

Memorandum

To: The Faculty of the College of Engineering

From: The School of Mechanical Engineering



Date: December 7, 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. We are adjusting the listed pre-requisite for ME 20000 to include ENGR 16200 with a minimum grade of C- since this course will now replace the old ENGR 14200. Also, we added the [may be taken concurrently] statement to ENGR 13300 for consistency. Finally, the Math Department now requires students to earn a grade of a C- or higher in all prerequisite Math courses. Thus, we are also adjusting the listed pre-requisite for ME 27000 include ENGR 16200 with a minimum grade of C- since this will now be the new honors option rather than ENGR 14200.

Course: ME 20000- Thermodynamics I

Proposed Requisites:

(Undergraduate level MA 26100 Minimum Grade of C- [may be taken concurrently] or Undergraduate level MA 26300 Minimum Grade of C- [may be taken concurrently]) or MA 18200 Minimum Grade of C- [may be taken concurrently] or MA 27100 Minimum Grade of C- [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 16200 Minimum Grade of C- [may be taken concurrently] or Undergraduate level ENGR 13300 Minimum Grade of C- [may be taken concurrently].

Description: First and second laws of thermodynamics, entropy, reversible and irreversible processes, properties of pure substances. Application to engineering problems.

Approved for the faculty of the Schools
of Engineering by the Engineering
Curriculum Committee

ECC Minutes #8
Chairman ECC

Date

12/13/16

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

DEPARTMENT Mechanical Engineering EFFECTIVE SESSION Fall 2017

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:	TERMS OFFERED Check All That Apply:
Subject Abbreviation <input type="text"/>	Subject Abbreviation <u>ME</u>	<input checked="" type="checkbox"/> Summer <input checked="" type="checkbox"/> Fall <input checked="" type="checkbox"/> Spring
Course Number <input type="text"/>	Course Number <u>20000</u>	CAMPUS(ES) INVOLVED
Long Title <u>Thermodynamics I</u>		<input type="checkbox"/> Calumet <input type="checkbox"/> N. Central
Short Title <u>Thermodynamics I</u>		<input type="checkbox"/> Cont Ed <input checked="" type="checkbox"/> Tech Statewide
Abbreviated title will be entered by the Office of the Registrar if omitted. (30 CHARACTERS ONLY)		<input type="checkbox"/> Ft. Wayne <input checked="" type="checkbox"/> W. Lafayette
		<input type="checkbox"/> Indianapolis

CREDIT TYPE	COURSE ATTRIBUTES: Check All That Apply
1. Fixed Credit: Cr. Hrs. <u>3</u>	1. Pass/Not Pass Only <input type="checkbox"/>
2. Variable Credit Range: <input type="text"/>	2. Satisfactory/Unsatisfactory Only <input type="checkbox"/>
Minimum Cr. Hrs. <input type="text"/>	3. Repeatable <input type="checkbox"/>
(Check One) To <input type="checkbox"/> Or <input type="checkbox"/>	Maximum Repeatable Credit: <input type="text"/>
Maximum Cr. Hrs. <input type="text"/>	4. Credit by Examination <input type="checkbox"/>
3. Equivalent Credit: Yes <input type="checkbox"/> No <input type="checkbox"/>	5. Fees <input type="checkbox"/> Coop <input type="checkbox"/> Lab <input type="checkbox"/> Rate Request <input type="checkbox"/>
	6. Registration Approval Type <input type="checkbox"/>
	7. Variable Title <input type="checkbox"/>
	8. Honors <input type="checkbox"/>
	9. Full Time Privilege <input type="checkbox"/>
	10. Off Campus Experience <input type="checkbox"/>
	Department <input type="checkbox"/> Instructor <input type="checkbox"/>
	Include comment to explain fee

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

COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS):
 Requisites - MA 26100, minimum grade C- (may be taken concurrently) or MA 26300, minimum grade C- (may be taken concurrently) or MA 18200, minimum grade C- (may be taken concurrently) or MA 27100, minimum grade C- (may be taken concurrently). CHM 11500, minimum grade C- (may not be taken concurrently) or CHM 12300, minimum grade C- (may not be taken concurrently), or CHM 11100 and CHM 11200, minimum grade C- (may not be taken concurrently). ENGR 13200, minimum grade C- (may be taken concurrently), ENGR 16200, minimum grade C- (may be taken concurrently), ENGR 13300, minimum grade C- (may be taken concurrently). Please see attached memorandum for additional information.

