

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)**

PRACT MENT

INSTRUCTIONS TO ASSESSOR

1. Assess the candidate as the practical progresses observing the critical areas
2. You are required to mark the practical as the candidate perform the tasks
3. You are required to take video clips at critical points
4. Ensure the candidate has a name tag and registration code at the back and front

Candidate's Name & Registration Code			
Assessors Name & Registration Code			
Venue of Assessment			
Date of Assessment			
Items to be Evaluated: <i>Please award marks as appropriate. Give a brief comment on your observation.</i>	Marks Available	Marks Obtained	Comments
OBSERVATION CHECKLIST			
1. Adhered to safety procedures			
i. Wore dust coat/overall (1 or 0)	1		
ii. Wore safety boot or closed shoes, (1 or 0)	1		
iii. Wore gloves while working on 3-phase electricity (1 or 0)	1		
Sub-Total	3		
T A I N G S			
2. Drew the wiring diagrams of t starter			
i. Power circuit	5		
ii. Control circuit	5		
<i>(check for correct wiring diagrams and awards marks accordingly)</i>			
<i>Sample wiring diagrams (figure 1) are attached on the appendix)</i>			
Sub –total	10		
TASK 2 : INSTALLATION			
3. a. Used the power circuit diagram to:			
i. Wire the motor			
a. 3-Φ Distribution box	2		

b. 3- Φ isolator	2		
c. 3- Φ induction motor	2		
ii. Wire circuit protective devices			
a. 415 V overload relays	2		
b. 415 V MCCB	2		
c. 415 TPN	2		
b. Used the control circuit diagram for the DOL motor starter to:			
i. Draw ladder diagram using the provided PLC software	5		
ii. Include a timer rung that operated the motor for 3 minutes	2		
iii. Simulate the ladder diagram	3		
Red indicates that circuit is not complete or not working – Award 0 Green indicates that circuit is complete and is working – Award 3 Sample ladder diagram (figure 2) with a timer circuit is attached on the appendix.			
4. Performed wiring of electrical components as per IEE regulations			
i. Correct wiring (<i>any 4 x 1</i>)	4		
ii. Correct jointing (<i>any 4 x 1</i>)	4		
iii. Terminated electrical wiring correctly (<i>any 4 x 1</i>)	4		
Sub Total	34		

TASK 3: TESTING			
5. Performed correct configurations and tested the electrical wiring of the machine i. Continuity test (4 or 0) ii. Insulation resistance test (4 or 0) iii. Compiled a test report (Award full marks or 0)	4 4 5		
6. Perform functionality tests: i. Electrical motor running ii. PLC program executed iii. Timer running for 3 minutes then system automatically stopped (Award full marks or 0)	5 5 5		
Sub-Total	28		
GRAND	75		
PERCENTAGE = $x/75 \times 100\%$	100		
ASSESSMENT OUTCOME			
The candidate was found to be: Competent ☐ Not yet Competent ☐ (Please tick as appropriate) (The candidate is competent if the candidate obtains at least 50%)			
Feedback from the Candidate:			

Feedback to the Candidate:	
Candidate Signature	Date:
_____	_____
Assessor's Signature	Date
_____	_____

APPENDIX:

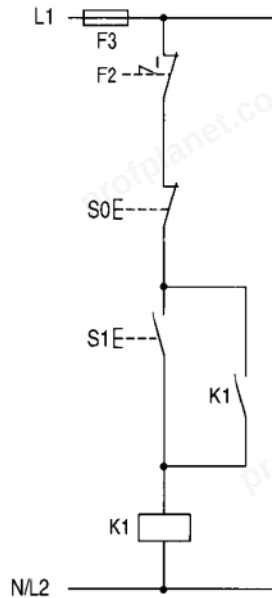
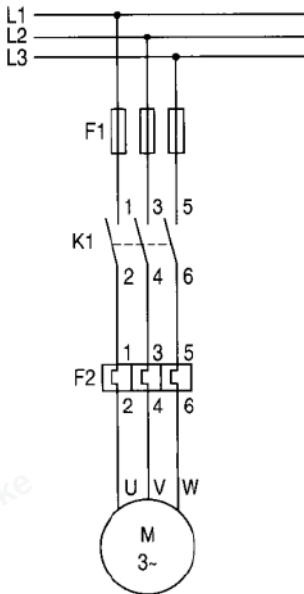


Figure 1. Wiring diagram: DOL power and control circuits

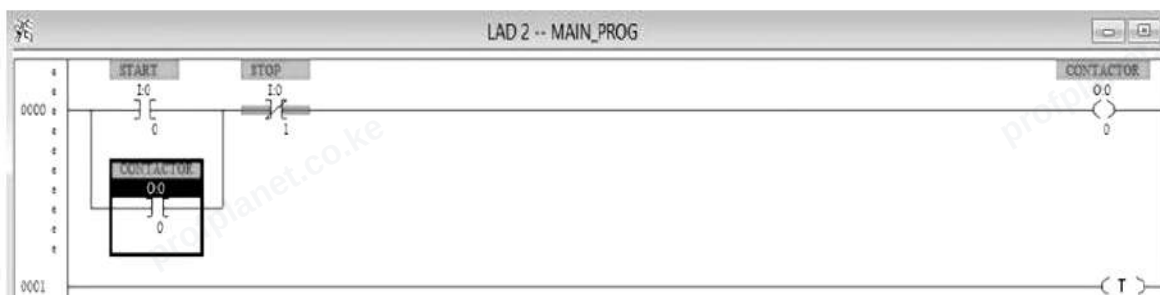


Figure 2. sample ladder diagram with a timer rung

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