



THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Principles and Design Theory for Advanced Medical Devices

BIOMEDE 5669

Credit Hours:

3.00 - 3.00

Course Levels:

Undergraduate (1000-5000 level)

Graduate (5000-8000 level)

Course Components:

Lecture

Course Description:

Discusses working principles and design theory for medical devices: systems engineering techniques for analyzing medical devices across scale; system integration and quantitative analysis of biotic/abiotic interfaces; methods to probe biological systems; conceptual and detailed design optimization; miniaturization of medical devices, and object-oriented system integration.

Prerequisites and Co-requisites:

Prereq: 5639, or permission of instructor.

Course Goals / Objectives:

- Methods to probe biological systems
 - Functional analysis and design for medical devices
 - Conceptual and detailed design optimization
 - Principles for miniaturization of medical devices
 - Object-oriented system integration of medical devices
-

Course Topics:

- Clinical need analysis
 - Medical device design and prototyping
 - Medical device testing, verification, and validation
 - Human factors, ergonomics, and safety engineering
 - Medical device design control and documentation
 - Medical device regulation and FDA approval
-

Designation:

Elective