THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

General BME Capstone I

BIOMEDE 4901.01

Credit Hours:
3.00

Course Levels:
Undergraduate (1000-5000 level)

Course Components:
Lecture
Lab

Course Description:
First course in the general BME capstone sequence. Introduction to design principles; needs finding, idea generation, and presentation of projects that include a real-world, medically relevant problem with a focus on potential users. Documentation and technical skills are developed throughout the course.

Prerequisites and Co-requisites:
Prereq: 2001, or permission of instructor. Concur: 3701

Course Goals / Objectives:

- develop and list engineering specifications from clinical needs; (4)
- demonstrate engineering design and optimization for a new medical product in a team environment; (c)
- take a clinical need from idea to drawing and/or prototype using modern engineering tools; (2)
- demonstrate engineering design & optimization for a new medical product in a team environment; (5)
- test design performance with respect to at least one primary design requirement and standard (6).
- deliver a technical presentation & write a technical team report (3)
- GE Reflctn Booknd LO: Engaged Citiznshp & Intercultural Competency: Studnts consider public health, safety, welfare, global, cultural, social, environmental, & econ factors in applying eng design to produce solutions meeting specified needs.
- GE Reflctn Booknd LO: Personal & Professional Development: Students individually assess and pursue personal professional growth in concert with project requirements and personal career goals.
- GE Refl Bkend LO: Engaged Citiznshp & Intercultural Competency: Cultivate Engr Mindset: Studnts develop an engr mindset that demonstrates constant curiosity, makes connections betwn disparate bodies of info, & seeks opportunities to create value.
- GE Reflctn Booknd LO: Cultivate Engineering Mindset: Students develop an engineering mindset that demonstrates constant curiosity, makes connections between disparate bodies of information, and seeks opportunities to create value.

Course Topics:

- Wk 1 Intro & overview of Design Process (Fri) Design Process I: Defining the Problem (Wed)
- Wk 2 (Wed) • Team intros and logistics. Design Process II: Functions & • Requirements (Fri) • Guest lecture by Liz Gauen, Rehab Engineering • Clinical environment and client interviews
- Wk 3 Meeting with Clinical Mentors
- Wk 4 (W) & (F) Teamwork sessions: • Background Research • 3-D Printer training
- Wks 5 & 6 Teams meet with instructor
- Wk 7 (W) & (F) • Design Process III: Concept Generation and Evaluation • Team prep day for oral reports
- Wk 8 • Problem Definitions Oral Reports
- Wk 9 Teamwork sessions: Team concept sketches
- Wks 10 & 13 Team meetings with instructor
- Wk 11 Team work sessions (device mock-ups)
- Wk 12 • Team work sessions – finish design; prepare for presentation; • check-in with clinical mentor on design status
- Wk 14 Team work day - finish design; prepare for presentation
- Wk 15 • Team work day for Oral talk and Idea Pitch event • OSU Keenan Center Device Idea Pitch event
- Wk 16 Oral Reports

Designation:

Required
Selective Elective (1)