



POWER SYSTEM PROTECTION

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PRE-REQUISITES: Power System Engineering

INTENDED AUDIENCE: B Tech (Electrical), B Tech (Electrical and Electronics), M Tech (Electrical)

INDUSTRIES APPLICABLE TO: Power Grid, Posoco, all state electricity boards, ABB, GE (All High Voltage Engineering Companies, Global)

COURSE OUTLINE :

Power System Protection is a very common core course for BTech in Electrical Engineering for State colleges and NITs. In IIT it is a part of the power system subject and an elective subject for BTech.

Power System protection is almost common to all M tech programs in Power System in India. Note M Tech Power System curriculum is common to most of old IITs, NITs and state colleges which caters human resource for the whole electric supply systems of the country.

This course will cover up-to-date technology in the field emphasizing the current practice in Indian systems and also make aware of the current challenges in the system in this domain.

ABOUT INSTRUCTOR :

Prof. Ashok Kumar Pradhan did his Phd in Power System Protection and continuing research in this field for last two decades. He is teaching this course for last twenty years at B Tech and M tech levels. In addition, he have been giving lessons to practicing engineers regularly for last two decades in this area. More than 700 such engineers are directly benefited by his teaching in this subject at IIT and other places. He have also taught number of times in direct video mode for M Tech (distance mode) to practicing engineers and faculty. In his research and development in power system protection area, he have published more than 40 IEEE journal papers and guided eight PhD theses. For all these achievements INAE and INSA have honored me Fellowship. In IIT Kharagpur currently he hold Amitabh Agrawal chair professor position and am in HAG category. He involved with the development of an excellent Power System Protection Laboratory for teaching that has phasor measurement units (PMUs) also and is used for UG, PG programs regularly and for lessons to engineers.

COURSE PLAN :

Week 1: Introduction to modern power system protection- philosophy and approach- Digital protection technology overview Phasor measurement techniques

Week 2: Phasor measurement techniques

Week 3: Overcurrent protection

Week 4: Directional Relaying

Week 5: Distance Relaying

Week 6: Distance Relaying

Week 7: CT and CVT response

Week 8: Transformer protection

Week 9: Differential protection of Line

Week 10: Network Protection with Renewable sources

Week 11: Travelling wave approach

Week 12: Synchrophasor technology application