

Course Code: ICE 2111

Course Title: Electronics-III

Credit: 3.00, 75 Marks, 3 Hours/week, Lectures: 42, Exam time: 3 hours

Course Contents

Feedback: Concept of feedback, Negative feedback, Positive feedback, Voltage feedback, Current feedback, Effect of feedback on Impedance, Gain, Bandwidth, Distortion and Stabilization.

High-Frequency Response: High frequency model for CE amplifier, CE short circuit current gain, High frequency current gain with resistive load, High frequency response of cascaded CE stages, Transformer coupled amplifier, Transistor Noises.

Multistage Amplifier: Amplifier coupling, RC coupled two-stage amplifier, Impedance coupled two-stage amplifier, Transformer coupled two-stage, Direct coupled two-stage amplifier, Darlington pair, Multistage frequency effect.

Oscillators: Positive feedback, Condition of oscillation and stabilization, Hartley oscillator, Colpitt's oscillator, RC phase shift oscillator, Wein bridge oscillator, Resonant circuit oscillators.

Operational Amplifier: Difference amplifier, CMRR, Ideal operational amplifier, Inverting amplifier, Non-inverting amplifier, Differential amplifier, General-purpose IC operational amplifier, Integrator, Differentiator, Precision rectifier.

Active Filter: Types of filters, Low-pass filter: First and second order Butter worth filter, High-pass filter: First and second order Butter worth filter, Higher order filters, Band-pass filters, Band-stop filters, Allpass filters.

Optoelectronic Devices: Phototransistor, Solar cell, Photoconductive cell, Photovoltaic sensors, LED, LCD, Alphanumeric display, Photo couplers, High-speed optical detectors.

Micro-Electronics: Micro electronic technology, Planer processor, Bipolar transistor fabrication, FET fabrication, CMOS technology, Monolithic diodes, Metal semiconductor contact; IC resistor and capacitor, IC packing; Characteristics of IC components, Microelectronic circuit layout, printed circuit board.

Text Books:

1. **Gupta and Kumar:** *Handbook of Electronic*
2. **Allen Mottershead:** *Electronic Devices and Circuits*

Reference Books:

1. **Millman and Halkias:** *Electronic Devices and Circuits*