

## **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**

*Design of Biomedical Devices and Systems*, Paul King and Richard Fries, Marcel Dekker, 2003. (recommended)

### **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 within the USA associated with the product of their design efforts (Program Outcome 7)
5. identify and describe the potential social impact and ethical concerns within the country of their International Plan (IP) experience associated with the product of their design efforts [IP students only]
6. explain the pre- and post-market impact of FDA regulations (Program Outcome 7)
7. explain the pre- and post-market impact of the regulatory body in the country of their IP experience [IP students only]
8. 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)