©2025 TVET CDACC

021306T4IOR

INDUSTRIAL AUTOMATION AND ROBOTICS TECHNICIAN level 6

ENG/OS/IA/CR/02/6

Install and Maintain Automation System Components

July/August 2025

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

PRACTICAL ASSESSMENT

easytvet.com

INSTRUCTIONS TO ASSESSOR

1. Assess the candidate as the practical progresses observing the critical areas
2. You are required to mark the practical as the candidate perform the tasks
3. You are required to take video clips at critical points
4. Ensure the candidate has a name tag and registration code at the back and front

OBSERVATION CHECKLIST

Candidate's Name **Registration Code**			
Assessors Name **Registration Code**			
Venue of Assessment			
Date of Assessment			
Items to be Evaluated: *Please award marks as appropriate. Give a brief comment on your observation.*	**Marks Available**	**Marks Obtained**	**Comments**
Task 1: Install the System			
1. Wore personal protective gear • Overall/dust coat • Safety boots *Award 1 mark each*	**2**		
2. Correctly identified components • Start/Stop Buttons • Float Sensor • Solenoid Valve • Relay/Contactor • P.L.C • Terminal Blocks • DIN Rail *Award 1 mark each*	**7**		
3. Installed the system as per the specifications • Correctly fixed components. • Correctly terminated cables (firm, folded, not nicked) • Correctly connected PLC inputs	**10**		

easytvet.com

• Correctly connected PLC outputs • Correctly connected power supply *Award 2 mark each*			
4. Correctly used tools • Multimeter • Side cutter • Screw driver set *Award 1 mark each*	**3**		
5. Tested the system • Performed continuity test • Performed polarity test *Award 2 marks each*	**4**		
Sub-Total 1	**26**		
Task 2: Calibrate the Float switch			
6. Calibrated the float switch as per Standard Operating Procedures • Correctly located low and high levels for the float switch • Adjusted the sensor position to align with expected water levels *Award 3 marks each*	**6**		
Sub – Total 2	**6**		
Task 3: Develop the PLC program			
7. Developed I/O distribution list *Award 1 mark*	**1**		
8. Open programming software and started new project *Award 1 mark*	**1**		

edumet.com

9. Developed program according to outlined algorithm: • Inputs/Outputs clearly labeled • Error handling- included reset conditions • Ladder logic correctness *Award 4 marks each*	**12**		
10. Documented the code i.e. Indicated what each rung of the code does *Award 5 marks*	**5**		
11. Debugged the program and corrected error i.e. Correctly used PLC Sim to debug the program *Award 2 marks*	**2**		
Sub-Total 3	**21**		
Task 4: Test and Operate the System			
12. Correctly powered the system *Award 1 mark*	**1**		
13. Tested the system i.e. Ensured all modules are functioning correctly *Award 2 marks*	**2**		
14. Downloaded program to PLC • Correctly connected programming cable • Established communication between PLC and laptop • Put PLC in the correct mode before downloading program *Award 1 mark each*	**3**		

edutvet.com

15. Operated the system • Start button starts the system • Solenoid valve opens at low water level • Solenoid valve stays open until high water level is reached • Solenoid valve closes at high water level • Stop button halts the system *Award 2 mark each*	**10**		
Sub-Total 4	**16**		
Task 5: Perform Housekeeping			
16. Disconnected components according to the standard operating procedures *Award 1 mark*	**1**		
17. Properly stored the tools, components, and accessories *Award 1 mark*	**1**		
18. Cleaned the work area *Award 1 mark*	**1**		
Sub-Total 4	**3**		
GRAND TOTAL	**72**		
% = $\frac{x}{72}$ ***X* 100**	**100**		
ASSESSMENT OUTCOME			

easytvet.com

The candidate was found to be: Competent ☐ Not yet Competent ☐ *(Please tick as appropriate)* *(The candidate is competent if the candidate obtains at least 50%)*
Feedback from the Candidate:
Feedback to the Candidate:
Candidate Signature **Date:** _____ _____
Assessor's Signature **Date** _____ _____

easytvet.com