

071606T4MCT

MECHATRONIC TECHNOLOGY LEVEL 6

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

Carry Out Mechatronic Programming

March/April 2025



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

PRACT MENT

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			
Assessor 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
1. Wore personal safety gear i. Overall/dust coat ii. Safety boots <i>Award one mark for each PPE worn and 0 if any is not worn</i>	2		
Sub-	2		
TASK 1: Performed electrical connecti			
2. Observed electrical safety rules. i. Disconnected from the mains befo doing any wiring. <i>Award 2 marks for the above safety rule and 0 if failed to observe</i>	2		
3. Used correct tools for correct operations. i. Star and flat drivers on the right screws ii. Side cutter iii. Wire stripper <i>Award 1 mark for each correct use</i>	3		
4. Connected power to the PLC i. Live ii. Neutral iii. Earth	3		

<i>Award 1 mark for each correctly connected line</i>			
5. Connected the peripheral devices to the PLC. i. Start button ii. Solenoid valves iii. Magnetic Reed sensor iv. Fiber optic sensor v. Red LED vi. Green LED <i>Award 1 mark for each correctly connected component</i>	6		
6. Connected power to the PLC input and output interfaces. <i>Award 1 mark for each correct connection</i>	2		
7. Powered the PLC. <i>Award 1 mark for correct powering</i>	1		
Sub-Total 2	7		
TASK 2: Programmed the robot arm			
8. Opened the correct programming software and set the parameters <i>Award 1 mark for correct software used, 1 mark for correct plc series</i>	2		
9. Wrote the correct ladder diagram for the tasks. <i>Award 8 marks for working ladder program</i>	8		
10. Simulated the program/ run the program in monitor mode if the software lacks simulation. <i>Award 3 marks for simulation</i>	3		

11. Set the PLC to programming mode before downloading the program. <i>Award 2 mark or zero</i>	2		
12. Downloaded the program to the PLC <i>Award 2 marks or zero</i>	2		
13. Set the PLC to running mode. <i>Award 2 marks or zero</i>	2		
Sub-Total 3	19		
TASK 3: Operated the system			
14. Operated the PLC system as per the requirements i. When start push switch was pressed, the system was powered and the green LED turned ON. ii. When an object (workpiece) was introduced at the fiber optic sensor robotic arm moved down and pick work piece iii. It then moved up and made a 90-degree rotation at the base of the robotic arm iv. Then robotic arm moved down and dropped the work piece on the working table. v. After 6 seconds, the robotic arm came back to pick the second work piece to make another cycle vi. After completing the third cycle, the system turned ON the Red LED. <i>Award 2 marks for each correct operation</i>	2		
15. Powered off the system and disassembled	2		

the set up. <i>Award 2 marks for housekeeping operation</i>			
Sub-Total 4	14		
GRAND TOTAL	52		
ASSESSMENT OUTCOME			
The candidate was found to be: Competent ☐ Not yet Competent ☐ <i>(Please tick as appropriate)</i> <i>(The candidate is competent if the candidate obtains at least 50%)</i>			
Feedback from the Candidate:			
Feedback to the Candidate:			
Candidate Signature		Date:	
_____		_____	
Assessor's Signature		Date	
_____		_____	