

20PE015 - ANALYSIS OF INVERTERS

UNIT - I

L- 11

Single phase inverters : Introduction to self commutated switches : MOSFET and IGBT - Principle of operation of half and full bridge inverters – Performance parameters – Voltage control of single phase inverters using various PWM techniques – various harmonic elimination techniques – forced commutated Thyristor inverters.

UNIT - II

L- 10

Three phase voltage source inverters: 180 degree and 120 degree conduction mode inverters with star and delta connected loads – voltage control of three phase inverters: single, multi pulse, sinusoidal, space vector modulation techniques.

UNIT – III

L- 10

Current source inverters: Operation of six-step thyristor inverter – inverter operation modes – load – commutated inverters – Auto sequential current source inverter (ASCI) – current pulsations – comparison of current source inverter and voltage source inverters.

UNIT - IV

L- 10

Multilevel inverters: Multilevel concept – diode clamped – flying capacitor – cascade type multilevel inverters - Comparison of multilevel inverters - application of multilevel inverters.

UNIT - V

L- 10

Resonant inverters: Series and parallel resonant inverters - voltage control of resonant inverters – Class E resonant inverter – resonant DC – link inverters.

TEXT BOOKS:

1. Rashid M.H., “Power Electronics Circuits, Devices and Applications ”, Prentice Hall India, Third Edition, New Delhi, 2004.
2. Jai P.Agrawal, “Power Electronics Systems”, Pearson Education, Second Edition, 2002.

REFERENCES:

1. Reissland, M.U, “Electrical Measurements: Fundamentals, Concepts, Applications” 1st ed., New Age International (P) Ltd. Publishers, 2010.
2. J.B. Gupta, “Electronic and Electrical Measurements and Instrumentation”, 12th ed., S.K. Katharia, 2006.
3. Bimal K.Bose “Modern Power Electronics and AC Drives”, Pearson Education, Second Edition, 2003.