

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

Print Form

DEPARTMENT Mechanical Engineering

EFFECTIVE SESSION Spring 2015

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 checked="" type="checkbox"/> 9. Change in course description                       |
| <input type="checkbox"/> 4. Change in course number                       | <input 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:**

Subject Abbreviation \_\_\_\_\_

Course Number \_\_\_\_\_

Long Title Basic Mechanics I

Short Title \_\_\_\_\_

**EXISTING:**

Subject Abbreviation ME

Course Number 27000

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

**TERMS OFFERED**

Check All That Apply:

Fall     Spring     Summer

**CAMPUS(ES) INVOLVED**

<input type="checkbox"/> Calumet	<input type="checkbox"/> N. Central
<input type="checkbox"/> Cont Ed	<input type="checkbox"/> Tech Statewide
<input type="checkbox"/> Ft. Wayne	<input type="checkbox"/> W. Lafayette
<input type="checkbox"/> Indianapolis	

**CREDIT TYPE**

1. Fixed Credit: Cr. Hrs.
2. Variable Credit Range: Minimum Cr. Hrs.  To  Or  Maximum Cr. Hrs.
3. Equivalent Credit: Yes  No

**COURSE ATTRIBUTES: Check All That Apply**

- |  |   |                                     |
|--|---|-------------------------------------|
| 1. Pass/Not Pass Only <input type="checkbox"/>   | 6. Registration Approval Type Department <input type="checkbox"/> | Instructor <input type="checkbox"/> |
| 2. Satisfactory/Unsatisfactory Only <input type="checkbox"/>   | 7. Variable Title <input type="checkbox"/>                        |                                     |
| 3. Repeatable <input type="checkbox"/>   | 8. Honors <input type="checkbox"/>                                |                                     |
| Maximum Repeatable Credit: <input type="text"/>  | 9. Full Time Privilege <input type="checkbox"/>                   |                                     |
| 4. Credit by Examination <input type="checkbox"/>  | 10. Off Campus Experience <input type="checkbox"/>                |                                     |
| 5. Fees: <input type="checkbox"/> Coop <input type="checkbox"/> Lab <input type="checkbox"/> Rate Request <input type="checkbox"/> |   |                                     |
| Include comment to explain fee   |   |                                     |

ScheduleType	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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS):**

See attached.

**\*COURSE LEARNING OUTCOMES:**

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 Faculty Senate Chair \_\_\_\_\_ Date \_\_\_\_\_ Vice Chancellor for Academic Affairs \_\_\_\_\_ Date \_\_\_\_\_

*April Bujig / JPP* 12/10/14 \_\_\_\_\_ Date \_\_\_\_\_ *Michael J. ...* 12/12/14 \_\_\_\_\_ Date \_\_\_\_\_

West Lafayette Registrar \_\_\_\_\_ Date \_\_\_\_\_

**TO:** The Faculty of the College of Engineering

**FROM:** The Faculty of the School of Mechanical Engineering

**RE:** ME 27000 Changes in Topical Emphasis and Course Description

The Faculty of the School of Mechanical Engineering has approved the following change in ME 27000. This action is now submitted to the Engineering Faculty with a recommendation for approval.

**From:**

**ME 27000 - Basic Mechanics I**

Credit Hours: 3.00.

Vector operations, forces and couples, free body diagrams, equilibrium of a particle and of rigid bodies. Friction. Distributed forces. Centers of gravity and centroids. Applications from structural and machine elements, such as bars, trusses, and friction devices. Kinematics and equations of motion of a particle for rectilinear and curvilinear motion. Typically offered Fall, Spring, Summer.

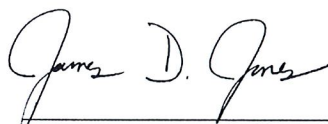
**To:**

**ME 27000 - Basic Mechanics I**

Credit Hours: 3.00.

