

MODULE II

ELECTRICAL INSTALLATION TECHNOLOGY LEVEL 4

ELECTRICAL ENGINEERING LEVEL 5, LEVEL 6

ENG/OS/EI/CR/01/4/MA

INSTALL STAND-ALONE SOLAR PV SYSTEMS

January- March 2026



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

PRACTICAL ASSESSMENT

INSTRUCTIONS TO THE CANDIDATE:

1. This unit of competence shall be assessed in three phases.
2. Each assessment session has the duration included in brackets
3. The third phase of the assessment shall include a practical session and an oral assessment session.
4. The assessor will take photos and videos as you perform the tasks at critical points during the assessment.
5. Ensure all required resources for the assessment have been provided before beginning the assessment.

PRACTICAL ASSESSMENT 1 (2 HOURS)

Element covered

1. Apply basic electrical concepts
2. Interpret stand-alone Solar PV Installation drawings
3. Install standalone Solar PV Components.

TASKS

Figure 1 shows a layout of a stand-alone solar PV installation.

- i. Draw the wiring diagram for the layout
- ii. Install solar PV components in correct sequence using PVC Sheathed Cables.

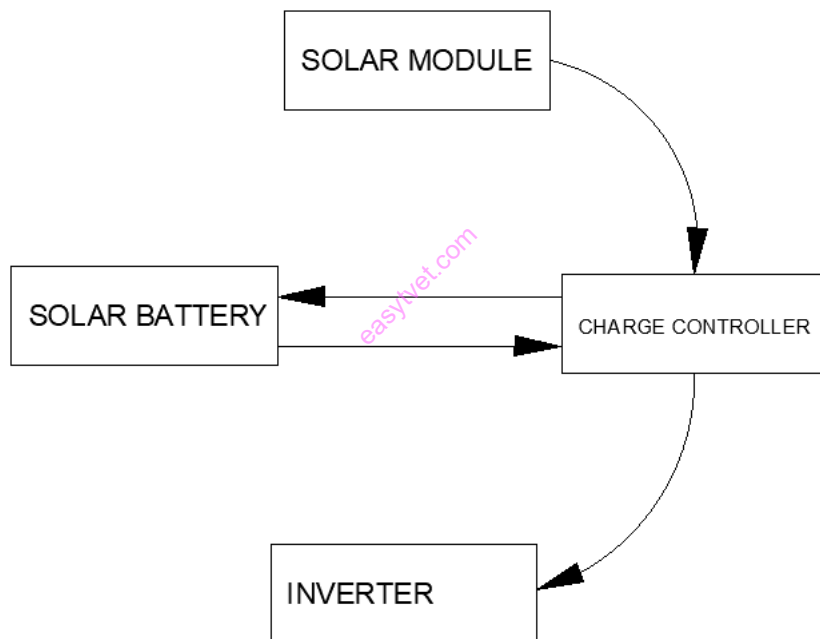


Figure 1

PRACTICAL ASSESSMENT 2 (4 HOURS)

Elements covered

4. Install electrical wiring system

TASK

Figure 2 shows a 12V solar home system layout.

- i. Draw the wiring diagram of the layout such that:

- Solar equipment is connected in the correct sequence
- Lamp L₁ is controlled by switch S₁ from the A.C supply.
- Lamp L₂ and L₃ are controlled by switches S₂ and S₃ respectively from the D.C supply.
- The sockets are wired in a ring circuit, with SO₃ connected as a spur.

- ii. Using PVC sheathed wiring system, install the circuit.

