



BioMEMS Microfabrication

BIOMEDE 5667

Credit Hours:

3.00 - 3.00

Course Levels:

Undergraduate (1000-5000 level)

Graduate (5000-8000 level)

Course Components:

Lecture

Course Description:

A detailed overview of microfabrication technologies, including silicon microfabrication, polymer microfabrication, and advanced microfabrication topics, with application to specific MEMS and BioMEMS devices.

Prerequisites and Co-requisites:

Prereq: Sr or Grad standing in Engineering, or permission of instructor.

Course Goals / Objectives:

- Produce a microfabrication protocol for BioMEMS devices
 - Identify BioMEMS device requirements and determine the materials which will be best able to satisfy those requirements
 - Identify the strengths and weaknesses of common microfabrication techniques
 - Apply MEMS technology to the measurement, simulation, and enhancement of biological systems
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Course Topics:

- Introduction and materials for microfabrication
 - Silicon microfabrication
 - Polymer microfabrication
 - Advanced microfabrication and packaging
 - Characterization techniques for BioMEMS
 - Case study: micro-gyroscope
 - Case study: micromotors and comb drives
 - Case study: cell force measurement with BioMEMS
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Designation:

Elective