

071606T4MCT

MECHATRONICS TECHNOLOGY LEVEL 6

ENG/OS/MC/CR/05/6/

Carry Out Mechatronic Programming

July/August 2025



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

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: <i>Please award marks as appropriate. Give a brief comment on your observation.</i>	Marks Available	Marks Obtained	Comments
Task 1: Install the System			
1. Wore personal protective gear i. Overall/dust coat ii. Safety boots <i>(Award 1 mark each)</i>	2		
2. Correctly identified components i. Pushbutton ii. Proximity sensors iii. Bulbs iv. Bulb Holders v. P.L.C vi. Terminal Blocks vii. DIN Rail <i>(Award 1 mark each)</i> <i>NOTE: There are two sensors, two bulbs and bulb holders)</i>	10		
3. Observed electrical safety rules i. Disconnected from mains before doing any wiring <i>(Award 2 marks each)</i>	2		
4. Installed the circuit as per the specifications i. Correctly fixed components i.e., firm and level ii. Correctly terminated cables (firm, folded, not nicked) iii. Correctly connected PLC inputs	6		

iv. Correctly connected PLC outputs v. Correctly connected DC power supply vi. Correctly connected AC power supply <i>(Award 1 mark each)</i>			
5. Correctly used tools i. Multimeter ii. Side cutter iii. Hammer iv. Screw driver set <i>(Award 1 mark each)</i>	2		
6. Tested the system i. Performed continuity test ii. Performed polarity test <i>(Award 1 mark each)</i>	2		
Sub-Total 1	24		
Task 2: Develop the PLC program			
7. Developed I/O distribution list <i>(Award 1 mark)</i>	1		
8. Open programming software and started new project <i>(Award 1 mark)</i>	1		
9. Developed program according to outlined algorithm: i. Start button starts the system ii. Sensor 1, turns on indicator bulb 1 iii. Indicator bulb 1 remains on for 5 seconds then turns off iv. Sensor 2, turns on indicator bulb 2 v. Indicator bulb 2 remains on until	5		

object is removed (Award 1 mark for each rung)			
10. Documented the code (Indicated what each rung of the code does)	2		
11. Debugged the program and corrected error (Correctly used PLC Sim to debug the program)	2		
Sub-Total 2	11		
Task 3: Test and Operate the System			
12. Correctly powered the system (Award 1 mark)	1		
13. Tested the system (Ensured all modules are functioning correctly)	1		
14. Uploaded program to PLC i. Correctly connected program cable ii. Established communication between PLC and laptop iii. Put PLC in the correct mode before uploading program (Award 1 mark each)	3		
15. Operated the system i. Pushbutton started the system ii. Sensor 1 turned on indicator bulb 1 iii. Indicator bulb 1 remained on for 5 seconds then turned off iv. Sensor 2 turned on indicator bulb 2 v. Indicator bulb 2 remained on until	5		

object is removed (Award 1 mark each)			
Sub-Total 3	10		
Task 4: 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 TO	48		
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:			

Candidate Signature _____	Date: _____
Assessor's Signature _____	Date _____