

Change Undergraduate Course

000001

Change a Course

Subject: IE-Industrial Engineering
 Number: 3860
 Effective Term: Fall 2018
 Title: Production Planning & Control

Honors Course:

Add Honors Course:

Last Term Course was taught: 201708

Brief Statement of Change Based on Assessment Results:

This is a prerequisite change only. IE 2800 has been renumbered as IE 3800, hence the need for this change.

Rationale for Changing a Course

- Strengthen Program Requirement(s)
- Alignment of Student Learning Outcomes
- Alternative Delivery of Content
- Improve Time to Degree
- Evolution of the Discipline
- Changing Prerequisites
- Address DWF Rates
- General Education Modifications
- Other (Please specify)

Change Prerequisite(s)/Corequisite(s)

From (IE 2800 with D or better) or (MTHS 4400 with D or better) or (MATH 4400 with D or better)
 To (IE 2800 with D or better) or (IE 3800 with D or better) or (MTHS 4400 with D or better) or (MATH 4400 with D or better)

Learning Objectives

No change

Topical Outline

No change

Evaluation

Undergraduate
 A 90 - 100
 B 80 - 89
 C 70 - 79
 D 60 - 69
 F < 60
 no change

Form

User ID: burak Name: Burak Eksioglu
 Date: 01/16/2018 Number: 36550

12/14/2017

Change Undergraduate Course - Curriculum & Course Change System

000002

BWSL

12/14/17

Chair, Department Curriculum Committee

Date

Dec 14, 2017

J. Smith
Jonathan Smith (Dec 14, 2017)

Department Chair

Date

Christopher Kitchens

1/22/2018

Chair, College Curriculum Committee

Date

College Dean

Date

Director, Calhoun Honors College

Date

John D. Hill

2/2/2018

Chair, Undergraduate Curriculum Committee

Date

Chair, Graduate Curriculum Committee

Date

Robert Jones

4/2/2018

Provost

Date

President

Date

Change Undergraduate Course

Change a Course

Subject: IE-Industrial Engineering
 Number: 4650
 Effective Term: Fall 2018
 Title: Facilities Planning & Design

Honors Course:

Add Honors Course:

Last Term Course was taught: 201708

Brief Statement of Change Based on Assessment Results:

This is a prerequisite change only. IE 2800 was renumbered as IE 3800, hence the need for this change.

Rationale for Changing a Course

- Strengthen Program Requirement(s)
- Alignment of Student Learning Outcomes
- Alternative Delivery of Content
- Improve Time to Degree
- Evolution of the Discipline
- Changing Prerequisites
- Address DWF Rates
- General Education Modifications
- Other (Please specify)

Change Prerequisite(s)/Corequisite(s)

From (IE 2100 with D or better) and (IE 2800 with D or better) and (IE 3810 with D or better)
 To (IE 2100 with D or better) and (IE 2800 with D or better OR IE 3800 with D or better) and (IE 3810 with D or better)

Learning Objectives

no change

Topical Outline

no change

Form

User ID: burak Name: Burak Eksioglu
 Date: 01/16/2018 Number: 37112

12/14/2017

Change Undergraduate Course - Curriculum & Course Change System

12/14/17

B. Smith

Chair, Department Curriculum Committee

Date

J. Smith

Dec 14, 2017

~~Jonathan Smith (Dec-14-2017)~~

Department Chair

Date

Christopher Kitchens

1/22/2018

Chair, College Curriculum Committee

Date

College Dean

Date

Director, Calhoun Honors College

Date

John D. Hiff

2/2/2018

Chair, Undergraduate Curriculum Committee

Date

Chair, Graduate Curriculum Committee

Date

Robert S. Jones

4/2/2018

Provost

Date

President

Date

Change Undergraduate Course

Change a Course

Subject: IE-Industrial Engineering

Number: 4670

Effective Term: Fall 2018

Title: System Design II

Honors Course:

Add Honors Course:

Last Term Course was taught: 201708

Brief Statement of Change Based on Assessment Results:

This is a prerequisite change only. IE 2800 was renumbered as IE 3800, hence the need for this change.

