Office of the Registrar
FORM 40 REV. 11/09

PURDUE UNIVERSITY
REQUEST FOR ADDITION, EXPIRATION, OR REVISION OF AN UNDERGRADUATE COURSE
(10000-40000 LEVEL)

EFD - 18-10

Print Form

DEPARTMENT Biomedical Engineering

EFFECTIVE SESSION Spring 2012 (201220)

INSTRUCTIONS: Please check the items below which describe the purpose of this request.

- [ ] 1. New course with supporting documents
- [ ] 2. Add existing course offered at another campus
- [ ] 3. Expiration of a course
- [ ] 4. Change in course number
- [x] 5. Change in course title
- [ ] 6. Change in course credit/type
- [ ] 7. Change in course attributes (department head signature only)
- [ ] 8. Change in instructional hours
- [x] 9. Change in course description
- [x] 10. Change in course requisites
- [x] 11. Change in semesters offered (department head signature only)
- [ ] 12. Transfer from one department to another

PROPOSED:	EXISTING:
Subject Abbreviation	Subject Abbreviation BME
Course Number	Course Number 39000
Long Title Professional Development and Design in Biomedical Engineering	
Short Title Prof Develpmnt & Design in BME	

Abbreviated title will be entered by the Office of the Registrar if omitted. (30 CHARACTERS ONLY)

TERMS OFFERED
Check All That Apply:
[ ] Summer [ ] Fall [x] Spring

CAMPUS(ES) INVOLVED
[ ] Calumet [ ] N. Central
[ ] Cont Ed [ ] Tech Statewide
[ ] Ft. Wayne [x] W. Lafayette
[ ] Indianapolis

CREDIT TYPE
1. Fixed Credit: Cr. Hrs. 1
2. Variable Credit Range: Minimum Cr. Hrs ____ (Check One) To [ ] Or [ ] Maximum Cr. Hrs. ____
3. Equivalent Credit: Yes [ ] No [ ]

COURSE ATTRIBUTES: Check All That Apply
1. Pass/Not Pass Only [ ]
2. Satisfactory/Unsatisfactory Only [ ]
3. Repeatable [ ]
Maximum Repeatable Credit: [ ]
4. Credit by Examination [ ]
5. Special Fees [ ]
6. Registration Approval Type: Department [ ] Instructor [ ]
7. Variable Title [ ]
8. Honors [ ]
9. Full Time Privilege [ ]
10. Off Campus Experience [ ]

ScheduleType	Minutes Per Mtg	Meetings Per Week	Weeks Offered	% of Credit Allocated
Lecture	50	1	16	
Recitation				
Presentation				
Laboratory				
Lab Prep				
Studio				
Distance				
Clinic				
Experiential				
Research				
Ind. Study				
Pract/Observ				

Cross-Listed Courses

RECEIVED
2011 AUG -9 AM 9:43
OFFICE OF THE REGISTRAR

COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS):
Prerequisite: BME 29000. Introduction to a diverse spectrum of current topics relevant to the technical, professional, and career aspects of Biomedical Engineers. The course topics will focus on the early stages of the design process (e.g. need identification, problem formulation, innovation and idea generation), professional communication skills (e.g. written and oral reporting and documentation), and ethics of biomedical design and research (e.g. ethical codes and decision making, animal care and use in research and testing, authorship and intellectual property, social and environmental impact of design).

*COURSE LEARNING OUTCOMES:
A student who successfully fulfills the course requirements will have demonstrated: an ability to identify medical needs relevant to Biomedical Engineering solutions, an understanding of realistic constraints which impact biomedical engineering design, an understanding of ethical and professional responsibilities which impact design, an understanding of the need for a multidisciplinary team to solve biomedical engineering design projects, an ability to independently acquire knowledge from a variety of sources including biology and medicine as well as other engineering disciplines, an ability to communicate effectively in written form and evaluate written reports, and an ability to identify a career development pathway that is relevant to their personal identity and training as Biomedical Engineers

	Date		Date
Calumet Department Head		Calumet School Dean	
Fort Wayne Department Head		Fort Wayne School Dean	
Indianapolis Department Head		Indianapolis School Dean	
North Central Department Head		North Central Chancellor	
George R. Wodicka	2/22/11		7/25/11
West Lafayette Department Head	Date	West Lafayette College/School Dean	Date

