

**BM605**  
**Biomedical Electronics and  
Communication**

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An Introduction

# Learning Objectives

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To develop an understanding of fundamental principles of electronic systems used in Biomedical applications.

To make the students confident with design of systems through hands-on experiments and project exposure.

To prepare the students for interdisciplinary research at CBME.

# Course Schedule

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- **Classes Commence:** 7<sup>th</sup> Aug
- **Quiz 1:** Sep 1<sup>st</sup> week (5%)
- **Mid-Sem:** Oct first week (20%)
- **Quiz 2:** Nov 1<sup>st</sup> week (5%)
- **End Sem:** Dec 1<sup>st</sup> Week (40 %)
- **Lab Evaluation:** Project (10 %), Lab report (10%)
- **Homework:** (10%)

# Examples of Medical Electronic Systems

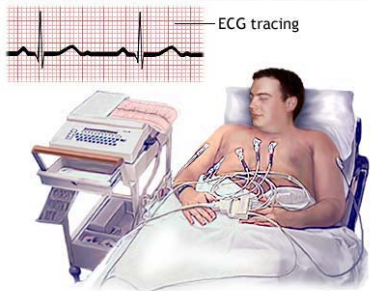
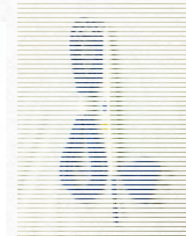
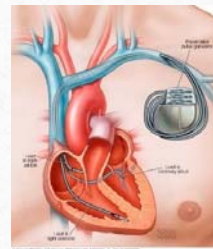


Illustration of a patient getting an ECG. ADAM.

