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021306T4IOR

INDUSTRIAL AUTOMATION AND ROBOTICS LEVEL 6

ENG/OS/IA/CR/07/6

Install and Maintain Programmable Logic Controllers

July/August 2025

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

PRACTICAL ASSESSMENT

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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

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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 • Pushbutton • Proximity sensors • Bulbs • Bulb Holders • P.L.C • Terminal Blocks • DIN Rail *(Award 1 mark each)*	**7**		
3. Installed the circuit as per the specifications • Correctly fixed components i.e., firm and level • Correctly terminated cables (firm, folded, not nicked) • Correctly connected PLC inputs • Correctly connected PLC outputs • Correctly connected DC power supply • Correctly connected AC power supply *(Award 2 mark each)*	**12**		

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4. Correctly used tools • Multimeter • Side cutter • Hammer • Screw driver set *(Award 1 mark each)*	**4**		
5. Tested the system • Performed continuity test • Performed polarity test *(Award 2 marks each)*	**4**		
Sub-Total 1	**29**		
Task 2: Develop the PLC program			
6. Developed I/O distribution list *(Award 1 mark)*	**1**		
7. Open programming software and started new project *(Award 1 mark)*	**1**		
8. Developed program according to outlined algorithm: • Used correct instructions- timers, counters • Rungs logically arranged • Inputs/Outputs clearly labeled • Error handling- included reset conditions • Efficiency- No redundant rungs • Ladder logic correctness *(Award 2 marks each)*	**12**		
9. Documented the code *(Indicated what each rung of the code does)*	**5**		
10. Debugged the program and corrected error *(Correctly used PLC Sim to debug the program)*	**2**		
Sub-Total 2	**21**		
Task 3: Test and Operate the System			

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11. Correctly powered the system *(Award 1 mark)*	**1**		
12. Tested the system *(Ensured all modules are functioning correctly)*	**2**		
13. Uploaded program to PLC • Correctly connected programming cable • Established communication between PLC and laptop • Put PLC in the correct mode before uploading program *(Award 1 mark each)*	**3**		
14. Operated the system • Start button starts the system • Sensor 1, turns ON indicator bulb 1 • Sensor 2, turns ON indicator bulb 2 after 10 counts and bulb 1 goes OFF • Indicator bulb 2 remains on for 5 seconds *(Award 2 mark each)*	**10**		
Sub-Total 3	**16**		
Task 4: Perform Housekeeping			
15. Disconnected components according to the standard operating procedures *(Award 1 mark)*	**1**		
16. Properly stored the tools, components, and accessories *(Award 1 mark)*	**1**		

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17. Cleaned the work area *(Award 1 mark)*	**1**		
Sub-Total 4	**3**		
GRAND TOTAL	**69**		

ASSESSMENT OUTCOME

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:

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Candidate Signature **Date:**

_____ _____

Assessor's Signature **Date**

_____ _____

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