Syllabus

Power Electronics

Course Code- 031609

L-T-P: 3-0-3 **Credit : 5**

1. Introduction to thyristor and control circuits : terminal characteristic, rating and protection.

2. Thyristor firing circuit : Triggering circuit suitable for 1 phase and 3 phase fully controlled converters.

3. Converters : Uncontrolled three phase power rectifiers, 1 phase & 3 phase line commutated A.C to D.C converters.

4. Inverters : Basic Bridge inverter circuit 1 phase & 3 phase phase McMurrayBedford method of communication, pulse width modulation inverters. Series inverter gating circuits.

5. Choppers : Types of choppers, steady state analysis of type A chopper, communication methods, chopper control of D.C. Motor.

6. Other applications A.C., voltage regulator, cyclo-converter.

7. Application of thyristors for industrial drives.

GATE Syllabus :

Characteristics of semiconductor power devices: Diode, Thyristor, Triac, GTO, MOSFET, IGBT; DC to DC conversion: Buck, Boost and Buck-Boost converters; Single and three phase configuration of uncontrolled rectifiers, Line commutated thyristor based converters, Bidirectional ac to dc voltage source converters, Issues of line current harmonics, Power factor, Distortion factor of ac to dc converters, Single phase and three phase inverters, Sinusoidal pulse width modulation.