EE458-2: Design of Power Electronics

Course code and name	EE458-2: Design of Power Electronics
Credits units	2 Credit units
Contact hours	4 Contact hours: 1 lecture, 1 tutorial and 2 practical
Instructor name	
Textbook	Rashid, M., Simulation of Power Electronic Circuits using PSPICE, PHI, 2006.
Other supplemental materials	-
	Specific course information
a. Course description	This course includes, introduction to simulations methods for analysis of power electronic converter systems – review of power electronic devices and circuits, computer formulation of equations for power electronic systems, sequential method of simulation, efficient computation of steady-state periodic solutions, computer-aided analysis and design method for power electronic systems.
b. Prerequisite	EE456-3 and EE353-3
c. Required / Elective	Elective
	Course Learning Outcomes

CLO of the Lecture Activities:

CLO1: Understand the applications of power electronic converters in alternative energy systems.

CLO2: Model typical power converters.

CLO3: Simulate and design a simple DC/DC converter.

CLO4: Simulate and design a simple DC/AC inverter.

CLO5: Design simple controllers for typical power converters.

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 Power Electronic Simulation Software Programs

- Lab Demo of Various DC/DC Converters

- Lab Demo of DC/AC Converters

- Modeling of Power Electronic Converters

- Applications of Power Electronic Converters

- Practical Design Issues

Mapping Course Learning Outcomes to Student Outcomes

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

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