EE-604: Electric Drives

Credit	L	T	P
3	**2**	**1**	**-**

UNIT-I
Introduction, concept of electric drives, classification, components and characteristics of electric drives, starting, speed control and braking of DC electric motors, starting, speed control and braking of AC electric motors, Elecro-mechanical transients, time –energy calculations, load equilization

UNIT-II
line commutated converters, choppers, Inverters, cycloconverters, AC voltage controllers.

UNIT-III
Review of speed control of induction motors, Voltage injection in rotor circuit, Scherbius and Kramer schemes, Vector and sensorless control

UNIT-IV
self controlled, permanent magnet motor drive systems, number of phases, radial and axial field, sinusoidal and rectangular fed systems, closed loop control, sensor reduction and elimination

UNIT-V
Switched reluctance motor drive system-construction, principle of operation, merits and demerits, characteristics, closed loop control and applications.
Design problems

TEXT/REFFERENCE BOOKS

1. G K Dubey, Power Semiconductor Controlled Drives, Printice Hall Englewood Cliffs, NJ-1989
2. S.K. Pillai, A First Course in Electric Drives, Wiley Easterns, New Delhi 1989
3. W. Leonard, Control of Electric Drives, Springer-Verelag, Berlin, 1985
4. G..K. Dubey, Fundamentals of Electric Drives, Narosa Publishers Delhi, 1995
5. T.J.E. Miller, Switched Reluctance Motor and Their Control, Magna Physia and Clanderon Press Oxford 1998
6. T. Kenjo and S. Nagamori, Permanent Magnet Brushless DC Motors, Clanderson Press Oxford, 1985