SARDAR PATEL UNIVERSITY
Programme & Subject: B.Sc (Electronics)
Semester: VI
Syllabus with Effect from: November-2013

Paper Code: US06CELE01	Total Credit: 3
Title of Paper: Discrete & Linear Circuits	

Unit	Description in detail	Weightage (%)
I	**Operational Amplifier** Block diagram of OP – AMP, Differential amplifier, virtual short concept, AC an DC parameters, Inverting amplifier and its applications – Scale changing amplifier, Summing amplifier, Phase shifting amplifier, Integrator, Differentiator, Summing integrator, Difference amplifier and Subtractor, comparison of active and passive filter, Types of filters – Low pass filter, High pass filter, Band pass filter, Band reject filter, All pass filter	**25%**
II	**Nonlinear Applications of OP – AMP** Comparator, Schmitt trigger, Feed back diode comparator, Precision rectifier – Half wave precision rectifier, Full wave precision rectifier, Peak detector, Sample and hold (S/H) circuit, Monostable multivibrator, astable multi vibrator, Voltage Controlled Oscillator (VCO),	**25%**
III	**Miscellaneous applications of OP – AMP** Log amplifier: Basic equation, Basic logarithmic amplifier, Temperature compensated LOG amplifier, Antilog (Exponential) amplifier, Analog voltage multiplier, Analog voltage divider, Charge amplifier, Frequency to Voltage conversion, Clipper and Clamper circuits, Temperature to Voltage converter, Modulation: Pulse width Modulation, Pulse Amplitude Modulation.	**25%**
IV	**IC 555 Timer and PLL** Salient features of 555 Timer IC, Pin diagram and Functional diagram, Astable multivibrator and its applications, Monostable multivibrator and its applications, Schmitt trigger, Bistable multivibrator, Basic operating principle of PLL.	**25%**

Basic Text & Reference Books:

- Linear Integrated Circuits and its applications   P. W. Wani and P. V. Bhat
- OP – Amp and linear integrated circuits   R. A. Gaykwad