

EE444-3: Advanced Automatic Control

Course code and name	EE444-3: Advanced Automatic Control
Credits units	3 Credit units
Contact hours	5 Contact hours: 2 lecture, 1 tutorial and 2 practical
Instructor name	Dr. Ehab Salim
Textbook	Handbook: Modern_Control_Engineering_4th_Ed_Ogata., 2002
Other supplemental materials	Automatic Control Systems, 9th ed, 2009, Farid Golnaraghi & Benjamin C. Kuo
Specific course information	
a. Course description	This course will be devoted to initiate student to methods used to model electrical problem using Structured Analysis and Design Technique, Bond-Graph and Petri Network.
b. Prerequisite	EE341-3
c. Required / Elective	Elective
Course Learning Outcomes	
<u>CLO of the Lecture Activities:</u>	
CL01: Define Bond graph elements and Petri network.	
CL02: Illustrate optimal and suboptimal control.	
CL03: Examine pole placement technique and Ackermann's Formula.	
CL04: Analyze PLC and its components.	
CL05: Design observer and compensator.	
<u>CLO of the Laboratory Activities:</u>	
CL01: Verify theory and to improve knowledge learned in class.	
CL02: Formulate and solve problems related to theory.	
CL03: Design and safety conducts an experimental procedure.	
CL04: Independently perform accurate quantitative measurements, interpret experimental results, perform calculations on these results and draw a reasonable,	

accurate conclusion.

CL05: Communicate critical analysis of scientific information through written reports.

CL06: Be integrated inside a group of work and respect the team working.

Brief list of topics to be covered

- Bond graph elements and Petri network.
- Illustrate optimal and suboptimal control
- Pole placement technique and Ackermann's Formula
- Analyze PLC and its components.
- Design observer and compensator.

Mapping Course Learning Outcomes to Student Outcomes

	Lecture Activities						
	S01	S02	S03	S04	S05	S06	S07
CL01							
CL02							
CL03							
CL04							
CL05							
	Laboratory Activities						
	S01	S02	S03	S04	S05	S06	S07
CL01							
CL02							

CLO3							
CLO4							
CLO5							
CLO6							