

13EE3108-POWER SYSTEM-I

(EEE)

Instruction/week: 4 hrs.

Max. Sessional marks: 40

Univ. Exam: 3 hrs.

Univ. Exam marks: 60

UNIT-I

DC & AC distribution : Comparison of single Phase , 3-phase 3 wire and 3 phase 4 wire system types of primary distribution system- types of Secondary distribution system-DC distribution fed at one end and at both ends -AC distribution fed at one end and at both ends – Kelvin’s law –limitation of Kelvin’s law

UNIT-II

Line parameters: Inductance and capacitance Calculation of Transmission line –Resistance, Inductance and Capacitance of single phase and three phase lines with symmetrical and unsymmetrical spacing – bundled conductor-effect of earth on capacitance. Skin and Proximity effects

UNIT-III

Corona-Description of phenomenon, factors affecting corona, critical voltage and critical power loss, radio interference.

Over head line insulators: Introduction – Types of Insulators- potential distribution over a string of insulators – Methods of equalizing the potential, string efficiency

UNIT-IV

Mechanical design of over head transmission line-Calculation of sag for equal and unequal supports, loading on the conductors in an overhead line, variation of sag with load and temperature, string chart

UNIT-V

Underground cables-introduction – insulation types –insulating materials for EHV voltage cables –classification of cables-parameters of single core cable -grading of cables-capacitance of three core belted cable, break down of cables-cable installation-current rating of cables

TEXT BOOKS:

1. “Electrical power system” by CL Wadhwa-New age International
2. “Generation of electrical energy” by B.R. gupta S.chand publications
3. “A Text book on Power System engineering” by M.L. Soni, P.V. Gupta, U.S. Bhatnagar-Dhanpatrai &co

REFERENCES:

1. “Power System Engineering” by I.J Nagarath & D.P Kothari, TMH Publications.
2. “Elements of power system analysis” by William D.Stevenson. Jr Mc GRAW-HILL International pub. 4th edition.