Electrical Machines and Power Devices and NS Lab (304206)

Teaching Scheme: **Examination Scheme:**

Practicals: 4 Hrs/Week PR: 50 Marks

TW: 50 Marks

Electrical Machines and Power Devices

List of Experiments (Perform any 5 experiments from 1 to 7 and any 2 from the remaining)

1. V-I Characteristics of MOSFET / IGBT
2. V-I Characteristics of thyristor & measurement of holding & latching current.
3. V-I Characteristics of DIAC
4. V-I Characteristics of TRIAC
5. Triggering circuit for MOSFET / IGBT.
6. Triggering circuit for thyristor (Using UJT or IC-785)
7. Light dimmer using TRIAC / Lamp flasher using TRIAC
8. Single phase AC voltage controller using thyristors for R load
7. Load characteristics of D.C. series motor.
8. Brake test on D.C. Shunt motor
9. Load test on 3-phase induction motor.
10. No load & blocked-rotor test on 3-phase induction motor :
    a. Determination of parameters of equivalent circuit
    b. Plotting of circle diagram.
11. Report on Industrial visit.

Industrial Visit:-

Minimum One visit to above machines manufacturing industry is recommended.

NS Practical

List of Practicals: (Minimum 4 practicals to be performed using software like MultiSim)

1) Consider two port LC network, find all network functions and plot poles and zeros.
2) To carry out synthesis of one port LC network into any of the Canonical forms and verify practically.
3) To synthesize given transfer function into constant resistance network (Bridge T or Lattice) and verify practically.
4) To design 3rd order passive Butterworth/Chebyshev filters and realize/synthesize with scaling of frequency and impedance.
5) Design a Butterworth low/high pass filter Sallen Key circuit and verify (at least 2nd order).
6) Design a Chebyshev low/high pass filter Sallen Key circuit and verify (at least 2nd order).
7) To find gain of biquad op amp circuit & study sensitivity of gain against the different components.
8) To study effect of op amp characteristics on filter performance and compensation techniques for the same at least one parameter to be studied practically.