

071605T4MCT

MECHATRONIC TECHNOLOGY LEVEL 5

ENG/OS/MC/CR/03/5/A

Maintain Mechatronic Systems Instrumentation and Control

March/April 2025



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

PRACTICE

Time: 3 HOURS

INSTRUCTIONS TO CANDIDATE:

1. *Figure 1* shows a Variable frequency drive for controlling the speed of a motor. You are required to perform the following tasks;

TASK 1: Install motor speed control system by

- i. Identifying the practical components.
- ii. Interpreting and wiring the circuit diagram as in *Figure 1*.
- iii. Studying the Variable Frequency Drive manual provided.
- iv. Setting all the Variable Frequency Drive parameters as per the manual.

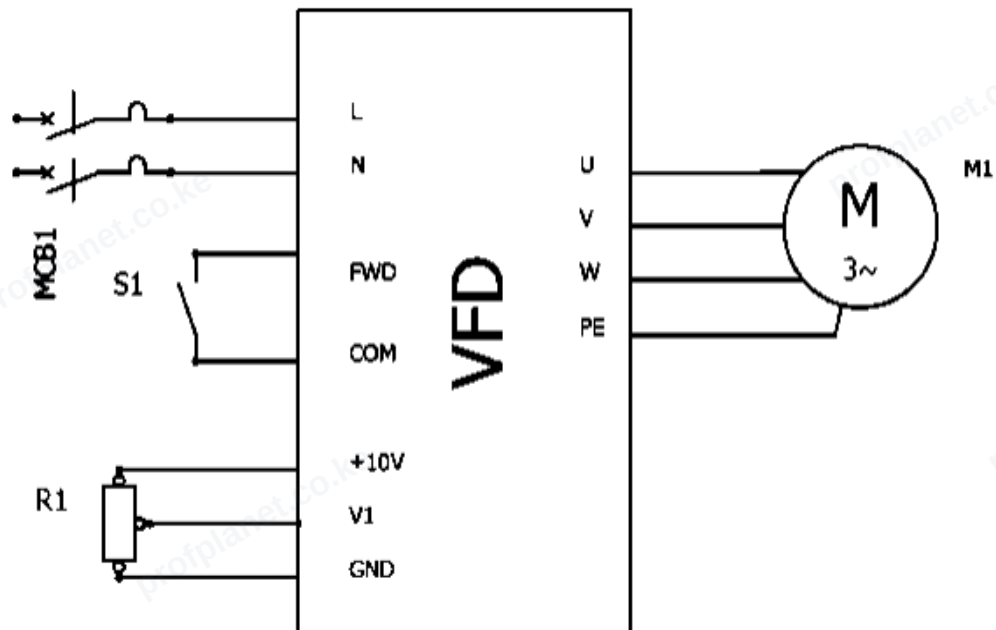
TASK 2: Operate the system by

- i. Switching S1 to either START or STOP the motor manually.
- ii. Adjusting the potentiometer R1 to regulate the motor speed.

- iii. Adjusting the speed of the motor to maintain the following speeds and record line currents as follows;

MOTOR SPEED (RPM)	LINE CURRENT	
500	U	
	V	
	W	
600	U	
	V	
	W	
700	U	
	V	
	W	
800	U	
	V	
	W	
900	U	
	V	
	W	
1000	U	
	V	
	W	

TASK 3: Disassemble and perform housekeeping.



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

- i. Variable Frequency Drive (1p, 0.75kW)
- ii. User manual for the Variable Frequency Drive provided
- iii. 3 phase motor (approx.: 1200rpm)
- iv. Double pole MCB
- v. Digital tachometer
- vi. Clamp multimeter
- vii. 10K ohm potentiometer
- viii. Push button switch
- ix. Insulation tape
- x. 2.5 mm² cables (Red, Yellow & Black)
- xi. 1.5mm² cables (Red & Black)
- xii. Tool kit