

13EC3103-ANALOG IC APPLICATIONS

(Common for EEE & ECE)

Lectures/Week:4Hrs.

Sessional Marks:40

Univ. Exam. Duration:3Hrs

Univ Exam.Marks:60

UNIT-I

Operational Amplifier: Introduction to IC's, Op-amp ideal characteristics, internal circuit, differential amplifier and its transfer characteristic, derivation of CMRR & Improvement methods of Differential amplifier characteristics, DC and AC characteristics of Op-Amp, Inverting and non-inverting modes of operation, voltage follower and specifications of IC 741.

UNIT-II

Op-Amp Application: Summer, Integrator, Differentiator, Analog computation, Instrumentation amplifier, V to I and I to V converters, precision rectifiers, sample and hold circuit.

Comparators and Waveform generators: Comparator, Regenerative comparator, Astable and monostable multivibrators using op-amp, Triangular Wave generator, Sine wave generators using op-amp(RC phase shift).

UNIT-III

IC Timers: 555 timer, Astable and monostable modes.

Phase Locked Loops: Basic Principles, Lock and capture range, voltage control oscillator(IC-566) IC PLL (565) and PLL applications.

UNIT-IV

Active Filters: Low pass, High pass and Band pass filters, state variable filters.

Voltage regulators: series op-amp regulator, IC voltage regulators, 723 regulator, switching regulators.

UNIT-V

ELECTRONIC DATA CONVERTERS: Introduction, DAC s- Weighted resistor, R-2R and inverted R-2R.

Type of ADCs: Parallel comparator type, counter type, successive approximation and dual slope ADCs, Specifications of DAC and ADC.

TEXT BOOKS:

1. D.RoyChoudary, ShailB.Jain, "Linear Integrated circuits", New Age International Publishers,2003.
2. Design of analog integrated circuits by Sergio Franco.

References:

1. J. Michael Jacob,"Applications and design with analog Integrated circuits", PHI, EEE, 1997.
2. RamakantA.Gayakward, "Op-amps and linear Integrated circuits", LPE, 4th edition, pearson Education.