

CHANGE UNDERGRADUATE PROGRAM FORM

1. General Information

College: <u>Engineering</u>		Department: <u>Civil</u>	
Current Major Name: <u>Civil Engineering</u>		Proposed Major Name: <u>same</u>	
Current Degree Title: <u>B.S.C.E.</u>		Proposed Degree Title: <u>same</u>	
Formal Option(s): <u>NA</u>		Proposed Formal Option(s): _____	
Specialty Field w/in Formal Option: <u>NA</u>		Proposed Specialty Field w/in Formal Options: _____	
Date of Contact with Associate Provost for Academic Administration ¹ : <u>2/1/11</u>			
Bulletin (yr & pgs):	<u>2010-11, p202-203</u>	CIP Code ¹ :	<u>14.0801</u> Today's Date: <u>02/15/11</u>
Accrediting Agency (if applicable): <u>Accreditation Board for Engineering and Technology (ABET, Inc)</u>			
Requested Effective Date: <input checked="" type="checkbox"/> Semester following approval. OR <input type="checkbox"/> Specific Date ² : <u>Fall 2011</u>			
Dept. Contact Person: <u>Scott Yost</u>		Phone: <u>7-4816</u>	Email: <u>yostsa@enr.uky.edu</u>

2. General Education Curriculum for this Program:

The new General Education curriculum is comprised of the equivalent of 30 credit hours of course work. There are, however, some courses that exceed 3 credits & this would result in more than 30 credits in some majors.

- There is no foreign language requirement for the new Gen Ed curriculum.
- There is no General Education Electives requirement.

Please list the courses/credit hours currently used to fulfill the University Studies/General Education curriculum:
Math: MA113 (4 hrs); Foreign Language: HS credit or as needed; Inference-Logic: MA 114 (4 hrs); Written Communications: ENG104 (4 hrs) or equivalent; Oral Communications: COM252 or COM 281 (3 hrs); Natural Science: CHE105, CHE107, PHY231/241, and PHY 232/242 (6+ hours); Social Science: choose two from approved list (6 hrs); Humanities: choose 2 from approved list (6hrs); Cross Cultural: Choose 1 from approved list (3 hrs); Electives: various possibilities, 3 hrs of free elective (6 hrs). Total USP 42+ hours.

Please identify below the suggested courses/credit hours to fulfill the General Education curriculum.			
General Education Area	Course	Credit Hrs	
I. Intellectual Inquiry (one course in each area)			
Arts and Creativity	<u>select from list</u>	<u>3</u>	
Humanities	<u>select from list</u>	<u>3</u>	
Social Sciences	<u>select from list</u>	<u>3</u>	
Natural/Physical/Mathematical	<u>PHY231/PHY241</u>	<u>5</u>	
II. Composition and Communication			
Composition and Communication I	CIS or WRD 110	3	
Composition and Communication II	CIS or WRD 111	3	

¹ Prior to filling out this form, you MUST contact the Associate Provost for Academic Administration (APAA). If you do not know the CIP code, the (APAA) can provide you with that during the contact.

² Program changes are typically made effective for the semester following approval. No program will be made effective until all approvals are received.

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III. Quantitative Reasoning (one course in each area)			
	Quantitative Foundations ³	<u>MA 113</u>	<u>4</u>
	Statistical Inferential Reasoning	<u>BAE 202</u>	<u>3</u>
IV. Citizenship (one course in each area)			
	Community, Culture and Citizenship in the USA	<u>select from list</u>	<u>3</u>
	Global Dynamics	<u>select from list</u>	<u>3</u>
Total General Education Hours			<u>33</u>

3. Explain whether the proposed changes to the program (as described in sections 4 to 12) involve courses offered by another department/program. Routing Signature Log must include approval by faculty of additional department(s).

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4. Explain how satisfaction of the University Graduation Writing Requirement will be changed.

Current	Proposed
<input checked="" type="checkbox"/> Standard University course offering. List: _____	<input checked="" type="checkbox"/> <i>Standard University course offering.</i> List: <u>Choose from current W courses or CRM (when approved)</u>
<input type="checkbox"/> Specific course – list: _____	<input type="checkbox"/> <i>Specific course) – list: _____</i>

5. List any changes to college-level requirements that must be satisfied.

Current	Proposed
<input type="checkbox"/> Standard college requirement. List: _____	<input type="checkbox"/> <i>Standard college requirement.</i> List: _____
<input type="checkbox"/> Specific required course – list: _____	<input type="checkbox"/> <i>Specific course – list: _____</i>

6. List pre-major or pre-professional course requirements that will change, including credit hours.

Current	Proposed
<u>ENG104 Writing or equivalent (4 hrs)</u>	<u>CIS110 Comp and Com I or equivalent (3 hrs)</u>

7. List the major’s course requirements that will change, including credit hours.

Current	Proposed
<u>CE429 CE Systems Design (4hrs)</u>	<u>CE 329 CE Comm and Teams (1hrs)</u> <u>CE 429 CE Systems Design (3hrs)</u>
<u>CE 303 Intro to Constr Eng (4hrs)</u>	<u>CE 303 Intro To Const. Eng (3hrs)</u>

8. Does the pgm require a minor AND does the proposed change affect the required minor? N/A Yes No
 If “Yes,” indicate current courses and proposed changes below.

