

BMED 4600/4601 Senior Design Project I/II

Credit: 1-3-2 (4600); 1-6-3 (4601)

Prerequisite(s)

BMED 4600 – BMED 3161 (w/concurrency) and BMED 3500 (w/concurrency)
BMED 4601 – BMED 4600

Catalog Description

Team-oriented major design project in biomedical engineering, incorporating engineering standards and realistic design constraints.

Textbooks

None

Objectives

To prepare students for engineering practice through a major design experience incorporating engineering standards and realistic constraints that include most of the following considerations: economic; environmental; sustainability; manufacturability; ethical; health and safety; social; and political.

Outcomes

Specifically, at the end of the two-course sequence the students will be able to:

1. develop a problem statement and design requirements/constraints for a design problem of interest to a client (Program Outcomes 1, 3 and 5)
2. use design requirements/constraints to develop a design solution by evaluating a number of alternative designs (Program Outcomes 1, 2 and 3)
3. build a prototype, model or related proof of concept of your design (Program Outcomes 2 and 3)
4. identify and describe the potential social impact and ethical concerns associated with the product of their design efforts (Program Outcome 7)
5. explain the pre- and post-market impact of FDA regulations (Program Outcome 7)
6. complete a final report and poster presentation which includes, where applicable, analysis of critical processes, components or assemblies, CAD drawings (including tolerances and assembly drawings), costs of production (time and materials), material selection and rationale, manufacturing considerations (process selection and rationale), etc. (Program Outcomes 3 and 5)