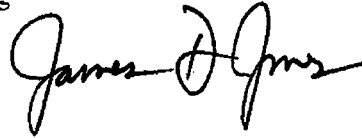
***COURSE LEARNING OUTCOMES**
 1. Provide a thorough understanding of the basic concepts of thermodynamics (i.e., 1st and 2nd law). 2. Apply the basic concepts of thermodynamics to the solution of practical problems in a social context. 3. Develop a systematic approach to problem-solving skills.

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
<i>Amil Bajaj</i>	12/9/16	<i>Michael P. ...</i>	12/14/16
West Lafayette Department Head	Date	West Lafayette College/School Dean	Date
		West Lafayette Registrar	Date

Memorandum

To: The Faculty of the College of Engineering

From: The School of Mechanical Engineering



Date: December 7, 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 Math Department now requires students to earn a grade of a C- or higher in all prerequisite Math courses to proceed. 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.

and

∴ MA 26200 for a total of 1 conditions MA 26200

Minimum Grade of C-

May be taken concurrently.

Or

MA 26600

Minimum Grade of C-

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 Mechanical Engineering EFFECTIVE SESSION Fall 2017

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:	TERMS OFFERED Check All That Apply:
Subject Abbreviation <input type="text"/>	Subject Abbreviation <u>ME</u>	<input type="checkbox"/> Summer <input checked="" type="checkbox"/> Fall <input checked="" type="checkbox"/> Spring
Course Number <input type="text"/>	Course Number <u>26300</u>	CAMPUS(ES) INVOLVED
Long Title <u>Introduction to Mechanical Engineering Design, Innovation, and Entrepreneurship</u>		<input type="checkbox"/> Calumet <input type="checkbox"/> N. Central
Short Title <u>ME Design, Innov, & Entrp</u>		<input type="checkbox"/> Cont Ed <input type="checkbox"/> Tech Statewide
Abbreviated title will be entered by the Office of the Registrar if omitted. (30 CHARACTERS ONLY)		<input type="checkbox"/> Ft. Wayne <input checked="" type="checkbox"/> W. Lafayette
		<input type="checkbox"/> Indianapolis

CREDIT TYPE	COURSE ATTRIBUTES: Check All That Apply
1. Fixed Credit: Cr. Hrs. <u>3</u>	1. Pass/Not Pass Only <input type="checkbox"/>
2. Variable Credit Range: <input type="text"/>	2. Satisfactory/Unsatisfactory Only <input type="checkbox"/>
Minimum Cr. Hrs. <input type="text"/>	3. Repeatable <input type="checkbox"/>
(Check One) To <input type="checkbox"/> Or <input type="checkbox"/>	Maximum Repeatable Credit: <input type="text"/>
Maximum Cr. Hrs. <input type="text"/>	4. Credit by Examination <input type="checkbox"/>
3. Equivalent Credit: Yes <input type="checkbox"/> No <input type="checkbox"/>	5. Fees <input type="checkbox"/> Coop <input type="checkbox"/> Lab <input type="checkbox"/> Rate Request <input type="checkbox"/>
	6. Registration Approval Type <input type="checkbox"/>
	7. Variable Title <input type="checkbox"/>
	8. Honors <input type="checkbox"/>
	9. Full Time Privilege <input type="checkbox"/>
	10. Off Campus Experience <input type="checkbox"/>

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

COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS):
 Requisites - CGT 16300, minimum grade D- (may be taken concurrently). ME 20000, minimum grade D- (may not be taken concurrently). ME 27000 or CE 27100, minimum grade D- (may not be taken concurrently). MA 26200 or MA 26600, minimum grade C- (may be taken concurrently). ME 29000, minimum grade D- (may be taken concurrently). Please see attached memorandum for additional information.

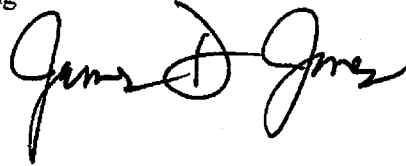
COURSE LEARNING OUTCOMES
 1. Instill the philosophy that real engineering design problems are open-ended and multifaceted. 2. Teach a systemic design methodology. 3. Provide guidance in applying engineering principles to open-ended problems. 4. Develop the ability to mathematically model and analyze engineering systems. 5. Sharpen skills in leadership, teamwork, communication, project planning, innovation, design and entrepreneurship. 6. Instill a philosophy of professional and ethical behavior. 7. Provide a foundation for the rest of the mechanical engineering curriculum and future careers.

