Office of the Registrar
FORM 40 REV. 11/09

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

Print Form

EFD 9-10

DEPARTMENT Biomedical Engineering

EFFECTIVE SESSION Fall 2011

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
- [ ] 5. Change in course title
- [x] 6. Change in course credit/type
- [ ] 7. Change in course attributes (department head signature only)
- [x] 8. Change in instructional hours
- [x] 9. Change in course description
- [x] 10. Change in course requisites
- [ ] 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 30500
Long Title Bioinstrumentation Circuit and Measurement Principles	
Short Title Bioinstrumentation Lab	

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

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

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

CREDIT TYPE
1. Fixed Credit: Cr. Hrs. 3
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	75	1	16	50
Recitation				
Presentation				
Laboratory	200	1	16	50
Lab Prep				
Studio				
Distance				
Clinic				
Experiential				
Research				
Ind. Study				
Pract/Observ				

Cross-Listed Courses

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COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS):

Major Restriction: BME Only. Prerequisites: (PHYS 24100 or PHYS 27200) and (MA 26600 or MA 26200) and BME 20600. Concurrent prerequisite: BME 30100. Introduction of laboratory instruments used to measure physiological events. Stimulation and conduction of electric signals within the nervous system and other excitable tissues are demonstrated. Fundamental circuit elements and concepts include resistance, capacitance, inductance, op-amps, impedance, voltage, current, power, and frequency. Fundamental analog measurement concepts include adequate bandwidth and amplitude and phase linearity. An integrative two-week design project addresses the practical aspects of quantitative physiological measurements

*COURSE LEARNING OUTCOMES:

1. Employ circuit models and analysis techniques to understand, interpret, and predict bioelectric system behaviors. 2. Conduct, observe, and document laboratory experiments to test hypotheses and predictions. 3. Design bioinstrumentation systems with adequate bandwidth, amplitude linearity, and phase linearity to faithfully record a physiological event. 4. Recognize the economics, the ethical considerations, and regulatory and societal environment integral to the design of biomedical bioinstrumentation.

Calumet Department Head	Date	Calumet School Dean	Date
Fort Wayne Department Head	Date	Fort Wayne School Dean	Date
Indianapolis Department Head	Date	Indianapolis School Dean	Date
North Central Department Head	Date	North Central Chancellor	Date
George R. Wodicka 2/9/11		Jen Reed 3-31-11	Sandra Shaffer 4/8/11
West Lafayette Department Head	Date	West Lafayette College/School Dean	Date
			West Lafayette Registrar Date

OFFICE OF THE REGISTRAR

4/18/11 jpr

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Course Number

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Subject Abbreviation BME
Course Number 30500

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(Check One) To [ ] Or [ ]
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- [ ] Maximum Repeatable Credit:
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- [ ] 5. Special Fees
- 6. Registration Approval Type: Department [ ] Instructor [ ]
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Studio				
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Research				
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*COURSE LEARNING OUTCOMES:
1. Employ circuit models and analysis techniques to understand, interpret, and predict bioelectric system behaviors. 2. Conduct, observe, and document laboratory experiments to test hypotheses and predictions. 3. Design bioinstrumentation systems with adequate bandwidth, amplitude linearity, and phase linearity to faithfully record a physiological event. 4. Recognize the economics, the ethical considerations, and regulatory and societal environment integral to the design of biomedical bioinstrumentation.

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Fort Wayne Department Head	Date	Fort Wayne School Dean	Date
Indianapolis Department Head	Date	Indianapolis School Dean	Date
North Central Department Head	Date	North Central Chancellor	Date
George R. Wodicka West Lafayette Department Head	2/9/11 Date	[signature] West Lafayette College/School Dean	3-31-11 Date
West Lafayette Registrar	Date		

OFFICE OF THE REGISTRAR

File

TO: The Faculty of the College of Engineering

FROM: The Faculty of the School of Biomedical Engineering

RE: Changes to existing Undergraduate Course, BME 30500 Bioinstrumentation Circuit and Measurement Principles, description, number of credits 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 30500 Bioinstrumentation Circuit and Measurement Principles**
Term offered: Fall, Lecture 1, Lab 3, Cr. 2
Prerequisites: PHYS 24100, MA 26600, or equivalents
Co-requisite: BME 30100

Description: Introduction of laboratory instruments used to measure physiological events. Stimulation and conduction of electric signals within the mammalian nervous system and other excitable tissues are demonstrated. Fundamental circuit elements and concepts include resistance, capacitance, inductance, op-amps, impedance, voltage, current, power, and frequency. Fundamental analog measurement concepts include adequate bandwidth and amplitude and phase linearity. An integrative two-week design project addresses the practical aspects of quantitative physiological measurements.

To: **BME 30500 Bioinstrumentation Circuit and Measurement Principles**
Term offered: Fall, Lecture 1, Lab 3, Cr. 3
Restriction: Must be enrolled in the School of Biomedical Engineering (BME)
Prerequisites: (PHYS 24100 or PHYS 27200) and (MA 26600 or MA 26200) and BME 20600
Concurrent prerequisite: BME 30100

Description: Introduction of laboratory instruments used to measure physiological events. Stimulation and conduction of electric signals within the nervous system and other excitable tissues are demonstrated. Fundamental circuit elements and concepts include resistance, capacitance, inductance, op-amps, impedance, voltage, current, power, and frequency. Fundamental analog measurement concepts include adequate bandwidth and amplitude and phase linearity. An integrative two-week design project addresses the practical aspects of quantitative physiological measurements.

Reason: The course credit hours have been changed to reflect the actual workload; no change in content has been made (see EFD28-11 for balancing of credit load). The prerequisites have been revised to specify equivalencies. The preceding BME undergraduate lab has also been added as a prerequisite. A restriction has been employed since this is a limited space laboratory course. "Mammalian" was removed from the description so as not to limit ourselves to one living system.

George R. Wodicka

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

APPROVED FOR THE
OF THE SCHOOLS OF
BY THE ENGIN
CURRICULUM CO
ECC Minutes #13
Date 3/9/2011
Chairman ECC R Cipra