TO: The Engineering Faculty

FROM: The Faculty of the Department of Biomedical Engineering

RE: New Undergraduate-Level Course

The faculty of the Department of Biomedical Engineering has approved the following new course. This action is now submitted to the Engineering Faculty with a recommendation for approval.

BME 405 BME Design Project

Sem. 1 and 2. Class 1. Lab. 8, Cr. 4.

Prerequisite: BME 390 and senior standing

Design and management of biomedical engineering projects. Teams design and implement a solution to a biomedical engineering problem utilizing skills gained in previous course work. Oral and written presentation of design and demonstration of function, are required

Reason: To train the students in several aspects: (1) ability to synthesize and apply knowledge obtained in earlier course work and to grasp new knowledge necessary for designing and testing a system or process to meet desired needs; (2) ability to function effectively in a team; (3) understanding of the engineering design process; (4) awareness of professional and ethical responsibility; (5) communication skills in oral and written forms.

George Wodicka
Professor and Head

Supporting Documentation:

1. Level: Undergraduate – senior year

2. Course Instructor: Ji-Xin Cheng, Andrew Brightman, Ann Rundell

3. Course Outline:

One 50 minute lecture and two 4 hour laboratories are scheduled per week. Final project demonstrations and presentations are made to other BME students, faculty, and invited industrial representatives and are scheduled for finals week.

Lecture Topics(in order)	*Student Assignment*	*Week*
Project description & specification	Team Selection	1
Project management and scheduling/timeline (Gantt charts)	Preliminary Design Due	2
Engineering economics	Breakdown of individual responsibilities	3
Team work strategies	Laboratory Notebook Review	4
Testing and evaluation	Cost breakdown and Timeline	5
Design for quality and manufacturability		6
Good laboratory practices and ISO	Submission of testing plan	7
Biocompatibility	Laboratory Notebook Review	8
Clinical trials	Individual Oral Presentations	9
Invited industry design presentation		10
Ethics and personal liability		11
Patents and copyrights	Laboratory Notebook Review	12
Regulatory approval processes (part 1)		13
Regulatory approval processes (part 2)		14
Medical device marketing	Laboratory Notebook Review	15
Final Presentations	Demonstration and Oral Presentation of Final Design	Finals

4. Text: none required

5. Grading:

Preliminary design description	5%
Individual laboratory notebooks	15%
Individual oral presentation(s)	10%
Peer evaluation	5%
Testing plan	5%
GANTT chart and timeline	10%
Demonstration of project	15%
Final oral team presentation	15%
Written final report	20%