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
<i>Amal Bajaj</i>	<u>12/9/16</u>	<i>Michael J. ...</i>	<u>12/14/16</u>
West Lafayette Department Head	Date	West Lafayette College/School Dean	Date
		West Lafayette Registrar	Date

Memorandum

To: The Faculty of the College of Engineering

From: The School of Mechanical Engineering



Date: December 7, 2016

RE: Change to Existing ME 2700 – 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 Math Department now requires students to earn a grade of a C- or higher in all prerequisite Math courses. Thus, we are also adjusting the listed pre-requisite for ME 27000 include ENGR 16200 with a minimum grade of C- since this will now be the new honors option rather than ENGR 14200.

Course: ME 27000- Basic Mechanics I

Proposed Requisites:

Undergraduate level PHYS 17200 Minimum Grade of C- or Undergraduate level ENGR 162 Minimum Grade of C- [may not be taken concurrently] 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 C- [may be taken concurrently] or Undergraduate level MA 26300 Minimum Grade of C- [may be taken concurrently]) or MA 18200 Minimum Grade of C- [may be taken concurrently] or MA 27100 Minimum Grade of C- [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 16200 Minimum Grade of C- [may not 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 Mechanical Engineering EFFECTIVE SESSION Fall 2017

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: Subject Abbreviation _____ Course Number _____ Long Title <u>Basic Mechanics I</u> Short Title <u>Basic Mechanics I</u> <small>Abbreviated title will be entered by the Office of the Registrar if omitted. (30 CHARACTERS ONLY)</small>	EXISTING: Subject Abbreviation <u>ME</u> Course Number <u>27000</u>	TERMS OFFERED Check All That Apply: <input checked="" type="checkbox"/> Summer <input checked="" type="checkbox"/> Fall <input checked="" type="checkbox"/> Spring 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 checked="" type="checkbox"/> W. Lafayette <input type="checkbox"/> Indianapolis
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CREDIT TYPE 1. Fixed Credit Cr. Hrs. <u>3</u> 2. Variable Credit Range: _____ Minimum Cr. Hrs. _____ (Check One) To <input type="checkbox"/> Or <input type="checkbox"/> Maximum Cr. Hrs. _____ 3. Equivalent Credit: Yes <input type="checkbox"/> No <input type="checkbox"/>	COURSE ATTRIBUTES: Check All That Apply 1. Pass/Not Pass Only <input type="checkbox"/> 2. Satisfactory/Unsatisfactory Only <input type="checkbox"/> 3. Repeatable <input type="checkbox"/> Maximum Repeatable Credit: _____ 4. Credit by Examination <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 _____ 6 Registration Approval Type <input type="checkbox"/> Department <input type="checkbox"/> Instructor <input type="checkbox"/> 7 Variable Title <input type="checkbox"/> 8 Honors <input type="checkbox"/> 9 Full Time Privilege <input type="checkbox"/> 10 Off Campus Experience <input type="checkbox"/>
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Schedule Type	Minutes Per Mtg	Meetings Per Week	Weeks Offered	% of Credit Allocated	Cross-Listed Courses
Lecture					
Recitation					
Presentation					
Laboratory					
Lab Prep					
Studio					
Distance					
Clinic					
Experiential					
Research					
Ind. Study					
Pract/Observ					

COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS):
Requisites - PHYS 17200, minimum grade C- or ENGR 16200, minimum grade C- (may not be taken concurrently) and MA 16200, minimum grade C- (may not be taken concurrently) or MA 16600, minimum grade C- (may not be taken concurrently) or MA 18100, minimum grade C- (may not be taken concurrently). MA 26100, minimum grade C- (may be taken concurrently) or MA 27100, minimum grade C- (may be taken concurrently) or MA 18200, minimum grade C- (may be taken concurrently) or MA 26300, minimum grade C- (may be taken concurrently). ENGR 132, minimum grade C- or ENGR 13300, minimum grade C-, or ENGR 16200, minimum grade C- (may be taken concurrently). See attached memorandum for additional information.