Vector operations, forces and couples. Free body diagrams, equilibrium of a particle and of rigid bodies. Distributed forces. Centers of gravity and centroids. Friction. Trusses, frames, and machines. Internal reactions resulting from axial, shear, torsional, and bending loading. Stress and strain analyses and elementary failure criteria. Typically offered Fall, Spring, Summer.

**Reason:** Historically, the last 1/3 of ME 27000 has served as an introduction to dynamics, specifically focused on particle kinematic and kinetics. However, this overlap primarily benefitted the ME students since most other disciplines do not require ME 27400 Basic Mechanics II (Dynamics). A much more significant number of students do take either ME 323 Mechanics of Materials or NUCL 273 Mechanics of Materials. We felt an introduction to this topic would be more broadly beneficial and provide a more complete development of the material. Also, in our own ME 26300 Introduction for ME Design, Innovation, and Entrepreneurship course, most students have no exposure to stress and strain, yet many of them would benefit from having some cursory knowledge. This is also a direct benefit of this proposed change.



James D. Jones, Associate Professor and Associate Head  
School of Mechanical Engineering

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

ECC Minutes 10/10/14

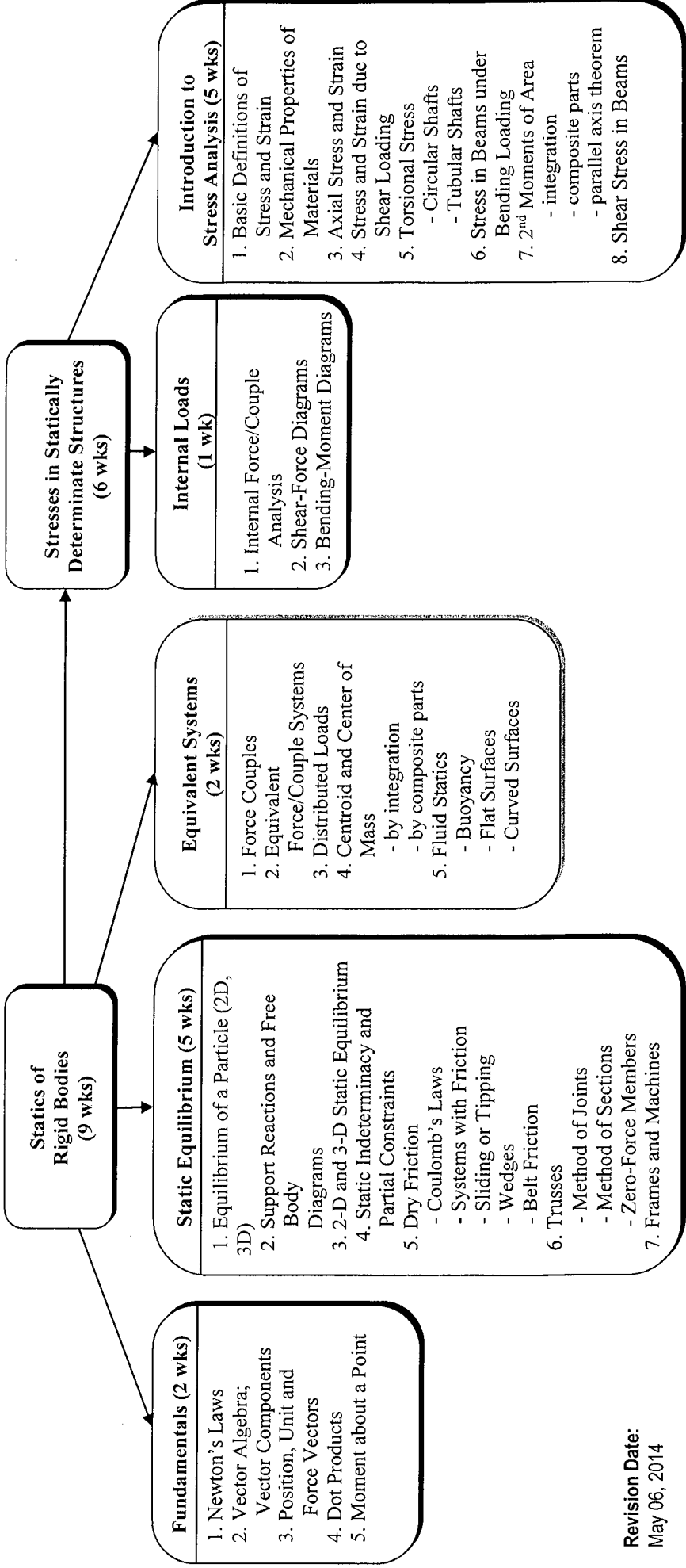
Date 10/10/14

Chairman ECC [Signature]

**ME 270  
 BASIC MECHANICS I**

**Course Outcomes** [Related ME Program Outcomes in brackets]

1. Develop an understanding of *static equilibrium* and *Newton's laws of motion* and how to apply them to engineering systems. [A1, A2]
2. Develop an understanding of *shear-force and bending-moment diagrams* and *basic stress analysis* [A1, A2]
3. Learn a systematic approach to *problem solving*. [A3]
4. Foster effective mathematical and graphical *communication skills*. [B1]



<b>COURSE TITLE: Basic Mechanics I</b>	
<b>COURSE NUMBER: ME 27000</b>	
<b>REQUIRED COURSE OR ELECTIVE COURSE:</b> Required	
