

# GUJARAT TECHNOLOGICAL UNIVERSITY

## M.E. Bio-Medical Engineering

### Semester: I

Subject Name: **Medical System Design**

Sr.No	Course content
1.	Introduction to linear IC applications.
2.	Design and error budget analysis of signal conditioners for low level AC and DC applications.
3.	Design and applications of Signal conditioners with instrumentation/auto-zero/chopper/isolation/charge amplifiers.
4.	active filters and high frequency circuits.
5.	Signal conditioning for various sensors used for temperature, level, flow, pressure measurement.
6.	Design consideration and selection criteria for various parameters like force, strain, stress, acceleration, vibration
7.	Measurement of force, displacement, torque, velocity, conductivity and temperature.
8.	Electromagnetic and ultrosonic flow meters.
9.	Case study in Biomedical application design.
10.	Design of multi channel low level and high level data acquisitaion systems Designing of low power circuits for transducers.

### Reference Books:

1. Design with Operational Amplifiers and Analog Integrated Circuits- Franco S, McGraw Hill, 1998.
2. The Art of Electronics (2nd Edition)- Paul Horowitz and Winfield Hill, Cambridge University Press, 1992.
3. Instrumentation for Engineering Measurements - James W, Dally, et al., John Wiley & Sons, 1984.
4. Principles of Measurements Systems - John P Bently, Longman Inc, NY, 1983.