EE434-2: Advanced Power Systems

Course code and name	EE434-2: Advanced Power Systems
Credits units	2 Credit units
Contact hours	4 Contact hours: 1 lecture, 1 tutorial and 2 practical
Instructor name	
Textbook	Michel Crappe, Electric power systems, John Willey, 2008.
Other supplemental materials	-
	Specific course information
a. Course description	This course aims on the load management, energy conservation, and the use of different methods in controlling the voltage and power losses, optimal economic control.
b. Prerequisite	EE429-3
c. Required / Elective	Elective
	Course Learning Outcomes

CLO of the Lecture Activities:

CLO1: Perform an optimal power flow for reactive power dispatching to decrease power losses.

CLO2: Create mathematical models for dynamic and stability analysis of multi-machine power systems.

CLO3: Describe and analyze electromechanical modes in power systems.

CLO4: Design excitation systems to improve transient stability, and power oscillations damping.

CLO5: Explain and perform frequency control.

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

- Optimal load flow and sensitivity analysis

- Transient and small-signal stability, and simulation models

- Power oscillation damping and frequency control

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							