West Lafayette Registrar — Date 8/15/11

OFFICE OF THE REGISTRAR

BME 39000

Engineering Faculty Document No. 78-10

February 22, 2011

TO: The Faculty of the College of Engineering

FROM: The Faculty of the School of Biomedical Engineering

RE: Changes in Undergraduate-Level Course, BME 39000 Biomedical Engineering Professional Seminar, title, description, term offered and requisites

The Faculty of the School of Biomedical Engineering has approved the following changes to an existing course. This action is now submitted to the Engineering Faculty with a recommendation for approval.

From: **BME 39000 Biomedical Engineering Professional Seminar**
Term offered: Fall, Lecture 1, Cr. 1
Prerequisite: ENGL 10800 and COM 11400 or equivalent

Description: Introduction to a diverse spectrum of current topics relevant to the technical and career aspects of biomedical engineering. Career topics include the importance of interpersonal communication, opportunities in professional and graduate school, and descriptions of non-typical jobs for BMEs. Improvement of written and oral communication skills will be emphasized.

To: **BME 39000 Professional Development and Design in Biomedical Engineering**
Term offered: Spring, Lecture 1, Cr. 1
Prerequisite: BME 29000

Description: Introduction to a diverse spectrum of current topics relevant to the technical, professional, and career aspects of Biomedical Engineers. The course topics will focus on the early stages of the design process (e.g. need identification, problem formulation, innovation and idea generation), professional communication skills (e.g. written and oral reporting and documentation), and ethics of biomedical design and research (e.g. ethical codes and decision making, animal care and use in research and testing, authorship and intellectual property, social and environmental impact of design).

Reason: The title change provides a more descriptive course title. The change in prerequisite reflects the addition of a new sophomore-level course, BME 29000, to our curriculum. BME 29000 contains some materials and assignments previously in the junior-level course that serve as a foundation negates the need to list any other prerequisites. The content and assignments in BME 39000 now reflect a developmental step in the design pedagogy. The change to Spring semester is to have proximity and connection to the Senior Design Projects courses in the Fall.

George R. Wodicka

George R. Wodicka, Professor and Head
Weldon School of Biomedical Engineering

BME 39000

BME 39000, Professional Development and Design in Biomedical Engineering

SYLLABUS – Spring 2010

Course Description:
Introduction to a diverse spectrum of current topics relevant to the technical, professional, and career aspects of Biomedical Engineers. The course topics will focus on the early stages of the design process (e.g. need identification, problem formulation, innovation and idea generation), professional communication skills (e.g. written and oral reporting and documentation), and ethics of biomedical design and research (e.g. ethical codes and decision making, animal care and use in research and testing, authorship and intellectual property, social and environmental impact of design).

Time/Location: Tuesdays, 12:30 am -1:20 am, MJIS 1001
Credit: 1
Prerequisites: BME 29000
Limit: BME only, Junior standing

Instructor: Andrew O. Brightman, PhD, Assistant Head
Contact info: MJIS 1021F, (765) 496-3537 aob@purdue.edu
Office hours: Mondays 3:00 to 5:00 and Wednesdays, 2:30 to 4:30

Teaching Assistant: Eric Brandner
Contact info: ebrandne@purdue.edu
Office hours: M/W 4:30-6:30, MJIS 1086

Required Texts:
The MIT Guide to Science and Engineering Communication by J.G. Paradis and M. Zimmerman, 2002, MIT Press, 2nd Edition.
The Engineer of 2020: Visions of Engineering in the New Century, National Academy of Engineering, 2004, National Academy Press.

Learning Strategies: The course employs a wide variety of learning strategies including reading, researching, interviewing, writing, evaluating, discussing, debating, and reporting.

Assessment: Grading is based on individual written reports, technical analyses, and participation in group debates and written proposals (see assignments in table below). Each assignment is worth a point value and total accumulated points will determine the course grade. Occasionally in-class quizzes may be administered, but there are no written exams.

