EE258 LINEAR INTEGRATED CIRCUITS

Credits: 3:1:0

Pre requisite: EE247 Electron Devices

Unit I Operational Amplifier Characteristics
Functional Block Diagram – Symbol, Characteristics of an Ideal Operational Amplifier, Circuit schematic of µA 741, Open loop gain, CMRR-input bias and offset currents, input and output offset voltages, offset compensation techniques. Frequency response characteristics – stability, limitations, frequency compensation, slew rate. Transfer characteristics.

Unit II Linear Applications of Operational Amplifiers

Unit III Non Linear Applications of Operational Amplifiers:

Unit IV IC Voltage Regulators & Special Function ICS:
Block diagram of 723 General purpose voltage regulator – Circuit configurations, Current limiting schemes, Output current boosting, Fixed and adjustable three terminal regulators, Switching regulators- SPECIAL FUNCTION ICs: 555 Timer Functional block diagram and description – Monostable and Astable operation, Applications, IC566 Voltage Controlled Oscillator, Analog Multiplier, Comparator ICs, PLL Functional Block diagram – Principle of operation, Building blocks of PLL, Characteristics, Derivations of expressions for Lock and Capture ranges, Applications: Frequency synthesis, AM and FM detection, FSK demodulator, Motor speed control.

Unit V A-D and D-A Converters
Digital to Analog Converters: Binary weighted and R-2R Ladder types – Analog to digital converters: Continuous, Counter ramp, Successive approximation, Single slope, Dual slope and Parallel types – DAC/ADC performance characteristics.

Text Books
Reference Books