

TO: The Faculty of the College of Engineering
FROM: The Faculty of the School of Biomedical Engineering
RE: Change to Undergraduate-Level Course BME 20400 prerequisite

The faculty of the School of Biomedical Engineering has approved the change in requisites of the course listed below. This action is now submitted to the Engineering Faculty with a recommendation for approval.

FROM: BME 20400 Biomechanics of Hard and Soft Tissues
Term offered: Spring, Lecture 3, Cr. 3
Prerequisite: ME 27000, BIOL 29500E, or equivalent
Corequisite: MSE 23000 or equivalent

Covers the mechanics of biological materials, with applications in the musculo-skeletal system, nerves, spinal cord, and vascular tissue, down to the level of the cell. Topics include center of mass, moment of inertia, basic understanding of stresses, strains, and deformations, axial elements, pressure vessels, beams, torsion, viscoelasticity, and thermal stress. Case studies and problem solving sessions used to emphasize the unique biological criteria which must be considered when mechanically analyzing both soft and hard tissues.

TO: BME 20400 Biomechanics of Hard and Soft Tissues
Term offered: Spring, Lecture 3, Cr. 3
Prerequisite: ME 27000 and BIOL 23000
Concurrent prerequisite: MSE 23000

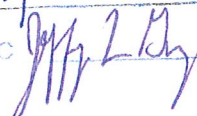
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REASON: The biology prerequisite, BIOL 29500E, was changed because the class was given a permanent number; BIOL 23000.



George Wodicka
Professor and Head
Weldon School of Biomedical Engineering

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

ECC Minutes # 12
Date 9/19/2013
Chairman ECC 

Office of the Registrar
FORM 40 REV. 11/08

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

Print Form

DEPARTMENT Biomedical Engineering

EFFECTIVE SESSION Spring 2014

(201420)

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

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

PROPOSED:

EXISTING:

Subject Abbreviation _____

Subject Abbreviation BME

Course Number _____

Course Number 20400

Long Title Biomechanics of Hard and Soft Tissues

Short Title Biomech Hard/Soft Tiss

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

TERMS OFFERED
Check All That Apply:

- Summer Fall Spring

CAMPUS(ES) INVOLVED

- Calumet N. Central
 Cont Ed Tech Statewide
 Ft. Wayne 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

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

Cross-Listed Courses

RECEIVED _____

APR 23 2013

OFFICE OF THE REGISTRAR

COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS):

Term offered: Spring, Lecture 3, Cr. 3. Prerequisite: ME 27000 and BIOL 230. Concurrent prerequisite: MSE 23000. Covers the mechanics of biological materials, with applications in the musculo-skeletal system, nerves, spinal cord, and vascular tissue, down to the level of the cell. Topics include center of mass, moment of inertia, basic understanding of stresses, strains, and deformations, axial elements, pressure vessels, beams, torsion, viscoelasticity, and thermal stress. Case studies and problem solving sessions used to emphasize the unique biological criteria which must be considered when mechanically analyzing both soft and hard tissues.

*COURSE LEARNING OUTCOMES:

By the end of this course students should be able to:

- Describe the concepts of stress, strain, and viscoelasticity and explain how these concepts apply to musculoskeletal tissues such as tendons, ligaments, cartilage, muscles and bone.
- Infer the state of stress and strain at a given point in biomedical implants under torsional, axial, bending, and other types of loads.
- Describe the structural hierarchical organization and physiology of musculoskeletal tissues; and how the mechanical function of these tissues alters with age, disease.

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 _____
West Lafayette Department Head _____	Date _____	West Lafayette College/School Dean _____	Date _____

Handwritten signatures and dates:
 _____ 5/14/13
 _____ 4/11/13
 _____ 1/5/13

OFFICE OF THE REGISTRAR

38-13
US 5/10/13