

GUJARAT TECHNOLOGICAL UNIVERSITY
PDDC SEMESTER : VII
ELECTRONICS AND COMMUNICATION ENGINEERING

Subject Name : **POWER ELECTRONICS**

Sr. No	Course Content	Total Hrs.
1.	Power semiconductor devices: Introduction, Power Diodes, Power BJT, Thyristor Characteristics, Two Transistor model of Thyristor, Series and Parallel operation of Thyristors, Power MOSFET, GTO, IGBT, SIT-Device Structures and Characteristics, Handling precautions and power dissipation in all these devices, Turn ON-Turn OFF methods and Circuits, Protections, Ratings and applications, Handling precautions and power dissipation in all these devices..	08
2.	Controlled Rectifiers: Controlled Rectifiers, Single phase power circuits, Three phase controlled rectifier circuits, Analysis of Controlled Rectifiers with resistive and inductive load and speed control of motors.	06
3.	DC Chopper: Introduction, Principle of operation, analysis with waveforms of Step-Down and Step-Up choppers, buck, boost and buck-boost Converter. Chopper classifications, Chopper control of motors	06
4.	Invertors: Principal of Operation of Pulse Width Modulated Inverters, Performance Parameters, Single Phase and Three Phase Bridge Inverters.	05
5	Applications: Uninterruptible Power Supply, Switched mode Power Supply, RF Heating, Battery Charger.	05

Text/Reference Books:

1. Power Electronics – Circuit, Devices and Applications, M. Rashid, Pearson Education
2. Power Electronic, M.D. Singh and Khanchandani, Tata McGraw Hill Publications.
3. Power Electronics: Essential and Applications, L. Umanand, wiley India pvt. Ltd.
4. Power Electronics: Joseph Vithyathil , Tata McGraw Hill Publications