SUBJECT NO-EE40002, SUBJECT NAME- ELECTRIC DRIVES

LTP- 3-0-0,CRD- 3

SYLLABUS :-

Drive concept, four quadrant drive and load characteristics, selection of motor, control and stability of electric drives, feed back control of drives, thermal effects in electrical machines; DC motor drive Ã¢ÂÂ Dynamical model of separately excited dc motor, control of a separately excited dc motor, current, flux and speed controller design; control loop containing an electronic power converter: dc drive with line-commutated converter, dc drive with high frequency PWM converter. 3-phase induction motor drive Ã¢ÂÂ Scalar control: Stator voltage control, V/f control, VSI and its PWM strategy for motor control: sine triangle, space-vector; Limitation of scalar control. Basic operation of vector Control: Dynamical control of motor torque and motor flux using ideal CSI.Doubly fed induction motor drives: Basic philosophy of operation of this drive, different quadrant of operations, applications.Permanent magnet motor drive: Basic brushless dc motor drive with position encoder. Basic principle of 3-phase PMSM drive with rotor position encoder.Switched Reluctance motor drive: Principle of torque production, low speed and high speed controller with rotor position sensor.Industrial drives: Different components of standard industrial drives, design of each component; practical issues of interconnections between motors and inverters.