



POWER SYSTEM ENGINEERING

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Department of Electrical Engineering
IIT Kharagpur

INTENDED AUDIENCE : BE/B.Tech. in Electrical Engineering students

INDUSTRIES APPLICABLE TO : Power Grid, NTPC, NHEC, DVC and State Electricity Boards.

COURSE OUTLINE :

This course is mainly for undergraduate third-year as well as fourth year Electrical Engineering students, which will introduce and explain the fundamental concepts in the field of electrical power system engineering. The basic concepts of underground cables, overhead line insulators, transient overvoltages and insulation coordination will be covered in detail. In addition to that, corona, sag and tension of transmission line will also be covered. In this course, distribution load flow, voltage stability analysis and application of capacitors in distribution networks will also be covered. Load frequency control of isolated and interconnected power system will be covered in depth. Unit commitment will also be covered. By the end of the course, the students should be able to gather high-quality knowledge of electrical power system engineering in the above mentioned fields.

ABOUT INSTRUCTOR :

Prof. Debapriya Das obtained his B.E. degree from Calcutta University (B.E. College (Presently known as IEST), Shibpur, Howrah, WB), M.Tech. from I.I.T. Kharagpur and Ph.D. from I.I.T., Delhi. He has nearly thirty years of experience in teaching and research. For more information, one can visit my I.I.T KGP website. One can also visit the website <https://scholar.google.co.in/citations?user=yZj2uFYAAAAJ>.

COURSE PLAN :

Week 1: Overhead Line Insulators

Week 2: Underground Cables

Week 3: Transient Overvoltages and Insulation Coordination

Week 4: Corona

Week 5: Sag and Tension

Week 6: Distribution System Load Flow and Voltage Stability

Week 7: Approximate Method of Distribution System Analysis

Week 8: Application of Capacitors for Radial Distribution Systems

Week 9: Load Frequency Control

Week 10: Load Frequency Control, cont'd

Week 11: Unit commitment

Week 12: Unit commitment, cont'd