

MODULE : TB4

H.T. & L.T. MOTORS AND MOTOR PROTECTION SYSTEM

COURSE DESCRIPTION:

H.T. & L.T. Motors :

Fundamentals of induction motor; slip-torque characteristics, motor-generator brake; Equivalent circuit; transient model; v/f control; Synchronous motor : torque-angle characteristics, Summary of protections for cage & wound rotor induction motor and synchronous motor.

Protection of H.T. Motors :

Protection of cage motors; different abnormal operating conditions; commonly used comprehensive motor protection relays; major protection elements; thermal over load; over current vs overload; critical review of motor and relay thermal characteristics; major shortcomings.

Locked rotor; speed switch requirement; negative sequence; unbalance vs negative sequence; short-circuit ground fault (zero sequence); stabilizing resistor calculations; use of residual connected CT and CBCT; other protective functions; start protection; differential protection; under voltage protection; under current protection; detailed calculations for motor protection settings; Setting calculation for Motor Protection Relay: special protection requirement for wound motor; rotor unbalance; additional protection for synchronous motor; loss of field.

Protection of L.T. Motors :

Causes for LT Motor damage, Bimetal overload relay, HRC fuses, Comprehensive or compact, cost effective Motor Protection relay for contactor controlled motor, Co-ordination between fuse and relay, Application of thermistors.