



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

BME541 Biomechanics And Biomaterials Lab

First Semester 2023-2024

Course Catalog

1 Credit Hours. 1 Credit hours (3 h lab sessions). Application of biomechanics and biomaterials and relates them to specialty topics such as work biomechanics, biofluid mechanics, and rehabilitation engineering, Experiments covered includes Anthropometry and Goniometry, Posture Analysis, Gait Analysis, EMG and Muscle Biomechanics, Tensile Testing, Fatigue Testing, Creep Measurements.

Text Book

Title	Biochemechanics: Principles and Applications
Author(s)	Peterson, D.R., and Bronzino, J.D
Edition	1st Edition
Short Name	Ref#1
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ref#2	Biomaterials: An Introduction to Materials in Medicine	Ratner et a	2nd Edition	

Instructor

Name	Prof. Ruba Khnouf
Office Location	C5 L2
Office Hours	Sun : 10:00 - 11:30 Mon : 11:30 - 14:30 Tue : 12:00 - 13:00 Wed : 10:00 - 11:00
Email	rekhnouf@just.edu.jo

Class Schedule & Room

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

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

Section 3:
Lecture Time: Thu : 08:30 - 11:30
Room: LAB

Prerequisites

Line Number	Course Name	Prerequisite Type
284400	BME440 Introduction To Biomedical Materials	Prerequisite / Study

Tentative List of Topics Covered

Weeks	Topic	References
Week 1	Introduction to the Lab	
Week 2	Anthropometry and Goniometry	
Week 3	Muscle BioMechanics	
Week 4	Dynamic Goniometer	
Week 5	Static and Vertical Jump Measurement Using Force Plate	
Week 6	Tension and Compression Test	
Week 7	Creep Test	
Week 8	Venturi Meter	
Week 9	Flow Visualization	

Mapping of Course Outcomes to Program Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Understand Anthropometric and goniometric measurements and their analysis [1SO1, 1SO6, 1SO7]	15%	
Perform and apply biomechanical measurements in different postures and activities [1SO1, 1SO6, 1SO7]	10%	
Acquire and analyze gait signals [1SO1, 1SO6, 1SO7]	10%	
Familiarize the students with material property static and dynamic measurements [1SO1, 1SO6, 1SO7]	20%	
Recognize flow in different cases and its relation with human organ systems [1SO1, 1SO6, 1SO7]	15%	

Understand the principle of venturi meter [1SO1, 1SO6, 1SO7]	10%	
Encourage life long learning, foster teamwork and enhance student's communication skills [1SO1, 1SO3, 1SO4, 1SO5]	20%	

Relationship to Program Student Outcomes (Out of 100%)						
SO1	SO2	SO3	SO4	SO5	SO6	SO7
31.67		5	5	5	26.67	26.67

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