

071605T4MCT

MECHATRONICS TECHNOLOGY LEVEL 5

ENG/OS/MC/CR/01/5

Install Mechatronic Systems

July/August 2025



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

OBSERVATION CHECKLIST

INSTRUCTIONS TO ASSESSOR

1. Observing the critical areas, assess the candidate's progress in the practical progresses.
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 on the back and front.

OBSERVATION CHECKLIST

Candidate's Name:			
Registration Code:			
Assessor's 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 allocated	Marks obtained	Comments
TASK: Install a Smart Home Lighting Control System			
1. Personal protective gear worn according to Standard Operating Procedures. i) Overall/ Dust coat ii) Safety boots <i>(Award 2 marks if worn both or 0</i>	2		
Sub-Total 1	2		
TASK 1: Installed a Power and Safety System			
2. Identified the components correctly i. Proximity sensor ii. Double-acting pneumatic cylinder iii. 5/2 solenoid valve (24VDC) iv. Mode selector switch (2-position) v. Circuit breaker (6A–10A) vi. 24VDC and 240VAC power supply <i>(Award 1 mark for each correct identification)</i>	6		
3. Installed the circuit breaker and supplied safe power to the system. <i>(Award 3 marks if the conductors are correctly terminated Award 2 marks if the conductors are not exposed at the termination point.)</i>	5		
Sub-Total 2	11		

TASK 2: Installed and Wired Input and Output Devices			
4. Mounted and wired the mode selector switch (manual/auto). <i>(Award 4 marks for correct mounting and wiring)</i>	4		
5. Connected and wired all inputs: sensor, two push buttons, and selector switch. <i>(Award 2 marks for each correct connection)</i>	8		
6. Connected and wired all outputs: solenoid valve and LED lamp. <i>(Award 2 marks for each correct connection)</i>	4		
7. Followed basic installation standard operating procedures. - Switched off the power when performing the connection - Closed the FRL valve when performing the connection - Adhered to color code standards - Maintained a tidy workspace <i>(Award 1 mark for each correct task done, Otherwise, Award 0)</i>	4		
Sub-Total 3	20		
TASK 3: Connected and Tested Pneumatic			
8. Connected and tested pneumatic system with double-acting cylinder. <i>(Award 3 marks for response during manual activation)</i>	3		
Sub-Total 4	3		
TASK 4: Programmed the PLC			
9. Developed the I/O mapping table. <i>Award 4 marks for the correct table</i>	4		
10. Programmed the PLC with correct auto mode logic (sensor triggers actuator and LED, with 1-minute timer). <i>Award 5 marks for developing a working PLC program</i>	5		
11. Programmed the PLC with correct manual mode logic (push buttons control the actuator and LED). <i>Award 5 marks for correctly modifying the PLC program</i>	5		
Sub-Total 5	14		
TASK 5: Tested and operated the system			

12. Tested both manual and automatic modes successfully. (Award 4 marks if the mode switching works, otherwise award 0)	4		
13. Operated the system. (Award 4 marks if switching to auto mode activates the sensor Award 4 marks for the following sequence of operations: the sensor activates the double acting cylinder reciprocation, and then turns ON the LED, otherwise award 0 Award 4 marks if the LED turns OFF after 1 minute, otherwise award 0.	12		
14. Switched OFF the system and safely disassembled all components. Award 3 marks for the correct procedural action Award 1 mark if all the accessories and equipment were returned to storage	4		
Sub-Total 6	20		
GRAND TOTAL	70		

ASSESS TCOMES

The candidate was found to be:

Competent ☐ Not yet competent ☐

(Please tick as appropriate)

(The candidate is competent if s/he gets 50% or higher)

Feedback from the candidate:

Feedback to the candidate:

Candidate's signature: _____	Date: _____	_____
Assessor's signature: _____	Date: _____	_____