Memorandum

To: The Faculty of the College of Engineering

From: The School of Mechanical Engineering

Date: April 21, 2016

RE: Change to Existing ME 20000 – Thermodynamics I

The Faculty of the School of Mechanical Engineering has approved the following changes to an existing course and now seeks the approval at the college level. The First Year Engineering Program now requires students to earn a grade of a C- or higher in all FYE required courses to successfully complete the FYE program. Thus, we are adjusting the listed pre-requisite for ME 20000 include CHM 11500, CHM 11100 and CHM 11200, as well as ENGR 13200, 13300, and 14200 to earn a minimum grade of C-. Also, since there are now more Math course equivalencies for Multivariable Calculus (MA 26100) we are adjusting the listed math course options to meet the course requisite requirements. Students now have the ability to achieve equivalent chemistry courses which also meet the course requisite, thus those courses (CHM 11100 and CHM 12000) need to be added.

Course: ME 20000 - Thermodynamics I

Proposed Requisites:

(Undergraduate level MA 26100 Minimum Grade of D- [may be taken concurrently] or Undergraduate level MA 26300 Minimum Grade of D- [may be taken concurrently]) or MA 18200 Minimum Grade of D- [may be taken concurrently] or MA 27100 Minimum Grade of D- [may be taken concurrently] and (Undergraduate level CHM 11500 Minimum Grade of C- or Undergraduate level CHM 12300 Minimum Grade of C-) or CHM 11100 and CHM 11200 Minimum Grade of C- and Undergraduate level ENGR 13200 Minimum Grade of C- [may be taken concurrently] or Undergraduate level ENGR 14200 Minimum Grade of C- or Undergraduate level ENGR 13300 Minimum Grade of C-

Description: First and second laws of thermodynamics, entropy, reversible and irreversible processes, properties of pure substances. Application to engineering problems.
# PURDUE UNIVERSITY
REQUEST FOR ADDITION, EXPIRATION, OR REVISION OF AN UNDERGRADUATE COURSE
(10000-40000 LEVEL)

**DEPARTMENT:** School of Mechanical Engineering  
**EFFECTIVE SESSION:** Spring 2017

**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  
6. Change in course credit type

## PROPOSED:

<table>
<thead>
<tr>
<th>Subject Abbreviation</th>
<th>Course Number</th>
<th>Long Title</th>
<th>Short Title</th>
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<tr>
<td>ME</td>
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## EXISTING:

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<tbody>
<tr>
<td>ME</td>
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</tbody>
</table>

**TERMS OFFERED:**
- Fall
- Spring
- Summer

## CAMPUS(ES) INVOLVED
- Calumet
- Ft. Wayne
- Indianapolis
- N. Central
- Tech Statewide
- W. Lafayette

**CREDIT TYPE**

<table>
<thead>
<tr>
<th>1. Fixed Credit: Cr. Hrs.</th>
<th>2. Variable Credit Range: Minimum Cr. Hrs. To Maximum Cr. Hrs.</th>
<th>3. Equivalent Credit: Yes/No</th>
<th>1. Pass/Not Pass Only</th>
<th>2. Satisfactory/Unsatisfactory Only</th>
<th>3. Repeatability</th>
<th>4. Credit by Examination</th>
<th>5. Fees: Coop/ Lab Rate Request</th>
<th>Include comment to explain fee</th>
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**COURSE ATTRIBUTES:**

<table>
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<th>6. Registration Approval Type: Department</th>
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<td>7. Variable Title</td>
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<tr>
<td>8. Honors</td>
<td></td>
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<td>9. Fall Time Privilege</td>
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<td>10. Off Campus Experience</td>
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**Schedule Type**

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<th>Lecture</th>
<th>Recitation</th>
<th>Presentation</th>
<th>Laboratory</th>
<th>Lab Prep</th>
<th>Studio</th>
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<th>Clinic</th>
<th>Experiential</th>
<th>Research</th>
<th>Ind. Study</th>
<th>Pract/Observ</th>
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**Cross-Listed Courses**

<table>
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</table>

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

Prerequisites should include the addition of MA 18200, MA 27100, CHM 11100 AND CHM 11200 to be aligned with options available to students. Additionally, minimum grades for CHM 11500, CHM 12300, CHM 11100, CHM 11200, ENGR 13200, ENGR 14200, and ENGR 13300 should be C- due to changes in First Year Engineering requirements. See attached memo for additional information.

