

PROTECTION AND DEGITAL RELAYING

Module-I

Protection Schemes and Characteristics: Primary and back up protection , current transformers for protection , potential transformer, review of electromagnetic relays static relays , over current relays time current characteristic, current setting time setting, directional relay, static over current relays.

Distance protection: impedance, reactance, mho, angle impedance relays. Input quantities for various types of distance relays, effect of arc resistance on the performance of distance relays, selection of distance relays. MHO relay with blinders, quadrilateral relay , elliptical relay. Restricted mho, impedance directional, reactance relays, swiveling characteristics.

Module-II

Compensation Schemes: Compensation for correct distance measurement , reduction of measuring units switched schemes. Pilot relaying schemes. Wire pilot protection , circulating current scheme, balanced voltage scheme, transley scheme, carrier current protection , phase comparison carrier current protection, carrier aided distance protection.

Module-III

Digital Relaying: Digital relaying algorithms, differential equation technique, discrete Fourier transform technique, walsh-hadamard transform technique, rationalized harr transform technique, removal of dc offset.

Microprocessor based protective relays: over current , directional, impedance, reactance relays. Generalized mathematical expressions for distance relays, mho and offset mho relays, quadrilateral relay, microprocessor implementation of digital distance relaying algorithms.

Text book

1. Power system protection and switchgear by Badri ram and vishwkrama, TMH publication New Delhi 1995.
2. power system protection by Madhava Rao TMH

Reference Books

1. Power system by Ravindra Nath and chandar PHI.