Rationale for Changing a Course

- Strengthen Program Requirement(s)
- Alignment of Student Learning Outcomes
- Alternative Delivery of Content
- Improve Time to Degree
- Evolution of the Discipline
- Changing Prerequisites
- Address DWF Rates
- General Education Modifications
- Other (Please specify.)

Change Prerequisite(s)/Corequisite(s)

From (IE 2010 with D or better OR IE 3010 with D or better) and (IE 2100 with D or better) and (IE 2800 with D or better) and (IE 3600 with D or better) and (IE 3610 with D or better) and (IE 3810 with D or better) and (IE 3840 with D or better) and (IE 3860 with D or better) and (IE 4400 with D or better) and (IE 4610 with D or better) and (IE 4650 with D or better) and (IE 4820 with D or better)

To (IE 2010 with D or better OR IE 3010 with D or better) and (IE 2100 with D or better) and (IE 2800 with D or better OR IE 3800 with D or better) and (IE 3600 with D or better) and (IE 3610 with D or better) and (IE 3810 with D or better) and (IE 3840 with D or better) and (IE 3860 with D or better) and (IE 4400 with D or better) and (IE 4610 with D or better) and (IE 4650 with D or better) and (IE 4820 with D or better)

Learning Objectives

no change

Topical Outline

no change

Evaluation

Undergraduate

A 90 - 100

B 80 - 89

C 70 - 79

D 60 - 69

F < 60

no change

Form

User ID: burak Name: Burak Eksioglu

Date: 01/16/2018 Number: 36551

1/5/2018

Change Undergraduate Course - Curriculum & Course Change System

000006

Burak Eksioglu

Burak Eksioglu

1/5/2018

Chair, Department Curriculum Committee

Date

J. Smith
Jonathan Smith (Jan 8, 2018)

Jonathan Smith

Jan 8, 2018

Department Chair

Date

Christopher Kitchens

1/22/2018

Chair, College Curriculum Committee

Date

College Dean

Date

Director, Calhoun Honors College

Date

John D. Whiff

2/2/2018

Chair, Undergraduate Curriculum Committee

Date

Chair, Graduate Curriculum Committee

Date

Robert S. Jones

4/2/2018

Provost

Date

President

Date

Change Undergraduate Course

000007

Change a Course

Subject: ECE-Electrical and Comp Engr

Number: 4050

Effective Term: Fall 2018

Title: Design Projects

Honors Course:

Add Honors Course:

Last Term Course was taught: 999999

Brief Statement of Change Based on Assessment Results:

We want to be able to make this variable title so that the course title can more accurately match the design project the student will be completing.

Rationale for Changing a Course

- Strengthen Program Requirement(s)
- Alignment of Student Learning Outcomes
- Alternative Delivery of Content
- Improve Time to Degree
- Evolution of the Discipline
- Changing Prerequisites
- Address DWF Rates
- General Education Modifications
- Other (Please specify.)

Change Course Modifier

From	To
<input type="checkbox"/> Variable Title	<input checked="" type="checkbox"/> Variable Title
<input type="checkbox"/> Creative Inquiry	<input type="checkbox"/> Creative Inquiry
<input checked="" type="checkbox"/> Repeatable	<input checked="" type="checkbox"/> Repeatable
Max Credits: 3	Max Credits: 3

Learning Objectives

No change.

Topical Outline

No change.

Evaluation

Undergraduate

A 90 - 100

B 80 - 89

C 70 - 79

D 60 - 69

F < 60

Preliminary Report - (10%)

Milestones - Specified milestones to be demonstrated during the semester (10%)

Mid-term presentation to Industry - (10%)

Project Demonstration - 50%

Final report - 10%

Design Video - 10%

Syllabus

Upload File: [ECE 4050 Collins Fall 2017-20171220104134.pdf](#)

Form

User ID: cstrimp **Name:** Courtney Honeycutt

Date: 12/20/2017 Number: 36699

000008

000009

Carl Baum

1/10/18

Chair, Department Curriculum Committee

Date

Daniel L. Noweski

1/9/18

Department Chair

Date

Christopher Kitchens

1/22/2018

Chair, College Curriculum Committee

Date

College Dean

Date

Director, Calhoun Honors College

Date

John D. Stiff

2/2/2018

Chair, Undergraduate Curriculum Committee

Date

Chair, Graduate Curriculum Committee

Date

Robert Jones

4/2/2018

Provost

Date

President

Date

Change Major

If Gen Ed requirements are changed a separate Gen Ed Checklist form must accompany this form.