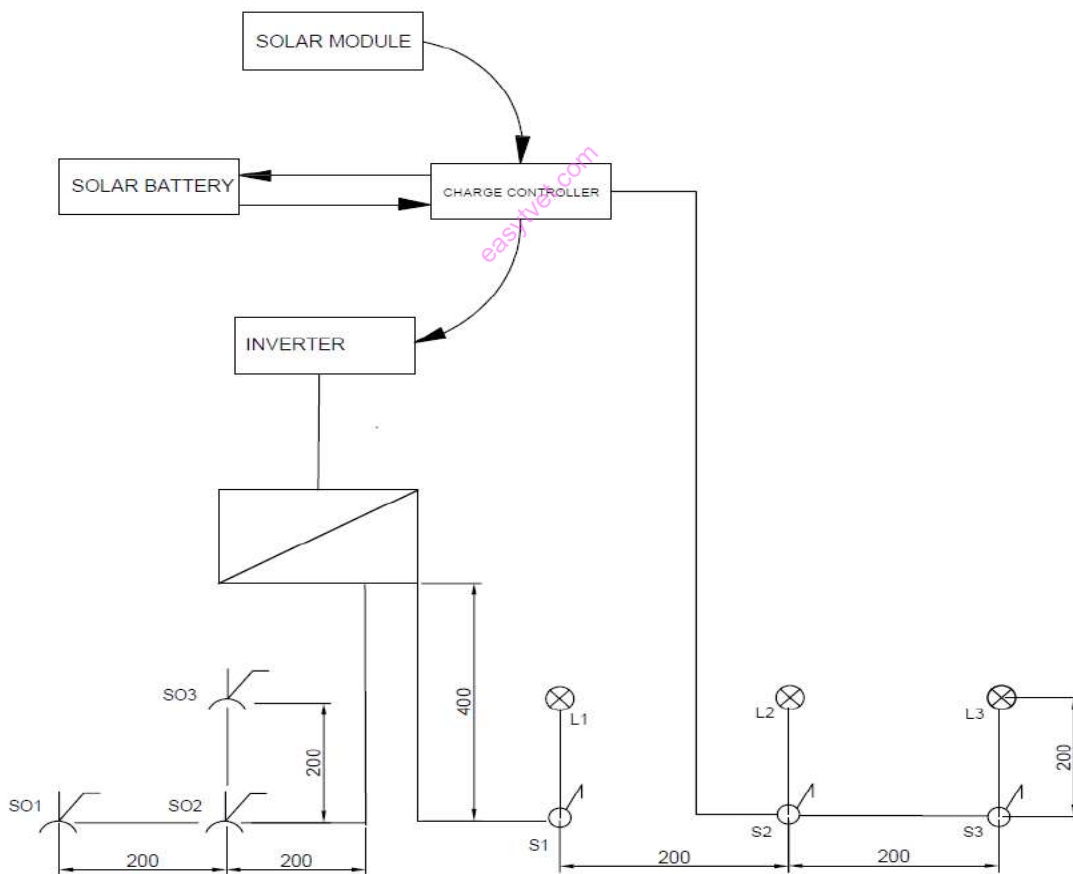


Figure 2

PRACTICAL ASSESSMENT 3 (3 HOURS) AND ORAL ASSESSMENT (1 HOUR)

Element covered

5. Test standalone solar PV system installation
6. Maintain stand-alone Solar PV system

TASK

Using the pre-installed circuit in Figure 3:

- i. Inspect solar PV system conditions.
- ii. Perform the following tests and record test results:
 - Continuity
 - Polarity
 - Earth resistance test
 - Insulation resistance test
- iii. Perform the following Solar PV system maintenance activities.
 - Tightening electrical connections
 - Cleaning any corrosion
 - Cleaning solar panel surface
- iv. Power the circuit and test for correct operation.

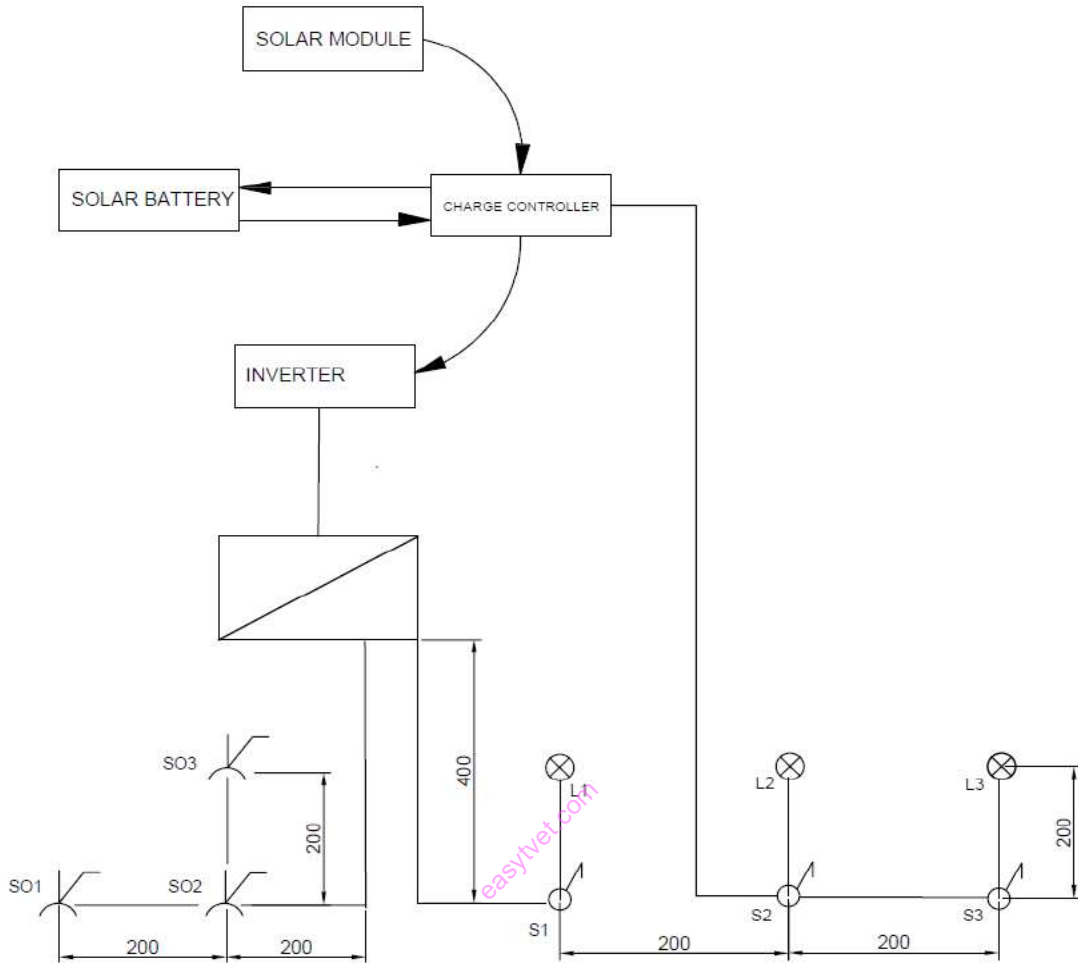


Figure 3

The assessor will proceed to ask you oral questions for 1 hour.