Power Electronics
EC705D
Contacts: 3L
Credits: 3

Module I [6]
A dvances in Power Electronics
Power Semiconductor Switches: Rectifier diodes, fast recovery diodes, Schottky barrier diode, Power BJT, Power MOSFET, SCR, TRIAC, IGBT and GTO.
Ratings, Static and Dynamic Characteristics, Trigger, driver and switching-aid circuits and cooling.
SCR turn –on and turn - off methods, Triggering circuits, SCR Commutation circuits, SCR Series and Parallel operation, Snubber Circuit.

Module II [6]
Rectifiers Single phase and three phase controlled Rectifiers with inductive loads, RL load Effect of source inductance- performance parameters .Dual Converters.

Module III [4]
Step up and Step down choppers Time ratio control and current limit control, Buck, Boost, Buck Boost and Cuk Converters, Concept of Resonant Switching.

Module IV [6]
Single phase and three phase inverters – PWM techniques, Sinusoidal PWM, modified Sinusoidal PWM - multiple PWM Voltage and harmonic Control – Series resonant inverter-Current Sources Inverter.

Module V [4]
AC Voltage Controllers, Single phase and three phase Cycloconveters – Power factor control and Matrix Converters.

Module VI [8]
DC and AC Drives
DC Motor Speed control
Induction Motor Speed Control
Synchronous Motor Speed Control

Books:
1) P.C. Sen, Power Electronics
2) M.H. Rashid, Power Electronics, PHI/ Pearson Education
3) C.W. Lander, Power Electronics, McGraw Hill
4) B.K.Bose, Modern Power Electronics, JAICO
5) Mohan, N Undeland, TM & Robbins, WP- Power Electronics, John Wiley & Sons