Major Name: Industrial Engineering

Degree: Bachelor of Science

Effective Catalog Year: 2018-2019

Change Major Name to: INEN Curriculum IE_ComputingEmphasis2-20170314110914.pdf

Change Degree to: Bachelor of Science Map:

Change Curriculum Requirements Description: The attachment has 5 pages: (1) is the map for the new computing emphasis area. (2) is the current IE curriculum. The courses in bold and italic show the differences. (3) is the list of elective courses. (4) and 5 are ABET tables that show the percentage of credit hours in engineering vs. math and basic sciences (see lines 41, 42, 44, 50).

Change General Education Requirements

Add, Change, or Delete Concentration(s)

Add, Change, or Delete Emphasis Area(s)

Additional ChangeMajorPolicy2-20170314110914.docx

Information:

Description: The new 2.0 EGPA requirement for students transferring into IE is attached.

Summary/Explanation

Based on our continuous review of our program and the feedback from students and industry, we are creating an emphasis area that focuses on computing.

Rationale for Change Major

- Strengthen Program Requirement(s)
- Alignment of Student Learning Outcomes
- Alternative Delivery of Content
- Improve Time to Degree
- Evolution of the Discipline
- Changing Prerequisites
- Address DWF Rates
- General Education Modifications
- Other (Please specify.)
Responding to stakeholder feedback

Form

User ID: burak Name: Burak Eksioglu
Date: 03/14/2017 Number: 29918

3/14/2017

Major - Curriculum & Course Change System

B. Ely

Digitally signed by Burak Elyoglu
DN: cn=Burak Elyoglu, o=Clemson University,
ou=Industrial Engineering, email=burak@clermson.edu,
c=US,
Date: 2017.03.14 11:14:34 -0400

Chair, Department Curriculum Committee Date

[Signature] *3/15/17*

Department Chair Date

Christopher Kitchens 3/17/2017

Chair, College Curriculum Committee Date

Bradley Putman 3/18/17

College Dean Date

Director, Calhoun Honors College Date

John D. Niffi *2/2/2018*

Chair, Undergraduate Curriculum Committee Date

Chair, Graduate Curriculum Committee Date

Robert Y. Jones *4/2/2018*

Provost Date

President Date

BSIE CURRICULUM IN COMPUTING EMPHASIS AREA

IE courses can be taken in any semester they are offered as long as prerequisite and other requirements are satisfied.

Freshman Year	
16 First Semester	17 Second Semester
2 ENGR 1020 Engr. Discip. and Skills ^{1,2}	3 ENGR 1410 Prog. and Prob. Sol. ^{1,3}
4 CH 1010 General Chemistry ¹	3 PHYS 1220 Physics with Calc. I ¹
4 MATH 1060 Calc. of One Var. I ¹	4 MATH 1080 Calc. of One Var. II ¹
3 ENGL 1030 Accel. Composition ¹	4 Lab Science Requirement ⁴
3 Arts and Human./Social Sciences	3 Arts and Human./Social Sciences
Sophomore Year	
16 First Semester	17 Second Semester
3 CE 2010 Statics ⁵	3 IE 2100 Design and Ana. of Work Sys.
4 MATH 2060 Calc. of Several Var.	4 IE 3010 Systems Design I
3 MATH 3110 Linear Algebra	3 IE 3600 Ind. App. of Prob./Stat. I
2 ENGR 2080 (or 2090 or 2100)	3 IE 3800 Deterministic Oper. Res.
4 <i>CPSC 1010 Computer Science I</i> ⁶	4 <i>CPSC 1020 Computer Science II</i> ⁶
Junior Year	
16 First Semester	17 Second Semester
3 IE 3610 Ind. App. of Prob./Stat. II	✓ 1 IE 3140 Seminar in IE
3 IE 3810 Probabilistic Oper. Res.	3 IE 3860 Production Plan. and Cont.
3 IE 3840 Engr. Economic Ana.	3 IE 4610 Quality Engineering
3 IE 4400 Dec. Support Systems in IE	3 IE 4650 Facilities Plan. and Design
✓ 3 PHYS 2210 Physics with Calc. II	4 IE 4820 Systems Modeling
✓ 1 PHYS 2230 Physics Lab. II ⁷	3 Oral Communication
Senior Year	
16 First Semester	13 Second Semester
3 IE 4880 Human Factors Engr.	4 IE 4670 Systems Design II
✓ 3 Arts and Human./Social Sciences	3 Arts and Human./Social Sciences
3 ECE 2070/2080 or 2020/2110	3 Management Requirement ⁴
3 Ethics and Prof. Practice ⁴	✓ 3 MSE 2100 Intro to Mater. Science
4 <i>CPSC 2120 Alg. and Data Str.</i> ⁶	