**COURSE LEARNING OUTCOMES:**

<table>
<thead>
<tr>
<th>Calumet Department Head</th>
<th>Date</th>
<th>Calumet School Dean</th>
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<tbody>
<tr>
<td>Fort Wayne Department Head</td>
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<td>Date</td>
<td>Indianapolis School Dean</td>
<td>Date</td>
</tr>
<tr>
<td>North Central Faculty Senate Chair</td>
<td>Date</td>
<td>Vice Chancellor for Academic Affairs</td>
<td>Date</td>
</tr>
<tr>
<td>West Lafayette Department Chair</td>
<td>Date</td>
<td>West Lafayette College/School Dean</td>
<td>Date</td>
</tr>
</tbody>
</table>

**OFFICE OF THE REGISTRAR**
Memorandum

To: The Faculty of the College of Engineering

From: The School of Mechanical Engineering

Date: April 21, 2016

RE: Change to Existing ME 26300 — Introduction to Mechanical Engineering Design, Innovation and Entrepreneurship

The Faculty of the School of Mechanical Engineering has approved the following changes to an existing course and now seeks the approval at the college level. The First Year Engineering Program now requires students to earn a grade of a C- or higher in all FYE required courses to successfully complete the FYE program. Thus, we are adjusting the listed pre-requisite for ME 26300 include CHM 11500, CHM 11100 and CHM 11200, as well as ENGR 13200, 13300, and 14200 to earn a minimum grade of C-. Since the university implemented the University Common Core (UCC) curriculum, all First-Year Engineering students must complete both Written and Oral Communications courses before entering into professional schools, specifically Mechanical Engineering. Thus, we are adjusting the listed requisites to remove the previous specific Written and Oral Communication courses since students now have Written and Oral course options, and those courses must be complete before the student's admission to Mechanical Engineering. The proposal is to remove the specific COM 11400 and ENGL 10600 requirements due to the new UCC curriculum requirement options, and it also proposes to remove the expired ENGR 12600/12100 courses. The proposal also includes the addition of MA 26600. The course will remain restricted to students majoring in Mechanical Engineering.

Course: ME 26300- Introduction to Mechanical Engineering Design, Innovation and Entrepreneurship

Proposed Requisites:
(CGT 16300 for a total of 1 conditions)
CGT 16300
Minimum Grade of D-
May be taken concurrently.

and
ME 20000 for a total of 1 conditions ME 20000
Minimum Grade of D-
May not be taken concurrently.

and
ME 27000 or CE 27100 for a total of 1 conditions CE 27100
Minimum Grade of D-
May not be taken concurrently. **ME 27000**
Minimum Grade of D-
May not be taken concurrently.

or

ENGR 13100 and 13200 or 13300 for a total of 1 conditions ( **ENGR 13100**
Minimum Grade of C-
May not be taken concurrently. )
and
( **ENGR 13200**
Minimum Grade of C-
May not be taken concurrently. )
or
( **ENGR 133**
Minimum Grade of C-
May not be taken concurrently

or

ENGR 14100 and 14200 for a total of 1 conditions ( **ENGR 14100**
Minimum Grade of C-
May not be taken concurrently. )
and
( **ENGR 14200**
Minimum Grade of C-
May not be taken concurrently. )

and
.: MA 26200 for a total of 1 conditions **MA 26200**
Minimum Grade of D-
May be taken concurrently.

Or
MA 26600
Minimum Grade of D-
May be taken concurrently

and
.: ME 29000 for a total of 1 conditions **ME 29000**
Minimum Grade of D-
May be taken concurrently.