<b>TEXTBOOK/REQUIRED MATERIAL:</b> Lecture Book: Forces, Moments, and Stress in the Mechanical World.	
<b>COORDINATING FACULTY:</b> E.A. Nauman	
<b>COURSE DESCRIPTION:</b> Vector operations, forces and couples. Free body diagrams, equilibrium of a particle and of rigid bodies. Distributed forces. Centers of gravity and centroids. Friction. Trusses, frames, and machines. Internal reactions resulting from axial, shear, torsional, and bending loading. Stress and strain analyses and elementary failure criteria.	
<b>ASSESSMENTS TOOLS:</b> 1. Daily homework. 2. Periodic announced or unannounced quizzes during lecture periods. 3. Three, one-hour exams. 4. One comprehensive final exam.	
<b>PROFESSIONAL COMPONENT:</b> 1. Engineering Topics: Engineering Science – 3 credits (100%)	
<b>COMPUTER USAGE:</b> None	
<b>COURSE STRUCTURE/SCHEDULE:</b> 1. Lecture - 3 days per week at 50 minutes	
<b>TERMS OFFERED:</b> Fall, Spring and Summer	
<b>PRE-REQUISITES:</b> PHYS 17200-Modern Mechanics and MA 16600-Analytical Geometry & Calculus II or equivalent <b>CONCURRENT PRE-REQUISITES:</b> MA 26100-Multivariate Calculus and ENGR 13200-Transforming Ideas to Innovation II	
<b>COURSE OUTCOMES</b> [Related ME Program Outcomes in brackets]: 1. Develop an understanding of <i>static equilibrium</i> and <i>stresses in statically determinate structures</i> and how to apply them to engineering systems. [A1, A2] 2. Learn a systematic approach to <i>problem solving</i> . [A2] 3. Foster effective mathematical and graphical <i>communication skills</i> . [B1]	
<b>ME PROGRAM OUTCOMES:</b> A1. Engineering Fundamentals; B3. Prof/Ethical Responsibility; A2. Analytical Skills; B4. Contemporary Issues; A3. Experimental Skills; B5. Life-Long Learning; A4. Modern Engr Tools; C1. Leadership, A5. Design Skills; C2. Global Engineering Skills; A6. Impact of Engr Solns; C3. Innovation; B1. Communication Skills; C4. Entrepreneurship; B2. Teamwork Skills;	
<b>REVISION DATE:</b> May 06, 2014	
<b>PREPARED BY:</b> E.A. Nauman	