

071606T4MCT

MECHATRONIC TECHNOLOGY LEVEL 6

ENG/OS/MC/CR/04/6/A

Perform Mechatronic Systems Instrumentation and Control

March/April 2025



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

PRACTICAL ASSESSMENT

INSTRUCTIONS TO ASSESSOR

1. Assess the candidate as the practical progress observing the critical areas
2. You are required to mark the practical as the candidate performs 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 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 is not worn</i>	2		
Sub-T	2		
TASK 1: Performed electrical connection			
2. Observed electrical safety rules. i. Disconnected from the main before 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. stripping knife <i>Award 1 mark for each correct use</i>	3		

4. Connected power to the PLC i. Live ii. Neutral iii. Earth <i>Award 1 mark for each correctly connected line</i>	3		
5. Connected the peripheral devices to the PLC. i. Start button ii. Solenoid valves iii. Capacitive sensor iv. Photoelectric sensor v. DC motor <i>Award 1 mark for each correctly connected component</i>	5		
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	16		
TASK 2: Programmed the equipment			
8. Opened the correct programming software and set the parameters. <i>Award 1 mark for correct software used, 1 mark for correct plc series and 1 mark for correct programming language selection</i>	3		
9. Wrote the ladder diagram for the tasks <i>Award 8 marks for the correct ladder program</i>	8		
10. Simulated the program/ run the program in monitor mode if the software lacks			

simulation <i>Award 2 marks for simulation or 0</i>	2		
11. Set the PLC to programming mode before downloading the program. <i>Award 3 mark or zero</i>	2		
12. Downloaded the program to the PLC <i>Award 3 marks or zero</i>	3		
13. Set the PLC to running mode. <i>Award 2 marks or zero</i>	2		
Sub-Total 3	20		
TASK 3: Operated the equipment			
14. Operated the PLC system as per the requirements. i. Ran the conveyor. ii. Activated the first barrier when a workpiece is introduced to the photoelectric sensor. iii. Retracted the first barrier after 4 seconds. iv. Activated the second barrier when a black workpiece is introduced to the capacitive sensor. v. Retracted the second barrier after 4 seconds. <i>Award 2 marks for each correct operation or 0</i>	0		
15. Powered off the system and disassembled the setup. <i>Award 2 marks or 0</i>	2		
Sub-Total 4	12		

GRAND TOTAL	50		
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	
_____		_____	

APPENDIX

Sample PLC program for the assessment

