No	Course Information	
1	Unit name:	Power System Analysis I
2	Code:	EP 41042
3	Classification:	Engineering subject
4	Credit value:	2.5
5	Semester/ Year Offered:	1/4
6	Pre-requisite:	Generation, Transmission & Distribution
7	Mode of delivery:	Lecture, Assignment
8	Assessment system and breakdown of marks:	
	Test	20%
	Mid-term Examination	30%
9	Academic staff teaching unit:	3
10	Course outcome of unit In this course students will be able: • to calculate the bus admittance and impedance parameter of network • to solve the network models based on the admittance and impedance representations • to analyze the power flow solution by using various iteration methods	
11	Synopsis of unit: The course covers the analysis of power system. This course is discussed the bus admittance and impedance matrix by the building algorithms is formulated and employed for the systematic computation of bus voltages and angles, the comprehensive coverage of the power flow solution of interconnected power system during normal condition.	

12	Topic: **Chapter Title**
	7.The Admittance Model and Network Calculations -Branch and Node Admittances -Mutually Coupled Branches in Y_{bus} - An Equivalent Admittance Network -Modification of Y_{bus} -The Network Incidence Matrix and Y_{bus} -The Method of Successive Elimination -Node Elimination (Kron Reduction) -Triangular Factorization **8.The Impedance Model and Network Calculations** -The Bus Admittance and Impedance Matrices - Thevenin's Theorem and Z_{bus} -Modification of an Existing Z_{bus} -Direct Determination of Z_{bus} -Calculation of Z_{bus} Elements from Y_{bus} - Mutually Coupled Branches in Z_{bus} **9. Power- Flow Solutions** -The Power-Flow Problem -The Gauss-Seidel Method - The Newton-Raphson Method -The Newton-Raphson Power-Flow Solution -Regulating Transformers -The Decoupled Power-Flow Method
13	Main references: Power System Analysis, John J. Grainger, William D. Stevenson, Jr.
14	Additional references: Power System Analysis, Hadi Saadat