



**Jordan University of Science and Technology**  
**Faculty of Engineering**  
**Biomedical Engineering Department**

BME511 Sensors And Biomeasurements Lab

First Semester 2023-2024

**Course Catalog**

1 Credit Hours. 1 Credit hours (3 h lab) Measuring , analyzing and extracting different parameters from different bio signals, ECG, Pulse Plethysmography, Breathing volumes and parameters, in addition to audiometry and biomedical equipment safety analysis.

**Text Book**

<b>Title</b>	Sensors and Signal Conditioning
<b>Author(s)</b>	Ramon Pallas-Areny and John G. Webster
<b>Edition</b>	2nd Edition
<b>Short Name</b>	Ref#1
<b>Other Information</b>	

**Course References**

Short name	Book name	Author(s)	Edition	Other Information
Ref#2	Biosensors: An Introduction	Eggins, Brian	1st Edition	

**Instructor**

Name	<b>Prof. Mashhour Bani-Amer</b>
Office Location	C2 L1
Office Hours	Sun : 10:00 - 11:00 Mon : 08:00 - 09:00 Tue : 10:00 - 12:00 Thu : 08:00 - 10:00
Email	m-b-amer@just.edu.jo

**Class Schedule & Room**

Section 1:  
Lecture Time: Sun : 14:30 - 17:30  
Room: LAB

Section 2:  
Lecture Time: Tue : 14:30 - 17:30  
Room: LAB

### Prerequisites

Line Number	Course Name	Prerequisite Type
284120	BME412 Biomedical Instrumentation Lab	Prerequisite / Study
284130	BME413 Biomedical Sensors And Transducers	Pre./Con.

### Tentative List of Topics Covered

Weeks	Topic	References
Week 1	Introduction to the Lab	
Week 2	Human Psychophysiology/Electroencephalogram (EEG)	
Week 3	Human Spirometry	
Week 4	Human Muscle	
Week 5	Safety Analyzer	
Week 6	Pulmonary Function Test	
Week 7	Audiometry	
Week 8	Lab view Experiments	

Mapping of Course Outcomes to Program Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
To become familiar with the Lab Scribe software for measuring EEG, EMG and Respiratory signals [1SO1, 1SO6, 1SO7]	20%	
To understand the principles involved in performing electrical safety measurements on medical devices [1SO2, 1SO4, 1SO6]	20%	
To understand and analyze different respiratory parameters VC, FVC, and MVV using Spiro bank and Win Spiro program [1SO1, 1SO6, 1SO7]	20%	
To familiarize the student with audiometer [1SO6, 1SO7]	20%	
Encourage life long learning, foster teamwork and enhance student's communication skills. [1SO1, 1SO3, 1SO4, 1SO5, 1SO7]	20%	

Relationship to Program Student Outcomes (Out of 100%)						
SO1	SO2	SO3	SO4	SO5	SO6	SO7
17.33	6.67	4	10.67	4	30	27.33

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