SUBJECT NO-EC60203, SUBJECT NAME- ANALOG VLSI CIRCUITS

LTP- 3-1-0,CRD- 4

SYLLABUS :-

Pre-requisites: EC21002 and EC30004Introduction: Analog circuits in VLSI, Overview of circuit performance comparison in Bipolar, BiCMOS and CMOS technologies; Recapitulation: Large signal and small signal models of MOS transistors, Feedback configurations and Stability theory; Amplifiers: Basic amplifier topologies and their characteristics, Cascode amplifiers, Differential amplifier with active load; Two-stage differential amplifier: Analysis for different performance parameters, Pole-zero compensation and Design;Biasing circuits: Simple and cascode current mirrors, Current reference, Voltage reference; Folded cascode amplifier; Operational amplifier; Comparator: Simple comparator, Switch-based comparator, Latch-based comparator; Oscillator: Ring oscillator, L-C oscillator, Voltage control oscillator; Phase locked loop: Building blocks in PLL, Locking characteristic of PLL and Design of PLL;Data converters: Characterization of ADC and DAC, Block diagram of SAR ADC, Design of SAR ADC, Introduction to other ADC architectures, Introduction to DAC architecture; Active Filters: Design of switched-capacitor filter, Design of Gm-C filter.