

Department of Electrical Engineering			
Control Systems Lab (63441)			
Total Credits		1	
major compulsory			
Prerequisites		P1 : Control Systems (63442) OR Control Systems (63343) P11Synch. : Control Systems (63442) OR Control Systems (63343)	
Course Contents			
Control circuit using contactors Introduction to pneumatic system Introduction to PLC Introduction to controller system Motor control Basic electrically controlled pneumatic circuits PLC programming Open-loop & Closed loop system Star-Delta Starter & speed control of three phase asynchronous motor PLC counters Type of controllers Pneumatic counters			
Intended Learning Outcomes (ILO's)		Student Outcomes (SO's)	Contribution
1	An ability to apply knowledge of different usage of contactors in the three phase systems, and Pneumatics Trainer, to identify the various system components, timers and Counters in pneumatics circuits and Control circuit using contactors	A	40 %
2	An ability to use useful techniques of circuits using the types of controllers, and to study the deferent types of controllers, P, PI, PD, and to be able to build Star-Delta Starter, and to design speed Control of three Phase Asynchronous Motor and PLC-pr	C	40 %
3	An ability to design different circuits of the three phase system, and some PLC programs.	B	20 %
Textbook and/ or References			
Automatic Control Lab Authors: J. Karoushi &H. Al-Autt			
Assessment Criteria		Percent (%)	
Reports		50 %	
Laboratory Work		25 %	
Final Exam		25 %	
Course Plan			
Week	Topic		
1	Control circuit using contactors		
2	Introduction to pneumatic system		
3	Introduction to PLC		
4	Introduction to controller system		
5	Motor control		
6	Basic electrically controlled pneumatic circuits		
7	PLC programming		
8	Open-loop & Closed loop system		
9	Star-Delta Starter & speed control of three phase asynchronous motor		
10	PLC counters		
11	Type of controllers		
12	Pneumatic counters		