¹ This course must be passed with a C or better.

² ENGR 1050 and 1060, completed with a C or better, will satisfy this requirement.

³ ENGR 1070, 1080, & 1090, completed with a C or better, or completing ENGR 1300 (or CHE 1300) plus one of CPSC 1610, 1110 or 1010 (with C or better) will satisfy this.

⁴ Select from the list below.

⁵ ME 2010 can be used to satisfy this.

⁶ Instead of the CPSC 1010 & 1020 & 2120 sequence, students can follow CPSC 1060 & 1070 & 2120.

⁷ PHYS 1240 may be substituted.

BSIE CURRICULUM

IE courses can be taken in any semester they are offered as long as prerequisite and other requirements are satisfied.

Freshman Year	
16 First Semester	17 Second Semester
✓ 2 ENGR 1020 Engr. Discip. and Skills ^{1,2}	✓ 3 ENGR 1410 Prog. and Prob. Sol. ^{1,3}
✓ 4 CH 1010 General Chemistry ¹	✓ 3 PHYS 1220 Physics with Calc. I ¹
✓ 4 MATH 1060 Calc. of One Var. I ¹	✓ 4 MATH 1080 Calc. of One Var. II ¹
✓ 3 ENGL 1030 Accel. Composition ¹	✓ 4 Lab Science Requirement ⁴
✓ 3 Arts and Human./Social Sciences	✓ 3 Arts and Human./Social Sciences
Sophomore Year	
16 First Semester	17 Second Semester
✓ 3 CE 2010 Statics ⁵	✓ 3 IE 2100 Design and Ana. of Work Sys.
✓ 4 MATH 2060 Calc. of Several Var.	✓ 4 IE 3010 Systems Design I
✓ 3 MATH 3110 Linear Algebra	✓ 1 IE 3140 Seminar in IE
✓ 3 PHYS 2210 Physics with Calc. II	✓ 3 IE 3600 Ind. App. of Prob./Stat. I
✓ 1 PHYS 2230 Physics Lab. II ⁶	✓ 3 IE 3800 Deterministic Oper. Res.
✓ 2 ENGR 2080 (or 2090 or 2100)	✓ 3 MSE 2100 Intro to Mater. Science
Junior Year	
15 First Semester	16 Second Semester
✓ 3 IE 3610 Ind. App. of Prob./Stat. II	✓ 3 IE 3860 Production Plan. and Cont.
✓ 3 IE 3810 Probabilistic Oper. Res.	✓ 3 IE 4610 Quality Engineering
✓ 3 IE 3840 Engr. Economic Ana.	✓ 3 IE 4650 Facilities Plan. and Design
✓ 3 IE 4400 Dec. Support Systems in IE	✓ 4 IE 4820 Systems Modeling
✓ 3 Arts and Human./Social Sciences	✓ 3 Oral Communication
Senior Year	
15 First Semester	13 Second Semester
✓ 3 IE 4880 Human Factors Engr.	✓ 4 IE 4670 Systems Design II
○ 6 IE Technical Requirement ⁴	○ 3 IE Technical Requirement ⁴
✓ 3 ECE 2070/2080 or 2020/2110	✓ 3 Management Requirement ⁴
✓ 3 Ethics and Prof. Practice ⁴	✓ 3 Arts and Human./Social Sciences

¹ This course must be passed with a C or better either to transfer into IE from General Engineering or to satisfy later course prerequisites.

² ENGR 1050 and 1060, completed with a C or better, will satisfy this requirement.

