

PURDUE UNIVERSITY
REQUEST FOR ADDITION, DELETION,
OR REVISION OF A COURSE

SCHOOL DOCUMENT NO. 18-02

GRADUATE COUNCIL DOCUMENT NO.

DEPARTMENT Biomedical Engineering

DATE SUBMITTED 9/4/02

DATE EFFECTIVE 9/1/03

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

PURPOSE

- | | |
|---|---|
| <input checked="" type="checkbox"/> 1. Deletion of a course | <input type="checkbox"/> 8. Change in semesters offered |
| <input checked="" type="checkbox"/> 2. New course with supporting documents | <input type="checkbox"/> 9. Change in course credit/type |
| <input type="checkbox"/> 3. Add existing course offered at another campus | <input type="checkbox"/> 10. Change in course attributes |
| <input type="checkbox"/> 4. Change in course number at same level | <input type="checkbox"/> 11. Change in instructional hours |
| <input type="checkbox"/> 5. Downgrading of course level | <input type="checkbox"/> 12. Change in prerequisites |
| <input type="checkbox"/> 6. Upgrading of course level | <input type="checkbox"/> 13. Change in description of course content |
| <input type="checkbox"/> 7. Change in course title | <input type="checkbox"/> 14. Transfer of course from one dept. to another |

EXISTING:

Subject Abbreviation BME
Course Number 595

PROPOSED:

Subject Abbreviation BME
Course Number 522

SEMESTERS OFFERED

Check All That Apply.

Summer ☐ Fall ☐ Ag Winter ☐ Spring ☒Proposed Title Problems in the Measurement of Physiological EventsVariable Title Yes ☐ No ☒Abbreviated Title Prblm Meas Phys Events

Abbreviated title will be entered by the Office of the Registrar if omitted. (22 CHARACTERS ONLY)

CROSS LISTED COURSES

ECE 522

CREDIT TYPE

- | | |
|---------------------------|--|
| 1. Fixed Credit: | Cr. Hrs. <u>4</u> |
| 2. Variable Credit Range: | |
| Minimum Cr. Hrs | <input type="text"/> |
| (Check One) To | Or <input type="text"/> |
| Maximum Cr. Hrs. | |
| 3. Equivalent Credit: | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| 4. Thesis Credit: | Yes <input type="checkbox"/> No <input type="checkbox"/> |

COURSE ATTRIBUTES: Check All That Apply.

- | | |
|--|-------------------------------------|
| 1. Pass/Not Pass Only | <input type="checkbox"/> |
| 2. Repeatable for Credit | <input type="checkbox"/> |
| 3. Available for Credit by Examination | <input type="checkbox"/> |
| 4. Designator Required | <input type="checkbox"/> |
| 5. Special Fees | <input checked="" type="checkbox"/> |
| 6. Approval Required for Enrollment | <input checked="" type="checkbox"/> |

Department
InstructorInstructional
TypePrimary
Secondary
Laboratory
Lab. Prep.Class
Hours3.0
1.0

FTE

Instructional
TypeAuto-tutorial
Ind. Study
Clinic
ExperientialClass
Hours

FTE

Instructional
TypeThesis
Observation
Matrix BasedClass
Hours

FTE

CAMPUS(ES) INVOLVED

Calumet
Fort Wayne
Indianapolis
North Central
West Lafayette
Off Campus

COURSE DESCRIPTION (PREREQUISITES INCLUDED):

Lectures devoted to the methods used to measure physiological events with demonstrations and laboratory exercises to emphasize the practical aspects of quantitative measurements on living subjects. The systems covered are cardiovascular, respiratory, and central peripheral nervous.

Consent of Instructor required

Calumet Undergrad Curriculum Committee

Date

Calumet Department Head

Date

Calumet School Dean

Date

Fort Wayne Department Head

Date

Fort Wayne School Dean

Date

Fort Wayne Chancellor

Date

Indianapolis Department Head

Date

Indianapolis School Dean

Date

Undergrad Curriculum Committee

Date

North Central Department Head

Date

North Central Vice Chancellor

Date

Date Approved by Graduate Council

West Lafayette Department Head

Date

West Lafayette School Dean

Date

Graduate Council Secretary

Date

Graduate Area Committee Convener

Date

Graduate Dean

Date

West Lafayette Registrar

Date

OFFICE OF THE REGISTRAR

to Grad School 4/11/03

TO: The Engineering Faculty
FROM: Department of Biomedical Engineering
RE: New Graduate-Level Course

The Department of Biomedical Engineering has approved the following new course. Approval of the Faculty of the Schools of Engineering is requested.

BME 522 Problems in Measurement of Physiological Events

A. Course Description

Sem. 2. Class 2, Lab 4, cr. 4.

Prerequisites: Consent of instructor

Lectures devoted to the methods used to measure physiological events with demonstrations and laboratory exercises to emphasize the practical aspects of quantitative measurements on living subjects. The systems covered are cardiovascular, respiratory, and central peripheral nervous.

B. Reason: This course has been offered twice with an experimental number within the BME department and has been previously offered from the School of Electrical and Computer Engineering as ECE 522 for more than 10 years.

This is BME's only laboratory course on the fundamentals of measurement principles for physiological events. The contents are applicable to a broad class of biomedical measurements systems, at several levels (molecular, cellular, and systems).

The course was offered in Spring 2001, Spring 2002 and Spring 2003 with 16, 13, and 15 students respectively. Spring 2001 had 15 undergraduate students and 1 graduate student, Spring 2002 has 8 undergraduate students and 5 graduate students and Spring 2003 has 11 undergraduate students and 4 graduate students.

APPROVED FOR THE FACULTY
OF THE SCHOOLS OF ENGINEERING
BY THE COMMITTEE ON
FACULTY RELATIONS

George R. Wodicka
Head and Professor
Department of Biomedical Engineering

CFR Minutes #972

Date 4/5/03

Chairman CFR Michael W. Jaltowski

Supporting Documentation:**Course Instructor:** Ann Rundell**Offered:** Spring Semester

Course Objective: A student who successfully fulfills the course requirements will have demonstrated an understanding of the criteria for faithful reproduction of physiological events, an ability to conduct experiments in the laboratory to obtain, observe, and report physiological events, an understanding of the cardiovascular system in terms of the cardiac muscle, electrical signals, cycle and output, an ability to utilize bioelectrodes for stimulation and recording purposes, and an understanding of the mechanism of information communication employed by the nervous system.

Student Population: The course is designed to be dual level for graduate students and advanced undergraduates interested in biomedical engineering.

Course Content:**Syllabus**

Topics	Lecture	Lab(4hr)
Criteria for the Faithful Reproduction of Physiological Events (Analog and Digital)	3	1
Bandwidth of Bioinstrumentation systems and Frequency	2	1
Content of Signals		
Bioelectric Amplifiers	1	1
Properties of Bioelectrodes	1	2
Stimulation of Excitable Tissue	2	1
Nerve Propagation	2	1
Origin of ECG	1	1
Properties of the Cardiac Muscle	2	1
The Cardiac Cycle	2	1/3
Cardiac Output	1	1/3
Pacing, Fibrillation, Defibrillation, ICDs	3	1
Measurement and Regulation of Blood Pressure	2	1
Anesthesia	1	1/3
Pulmonary System	2	1
Electrical Safety	1	
Total	26	13

Remaining hours are used for examinations and record review and analysis

Text(s): L.A. Geddes and L.E. Baker, Principles of Applied Biomedical Instrumentation, John Wiley, 3rd Edition, 1989. ISBN (0-471-60899-8)