

BME 7210 – Orthopaedic and Prosthetic Engineering

Course Description

The course enables the student to use engineering techniques in orthopaedic and prosthetic applications. Students also learn some of the human anatomy and terminology used by physicians and other practitioners so that they may become more literate and better able to communicate with the latter professions And to understand the literature in this field of biomechanics.

Graduate level – 3 credit hours.

Course Learning Objectives

Students enrolled in this course will learn to:

- Use engineering techniques in orthopedic and prosthetic applications
- Apply knowledge of human anatomy and medical terminology to better communicate with physicians and other medical practitioners
- Understand academic literature in biomechanics.

Course Learning Outcomes

Upon successful completion of this course, students can:

- Use engineering techniques in orthopedic and prosthetic applications
- Apply knowledge of human anatomy and medical terminology to better communicate with physicians and other medical practitioners
- Understand academic literature in biomechanics.

Tentative Weekly Schedule

Week 1	Introduction to prosthetics
Week 2	Design aspects in artificial limbs
Week 3	Anatomical considerations
Week 4	Specifications per ASTM and ISO
Week 5	Durability assessment, Midterm 1 Report and Presentation
Week 6	Practical aspects in artificial limb manufacturing
Week 7	Practical aspects in artificial limb manufacturing (sockets and foot)
Week 8	Mechanical Behavior of prosthetic and implant materials
Week 9	Presentations by Prosthetics and Orthotics Practitioners
Week 10	Midterm 2, design/development/prototyping, DESS dates, report+presentation
Week 11	Mechanical Behavior of prosthetic and implant materials
Week 12	Performance of Implant System
Week 13	Performance of Implant Systems
Week 14	Presentations of Term Paper
Week 15	Final