

071605T4MCT

MECHATRONICS TECHNOLOGY LEVEL 5

ENG/OS/MC/CR/06/5/A

Operate Programmable Logic Control (PLC) Systems

Nov/Dec 2024



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

PRACTICE

INSTRUCTIONS TO CANDIDATE

1. You are required to perform the following tasks:

Task 1: Wiring

- i. Connect the inputs and outputs to the PLC.

Task 2: Programming

- i. Develop a ladder diagram to perform the following tasks;
 - The process starts by pressing the start button and the Green LED turns on.
 - Place the work-piece components into the Capacitive sensor randomly one after another until the Yellow LED is turned on. The Yellow LED should turn on after the Capacitive sensor senses 6 components.
 - In the same order the components are introduced to the inductive sensor. The Green LED should turn ON after sensing 3 metallic components by making use of counters.
 - The stop-button when pressed, should be able to shut down the whole operation.
- ii. Download the program to the PLC.

Task 3: Test the operation of the system

2. You are provided with the following resources;

- i. Start Push button switch.
- ii. Stop switch button
- iii. Capacitive sensor
- iv. Inductive sensor
- v. 3 Metallic work-piece components
- vi. 3 plastic work-piece components
- vii. Indicator lamps (Red, yellow and green)
- viii. PLC module.
- ix. Circuit breaker.
- x. Computer station with installed PLC programming software.
- xi. PLC programming cable.
- xii. Power supply.
- xiii. Connecting wires.
- xiv. Set of tools.
- xv. Multimeter