13EE4116-POWER SYSTEM ANALYSIS
(EEE)

Credits: 4

Lectures/Week: 4Hrs.　　　　　　　　　　　　　　　**Sessional Marks: 40**
End Exam Duration: 3Hrs　　　　　　　　　　　　　**End Exam Marks: 60**

UNIT-I

SYMMETRICAL FAULT ANALYSIS: Introduction-Transients on transmission line-Short circuit of a synchronous machine-on no load-short circuit of a loaded synchronous machine-selection of circuit breakers-Algorithm for short circuit studies-Z Bus formulation.

UNIT-II

SYMMETRICAL COMPONENTS: Introduction-symmetrical component transformation-phase shift in star-delta transformers-sequence impedances of transmission lines-sequence impedance and sequence network of power system-synchronous machine, transmission line and transformers-construction of sequence network of a power system**.**

UNIT-III

UNSYMMETRICAL FAULT ANALYSIS: Introduction-Symmetrical component analysis of Unsymmetrical faults-single-line-to-ground (LG) fault-line-to-line (LL) fault-Double line-to-ground (LLG) fault-Open conductor faults-Bus impedance matrix method for analysis of unsymmetrical shunt faults

UNIT-IV

LOAD FLOW STUDIES: Introduction-Network model formulation-formation of Y Bus by singular transformation-Load flow problem-Gauss-Seidel method-Newton Raphson Method-Decoupled Load Flow methods-Comparison of load flow methods-Control of voltage profile.

UNIT-V

POWER SYSTEM STABILITY: Introduction-Dynamics of a synchronous machine-Power angle equation-Node elimination techniques-Simple systems-Steady state Stability-Transient Stability-Equal area criterion-Numerical solution of swing equation Some factors affecting Transient stability-small signal stability analysis.

TEXT BOOKS:
1. "Modern Power System Analysis" by D.P Kothari and IJ Nagarath. TMH
2. "Power system analysis and Design" by B.R.Gupta Wheelers publishing

REFERENCES:
1. "Elements of Power System Analysis" by John J. Grainger and William D.Stevenson , Jr TMH.
2. "Electrical power system" by C.L.Wadhwa new age publications.