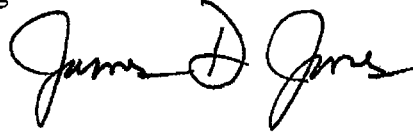
***COURSE LEARNING OUTCOMES**
1. Develop an understanding of static equilibrium and stresses in statically determinate structures and how to apply them to engineering systems. 2. Learn a systematic approach to problem solving. 3. Foster effective mathematical and graphical communication skills.

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 _____
West Lafayette Department Head <i>Anil Bagga</i> 12/14/16 _____ Date _____	West Lafayette College/School Dean <i>Michael Y. ...</i> 12/14/16 _____ Date _____
West Lafayette Registrar _____ Date _____	West Lafayette Registrar _____ Date _____

Memorandum

To: The Faculty of the College of Engineering

From: The School of Mechanical Engineering



Date: December 7, 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. The Math Department now requires students to earn a grade of a C- or higher in all prerequisite Math courses. Thus, we are adjusting the Math grade requirements to reflect this change.

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 C-

May not be taken concurrently.)

or

MA 26600

Minimum Grade of C-

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, EXPIRATION,
OR REVISION OF AN UNDERGRADUATE COURSE
(10000-40000 LEVEL)

DEPARTMENT Mechanical Engineering EFFECTIVE SESSION Fall 2017

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:	TERMS OFFERED Check All That Apply:
Subject Abbreviation <input type="text"/>	Subject Abbreviation <u>ME</u>	<input type="checkbox"/> Summer <input checked="" type="checkbox"/> Fall <input checked="" type="checkbox"/> Spring
Course Number <input type="text"/>	Course Number <u>30900</u>	CAMPUS(ES) INVOLVED
Long Title <u>Fluid Mechanics</u>		<input type="checkbox"/> Calumet <input type="checkbox"/> N. Central
Short Title <u>Fluid Mechanics</u>		<input type="checkbox"/> Cont Ed <input type="checkbox"/> Tech Statewide
Abbreviated title will be entered by the Office of the Registrar if omitted. (30 CHARACTERS ONLY)		<input type="checkbox"/> Ft. Wayne <input checked="" type="checkbox"/> W. Lafayette
		<input type="checkbox"/> Indianapolis

CREDIT TYPE	COURSE ATTRIBUTES: Check All That Apply
1. Fixed Credit: Cr. Hrs. <u>3</u>	1. Pass/Not Pass Only <input type="checkbox"/>
2. Variable Credit Range: <input type="text"/>	2. Satisfactory/Unsatisfactory Only <input type="checkbox"/>
Minimum Cr. Hrs. <input type="text"/>	3. Repeatable <input type="checkbox"/>
(Check One) To <input type="checkbox"/> Or <input type="checkbox"/>	Maximum Repeatable Credit: <input type="text"/>
Maximum Cr. Hrs. <input type="text"/>	4. Credit by Examination <input type="checkbox"/>
3. Equivalent Credit: Yes <input type="checkbox"/> No <input type="checkbox"/>	5. Fees <input type="checkbox"/> Coop <input type="checkbox"/> Lab <input type="checkbox"/> Rate Request <input type="checkbox"/>
	6 Registration Approval Type <input type="checkbox"/>
	Department <input type="checkbox"/> Instructor <input type="checkbox"/>
	7 Variable Title <input type="checkbox"/>
	8 Honors <input type="checkbox"/>
	9 Full Time Privilege <input type="checkbox"/>
	10 Off Campus Experience <input type="checkbox"/>
	Include comment to explain fee <input type="text"/>

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

COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS):
 Requisites - ME 26300, minimum grade D- (may not be taken concurrently). ME 27400, minimum grade D- (may not be taken concurrently). MA 26200, minimum grade C- (may not be taken concurrently) or MA 26600, minimum grade C- (may not be taken concurrently). Please see attached memorandum for additional information.

COURSE LEARNING OUTCOMES
 1. Develop the ability to identify and classify the various types of flows one may encounter. 2. Develop (from first principles) the control volume formulation of the basic laws with emphasis on conservation of mass and Newton's 2nd law. 3. Apply the control formulation of the basic laws to model physical systems. 4. Conduct simple experiments and analyze data. 5. Enhance systematic problem solving skills and sharpen written communication skills through short technical laboratory reports.

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
<i>Annal Bogan</i>	12/9/16	<i>William T. Adams</i>	12/14/16
West Lafayette Department Head	Date	West Lafayette College/School Dean	Date
		West Lafayette Registrar	Date