Objective: The objective of the course is to provide fundamental knowledge of electronic components, devices and circuits. It covers basic principle of operations and usefulness of some of the electronic components that help us in designing of electronic circuits.

THEORY:
Note: Question No 1 is compulsory and will be of short answer type from entire syllabus. Two questions are to be attempted out of three questions from each Section A & B.

SECTION – A

UNIT 1: Semiconductor
Intrinsic and extrinsic, p-type and n-type, energy band diagrams, majority and minority carrier, charge density in semiconductor, generation and recombination of charges, process of diffusion, diffusion and drift currents, depletion layer, potential barrier, electric field, forward and reverse biased junction, Diodes, V-I characteristics of diode.

UNIT 2: Diode Applications
P-N junction diode as rectifier, clipper and clamper, Clipping at two independent levels, Comparators, Sampling Gate, Rectifiers, Capacitor filter, Zener diode as voltage regulator.

UNIT 3: Some Special Devices
Photodiodes, photo detectors, solar cell, light emitting diodes. Introduction to Tunnel Diode, IMPATT diode, The GUNN diode, SCR, DIAC, TRIAC.

SECTION – B

UNIT 4: Bipolar Junction Transistor
Construction, basic operation. CB, CE and CC-configuration, input and output characteristics, region of operation, active, cutoff and saturation region. Photo transistor, Uni-Junction Transistor (UJT) : Principle of operation, characteristics.

UNIT 5: FET Construction
Construction, n channel and p channel, characteristics, parameters, Enhancement and depletion MOSFET and its Characteristics, analysis of FET in various configuration.

UNIT 6: Operational Amplifier
Text Books:

Reference Books: