EE251-3: Electrical Machines (1)

Course code and name	EE251-3: Electrical Machines (1)
Credits units	3 Credit units
Contact hours	5 Contact hours: 2 lecture, 1 tutorial and 2 practical
Instructor name	Dr. Ferchichi Noureddine
Textbook	Stephen J. Chapman, "Electric Machinery Fundamentals", 4th edition, McGraw-Hill International Edition (2005). ISBN 007-115155-9.
Other supplemental materials	Fitzgerald, Kingsley and Umans, "Electric Machinery" 2nd ed. McGraw-Hill (2002).
	Specific course information
a. Course description	The course aims to teach the students the basic concepts of electrical machines, introducing students to the concepts, principle of operations, construction and applications of DC machines, single-phase transformers and three-phase transformers.
b. Prerequisite	EE213-2
c. Required / Elective	Required
	Course Learning Outcomes

CLO of the Lecture Activities:

CLO1: Apply the fundamental theories related to electromagnetic circuits applied to electric machines.

CLO2: Identify the construction, working principles, characteristics and equivalent circuit of single phase and three phase transformers.

CLO3: Choose different types of test to calculate the equivalent circuit parameters, losses, efficiency and voltage regulation of transformers.

CLO4: Differentiate the construction, working principles, characteristics and equivalent circuits of DC motors and generators.

CLO5: Compare voltage-current characteristics, commutation of DC motors and generators.

CLO6: Compute the various parameters of DC motors and generators, the relationships between speed, power and torque.

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

- Electromagnetism and electromechanical energy conversion
- Single Phase Transformers
- Three phase and Special Transformers
- DC Machinery Fundamentals
- DC Motors and Generators

Mapping Course Learning Outcomes to Student Outcomes

	Lecture Activities						
	SO1	SO2	SO3	SO4	SO5	SO6	SO7
CLO1							
CLO2							
CLO3							
CLO4							
CLO5							
CLO6							
	Laboratory Activities						
	SO1	SO2	SO3	SO4	SO5	SO6	SO7
CLO1							

CLO2							
CLO3							
CLO4							
CLO5							
CLO6							