Subject Code : RCCSAP2

CC - III - FUNDAMENTALS OF ELECTRONICS AND DEVICES

UNIT - I : ELECTRON EMISSION AND DYNAMICS

Motion of a charged particle in an electric field - Motion in a magnetic field- Motion under the influence of both types of fields - fields - Electrostatic and electromagnetic deflections in a CRT – Basic principles of electrostatic and magnetic lenses

UNIT - II: SEMI CONDUCTOR DEVIES (DIODES)

Band theory of solids - Classification of solids on the basis of theory - Intrinsic and extrinsic semi conductors - PN junction characteristics - Applications of continuity equation for the study of junction behaviour – Avalanche and zener breakdown of PN junction diodes and tunnel diodes

UNIT – III: SEMI CONDUCTOR DEVIES (TRANSISTORS)

PNP and NPN transistors - Current flow - Characteristics - Transistors - parameters - Small signal equivalent circuits - Hybrid model - Determination and measurement of hybrid parameters - photo transistor – FET - Characteristics and theory of operation of JFETs, MOSFETs and VMOS

UNIT - IV: RECTIFIERS

Half wave and full wave rectifier circuits - Performance characteristics of rectifier circuits - Filter considerations - Capacitor, Inductor, L section & RC section filter

UNIT - V: REGULATED POWER SUPPLY

Shunt and series type regulators and their comparison - Feedback type series regulators - Analysis and design - Protection circuits for voltage regulators - Switching mode voltage regulators

BOOKS FOR STUDY

1. Principles of Electronics - V.K. Mehta - S. Chand & Co
2. A Text book on Applied Electronics - R.S. Sedha - S. Chand & Co - 1994

BOOKS FOR REFERENCE

1. Electronic Devices and Circuits - Millman and Halkias - Tata McGraw Hill - 1991
2. Microelectronics - Jacob Millman - McGraw Hill
3. Electronics - Jacob Millman and Samuel Seely - McGraw Hill
4. Integrated Electronics - Milman and Halkias - TMH - 1993
5. Electronics Fundamentals and Applications for Engineers and Scientists – Millman and Halkias - McGraw Hill