

071306T4ELC

ELECTRONICS ENGINEERING LEVEL 6

ENG/OS/ET/CR/03/6/A

Install Electrical Machine Control Systems

March/April 2025



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

PRACTICE

Time: 4 HOURS

INSTRUCTIONS TO CANDIDATE:

Figure 1 is a block diagram of a three-phase induction motor installed to achieve a Direct Online starter using a PLC module.

1. You are required to perform the following tasks:

TASK 1: Draw the wiring diagram of power and control circuits for the installation.

TASK 2: Install the motor as per the wiring regulations and code of practice

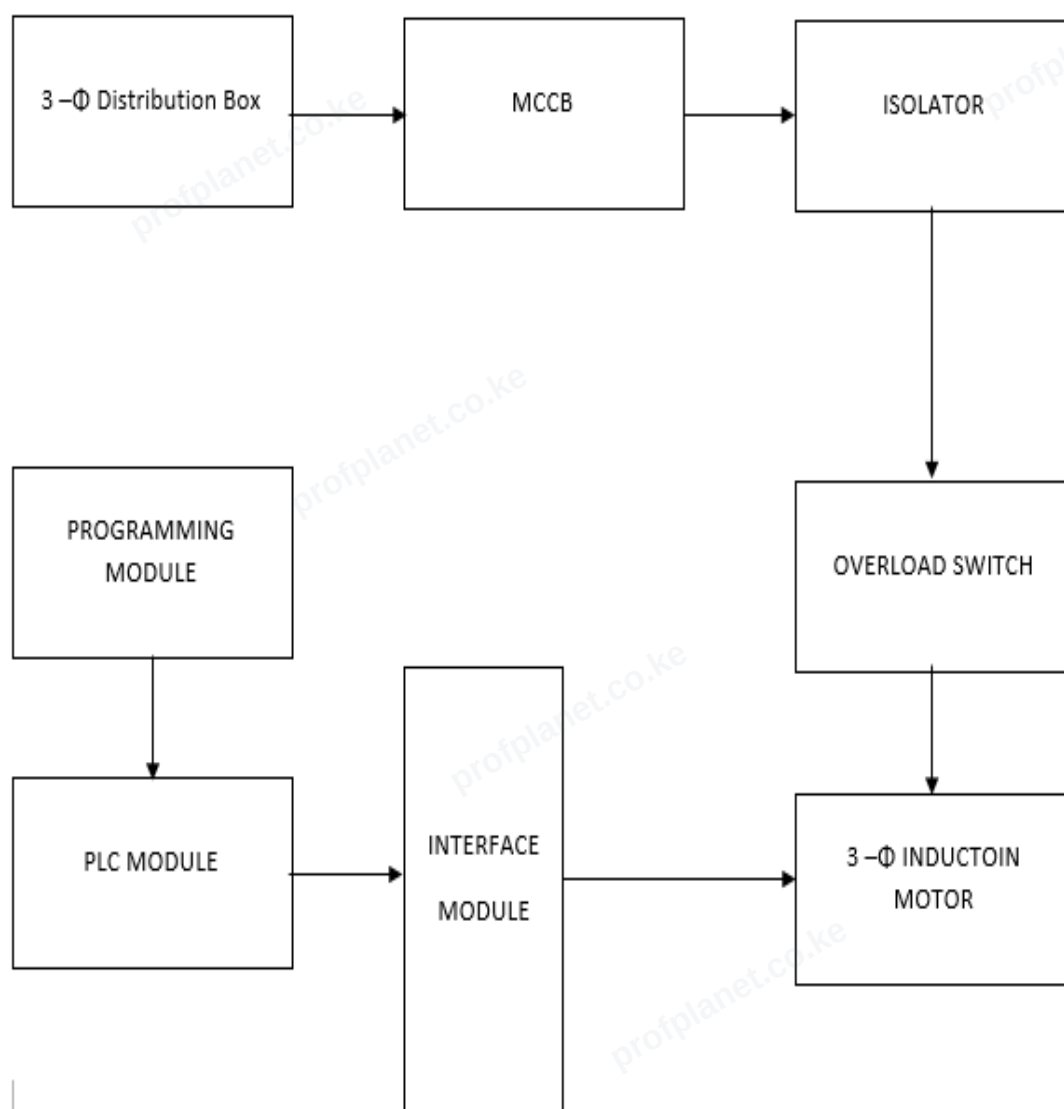
- i. Use the power circuit diagram to wire the 3- Φ induction motor and the circuit protective devices
- ii. Use the control circuit diagram to draw ladder diagram using the PLC software provided
- iii. Include a timer rung that operates the motor for 3 minutes
- iv. Simulate the ladder diagram

TASK 3: Perform the following tests:

- i. Continuity test
- ii. Insulation resistance test
- iii. Connect the power supply and test for operation
- iv. Compile a test report.

2. You have been provided with the following resources for the practical tasks:

- Three phase induction motor
- Three phase isolator
- Three phase D.B.
- 415 V overload relays
- 415 V MCCB
- TPN
- PLC Module
- Computer (programming device) software
- Profibus bus Cables
- Interface Module
 - o Connecting cables
 - o Terminator
- PLC Converter module
- Pliers
- Testers
- Screw drivers-flat/star
- PPES



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