

021306T4ICI

INDUSTRIAL CONTROLS INSTALLATIONS LEVEL 6

ENG/OS/IC/CR/1/6

Manage Electrical Motor Control Systems

July/August 2025



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

PRACTICAL ASSESSMENT

Time: 4 HOURS

INSTRUCTIONS TO CANDIDATE:

1. **Figure 1** shows a block diagram of a motor control system, Design and implement a **PLC**-based control circuit to operate a bi-directional motor system with the following features.
 - i Forward push button initiates forward rotation and activates a blue indicator.
 - ii Reverse push button initiates reverse rotation, deactivates the blue indicator and activates orange indicator.
 - iii The stop button halts all operations and triggers a red indicator **ON**.

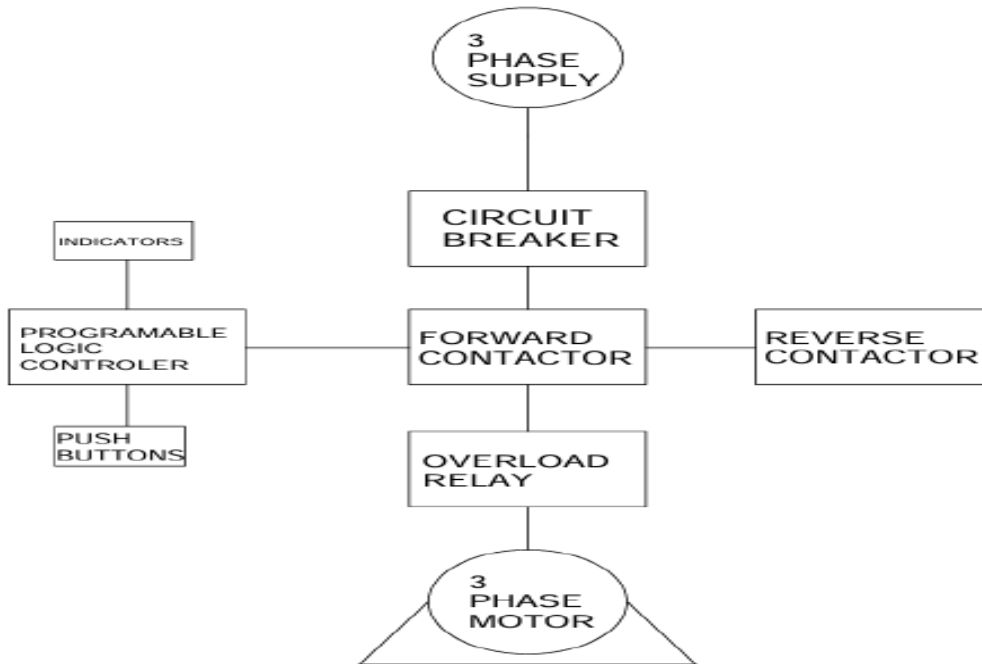


Figure 1

TASK 1: Draw Power wiring diagram and PLC wiring diagram of the motor control

TASK 2: Install the forward/ reverse operation circuit.

TASK 3: Write the program for the Programmable Logic Controllers.

TASK 4: Program Simulation download and perform circuit operation.

TASK 5: Perform troubleshooting of faults.

2. You have been provided with the following resources to carry out the tasks:

- Three phase circuit breaker
- Two contactors
- Overload relay
- Three phase motor
- PLC module
- Push buttons
- Indicating lamps
- Cable