

College of Engineering

2012-2013

November 7, 2011

I. SIGNIFICANT TRENDS:

Continued increases in enrollment have put pressures on course availability and laboratory classes. Finding sufficient large classrooms has become a challenge. College is initiating a teaching innovations program aimed at improving course delivery via multiple formats. Our on-line course offerings have increased. The college continues to see increased numbers of international students at both the undergraduate and graduate level. The number of women enrolling in engineering programs is increasing.

Little change occurred this past year in majors; however, many departments worked on making changes to their curricula in advance of accreditation visits next year. Thus much effort has been spent on preparation of accreditation reports.

II. CURRICULA, MAJORS, MINORS ADDED OR DROPPED:

Majors Added: NONE

Minors Added: NONE

Certificates Added: NONE

Majors, Minors, Certificates Dropped: Engineering Studies Minor (in process)

III. NEW COURSES:

Agricultural Engineering (Note: AE included with ENGR in previous years, this year with CALS)

A E 490W Waste Engineering. Cr. 1-4.

A E 580 Engineering Analysis of Biological Systems. (3-0). Cr. 3.

Aerospace Engineering

AER E 467 Multidisciplinary Engineering Design II. (3-0). Cr. 3.

Bioengineering

BIOE 490 Independent Study. Cr. 1-3. Repeatable

Biological Systems Engineering (Note: BSE included with ENGR in previous years, this year with CALS)

BSE 490B Biorenewable Resources Engineering. Cr. 1-4.

BSE 490E Environmental Bioprocessing. Cr. 1-4.

BSE 490G General Biosystems Engineering Topics. Cr. 1-4.

BSE 490H Honors. Cr. 1-4.

BSE 490F Food Engineering. Cr. 1-4. (Change from A E 490F).

Chemical Engineering

None

Civil Engineering

None

Construction Engineering

CON E 354 Building Energy Performance. (3-0). Cr. 3.

Computer Engineering

CPR E 315 Applications of Algorithms in Computer Engineering. (3-0). Cr. 3.

CPR E 467 Multidisciplinary Engineering Design II. (1-4), Cr. 3.

CPR E 585 Developmental Robotics. (3-2). Cr. 4.

Electrical Engineering

E E 459 Electomechanical Wind Energy Conversion and Grid Integration. (3-0), Cr. 3. Dual listed with E E 559. E E

E E 467 Multidisciplinary Engineering Design II. (1-4), Cr. 3.

E E 559 Electomechanical Wind Energy Conversion and Grid Integration. (3-0), Cr. 3. Dual listed with E E 459.

Engineering Mechanics

None

Engineering Studies

None

Engineering

ENGR 265 Survey of the Impacts of Engineering Activity. (3-0). Cr. 3.

ENGR 340 Introduction to Wind Energy: System Design & Delivery. (3-0). Cr. 3.

ENGR 350 Dean's Leadership Seminar. (1-0). Cr. 1.

ENGR 467 Multidisciplinary Engineering Design II. (1-4), Cr. 3.

ENGR 490L Independent Study. Cr. 1-3.

Industrial Engineering

I E 467 Multidisciplinary Engineering Design II. (1-4), Cr. 3.

Mechanical Engineering

M E 160 Mechanical Engineering Problem Solving with Computer Applications. (2-2). Cr. 3.

M E 467 Multidisciplinary Engineering Design II. (1-4), Cr. 3.

M E 490O Design and Optimization. Cr. 1-6.

M E 490Q Materials Processing and Mechanics. Cr. 1-6.

M E 490R Thermo-fluids. Cr. 1-6.

M E 490S Emerging Areas. Cr. 1-6.

M E 580 Virtual Environments, Virtual Worlds, and Application. (3-0). Cr. 3

M E 590T Biological and Nanoscale Sciences. Cr. 1-8.

M E 590U Complex Fluid Systems. Cr. 1-8.

M E 590V Clean Energy Technologies. Cr. 1-8.

M E 590W Design and Manufacturing Innovation. Cr. 1-8.

M E 590Z Simulation and Visualization. Cr. 1-8.

Materials Science and Engineering

None

Materials Engineering

MAT E 467 Multidisciplinary Engineering Design II. (1-4), Cr. 3.

Nuclear Engineering

None

Software Engineering

None

IV. COURSES DROPPED:

Agricultural Engineering

A E 490B Independent Study, Biosystems Engineering. Cr. 1-4. Repeatable.

A E 490E Independent Study, Environmental Systems. Cr. 1-4. Repeatable.

A E 490R Independent Study, Process Engineering. Cr. 1-4. Repeatable.

A E 490U Independent Study, Waste Management. Cr. 1-4. Repeatable.

Aerospace Engineering

AER E 543 Viscous Flow Aerodynamics. (3-0) Cr. 3.

AER E 640

Bioengineering

None

Biological Systems Engineering

None

Chemical Engineering

CH E 565 Professional Practices in Science and Engineering. Cr. arr.

CH E 565A Responsible Conduct of Research. (Cr. 1.0).