BME 39000

	Assignments	Point Value	Due date	Performance Criteria
1	Medical Problem Identification	100	Feb. 9	1.2, 6.1
2	Technology and Literature Assessment	100	Feb. 23	7.1, 7.2
3	Ethics Discussion / Debate	100	Mar. 9	6.3, 7.1, 7.3, 7.4
4	Ethics Written Assignment	100	Mar. 30	7.1, 7.2, 8.3, 9.2, 9.3
5	Problem Statement	100	Apr. 19	3.1, 7.2
6	Career Path Report	100	Apr. 30	9.1
7	Final Written Proposal and Evaluations	200	Apr. 27, May 4	1.2, 3.1, 3.2, 6.2, 7.1, 7.2, 7.4, 9.2

Grading Scale:

100-97% = A+
96-93% = A
92-90% = A-
89-87% = B+
86-83% = B
82-80% = B-
79-77% = C+
76-73% = C
72-70% = C-
69-67% = D+
66-63% = D
62-60% = D-
Below 60% = F

APPROVED FOR THE FACULTY
OF THE SCHOOLS OF ENGINEERING
BY THE ENGINEERING
CURRICULUM COMMITTEE

ECC Minutes #17

Date 4/20/11

Chairman ECC R. Cipra

BME 39000

Date	Class	Main Topic	Other Events	Assignments Due
Jan. 12	1	Course Introduction **Design Process and Identifying unmet medical problems**		
Jan. 19	2	Realistic Design Constraints I **Final Design Project Proposal and Formulating design constraints**		
Jan. 26	3	Professional Communication I **Written and Oral Reports**		
Feb. 2		**Innovation and Idea Generation**		
Feb. 9	4	Realistic Design Constraints II **Developing a Problem Statement**		**Medical Problem Identification Report**
Feb. 16	5	Professional Communication II **Identifying and evaluating emerging technology**		
Feb. 23	6	Realistic Design Constraints III **Ethical and Social Impact**		**Technology and Literature Assessment**
Mar. 2	7	Professional Communication III **Ethical and Social Impact –** Case Studies and Debate Prep		
Mar. 9		***NO CLASS (due to evening ethics debates)***	***Evening ethics debates***	**BME Ethics Debates**
Mar. 16		***NO CLASS***	***SPRING BREAK***	
Mar. 23	8	Career Development I **Career paths** - Small group discussions		
Mar. 30	9	Career Development II **Academia / Graduate School –** Profs. Leary and Schmidt		**Written Ethics Analysis**
Apr. 6	10	***NO CLASS***	***Due to special class on 29th***	
Apr. 13	11	Realistic Design Constraints IV **Senior Design Preview –** Career Path Report		**Problem Statement Due 19th Monday**
Apr. 20	12	Realistic Design Constraints V **Design in the Medical Device Industry** - Dr. David Reuter		
Apr. 27	13	Career Development III **Professional School Panel –** Med School, Law School, MBA		**Design Project Evaluations**
April 29	13	Career Development IV **Medical Device Industry** - Weldon School Alumni Panel	***Special class session***	**Career Path Report Due 30th Friday**
May 4		***NO CLASS***	***FINALS WEEK***	**Final Design Project Proposals**

BME 39000

Original documentation

1. Level: Undergraduate – junior year

2. Course Instructor: Andrew Brightman

3. Course Outline:

Presentations by week
– *Invited Speaker on Current Status of BME* - **Selection of Teams and BME Areas**
– *Convincing Technical Reports* – **Assignment of Written Report**
– *Effective Visual Aids in Professional Presentations*
– *Dynamic Oral Presentations* – **Assignment of Oral Presentation**
– *Invited Speaker on Special Topic in Biomedical Engineering*
– *Professional Portfolios – Traditional and Electronic Media*– **Portfolio Assignment**
– *Graduate School Preview / BME Graduate Student Panel*
– *Student Presentations* – **Written Reports Due**
– *Student Presentations*
– *Student Presentations*
– *Student Presentations*
– *Student Presentations*
– *Student Presentations*
– *Student Presentations* – **Portfolios Due**
– *Invited Industry Speaker – Opportunities in BME Corporations*
– *Finals Week – Awards for Best Report and Presentation*

4. Required text: *The MIT Guide to Science and Engineering Communication* by J.G. Paradis and M. Zimmerman, 1997, MIT Press.

5. Assessment: based on attendance, individual written report, professional portfolios, and participation in group presentation.