**Description:** The product design process. Development of product design specifications using customer inputs, benchmarking, product/market research and patent review. Concept generation and evaluation using brainstorming, functional decomposition, modeling and decision matrices. Detailed product design including assembly, economic analysis, CAD, and bill of materials. Oral and written design reviews. Key skills developed include teamwork, communication, project planning, innovation, design, and entrepreneurship.
**PURDUE UNIVERSITY**

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

DEPARTMENT: School of Mechanical Engineering  
EFFECTIVE SESSION: Spring 2017

**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)
- [ ] 8. Change in instructional hours
- [ ] 9. Change in course description
- [ ] 10. Change in course requisites
- [ ] 11. Change in semesters offered (department head signature only)
- [ ] 12. Transfer from one department to another

**PROPOSED:**

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<th>Subject Abbreviation ME</th>
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**EXISTING:**

**TERMS OFFERED:**

Check All That Apply:
- [ ] Fall
- [ ] Spring
- [ ] Summer

**CAMPUS (ES) INVOLVED:**

- [ ] Calumet
- [ ] Cont Ed
- [ ] Ft. Wayne
- [X] Tech Statewide
- [ ] Indianapolis
- [X] W. Lafayette

**ABBREVIATED TITLE WILL BE ENTERED BY THE OFFICE OF THE REGISTRAR IF OMITTED:** (30 CHARACTERS ONLY)

**CREDIT TYPE**

1. Fixed Credit: Cr. Hrs.
2. Variable Credit Range:
   - Minimum Cr. Hrs. (Check One)
   - Maximum Cr. Hrs.
3. Equivalent Credit: Yes
4. Schedule/Type
   - Minutes Per Mtg
   - Meetings Per Week
   - Weeks Offered
   - % of Credit Allocated

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

Remove the Written and Oral Communication prerequisites due to required completion in the First Year Engineering (FYE program). Remove ENR 12600 and ENGR 12100 prerequisites as those are expired courses no longer offered. Additionally, minimum grades for ENGR 13100, ENGR 13200, ENGR 14100, and ENGR 14200 should be C- due to change in First Year Engineering requirements. See attached memo for additional information. All other prerequisites should remain as is. See attached memo for additional information.

**COURSE LEARNING OUTCOMES:**

<table>
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North Central Faculty Senate Chair  
West Lafayette College/School Dean  
West Lafayette Registrar  

**OFFICE OF THE REGISTRAR**
Memorandum

To: The Faculty of the College of Engineering

From: The School of Mechanical Engineering

Date: April 21, 2016

RE: Change to Existing ME 27000- Basic Mechanics I

The Faculty of the School of Mechanical Engineering has approved the following changes to an existing course and now seeks the approval at the college level. The First Year Engineering Program now requires students to earn a grade of a C- or higher in all FYE required courses to successfully complete the FYE program. Thus, we are adjusting the listed pre-requisite for ME 27000 include PHYS 17200 and MA 16600/16200, as well as ENGR 13200, 13300, and 14200 to earn a minimum grade of C-. Also, since there are now more Math course equivalencies for Multivariable Calculus (MA 26100) we are adjusting the listed math course options to meet the course requisite requirements.

Course: ME 27000- Basic Mechanics I

Proposed Requisites:

Undergraduate level PHYS 17200 Minimum Grade of C- and (Undergraduate level MA 16200 Minimum Grade of C- or Undergraduate level MA 16600 Minimum Grade of C- or Undergraduate level MA 18100 Minimum Grade of C-) and (Undergraduate level MA 26100 Minimum Grade of D- [may be taken concurrently] or Undergraduate level MA 26300 Minimum Grade of D- [may be taken concurrently]) or MA 18200 Minimum Grade of D- [may be taken concurrently] or MA 27100 Minimum Grade of D- [may be taken concurrently] and Undergraduate level ENGR 13200 Minimum Grade of C- [may be taken concurrently] or Undergraduate level ENGR 13300 Minimum Grade of C- [may be taken concurrently] or Undergraduate level ENGR 14200 Minimum Grade of C- [may be taken concurrently]

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

**DEPARTMENT:** School of Mechanical Engineering
**EFFECTIVE SESSION:** Spring 2017

**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
- [x] 4. Change in course number
- [ ] 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
- [ ] 9. Change in course description
- [ ] 10. Change in course requisites
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**TERMS OFFERED:**

Check All That Apply:

- [x] Fall
- [ ] Spring
- [ ] Summer

**CAMPUS(ES) INVOLVED:**

- [ ] Calumet
- [ ] LaPorte
- [ ] Ft. Wayne
- [x] W. Lafayette
- [ ] N. Central
- [ ] Tech Statewide

**ABBREVIATED TITLE WILL BE ENTERED BY THE OFFICE OF THE REGISTRAR IF OMITTED. (30 CHARACTERS ONLY)**

**CREDIT TYPE**

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<th>3. Equivalent Credit: Yes</th>
<th>No</th>
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</thead>
</table>

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

Prerequisites should include the addition of MA 18100, MA 27100, cr and MA 26100. Add MA 26600 as a co-requisite. This is to be aligned with options available to students. Additionally, minimum grades for all per-requisite courses should be C- due to change in First Year Engineering requirements. See attached memo for additional information.

