

071605T4MCT

MECHATRONICS TECHNOLOGY LEVEL 5

ENG/OS/MC/CR/03/5

Maintain Mechatronic Systems Instrumentation and Control

Nov/Dec 2024



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

OBSERVATION CHECKLIST

Candidate's name & Registration No.	©2024 TVET CDACC		
Assessor's name & Reg. 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 Allocated	Marks Obtained	Comments
1. Observed occupational health and safety. <i>Safety boots 1 mark</i> <i>Overall / dust coat 1 mark</i> <i>Award 1 mark for each PPE worn properly</i>	2		
SUB TOTAL	2		
TASK 1: WIRED THE COMPONENTS			
2. Identified the assigned components: i. PLC unit ii. Circuit breaker iii. DC power supply iv. AC power module v. DC motor <i>(Award 1 mark for any four correctly identified components)</i> <i>(4 × 1 = 4 marks)</i>			
3. Installed the power supply system <i>Award 2 marks for correct connection of the two conductors from 240V AC to the DC module.</i>	2		
4. Installed the electrical system components i. PLC ii. Motor iii. Capacitive sensor iv. Inductive sensor <i>Award 2 marks for each correct connection.</i> <i>(4 × 2 = 4 marks)</i>	10		

<i>Award 2 marks for neat cable termination</i>			
SUB TOTAL	16		
TASK 2: PROGRAMMED PLC			
5. Completed the I/O distribution table <i>Award 1 mark for each correct combination of the I/O distribution. see appendix I (4 × 1 = 4 marks)</i>	4		
6. Wrote PLC program using appropriate software <i>Award 1 mark for each correct rung (4 × 1 = 4 marks) see appendix I</i>	4		
7. Simulated the Program Online <i>Award 2 marks or 0</i>	2		
8. Connected the PLC communication cable <i>(Award 2 mark for correct connection Award 1 marks if there is communication between the computer and PLC)</i>			
9. Downloaded the program to the PLC <i>Award 1 mark if the PLC was set in OFF state Award 2 mark for correct downloading of the program Award 1 mark for switching to ON position</i>	4		
SUB TOTAL	17		
TASK 3: TESTED THE SYSTEM			
10. Operated the motor with the capacitive sensor	6		

<i>Award 3 marks if placing any object by the capacitive sensor causes the motor to move</i> <i>Award 3 marks if the motor stops after 10 seconds</i>			
11. Operated the motor with the inductive sensor <i>Award 3 marks if placing a metallic object by the inductive sensor causes the motor to move</i> <i>Award 3 marks if the motor stops after 5 seconds</i>	6		
12. Disassembled the system correctly <i>Award 2 marks for first switching OFF the power supply</i> <i>Award 1 mark for correctly disconnecting the electrical jumpers</i>	3		
13. Conducted housekeeping <i>Award 1 mark for correctly removing all the installed components from the workstation</i> <i>Award 1 mark for correct storage or appropriately handing over to the technician</i>			
SUB TOTAL	17		
GRAND TOTAL $\left(\frac{x}{52} \times 100\right)$	52		

The candidate was found to be: Competent ☐

Not yet competent ☐

(Please tick as appropriate)

(The candidate is competent if s/he gets (50%) of the total marks on the observation and product checklist

Feedback from candidate:

Feedback to candidate:		
Candidate's signature:	Date:	
Assessor's signature:	Date:	

APPENDIX: FOR THE ASSESSOR ONLY**A. PLC program****B. Digital Input/Output**

DI wiring	Capacitive Sensor	X0
	Inductive Sensor	X1
	S/S	0V
DO wiring	YV1	Y0
	COM1	24V