



# POWER SYSTEM PROTECTION AND SWITCHGEAR

**PROF. BHAVESHKUMAR R. BHALJA**

Department of Electrical Engineering  
IIT Roorkee

**TYPE OF COURSE** : New | Core | UG

**COURSE DURATION** : 8 weeks (20 Jul' 20 - 11 Sep' 20)

**EXAM DATE** : 27 Sep 2020

**PRE-REQUISITES** : Fundamentals of Power System

**INTENDED AUDIENCE** : Electrical Engineering, Electrical and Electronics Engineering

**INDUSTRIES APPLICABLE TO** : 1. ABB India Limited. 2. Semmens India Limited. 3. L&T Limited. 4. SEL Limited.

## **COURSE OUTLINE :**

This course is to be prepared to serve as an introductory course for power system protection and switchgear for under graduate and post graduate students of various technical universities. It aims to give a comprehensive up-to-date presentation of the role of protection safety system, switchgears and its advances in modern power system. It begins with a state-of-the-art survey of theories and methods of protection and switchgear. In continuation, it provides a theoretical summary along with examples of real-life engineering applications to a variety of technical problems. In this point of view, the said course bridges the gap between the theoretical advances, experimental validations and practical engineering in real life

## **ABOUT INSTRUCTOR :**

Prof. Bhaveshkumar R. Bhalja taught this course two times in the past five years. He have also developed laboratory for this course under MUGL in the Department of Electrical Engineering and also written a book for this course, which was published by Oxford University Press, India.

## **COURSE PLAN :**

**Week 1:** Fundamentals of Protective Relaying

**Week 2:** Current based Relaying Scheme

**Week 3:** Protection of Transmission Lines using Distance Relays

**Week 4:** Carrier Aided Schemes for Transmission Lines and Auto-reclosing and Synchronizing

**Week 5:** Protection of Generators, Transformers, Induction Motors and Busbars

**Week 6:** Protection against Transients and Surges along with System Response to Severe Upsets

**Week 7:** Arc Interruption Theory in Circuit Breaker, Types of Circuit Breakers and their Testing

**Week 8:** Testing, Commissioning and Maintenance of Relays