*COURSE LEARNING OUTCOMES:

<table>
<thead>
<tr>
<th>Columnist Department Head</th>
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<th>Columnist School Dean</th>
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**OFFICE OF THE REGISTRAR**
Memorandum

To: The Faculty of the College of Engineering

From: The School of Mechanical Engineering

Date: April 21, 2016

RE: Change to Existing ME 30900 – Fluid Mechanics

The Faculty of the School of Mechanical Engineering has approved the following changes to an existing course and now seeks the approval at the college level. Since the Math Department recently made curriculum changes and more course options available, we are now adjusting the listed math course options to meet the course requisite requirements. We are also removing an expired math course (MA 272).

Course: ME 30900 – Fluid Mechanics

Proposed Requisites:
( Course or Test: ME 26300
Minimum Grade of D-
May not be taken concurrently. )
and
( Course or Test: ME 27400
Minimum Grade of D-
May not be taken concurrently. )
and
( Rule: 1.: MA262or265/266or350/360 for a total of 1 conditions )
and
( MA 26200
Minimum Grade of D-
May not be taken concurrently. )
or
MA 26600
Minimum Grade of D-
May not be taken concurrently. )

Description: Continuum, velocity field, fluid statics, manometers, basic conservation laws for systems and control volumes, dimensional analysis. Euler and Bernoulli equations, viscous flows, boundary layers, flow in channels and around submerged bodies, one-dimensional gas dynamics, turbomachinery.
**PURDUE UNIVERSITY**

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

**DEPARTMENT** School of Mechanical Engineering

**EFFECTIVE SESSION** Spring 2017

**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
- [ ] 6. Change in course credit/term
- [ ] 7. Change in course attributes (department head signature only)
- [ ] 8. Change in instructional hours
- [ ] 9. Change in course description
- [ ] 10. Change in course prerequisites
- [ ] 11. Change in semesters offered (department head signature only)
- [ ] 12. Transfer from one department to another

**PROPOSED:**

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**TERMS OFFERED**

Check All That Apply:
- [ ] Fall
- [ ] Spring
- [ ] Summer

**CAMPUS(ES) INVOLVED**

- Calumet
- Cont Ed
- N. Central
- Ft. Wayne
- Tech Statewide
- West Lafayette
- Indialpolis
- W. Lafayette

**CREDIT TYPE**

1. Fixed Credit: **Cr. Hrs.**
   - 1. Pass/Not Pass Only
   - 2. Satisfactory/Unsatisfactory Only
   - 3. Repealable
   - 4. Credit by Examination

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. Repealable
- 4. Credit by Examination
- 5. Fees: [ ] Coop [ ] Lab [ ] Rate Request
- 6. Registration Approval Type
- 7. Instructor
- 8. Honors
- 9. Full Time Privilege
- 10. Off Campus Experience

Include comment to explain fee

**COURSE DESCRIPTION**

(INCLUDE REQUISITES/RESTRICTIONS):

Prerequisites should include the addition of MA 26500 AND MA 26600 Minimum Grade of D-. Remove MA 27200 as a prerequisite. See attached memo for additional information.

**COURSE LEARNING OUTCOMES:**

- [ ] Cross-Listed Courses

**Signature:**

- Calumet Department Head: ____________________________ Date: ________
- Calumet School Dean: ____________________________ Date: ________
- Fort Wayne Department Head: ____________________________ Date: ________
- Fort Wayne School Dean: ____________________________ Date: ________
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- Vice Chancellor for Academic Affairs: ____________________________ Date: ________
- West Lafayette Department Head: ____________________________ Date: ________
- West Lafayette College/School Dean: ____________________________ Date: ________

**OFFICE OF THE REGISTRAR**

- West Lafayette Registrar: ____________________________ Date: ________