Course code and name	EE455-2: Simulation of Machines
Credits units	2 Credit units
Contact hours	4 Contact hours: 1 lecture, 0 tutorial and 3 practical
Instructor name	Dr. Mohamed Mostafa Ramadan
Textbook	Richard C. Dorf and Robert H. Bishop, Modern control systems, Prentic Hall, Twelfth edition, 2011.
Other supplemental materials	Dynamic Simulation of Electric Machinery: Using MATLAB/SIMULINK, Chee-MunOng 1998
	Specific course information
a. Course description	This course will give the students a sufficient study and analysis about the modeling of electrical systems (passive/active), mechanical systems, electromechanical systems, and electrical machines. Using Matlab/Simulink for the purpose of simulation.
b. Prerequisite	EE342-2
c. Required / Elective	Required
	Course Learning Outcomes

CLO of the Lecture Activities:

CLO1: Discuss the important role of modeling in control system design process.

CLO2: Evaluate the differential equations that can describe the dynamic behavior of physical systems.

CLO3: Perform modelling and simulation for electromechanical system.

CLO4: Analyze the performance of electrical machines using modeling and simulation.

CLO of the Laboratory Activities:

CLO1: Verify theory and to improve knowledge learned in class.

CLO2: Formulate and solve problems related to theory.

CLO3: Design and safety conducts an experimental procedure.

CLO4: Independently perform accurate quantitative measurements, interpret experimental results, perform calculations on these results and draw a reasonable,

accurate conclusion.

CLO5: Communicate critical analysis of scientific information through written reports.

CLO6: Be integrated inside a group of work and respect the team working.

Brief list of topics to be covered

- Introduction to Modeling
- Introduction to SIMULINK
- Modeling and simulation of Series RLC
- Modeling and simulation of parallel RLC
- Modeling and simulation of DC PM Motor
- Modeling and simulation of DC shunt Motor
- Modeling and simulation of DC Separately Excited Motor
- Modeling and simulation of series motor
- Modeling and simulation of DC compound motor

Mapping Course Learning Outcomes to Student Outcomes

	Lecture Activities						
	SO1	SO2	SO3	SO4	SO5	SO6	SO7
CLO1							
CLO2							
CLO3							
CLO4							
	Laboratory Activities						
	SO1	SO2	SO3	SO4	SO5	SO6	SO7
CLO1							
CLO2							

CLO3							
CLO4							
CLO5							
CLO6							