



STANLEY
COLLEGE OF ENGINEERING & TECHNOLOGY FOR WOMEN
(Approved by AICTE , New Delhi | Affiliated to Osmania University ,Hyderabad)
Address : Chapel Road, Abids ,Hyderabad

EC 221

ELECTRONIC ENGINEERING - I

(Common for EEE & IE)

UNIT-I

Semiconductor diodes and Rectifiers : Review of semiconductor physics, p-n junction as a rectifier, v-I characteristics, temperature dependence of v-I characteristics; Breakdown of junctions-Zener and Avalanche. Single half wave, full wave, bridge rectifiers, L,C, pi-section filters; Regulation and ripple characteristics.

UNIT-II

Transistors and their biasing : BJT, current components; CE, CB, CC configurations; characteristics; Transistor as an amplifiers; h-parameters; Analysis of CE, CB, CC amplifiers. Operating point, bias stability, bias stabilization circuits, Fixed bias, collector to base bias and Emitter bias.

UNIT-III

Field Effect Transistors and their biasing : Principles of V-I characteristics of JFET and MOSFETs; Depletion and enhancement modes, small signal equivalent circuit, FET and CS amplifier.

Biasing of JFET's and MOSFETs source self bias, biasing for zero current drift, biasing against device variations, Biasing the enhancement MOSFET, Characteristics of UJT, SCR, DIAC & TRIAC.

UNIT-IV

Low frequency BJT amplifier Circuits : Cascading amplifier stages, simplified analysis for three amplifier configurations, Miller's theorem-High input resistance transistor circuits, cascade configuration, Difference amplifier.

UNIT-V

Multistage amplifiers : Classification of amplifiers, Distortion in amplifiers, Frequency response of RC coupled amplifiers, Transformer coupled amplifiers, step response, Bandwidth of cascaded stages. Effect of emitter (source) by pass capacitor on LF response.

Suggested Reading :

- 1.Jacob Millman & Christos C. Halkias, *Electonic Devices and Circuits*, McGraw Hill,3/e,2010.
- 2.Jacob Millman & Christos C. Halkias, *Integrated Electronics*, McGraw Hill, 1991.
- 3.Donald L Schilling & Charles Belove, *Electronics Circuits : Discrete & Integrated*, McGraw Hill International Edition, 3rd Edition, 1989.