

071606T4MCT

MECHATRONICS TECHNOLOGY LEVEL 6

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

Carry Out Mechatronic Programming

July/August 2025



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

PRACTICE ASSESSMENT

Time: 3 HOURS

INSTRUCTIONS TO CANDIDATE:

1. You are required to install and program a system, that simulates machine parts painting, that accomplishes the following sequence:

- a. The start button starts the system
- b. When the part/object to be painted is detected by sensor 1, indicator bulb 1 turns ON.

NOTE:

- Object is manually introduced to the sensor
 - Indicator bulb 1 simulates the painting process
- c. Indicator bulb 1 remains ON for 5 seconds then turns OFF
 - d. When the part is detected by sensor 2, indicator bulb 2 turn ON

NOTE:

- Object is manually moved to the new position in front of sensor 2
- Indicator bulb 2 indicates arrival at picking station

- e. Indicator bulb 2 remains ON until the object is removed

Task 1: Install the system

- a. Gather necessary tools and components
- b. Install the system as per Fig 1

Task 2: Develop the PLC program

- a. Develop the I/O Distribution list
- b. Develop PLC program to accomplish the sequence of events outlined above

Task 3: Test and Operate the system

- a. Power the system
 - b. Perform the relevant tests
 - c. Upload developed program to PLC
 - d. Operate the system
2. You have been provided with the following resources for the practical tasks:
- Push Button
 - Cables (Red, Yellow, Blue)
 - 2 Proximity Sensors
 - 2 Bulbs (75W, 240V)
 - 2 Bulb Holders
 - PLC
 - PLC Programming Cable
 - 2 Terminal Blocks
 - DIN Rail
 - Mini trunk
 - Tuck Nails
 - Equipment label
 - Multimeter
 - Side cutter
 - Installation Board
 - Screw Driver Set
 - Hammer
 - M.C.B
 - 240V AC Power supply
 - 12/24V DC (Depending on the controller)

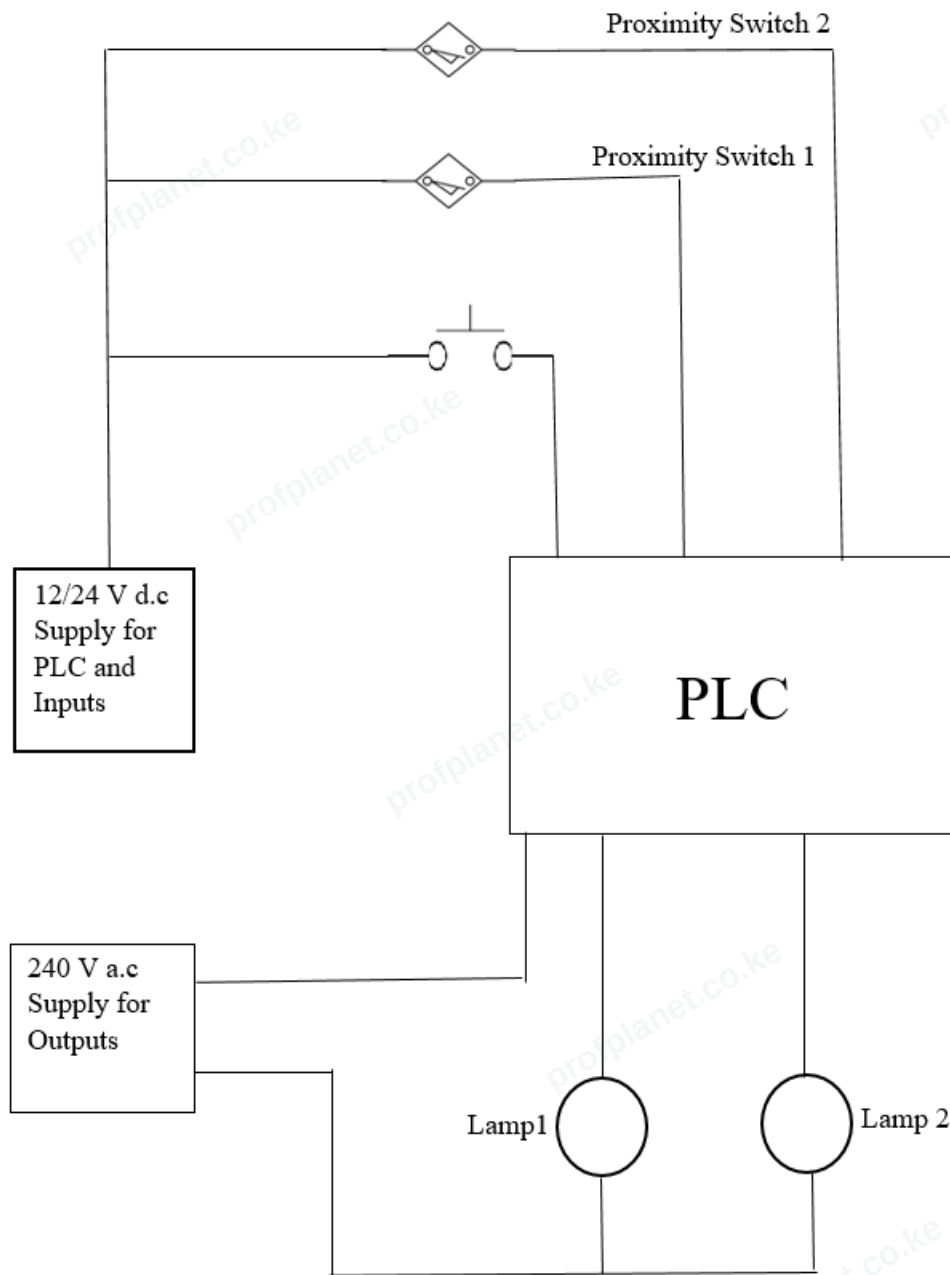


Figure 1