45**		

NB: ***Photos and videos should be taken for items 5, 6, and 8.***

6. SECTION 4 (SESSION HOURS 1 HOUR): ORAL ASSESSMENT

No.	Questions	Expected Answer	Max Marks	Awarded
1	What tests are done after conduit wiring?	Continuity, polarity, ring test	3	
2	Why is visual inspection necessary?	Early detection of damage, safety assurance, supports efficient operation and compliance with standards	3	

No.	Questions	Expected Answer	Max Marks	Awarded
3	How do you perform a polarity test?	Safety first, set the multimeter, identify conductors,	3	
4	What is the purpose of a bending spring?	Prevents conduit collapse during bending, shaping materials, route and space management	3	
5	Why is an earth wire required in plastic conduits?	Plastic is non-conductive, protects equipment, safety against electrical faults	3	
6	Name two cable sizes used in lighting & socket circuits.	1.5mm², 2.5mm²	2	
7	What PPE is required for this task?	Safety Gloves, safety goggles, safety boots	2	
8	What happens if burrs are left in the conduit?	Can damage cable insulation	2	
9	Why are saddle clips used?	To fix conduits to surfaces	2	
10	What causes resistance to drop in plastic conduits?	High temperature above 120°C	2	
Total Oral Assessment			**25**	

SUMMARY OF ASSESSMENT

PRACTICAL ASSESSMENT			
S/N	**SECTION**	**Total Marks**	**Marks Awarded**
1.	Assessment 1	12	
2.	Assessment 2	29	
3.	Assessment 3	45	
	Total	**86**	
	Percentage (100%)		
ORAL ASSESSMENT			
1.	Oral Assessment	**25**	
	Percentage (100%)		

ASSESSMENT OUTCOME

The candidate was found to be:

Competent ☐ Not yet Competent ☐

(Please tick as appropriate)

The candidate is competent if the candidate obtains an average of at least 50%