CH E 565B Working with Industry. (Cr. 0.5).

CH E 565C Communications in Science. (Cr. 0.5).

CH E 565D Time Management and Mentoring. (Cr. 0.5).

CH E 565E The Interview Process. (Cr. 0.5).

CH E 565F Grant Writing. (Cr. 1.0).

CH E 565G Teaching. (Cr. 0.5).

CH E 565S Ethical and legal issues in research.

Civil Engineering

C E 486 Civil Engineering Design II. (1-4). Cr. 3.

Construction Engineering

CON E 223

Computer Engineering

CPR E 565 Professional Practices in Science and Engineering. Cr. arr.

CPR E 565A Responsible Conduct of Research. (Cr. 1.0).

CPR E 565B Working with Industry. (Cr. 0.5).

CPR E 565C Communications in Science. (Cr. 0.5).

CPR E 565D Time Management and Mentoring. (Cr. 0.5).

CPR E 565E The Interview Process. (Cr. 0.5).

CPR E 565F Grant Writing. (Cr. 1.0).

CPR E 565G Teaching. (Cr. 0.5).

CPR E 565S Ethical and legal issues in research.

Electrical Engineering

E E 331 Electronics II. (3-3). Cr. 4.

Engineering

ENGR 170 Engineering Graphics and Introductory Design. (2-2). Cr. 3.

Engineering Mechanics

None

Engineering Studies

E ST 490

Industrial Engineering

None

Mechanical Engineering

M E 102 Mechanical Engineering Orientation. (1-0). Cr. R.

M E 414 Hydraulic Systems and Control. (3-0). Cr. 3.

M E 450.

M E 490C Independent Research, Engineering Measurements and Instrumentation. Cr. 1-6.

M E 490D Independent Research, Heat Transfer. Cr. 1-6.

M E 490E Independent Research, Fluid Power and Controls. Cr. 1-6.

M E 490F Independent Research, Machines and Systems. Cr. 1-6.

M E 490G Independent Research, Advanced Machine Design. Cr. 1-6.

M E 490K Independent Research, Fluid Mechanics. Cr. 1-6.

M E 490L Turbomachinery. Cr. 1-6.

M E 490N Independent Research, CAD/CAM. Cr. 1-6.

M E 565 Professional Practices in Science and Engineering. Cr. arr.

M E 565A Responsible Conduct of Research. (Cr. 1.0).

M E 565B Working with Industry. (Cr. 0.5).

M E 565C Communications in Science. (Cr. 0.5).

M E 565D Time Management and Mentoring. (Cr. 0.5).

M E 565E The Interview Process. (Cr. 0.5).

M E 565F Grant Writing. (Cr. 1.0).

M E 565G Teaching. (Cr. 0.5).

M E 565S Ethical and legal issues in research.

M E 590A Special Topics, Experimental Gas Dynamics. Cr. 1-8.

M E 590B Special Topics, Fluid Mechanics. Cr. 1-8.

M E 590C Special Topics, Heat Transfer. Cr. 1-8.

M E 590D Special Topics, Thermodynamics and Energy Utilization. Cr. 1-8.

M E 590E Special Topics, Turbomachinery. Cr. 1-8.

M E 590F Special Topics, Vehicular Propulsion Design. Cr. 1-8.

M E 590G Special Topics, Advanced Machine Design. Cr. 1-8.

M E 590I Special Topics, Automatic Controls. Cr. 1-8.

M E 590J Special Topics, Operating and Environmental Considerations in Design. Cr. 1-8.

M E 590K Special Topics, Mechanical Behavior of Materials . Cr. 1-8.

M E 590L Special Topics, Manufacturing Processes. Cr. 1-8.

M E 590M Special Topics, Tribology. Cr. 1-8.

M E 590N Special Topics, Sensitivity Methods. Cr. 1-8.

M E 590O Special Topics, Engineering Computation . Cr. 1-8.

M E 590P Special Topics, Engineering Measurements and Instrumentation. Cr. 1-8.

M E 590R Special Topics, Nuclear Engineering. Cr. 1-8.

M E 590S Special Topics, CAD/CAM. Cr. 1-8.

Materials Engineering

None

Materials Science & Engineering

None

Nuclear Engineering

None

Software Engineering

None

V. NUMBER, CREDIT, AND TITLE CHANGES:

Agricultural Engineering

A E 490F Department changed to BSE 490F.

Aerospace Engineering

None

Biological Systems Engineering

None

Chemical Engineering

None

Civil Engineering

CE 372 Credit Hrs to: Cr 3; Contact Hrs to: (3-0).

C E 485 Title to: Civil Engineering Design

Construction Engineering

CON E 353 Credit Hrs to: Cr 3. Contact Hrs to: (3-0).

Computer Engineering

CPR E 525 Title to: Numerical Analysis of High Performance Computing.