³ ENGR 1070, 1080, and 1090, completed with a C or better, will satisfy this requirement. Alternatively, completing ENGR 1300 (or CHE 1300) plus one of CPSC 1610, 1110 or 1010 (with C or better) will satisfy this.

⁴ Select from the list below.

⁵ ME 2010 can be used to satisfy this.

⁶ PHYS 1240 may be substituted.

LIST OF APPROVED COURSES

DegreeWorks provides a list of the current set of courses associated with your degree. Please consult your *curriculum advisor* if there appears to be an error.

Lab Science Requirement (4 credit hours):

BIOL 1030 and 1050	BIOL 1200 and 1210	BIOL 1200 and 1240
BIOL 1040 and 1060	BIOL 1200 and 1220	CH 1020
BIOL 1100	BIOL 1200 and 1230	GEOL 1010 and 1030

Management Requirement (3 credit hours):

ACCT 2010	ELE 4000	MGT 4110
ACCT 2020	MGT 2010	MKT 4210
AS 3090	MGT 3070	ML 3010

Ethics and Professional Practice Requirement (3 credit hours):

PHIL 1030	PHIL 3450	LAW 3220
PHIL 3440	PHIL 3460	

IE Technical Requirement (9 credit hours):

IE 4000 (6 units maximum)	IE 4570	IE 4850
IE 4040 (6 units maximum)	IE 4600	IE 4860
IE 4300	IE 4620	IE 4870
IE 4460	IE 4630	IE 4890
IE 4520	IE 4810	IE 4910
IE 4560		

Arts and Humanities/Social Science (HSS) Requirement (12 credit hours):

The 2016 and later IE curricula include a minimum of 12 credits of HSS courses to satisfy Clemson University's General Education Humanities and Social Science Requirements. Each requirement in the degree must be satisfied without "*double-dipping*," except CCA and STS. Students can take certain HSS courses that will also satisfy the CCA and STS requirements. The Undergraduate Catalog provides the list of HSS, CCA, and STS courses (<http://www.registrar.clemson.edu/html/catalog.htm>).

2016 BSIE Curriculum - ABET Counts - draft					
Course (Department, Number, Title)	Category (Credit Hours)				comments
	Math & Basic Sciences	Engineering Topics Check if Contains <i>Significant Design</i> (✓)	General Education	Other	
MATH 1060 Calculus of One Variable I	4				
ENGL 1030 Composition			3		
ENGR 1050				1	
ENGR 1060				1	
CH 1010 General Chemistry I	4				
Humanities/Social Science Requirement			3		
MATH 1080 Calculus of One Variable II	4				
Humanities/Social Science Requirement			3		
ENGR 1070		1			
ENGR 1080		1			
ENGR 1090		1			
Lab Science Requirement	4				
PHYS 1220 Physics with Calculus I	3				
MATH 2060 Calculus of Several Variables	4				
CE 2010		3			
MATH 3110 Linear Algebra	3				
PHYS 2210 Physics with Calculus II	3				
PHYS 2230 Physics Laboratory II	1				
Engr Graphics (ENGR 2080 or 2090 or 2010)				2	
IE 3010 Systems Design I		4			
IE 3600 Ind Apps of Prob and Stat I	2	1			
IE 3800 Deterministic Operations Research	1	2			simplex?
IE 2100 Design and Analysis of Work Systems		3			
MSE 2100 Intro to Materials Science		3			
IE 3140 Seminar in IE				1	
IE 4400 Decision Support Systems in IE		3			
IE 3840 Engineering Economic Analysis		3			
IE 3610 Ind Apps of Prob and Stat II		3			
IE 3810 Probabilistic Operations Research	2	1			
Humanities/Social Science Requirement			3		
IE 3860 Production Planning and Control		3			
IE 4820 Systems Modeling		4			
IE 4650 Facilities Planning and Design		3			
IE 4610 Quality Engineering		3			
Oral Comm Reqt			3		
Electrical Engineering Reqt (ECE 2070/2080 or 2020/2110)		3			
Ethics and Professional Practice Requirement				3	
IE Technical Requirement				3	being conservative
IE Technical Requirement				3	being conservative
IE 4880		3			
IE Technical Requirement				3	being conservative
Management Requirement				3	
Humanities/Social Science Requirement			3		
IE 4670 Systems Design II		4			4 credits
125					
OVERALL TOTAL FOR DEGREE	35	52	18	20	
PERCENT OF TOTAL	28.0%	41.6%			
Totals must satisfy one set					
Minimum semester credit hours	32 hrs	48 hrs			
Minimum percentage	25%	37.5%			

