



Faculty of Engineering
Department of Biomedical Engineering

01

Course Plan

Instructor: Dr. Mehmet Yüksekaya

BME 312

Biomedical Instrumentation II

What is Biomedical Instrumentation?

- Biomedical Instruments?
 - ECG – Monitors hearth activity.
 - Chemical Biosensor – Defines the existence or amount of an analyte.
 - MRI – Images human body non-invasively.
 - Da Vinci Surgical Systems – Precisions tools for helping surgery
 - Electrotherapy devices – Activates tissue electrically to stimulate.
- What they do?

What we will study in this course?

We will study:

- Biological response.
- Sensor principles.
- Electronic interfacing.
- Signal and data processing.
- Complete systems.

We will learn the idea and definitions of biomedical instrumentation and gain the ability to implement a biomedical instrument.

Syllabus

Week	Subject
1	Introduction to Course, Classification of Medical Devices
2	Classification of Medical Devices
3	Sensors, Thermal Sensors
4	Measurement and Data Processing
5	Respiratory Plethysmography
6	Blood Pressure and Hearth Sound
7	Data Acquisition and signal processing
8	Data Acquisition and signal processing
9	MIDTERM
10	ENG
11	Spectrophotometer, Photoplethysmogram
12	Laboratory devices
13	Electrical Safety
14	Review / Presentations

Project Work

- Project will be performed as a group of 3 students.
- Project work will an informative presentation of subjects related to the course.
- Subjects will be announced, also students can offer their subjects after consulting with the instructor.
- Students should prepare and present the work.

Project – Report Format

Report Format:

- Subject should be presented with a 20 minutes presentation.
- At the end of the presentation there should be 4 questions and their answers as multiple choice, true false questions or filling the gap format.
- The evaluation sheet should be the first page of the report, then there should be the printed version of the presentation, last page should the questions and their answers. The presentations should be printed as 4 slides in a page and landscape format (can be black and white).
- The report should be delivered to the instructor right before the presentation.

Project Work

- **Check online contents about how to make a better presentation.**
- **Study well about your subject.**
- **Try to be informative.**