Electrical Engineering

E E 421 Course Number to: E E 321

E E 424 Course Number to: E E 323

Engineering Mechanics

None

Engineering Studies

E ST 260 Changed to: ENGR 260

E ST 270 Changed to: ENGR 270

Industrial Engineering

None

Materials Engineering

None

Mechanical Engineering

None

Materials Science & Engineering

None

Nuclear Engineering

None

Software Engineering

None

VI. COURSES ADDED FOR NONMAJOR GRADUATE CREDIT

None

VII. COURSES DROPPED FOR NONMAJOR GRADUATE CREDIT

None

VIII. SUMMARY OF CHANGES:

Note: a cross-listed course should be counted only once - with the "primary" department or program. So in Section III New Courses and Section IV Courses Dropped, a cross-listed course should be listed only once.

Department	New*	Dropped	Number	Credit	Title**
AE***	2	4	0	0	0
AERE	1	2	0	0	0
BIOE	1	0	0	0	0
BSE***	4	0	1	0	0
CE	0	1	0	1	1
CHE	0	9	0	0	0
CONE	1	1	0	1	1
CPR E	3	9	0	0	0
EE	3	1	2	0	0
EM	0	1	0	0	0
EST	0	1	0	0	0
ENGR	5	1	2	0	0
IE	1	0	0	0	0
ME	12	37	0	0	0
MSE	0	0	0	0	0
MATE	1	0	0	0	0
NUCE	0	0	0	0	0
SE	0	0	0	0	0
Total College of Engineering (CAL)	28 (6)	62 (4)	4 (1)	2	2
Notes: *All dual listed courses are counted as a single course in summary of changes. **Includes addition of new cross-listing for courses. *** Included with Agriculture in University Catalog Change reports					

IX. Changes since Proposed Departmental Changes for General Review

X. JUSTIFICATION FOR NEW COURSES

See attached Excel Spreadsheet

Summary Table

Department / Program Name	Designator and Course Number	Nonmajor graduate credit		Required in Program		Experimental Offering				Justification for: •courses offered experimentally •not required in a program
		No	Yes	No	Yes	No	Term	Year	Enroll.	
<u>Agricultural Engineering</u>										
	A E 490W					x				Replaces 490U. Uses W for "Waste" because it is more descriptive.
	A E 580					x				The graduate version of BSE 480. BSE does not have a grad program, thus we cannot do BSE 580, and instead list as A E 580.
<u>Aerospace Engineering</u>										
	AER E 467						Sp	10	5	Developed to provide multi-disciplinary design experience for students across several departments
<u>Bioengineering</u>										
	BIO E 490					x				Independent study course developed to provide option to students when other BIO E courses cancelled due to low enrollments
<u>Biological Systems Engineering</u>										
	BSE 490B					x				Special topics in Biorenewable Resources Engineering for new major (fixes oversight in original program creation of not having special topics for BSE)
	BSE 490E					x				Special topics in Environmental Bioprocessing (same comment as above)
	BSE 490G					x				Special topics in General Biosystems Engineering (same comment as above)
	BSE 490H					x				Special topics Honors section (same comment as above)
	BSE 490F					x				Special topics in Food Engineering (same comment as above)
<u>Construction Engineering</u>										
	Con E 354						Sp	11	7	Developed for Energy Systems Minor

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		No	Yes	No	Yes	No	Term	Year	Enroll.	
<u>Computer Engineering</u>										
	Cpr E 315					x				Required course in new catalog
	Cpr E 467					x				cross-list with Aer E 467 multi-disciplinary design course
	Cpr E 585					x				Cross-list with HCI 585 (an existing course)
<u>Electrical Engineering</u>										
	E E 459					x				Dual list with E E 549
	E E 467					x				cross-list with Aer E 467 multi-disciplinary design course
	E E 559						F	10	21	Course number change-had to change numbers to dual list with E E 459
<u>Engineering</u>										
	Engr 265									Course switching designation from E ST to ENGR since E ST minor has been discontinued
	Engr 340									Overview course for Wind Energy Minor
	Engr 350						Sp	11	26	Dean's leadership course
	Engr 467						Sp	10	4	cross-list with Aer E 467 multi-disciplinary design course
	Engr 490L									New category for independent study

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		No	Yes	No	Yes	No	Term	Year	Enroll.	
Industrial Engineering										
	I E 467									cross-list with Aer E 467 multi-disciplinary design course
Mechanical Engineering										
	M E 160					x				Required course
	M E 467						Sp	09	4	cross-list with Aer E 467 multi-disciplinary design course
	M E 490O					x				New category for independent study
	M E 490Q					x				New category for independent study
	M E 490R					x				New category for independent study
	M E 490S					x				New category for independent study
	M E 580						F	08	49	Provides required domain knowledge for HCI students
	M E 590T					x				New category for independent study
	M E 590U					x				New category for independent study
	M E 590V					x				New category for independent study
	M E 590W					x				New category for independent study
	M E 590Z					x				New category for independent study

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		No	Yes	No	Yes	No	Term	Year	Enroll.	
Materials Engineering										
	Mat E 467					x				cross-list with Aer E 467 multi-disciplinary design course