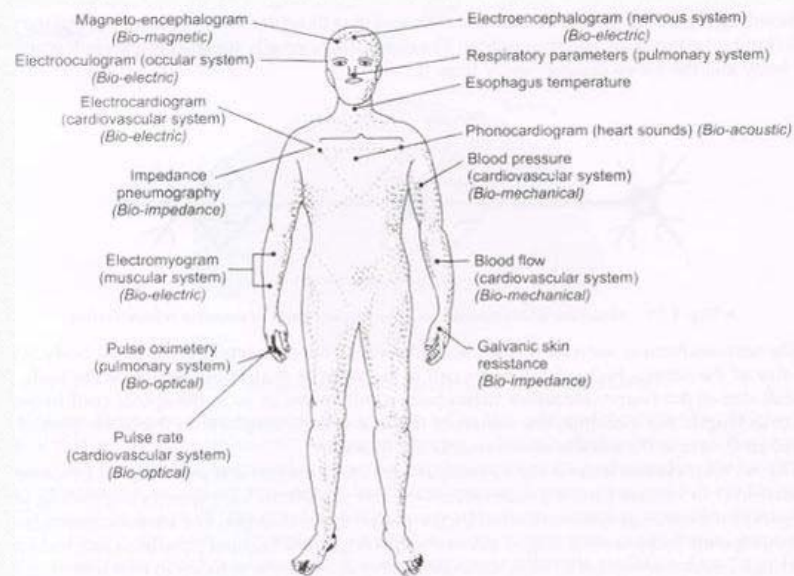


# General Plan of this Course

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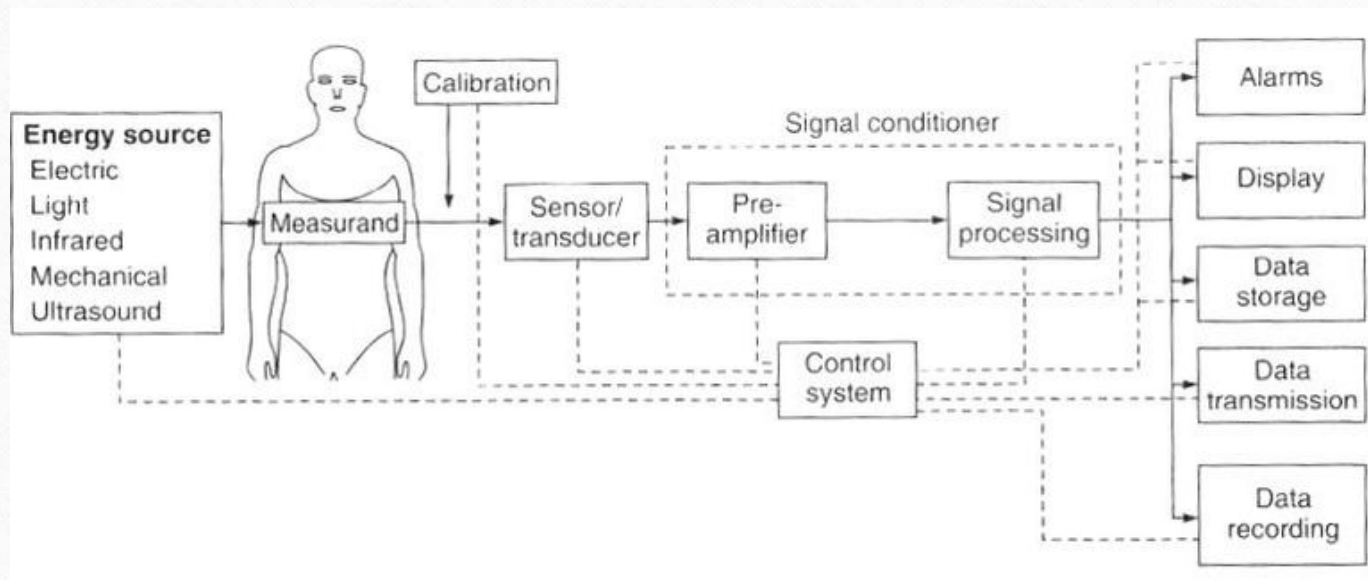
- Fundamentals of Analog and Digital Electronics.
- Fundamentals of Signal Processing.
- Developing understanding of interfacing sensors with biological systems.
- Gaining hands-on experience with software and hardware tools for design of bio-medical electronic systems.

# Sources of biomedical signals



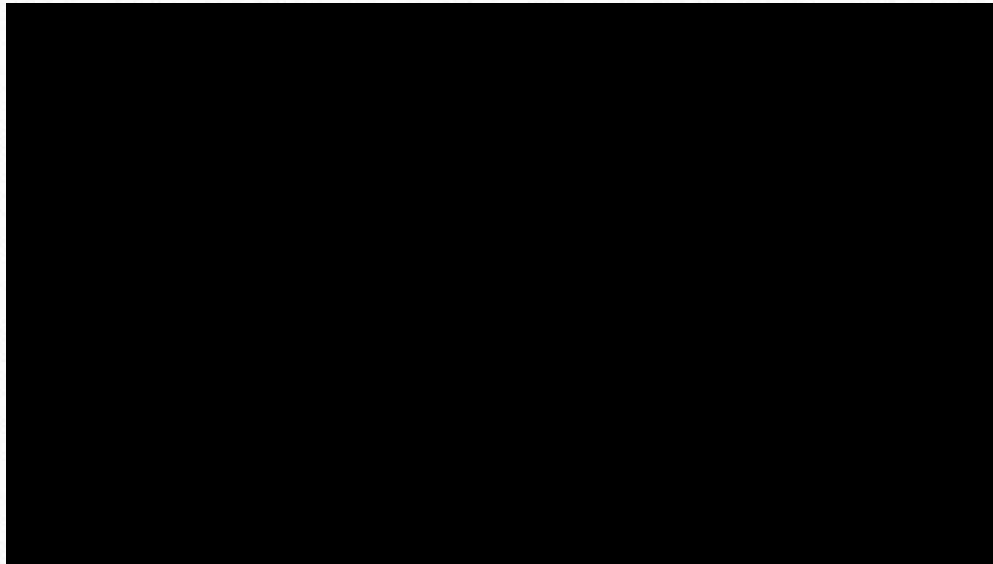
*Image Source: Handbook of Biomedical Instrumentation, R S Khandpur*

# Generalized medical instrumentation System



# ARTSENS

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# Measuring Instrument Characteristics

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- Accuracy
- Precision
- Resolution
- Reproducibility
- Sensitivity
- Zero drift
- Sensitivity drift