PEI3I101   ANALOG ELECTRONICS CIRCUIT (3-0-2)

MODULE – I   **(12 Hours)**
MOS Field-Effect Transistor: Principle and Operation of FETs and MOSFETs; P-Channel and N-Channel MOSFET; Complimentary MOS; V-I Characteristics of E- MOSFET and D-MOSFET; MOSFET as an Amplifier and as a Switch.   (4 Hours)
Biasing of BJTs: Load lines (AC and DC); Operating Points; Fixed Bias and Self Bias, DC Bias with Voltage Feedback; Bias Stabilization; Examples.   (4 Hours)
Biasing of FETs and MOSFETs: Fixed Bias Configuration and Self Bias Configuration, Voltage Divider Bias and Design   (4 Hours)
MODULE – II   **(12 Hours)**
Small Signal Analysis of BJTs: Small-Signal Equivalent-Circuit Models; Small Signal Analysis of CE, CC, CB amplifiers. Effects of R_S and R_L on CE amplifier operation, Emitter Follower; Cascade amplifier, Darlington Connection and Current Mirror Circuits.
Small Signal Analysis of FETs: Small-Signal Equivalent-Circuit Model, Small Signal Analysis of CS, CD, CG Amplifiers. Effects of R_{SIG} and R_L on CS Amplifier; Source Follower and Cascaded System.   (6 Hours)
MODULE – III   **(5 hours)**
High Frequency Response of FETs and BJTs: High Frequency equivalent models and frequency Response of BJTs and FETs; Frequency Response of CS Amplifier, Frequency Response of CE Amplifier.   (5 Hours)
MODULE – IV (9 hours)
Feedback amplifier and Oscillators: Concepts of negative and positive feedback; Four Basic Feedback Topologies, Practical Feedback Circuits, Principle of Sinusoidal Oscillator, Wein-Bridge, Phase Shift and Crystal Oscillator Circuits.   (4 Hours)
Operational Amplifier: Ideal Op-Amp, Differential Amplifier, Op-Amp Parameters, Non-inverting Configurations, Open-loop and Closed-loop Gains, Differentiator and Integrator, Instrumentation amplifier.   (5 Hours)