



E5 213 Jan 3:0

EHV/UHV Power Transmission Engineering

Instructor

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Department: Electrical Engineering

Course Time: Mon, Wed, Fri 12-1 PM

Lecture venue: HV Lab Lecture Hall

Detailed Course Page:

Announcements

Brief description of the course

This course is an advanced level course for the M.Tech. and Ph.D. students specialising in Electrical Power Engg. This course has been specially designed to train the students to cater for the design and R&D requirements for the new UHV AC (765 kV /1200 kV) and DC(800 kV) power lines India is setting up.

Prerequisites

A first level (B.E.) course in Electrical Power Engg

Syllabus

Electrical power transmission by HVAC and HVDC, Overhead transmission lines, Bundled conductors, Mechanical vibration of conductors, Surface voltage gradient on conductors, Corona & associated power loss, Radio-noise and Audible-noise & their measurement, Fields under transmission lines, Overhead line insulators, Insulator performance in polluted environment, EHV cable transmission - underground cables and GIL, High Voltage substations-AIS and GIS, Grounding of towers and substations, Over voltages in power systems, Temporary, lightning and Switching over voltages, Design of line insulation for power frequency voltage, lightning and

switching over voltages, Insulation Co-ordination.

Course outcomes

Students would be introduced to the issues in designing power transmission lines operating at EHV/UHV voltages especially about insulation design, corona losses, audible noise, insulation co-ordination, electric field under the lines, issues due to mechanical vibrations of overhead power transmission lines and their mitigation etc.

Grading policy

20% Assignments, 30 % Mid-term Tests and 50% Final Exam

Assignments

Resources

Begamudre R D, Extra High Voltage AC Transmission Engineering –Wiley Eastern Limited, 1990,

Transmission line Reference Book 345 kV & above, Electrical Power Research Institute, (EPRI), 1982 USA. .