EE 2254/Linear Integrated Circuits and Applications

**Unit 1: IC FABRICATION 9**

IC classification, fundamental of monolithic IC technology, epitaxial growth, masking and etching diffusion of impurities. Realization of monolithic ICs and packaging, Fabrication of diodes capacitance, resistance and FETs.

**Unit 2: CHARACTERISTICS OF OPAMP 9**

Ideal OP-AMP characteristics, DC characteristics, AC Characteristics offset voltage and current voltage series feedback and shunt feed back amplifiers, differential amplifier, frequency response of OP-AMP. Basic applications of op-amp- summer, differentiator and integrator.

**Unit 3: APPLICATION OF OP-AMP 9**

Instrumentation amplifier, first and second order active filters, V/I & I/V converters, comparators, multi vibrator wave form generators, clippers, clampers, peak detector, S/H. circuit, D/A. (R-2 Ladder and weighted resistor types) A/D. converter, Dual slope, successive approximation and flash types.

**Unit 4 SPECIAL ICs**. 9

 5 55 Timer circuits – Functional block characteristics and applications, 566 voltage controlled oscillator, 565 phase lock loop circuit functioning and applications, Analog multiplier ICs.

**Unit 5 APPLICATION ICs. 9**

 IC voltage regulator – LM317, 723 Regulators , switching regulator, MA 7840, LM 380 Power Amplifier ICL 8038 function generator IC, isolation amplifiers, opto coupler, opto electronic ICs.

 Total -45

**Required text book**:

1. RamakantA.Gayakward, ‘Op-amps and Linear Integrated Circuits’, IV edition, Pearson

Education, 2003 / PHI. (2000)

2. D.RoyChoudhary, SheilB.Jani, ‘Linear Integrated Circuits’, II edition, New Age, 2003.

**Reference Books**:

1. Jacob Millman, Christos C.Halkias, ‘Integrated Electronics - Analog and Digital circuits system’,

Tata McGraw Hill, 2003.

2. Robert F.Coughlin, Fredrick F.Driscoll, ‘Op-amp and Linear ICs’, Pearson Education, 4th edition,

2002 / PHI.

3. David A.Bell, ‘Op-amp & Linear ICs’, Prentice Hall of India, 2nd edition, 1997