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021306T4IOR

INDUSTRIAL AUTOMATION AND ROBOTICS LEVEL 6

ENG/OS/IA/CR/05/6

Install and Maintain Stand-Alone Controllers

July/August 2025

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

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PRACTICAL ASSESSMENT

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: Installing the stand-alone controller			
1. Observed safety measures • Safety boots • Overall • Proper handling of tools • Proper handling of equipment *Award 1 mark each*	**4**		
2. Correctly connected PLC inputs • Pushbutton 1(PB1) • Pushbutton 2 (PB2) • Pushbutton 3 *Award 1 mark each*	**3**		
3. Correctly connected PLC outputs • VFD • Indicator lamps *Award 1 mark each*	**2**		
4. Correctly terminated motor phases • U phase • V phase • W phase	**3**		

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Award 1 mark each			
5. Correctly mounted motor on a firm place *Award 2 marks*	**2**		
6. Correctly grounded all components *Award 3 marks*	**3**		
7. Performed the following diagnostic tests • Continuity test • Input voltage to the PLC • output voltages from the PLC to K1 and K2 • motor speed *Award 1 mark each*	**4**		
8. Showed safety precautions to be observed. • Mechanical- running motor • Connecting all components to ground to prevent electrocution. *Award 2 marks each*	**4**		
Sub-Total 1	**25**		
Task 2: Developed PLC program			
9. developed ladder diagrams as per the following sequence' • push button PB1 runs motor forward and turns on green indicator lamp • push button PB2 runs motor in reverse and turns on orange indicator lamp	**6**		

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• push button PB3 stops the motor and turns on the red indicator lamp *Award 2 marks*			
10. Downloaded program successfully to PLC *Award 2 marks*	**2**		
Sub-Total 2	**8**		
Task 3: Perform functionality tests			
11. Conducted the following functionality tests: • forward motor control. • reverse motor control • The stop button. *Award 2 marks each*	**6**		
Sub-Total 3	**6**		
Task 4: Prepare maintenance checklist for possible faults.			
12. Prepared a maintenance schedule to include • Service date • Service person • Supervisor *Award 2 marks each*	**6**		
13. Indicated possible faults in the system • Loose connections • Faulty components • Power fluctuations *Award 1 mark each*	**3**		
Sub-Total 4	**9**		
Task 5: Housekeeping			

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14. Disconnected all components *Award 2 marks*	**2**		
15. Cleaned up the work area *Award 2 marks*	**2**		
Sub-Total 4	**4**		
GRAND TOTAL	**52**		
% - $\frac{x}{52}$ X 100	**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 at least 50%)

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Feedback from the Candidate:

Feedback to the Candidate:

Candidate Signature **Date:**

_____ _____

Assessor's Signature **Date**

_____ _____