

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)**

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INSTRUCTIONS TO CANDIDATE:

1. A program is to be developed such that DLFA-DCD03 Mechatronic equipment sorts components based on their color as follows:
 - i. When the START push button switch is pressed, the motor starts to run the conveyor belt.
 - ii. When a RED workpiece is introduced to the photoelectric sensor on the conveyor belt, the first barrier is activated and stays on for 4 seconds before retracting. That completes the sorting of the first component.
 - iii. When a BLACK workpiece is introduced to the capacitive sensor on the conveyor belt, the second barrier is activated, stays on for 4 seconds, and then retracts. That completes the sorting of the black component.

You are required to perform the following tasks:

TASK 1: Perform electrical connections

TASK 2: Program the equipment

TASK 3: Operate the equipment

2. You are provided with the following resources:

- i. DLFA-DCD03 Mechatronic equipment
- ii. Start button switch
- iii. PLC module
- iv. PLC communication cable
- v. Double-acting cylinder with mounted magnetic reed switch
- vi. Air pipes
- vii. Connecting wire
- viii. Stripping knife
- ix. Computer installed with PLC programming software
- x. Multimeter
- xi. Set of screwdrivers and Allen keys
- xii. Connecting wires