2018 BSIE Curriculum in Computing Emphasis Area - ABET Counts - draft					
Course (Department, Number, Title)	Category (Credit Hours)				comments
	Math & Basic Sciences	Engineering Topics <i>Check if Contains Significant Design (✓)</i>	General Education	Other	
MATH 1060 Calculus of One Variable I	4				
ENGL 1030 Composition			3		
ENGR 1050				1	
ENGR 1060				1	
CH 1010 General Chemistry I	4				
Humanities/Social Science Requirement			3		
MATH 1080 Calculus of One Variable II	4				
Humanities/Social Science Requirement			3		
ENGR 1070		1			
ENGR 1080		1			
ENGR 1090		1			
Lab Science Requirement	4				
PHYS 1220 Physics with Calculus I	3				
MATH 2060 Calculus of Several Variables	4				
CE 2010		3			
MATH 3110 Linear Algebra	3				
PHYS 2210 Physics with Calculus II	3				
PHYS 2230 Physics Laboratory II	1				
Engr Graphics (ENGR 2080 or 2090 or 2010)				2	
IE 3010 Systems Design I		4			
IE 3600 Ind Apps of Prob and Stat I	2	1			
IE 3800 Deterministic Operations Research	1	2			simplex?
IE 2100 Design and Analysis of Work Systems		3			
MSE 2100 Intro to Materials Science		3			
IE 3140 Seminar in IE				1	
IE 4400 Decision Support Systems in IE		3			
IE 3840 Engineering Economic Analysis		3			
IE 3610 Ind Apps of Prob and Stat II		3			
IE 3810 Probabilistic Operations Research	2	1			
Humanities/Social Science Requirement			3		
IE 3860 Production Planning and Control		3			
IE 4820 Systems Modeling		4			
IE 4650 Facilities Planning and Design		3			
IE 4610 Quality Engineering		3			
Oral Comm Reqt			3		
Electrical Engineering Reqt (ECE 2070/2080 or 2020/2110)		3			
Ethics and Professional Practice Requirement				3	
CPSC 1010 Computer Science I				4	being conservative
CPSC 1020 Computer Science II				4	being conservative
IE 4880		3			
CPSC 2110 Alg. and Data Str.				4	being conservative
Management Requirement				3	
Humanities/Social Science Requirement			3		
IE 4670 Systems Design II		4			4 credits
128					
OVERALL TOTAL FOR DEGREE	35	52	18	23	
PERCENT OF TOTAL	27.3%	40.6%			
Totals must satisfy one set					
Minimum semester credit hours	32 hrs	48 hrs			
Minimum percentage	25%	37.5%			

IE change of major policy

To transfer into the Industrial Engineering B.S. program, a student must have completed the following courses with a grade of C or better:

CH 1010 General Chemistry		
ENGL 1030 Accelerated Composition		
ENGR 1020 Engineering Disciplines and Skills	OR	ENGR 1050 and 1060
ENGR 1410 Programming and Problem Solving	OR	ENGR 1070 and 1080 and 1090 (see Planning Guide for more options)
MATH 1060 Calculus of One Variable I	OR	MATH 1040 and 1070
MATH 1080 Calculus of One Variable II		
PHYS 1220 Physics with Calculus I		

The paperwork for students transferring from General Engineering will be handled by their CoES advisors. As long as the student has a minimum 2.0 Engineering GPA (EGPA), a minimum 2.0 overall GPA, and has completed the courses documented above, the change of major will be processed.

The paperwork for students transferring from any other major will be handled by the IE Undergraduate Coordinator. First, the student must have a minimum 2.0 Engineering GPA (EGPA), a minimum 2.0 overall GPA, and have completed the courses documented above. Additionally, non-General Engineering students are required to complete a plan of study that documents all courses to be taken until graduation. Instructions for preparing a course plan can be found at (http://www.clemson.edu/cecas/departments/ie/degree-programs/undergraduate/course_planning.html).