Course code and name	EE424-3: Power System (2)
Credits units	3 Credit units
Contact hours	5 Contact hours: 2 lecture, 1 tutorial and 2 practical
Instructor name	Pr. Fathi Ghodbane
Textbook	The Electrical Power Engineering, Hand book, Editor in chief L.L. GRIGSBY, 2001.
Other supplemental materials	Electric Power Systems, B. M. Weedy, B. J. Cory, N. Jenkins, Janaka B. Ekanayake, Goran Strbac, 5th Edition, December 2012, 512 Pages, ISBN: 978-0-470-68268-5 .
Specific course information	
a. Course description	The focus of this course has studied the admittance matrix formulation (singular transformation, inspection method), the power flow load (Gauss Seidel, Newton Raphson, Fast decoupled), Power system stability (rotor dynamic and the swing equation, power angle.
b. Prerequisite	EE323-3
c. Required / Elective	Required
Course Learning Outcomes	

CLO of the Lecture Activities:

CLO1: Compute the bus admittance matrix by singular transformation or by inspection method.

CLO2: Examine the Load Flow Solution using Gauss-Seidel, Newton Raphson and Fast decoupled methods.

CLO3: Analyze the models of the regulating transformer referred to primary or secondary side.

CLO4: Evaluate the impact of disturbances on the electromechanical dynamic behavior of the power system: rotor dynamic and swing equation, power angle equation, and synchronizing power coefficients.

CLO5: Analyze the criterion of stability of the power system: equal – area criterion of stability.

CLO6: Explain the Power system control (voltage, frequency, modeling of generator, turbine governor and load).

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

- Bus admittance matrix

- Load flow solution (Gauss-Seidel, Newton Raphson, Fast decoupled)

- Regulating transformer

- Power system Stability

- Power system control

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							