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Department of Mechatronics Engineering	
Programmable Logic Controllers (67572)	
Total Credits	**3**
major compulsory	
Prerequisites	P1 : Automation &Production Systems (67681)

Course Contents

Principles and application of programmable logic controllers (PLC). Hardware components and construction of PLCs. General PLC programming procedures. Programming ON-OFF inputs to produce ON-OFF outputs. Creating Ladder diagrams from process control descriptions. PLC timer and counter functions. Intermediate functions: Arithmetic, number comparison, skip and master control relay functions, and data systems. Advanced functions: Utilizing digital bits, sequencer and matrix functions. Alternate programming languages. Analog PLC operation. Networking PLCs.

	Intended Learning Outcomes (ILO's)	Student Outcomes (SO's)	Contribution
1	Applying safety and lockout/tagout standards and procedures	C	5 %
2	Clarify students with hardware components, construction, and wiring Input/output modules of programmable logic controllers.	K	20 %
3	Demonstrate the fundamentals of programming and PLC addressing and instructions.	A	20 %
4	Recognize timers, counters and advanced instructions of PLC.	E	30 %
5	Illustrate the advanced programming of programmable logic controllers	E	25 %

Textbook and/ or Refrences

Jon Stenerson (2004). Fundamentals Of Programmable Logic Controllers, Sensors, And Communications. Third Edition, Pearson Prentice Hall.

Assessment Criteria	Percent (%)
First Exam	20 %
Second Exam	20 %
Quizzes	10 %
Final Exam	50 %

Course Plan

Week	Topic
1	Safety and Lockout/Tagout.
2 , 3	Overview of Programmable Logic Controllers.
3 , 4	Overview of Number Systems (Self Study)
5 , 6	Fundamentals of Programming. Rockwell Automation Addressing and Instructions
8 , 9	Input/Output Modules and Wiring
9 ,10	Timers and Counters
10	Math Instructions
11 ,12	Midterm Exam II (Sunday 8 / 4 / 2012)
12 ,13	Advanced Instructions
14	. Advanced Programming IEC 61131-3 Programming (if time is available)