

SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (Instrumentation)
Semester: I
Syllabus with Effect from: June - 2010

Paper Code: PS01EINS01	Total Credit: 4
Title Of Paper: Instrumentation of Processing Circuits	

Unit	Description in detail	Weightage (%)
I	Operational Amplifier: Open Loop Gain, Zero-Crossing Detector, Applications of Voltage Level Detector, Waveform Converters, Audio Mixer, DC Offsetting an AC Signal, Multi-channel Amplifier, IC Precision Comparator & Window Detector.	25%
II	Phase Shifter, Peak Detector, AC-to-DC Converter, Dead Zone Circuits, Differential Amplifier, Amplifier Gain, Frequency Response, Slew Rate, Output Voltage & Noise in Output Voltage, Instrumentation Amplifier - Sensing & Measurement.	25%
III	Active Filters & Design Procedure: Butterworth Low pass, High pass Butterworth, Band pass, Notch Filter & Examples, Frequency Doubling, Phase Angle Detection, Analog Divider	25%
IV	Amplitude Modulation Circuits, Amplitude Demodulation Circuits & Frequency Shifting, Lock in Amplifier, Phase-Locked Loop, Sample & Hold Unit, IC & Applications: LM380, NE/SE566 & ICL8038, Characteristics of Digital Display, Digital Display Elements, Graphic Display – CRT.	25%

Basic Text & Reference Books:-

- Operational Amplifiers and Linear Integrated Circuits, Robert F. Coughlin & Frederick F. Driscoll, Pearson Education Asia.
- Op-Amps and Linear Integrated Circuits, Ramakant A. Gaykwad, Prentice Hall of India Private Limited.
- Introduction to Instrumentation and Control, A. K. Ghosh, Prentice Hall of India Private Limited.
- Transducers and Instrumentation, D. V. S. Murty, Prentice Hall of India Private Limited.
- The Art of Electronics, Paul Horowitz & Winfield Hill, Cambridge University Press.

