Course Handout
EE1608 - Power System Protection
B.Tech. Electrical Engineering, 6th Semester, Jan 2022
Teacher - Prof R N Mahanty

Unit 1 - Types of faults, Operating principles of Relay and Circuit Breaker, Essential properties of a protective system, Protection schemes - overcurrent protection, Directional protection, Earth fault protection, Negative sequence protection, Differential protection, Distance protection

10 LECTURES

Unit 2 - Introduction to static relays, Advantages, Amplitude and Phase Comparators, General equation of Amplitude and Phase Comparators, Duality between Amplitude and Phase Comparators, Types of Amplitude and Phase Comparators

10 LECTURES

Unit 3 - Static distance relays, Realisation of distance relay characteristics by Amplitude and Phase Comparison, Special characteristics viz. Elliptical characteristic, Offset elliptical characteristic, Quadrilateral characteristic etc. and their realisation by Amplitude and Phase Comparator

8 LECTURES

Unit 4 - Static overcurrent relays - Instantaneous, Definite time and Inverse time overcurrent relays, Static Differential Relay, Harmonic Restraint Relay

5 LECTURES

Unit 5 - Microprocessor based relays - overcurrent, impedance, reactance, mho relay etc.
Digital Relaying - Application of ANN, fuzzy logic, Wavelet transform in digital relaying

7 LECTURES

Books

1. Power System Protection and Switchgear - by B Ravindranath and M Chander, New Age International
2. Power System Protection and Switchgear - by B Ram and D N Vishwakarma, Tata McGraw Hill
3. Power System Protection - by T S M Rao
4. Computer Relaying for Power Systems - by A G Phadke and J S Thorp, Wiley
5. Protective Relays: Their Theory and Practice, Vol 1 and 2 - by A R Van C Warrington, Springer