FUTURE UNIVERSITY IN EGYPT جامعة المستقبل

Faculty of Engineering & Technology

Programmable Logic Controllers(PLCS)

Information :

Course Code :	MKT 440	**Level :**	Undergraduate	**Course Hours :**	2.00- Hours

Department : Specialization of Mechatronics Engineering

Instructor Information :

Title	Name	Office hours
Lecturer	Abdel Moneim Mohamed El Mahdi Ismail	2
Teaching Assistant	Osama Ahmed Ibrahim Mohamed Montaser	1
Teaching Assistant	Fady Ayman Mohamed Naguib Mahmoud Noah	

Area Of Study :

Bytheendofthecoursethestudentswillbeableto:
1. Understand PLC structure, applications, programming and usage.
2. UnderstandLadder diagram programming rules and modules.
3. Implement industrial control demands into PLC ladder and programs.

Course outcomes :

a.Knowledge and Understanding: :	
1 -	Identifybasicappliedand engineeringscience.
2 -	Identify principles in the of design of mechanical components,differentmaterials,andmanufacturingtechnologies in the field of mechanical power engineering and some other engineering disciplines.
3 -	Identify principles in the fieldofdesignoffluidflow, thermodynamics,gasdynamics,turbo-machinery, heattransferengineering and fundamentals of thermal and fluid processes
4 -	Develop conceptual and detailed design ofconstruction projects and fluid power systems..
b.Intellectual Skills: :	
1 -	Definethe mechanical powerengineeringproblems and evaluate designs, processes, and performance and propose improvements.
2 -	Derivedifferentsolutionalternativesfortheengineeringproblems, analyze, interpret data and design experiments to obtain new data, and evaluate the power losses in the fluid transmission lines and networks
3 -	Analyze the performance of the basic types of internal combustion engines, hydraulic machines, fluid power systems, subsystems and various control valves and actuators.
c.Professional and Practical Skills: :	
1 -	Use laboratory, workshop e4quipment and field devices competently and safely.
2 -	Analyze the record data in the laboratory.
3 -	Prepare engineering drawings, computer graphics, and write specialized technical reports.

4 -	Write computerprograms pertaining to mechanical powerandenergy engineering to describe the basic thermal and fluid processes mathematically, and use the computer software for their simulation and analysis
d.General and Transferable Skills: :	
1 -	Collaborate effectively within multidisciplinary team.
2 -	Share ideas, communicate effectively and work in stressful environmentand within constraints.
3 -	Lead and motivate individuals and work with others according to the rules of the professional Ethics.
4 -	Use digital libraries and/or Learning systems and demonstrate efficient IT capabilities

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Introduction	4	2	2
Introduction to PLC functions and programming	4	2	2
Relay and ladder logic	4	2	2
PLC programming and simulation	8	4	4
PLC timer	8	4	4
PLC timer functions	8	4	4
PLC counters	12	6	6
PLC counter functions	4	2	2
PLC safety and troubleshooting	12	6	6

Teaching And Learning Methodologies :

Lectures
Tutorial
Class discussions and activities
Homework and self-study

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
FinalWrittenExam	40.00	16	
FirstAssignment	5.00	4	
MidTermExam	20.00	6	
SecondAssignment	5.00	9	
SecondMidterm	20.00	11	