Advanced Power Electronics

Model-I

1-Φ and 3-ϕ Controlled rectifiers-Average output voltages and currents for R-L. load performance parameters of rectifier 1- ϕ and 3- ϕ converter. DC-DC converters: Buck, Boost, Buck-boost and Cuk converters, linear power supplies. Switch mode DC Power supplies, Fly back converter, Forward converter, push pull converter , half bridge and full bridge converter.

Module-II

Basic concepts of switch mode inverter, pulse width modulated switching scheme , unipolar and bipolar Switching scheme, 1-ϕ inverters, push pull inverters, 3-ϕ inverters, PWM in 3-ϕ voltage source inverters. Reduction of Harmonies , square-wave pulse switching, programmed Harmonic elimination switching.

Module-III

Resonant pulse Converters: Classification of resonant Converters, series Resonant Inverter: Series Resonant inverters with unidirectional switches, series resonant inverters with bi-directional switches. Parallel Resonant Inverters, Zero current switching resonant converters, zero voltage switching resonant converters.

Books for Reference

1. Power electronics, Circuits, devices. Application by M.H.Rashid (PHI)
2. Power electronics, converters ., applications and Design N.Mohan undeland and Robbins John wily and sons inc.
3. Modern Power electronics and AC Drives by B.K .Bose.