**13EC3103-ANALOG IC APPLICATIONS**

(Common for EEE & ECE)

Credits: 4

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, **DACs**- Weighted resister, 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.Roy Choudary, Shail B.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.