



Biomechanics

BIOMEDE 4410

Credit Hours:

3.00 - 3.00

Course Levels:

Undergraduate (1000-5000 level)

Course Components:

Lecture

Course Description:

Mechanical characterization of biological tissues at the cellular, organ, and system level; exploration of biomechanical factors of physiological and pathological conditions.

Prerequisites and Co-requisites:

Prereq: 2000, Math 2174, and MechEng 2040; or permission of instructor.

Course Goals / Objectives:

- Derive the governing equations for the 3-parameter viscoelastic solid, and write a computer program to display the response of viscoelastic materials to testing protocols
 - Estimate the flow profiles of steady and unsteady flows in large arteries
 - Describe the fracture mechanisms of cortical and cancellous bone
 - Apply Windkessel model of explain the time-varying arterial pressure
 - Generate lists of considerations important in outflow facilities of aqueous humor for regulation of intraocular pressure
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Course Topics:

- Course Mechanics / Expectations / Introductions
 - Cellular Biomechanics
 - Hemodynamics
 - The Circulatory System
 - Ocular Biomechanics
 - The Respiratory System
 - Muscles and Movement
 - Skeletal Biomechanics
 - Terrestrial Locomotion
 - Group presentations
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Designation:

Elective