

S. No.	Course Code	Course Name	Course Type	Cd	L	T	P	Marks		
								Sessional	Final Exam	Total
2	EE-701(A)	Power System-II	PEC	3	2	1	0	50	100	150

Course Outcomes:

After completion of this course the student will be able to	
CO1	Analyze symmetrical and asymmetrical faults in the power system.
CO2	Demonstrate Per unit representation in the power system.
CO3	Explain the effect of transient and steady state stability on transmission lines.
CO4	Formulate the power flow problem and solve the same using different methods.
CO5	Illustrate the concept of insulation coordination and various protection methods against them.

Detailed Syllabus

Section-A

Unit 1: Fault Analysis: Symmetrical components, sequence impedances, sequence networks, unsymmetrical faults: single- line to ground, line-to- line, double line ground faults on unload alternator and on power system, 3 phase short circuits, short circuit capacity of a bus, selection of circuit breakers.

(08

Hrs)

Unit 2: Per Unit Representation of a Power System: Single line diagram, impedance and reactance diagram of a power system, per unit system of calculations, per unit representation of a power system.

(08Hrs)

Unit 3: Network Equations: Introduction, Network model formulation, Formation of Y bus by singular transformation, Steady state stability, transient stability, equal area criterion, numerical solution of swing equations, multi machines stability, factors affecting transient stability.

(10 Hrs)

Section-B

Unit 4: Load flow studies: Introduction, Gauss- Siedel method, Newton- Raphson method, Decoupled load flow studies, comparison of load flow methods.

(08Hrs)

Unit 5: Insulation Co-ordination: Generation of over voltages in power system, resonance over voltages, switching over voltages, lightening over voltages, lightening phenomenon, protection of power system against over voltages, ground wires, lightening arrestors, concept of insulation coordination, basic impulse insulation level, standard impulse test wave, volt- time curve, location and ratings of lightening arrestors.

(10Hrs)

Text Books

S. No.	Name of the Books	Author	Publisher	Edition (Pub. Yr.)
1	Electric Power System	C.L. Wadhwa	New age International	6 th (2018)
2	Power System Stability and Control	Prabha Kundur	McGraw Hill	2 nd (2022)

Reference Books

S. No.	Name of the Books	Author	Publisher	Edition (Pub. Yr.)
1	Elements of Power System Analysis	C.W. Stevenson	McGraw-Hill	4 th (2017)
2	Electrical Power Distribution System	A.S Pabla	Tata McGraw Hill	5 th (2004)