



## ELECTRICAL ENGINEERING

# ADVANCES IN UHV TRANSMISSION AND DISTRIBUTION



**PROF. SUBBA REDDY B**

Department of Electrical Engineering  
IISc Bangalore

<b>TYPE OF COURSE</b>	: Rerun   Elective   UG/PG	<b>COURSE DURATION</b>	: 8 weeks (28 Jan'19 - 22 Mar'19)
<b>INTENDED AUDIENCE</b>	: 3rd or 4th year UG, 1st year masters and research students	<b>EXAM DATE</b>	: 31 Mar 2019
<b>PRE-REQUISITES</b>	: Basic Electrical Engg		

### COURSE OUTLINE :

This course introduces the recent advances in EHV/UHV transmission and distribution systems. The course emphasizes learning and understanding the newer design criteria required for the UHV transmission systems viz: insulation design, protections, safety concerns etc. The course starts with an introduction to the importance of EHV /UHV transmission, its present and future growth. The discussion on the various components used for UHV transmission, design considerations for UHV substations etc are strengthened with the aid of lectures, practical video demonstrations and assignment exercises.

### ABOUT INSTRUCTOR :

Dr Subba Reddy B is a Principal Research Scientist at the High Voltage Laboratory, Dept. of Electrical Engineering, Indian Institute of Science, Bangalore, India. He received Bachelor's in Electrical Engineering degree from Karnatak University, Dharwad, and M.Sc(Engg) and PhD from Indian Institute of Science, Bangalore, India. His research interests are high voltage engineering, transmission line insulators, numerical techniques for high voltage applications, condition monitoring and diagnostics of HV equipment, surge arresters, renewable energy systems etc. He has received national and international recognition for his research work. He is a Fellow of Institution of Engineers (India), Fellow, Society of Power Engineers (India) and Senior member at IEEE.

### COURSE PLAN :

- Week 01** : Introduction to the development of Power Transmission.
- Week 02** : Recent advances in UHV power transmission systems; present status and future growth.
- Week 03** : General Design Criteria for overhead transmission lines: Methodologies, reliability, wind/ice loading etc.
- Week 04** : Major Components of HV transmission systems, types of conductor configurations, conductor accessories/clamps etc.
- Week 05** : Towers for UHV transmission: calculations of clearances for power frequency, switching and lightning surges, right of way(ROW)etc.
- Week 06** : Selection of insulators for light, medium and heavy polluted areas | Up-gradation of existing transmission lines.
- Week 07** : Design consideration of UHV substations, Comparison of AIS, Hybrid-AIS and GIS electric and magnetic fields.
- Week 08** : Insulation coordination for UHV systems | Earthing and safety measures for UHV substations.