

Introduction to Biomedical Engineering: Spring 2021

Time and Location:

Thursday PM 1:10~4:00 @ EC2007

Instructor:

莊子肇, Associate Prof.

Office: EC8006, Dept. of Electrical Engineering

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Office hour: Mon PM 2-4; Tue PM 2-4 (by appointment)

Prerequisites:

普通物理學、電子學、信號與系統

Textbooks/References: 請遵守智慧財產權觀念，不可非法影印

“Introduction to Biomedical Engineering”, John Enderle and Joseph Bronzio, Academic Press 2011 (3rd edition)

“Medical Instrumentation: Application and Design”, John G. Webster and Amit J. Nimunkar, Wiley 2020; (5th edition)

“Medical imaging signals and systems”, Jerry Prince and Jonathan Links, Pearson Prentice Hall 2014 (2nd Edition)

Website: (Class notes and news are released here.)

<http://bmilab.ee.nsysu.edu.tw/lab/course.html>



Schedule:

2/25	Introduction
3/4	Bioelectric phenomenon
3/11	Biopotentials
3/18	Biopotentials
3/25	Biomedical sensors
4/1	Biomedical sensors
4/8	Biopotential amplifiers

4/15	Biosignal processing
4/22	Midterm
4/29	Circulatory system: Blood pressure and sound
5/6	Circulatory system: Flow and volume of blood
5/13	Respiratory system
5/20	Respiratory system
5/27	Medical imaging (I): X-ray and CT
6/3	Medical imaging (II): Nuclear medicine and ultrasound
6/10	Medical imaging (III): Magnetic resonance imaging
6/17	Final

Optional topics:

Biomedical optics

Basic physiology and anatomy

Bioinformatics

Numerical analysis in biomedical engineering

Grading:

Homework	40%
Midterm	30%
Final	30%