



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

BME341 Biomechanics

First Semester 2023-2024

Course Catalog

3 Credit Hours. 3 Credit hours (3 h lectures). Application of statics and dynamics to simple force analyses on whole body biomechanics, Fundamentals of strength of materials and its application on the biomechanics of soft and hard tissues and their deformation, An introduction to viscoelastic behavior and cellular biomechanics.

Text Book

Title	Biomechanics: Concepts and Computation
Author(s)	Oomens,C., Brekelmans, M. and Baaijens, F
Edition	1st Edition
Short Name	TEXT
Other Information	ed. Cambridge University Press.

Course References

Short name	Book name	Author(s)	Edition	Other Information
REF 1	Biochemechanics: Principles and Applications	Peterson, D.R., and Bronzino, J.D	1st Edition	
REF 2	Introductory Biomechanics:From Cells to Organisms.	Ethier, C. R., and Simmons, C. A.	1st Edition	

Instructor

Name	Dr. ALA'A AL-RASHDAN
Office Location	-
Office Hours	Sun : 14:30 - 15:30 Tue : 13:30 - 15:00 Wed : 11:30 - 13:30 Thu : 13:30 - 15:00

Email	aarashdan@just.edu.jo
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Class Schedule & Room
Section 1: Lecture Time: Sun, Tue, Thu : 12:30 - 13:30 Room: C2008 Section 2: Lecture Time: Mon, Wed : 10:00 - 11:30 Room: M2010

Prerequisites		
Line Number	Course Name	Prerequisite Type
921010	PHY101 General Physics (1)	Prerequisite / Study
902030	MATH203 Ordinary Differential Equations	Prerequisite / Study

Tentative List of Topics Covered		
Weeks	Topic	References
Weeks 1, 2	Introduction to Biomechanics	
Weeks 3, 4	Forces and Vectors	
Week 5	Moments	
Weeks 6, 7	Static Equilibrium	
Weeks 8, 9, 10, 11	Human Body Biomechanics	
Weeks 12, 13	Linear Elastic Behaviour of Materials	
Weeks 14, 15	Viscoelastic Behavior of Materials	
Week 16	Time Dependent Behaviour of Materials	

Mapping of Course Outcomes to Program Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Understanding the concept of Biomechanics and all of its subcategories	5%	
Grasping the concept of forces and Vectors	10%	
Grasping the concept of moment	13%	
Understanding and Applying static equilibrium principles on cell and whole body biomechanics	12%	
Understanding the concept of Human Body Biomechanics	30%	
Understand Linear Elastic Model in addition to it's relationship to materials response to forces	13%	

Understand viscos behavior of material and Visco-Elastic Models in addition to their relationship to materials response to forces	12%	
Understanding the Time Dependent Behaviour of Materials	5%	

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

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