ELECTRONICSENGINEERING(EE-201)

Pre-requisite: None
Credit Hours: 02
Contact Hours: 32

RECOMMENDED BOOK(S)

Electronic Devices by Floyd , 9th Edition

REFERENCE BOOK(S)

Micro-Electronic Circuits by Sedra / Smith , 5th Edition

COURSE OBJECTIVES

To acquire fundamental knowledge for semiconductor devices.
To acquire fundamental knowledge for Digital Electronics.

S. No.	CLO/PLOS MAPPING	DOMAIN	PLO
1	**Describe** and **explain** the basic construction, operation and characteristics of semiconductor devices like diodes and transistors	C2	01
2	**Describe** and **explain** the basics of combinational and sequential circuits in digital electronics	C2	01

COURSE CONTENTS

Conduction in Solids:
Introduction, Mechanics of conduction, Mobility, Bohr's model for the elements, Energy level diagrams for solids, Conductors, Intrinsic and extrinsic semiconductors, Electron-hole pairs in an intrinsic semiconductor, Distribution of electron and hole in conduction and valence bands, Recombination and lifetime.

Semiconductors and Diodes:
Donor and acceptor impurities, Zero biased, Forward biased and reverse biased junction diodes, Junction diode current equation, Depletion barrier width and junction capacitance, Diffusion capacitance, Zero and Avalanche break down, Hall effect, Fabrication of pn junction, Diodes.

Simple Diode Circuits and Applications:

The half wave rectifier, The inductance filter, The inductance capacitance filter circuits, Zener and gas diode, Voltage regulator circuits, Clamping and DC restorer circuits, Voltage doubler circuits, Clipping and limiting circuits.

Bipolar and Field Effect Transistors & Amplifier Circuits
Introduction to BJTs and Amplifier Circuits

Introduction to Digital Electronics:
Number Systems, Boolean Algebra, Logical Gates

Combinational Logic (Half Adder, Full Adder)

Sequential Logic (Introduction, Latches, Flip Flops)