Current	Proposed
_____	_____

³ Note that MA 109 is NOT approved as a Quantitative Foundations course. Students in a major requiring calculus will use a calculus course (MA 113, 123, 137 or 138) while students not requiring calculus should take MA 111, PHI 120 or another approved course.

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9. Does the proposed change affect any option(s)?

N/A Yes No

If "Yes," indicate current courses and proposed changes below, including credit hours, and also specialties and subspecialties, if any.

Current	Proposed
_____	_____

10. Does the change affect pgm requirements for number of credit hrs outside the major subject in a related field?

Yes No

If so, indicate current courses and proposed changes below.

Current	Proposed
_____	_____

11. Does the change affect pgm requirements for technical or professional support electives?

Yes No

If so, indicate current courses and proposed changes below.

Current	Proposed
<u>see attached Current CE Program</u>	<u>see attached Proposed CE Program</u>
<u>Structures Elective: CE482 or CE486G and CE487G</u>	<u>Structures Elective: CE482 or CE486G</u>
<u>Technical Elective: choose 9 hrs from list</u>	<u>Technical Elective: choose 3 hrs from list</u>
<u>Technical Design Elective: choose 3 hrs from list</u>	<u>Technical Design Elective: choose 6 hrs from list</u>

12. Does the change affect a minimum number of free credit hours or support electives?

Yes No

If "Yes," indicate current courses and proposed changes below.

Current	Proposed
_____	_____

13. Summary of changes in required credit hours:

	Current	Proposed
a. Credit Hours of Premajor or Preprofessional Courses:	<u>38</u>	<u>37</u>
b. Credit Hours of Major's Requirements:	<u>33</u>	<u>32</u>
c. Credit Hours for Required Minor:	<u>NA</u>	<u>NA</u>
d. Credit Hours Needed for a Specific Option:	<u>NA</u>	<u>NA</u>
e. Credit Hours Outside of Major Subject in Related Field:	<u>13/14</u>	<u>13</u>
f. Credit Hours in Technical or Professional Support Electives:	<u>18</u>	<u>18</u>
g. Minimum Credit Hours of Free/Supportive Electives:	<u>3</u>	<u>3</u>
h. Total Credit Hours Required by Level:	100: <u>22</u>	<u>21</u>
	200: <u>28</u>	<u>30</u>
	300: <u>27</u>	<u>26</u>
	400-500: <u>28</u>	<u>24</u>
i. Total Credit Hours Required for Graduation:	<u>134/135</u>	<u>129</u>

14. Rationale for Change(s) – if rationale involves accreditation requirements, please include specific references to that.

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see attached We have long sought to reduce our credit hours needed for graduation (currently 134/135). The college minimum is 128. We were able to reduce to 129 . In the rework, we have also split the CE429- CE Systems Design Course (4 hrs) into two courses by moving the Civil Engineering communication and teaming skills to its own course CE 329 (1 hr); CE429 become a 3 hr class. We have also removed the lab from CE303 (4 hrs) reducing the class to a 3 hr course. Our accreditation board (ABET, Inc.) requires two major design experiences, so we reduced the technical electives (from 9 hrs to 3 hrs) to allow for an increased number of technical design electives (from 3 hrs to 6 hrs). With this we require the students to take the design electives in two different areas of Civil Engineering. We also eliminated the Statistics elective (3 hrs) and were able to utilize the new UK Core in QR Statistical Reasoning (BAE 202) to serve the needs of our students. There was a net reduction in technical electives of 3 hours, which is the bulk of the reduction from 134/135 to 129. Of course the newly approved GenEd requirements to replace the USP requirements are also implemented. We gained 1 credit hour from ENG104 (4 hrs) being replaced by the C&C course (3hrs). Other secondary changes are proposed to certain technical elective or graduate courses. These do not affect this program change proposal, but are included in the overall package.

15. List below the typical semester by semester program for the major. If multiple options are available, attach a separate sheet for each option.

YEAR 1 – FALL: (e.g. "BIO 103; 3 credits")	<u>see attached Current CE Program</u>	YEAR 1 – SPRING:	<u>see attached Proposed CE Program</u>
YEAR 2 - FALL :	_____	YEAR 2 – SPRING:	_____
YEAR 3 - FALL:	_____	YEAR 3 - SPRING:	_____
YEAR 4 - FALL:	_____	YEAR 4 - SPRING:	_____

CHANGE UNDERGRADUATE PROGRAM FORM

Signature Routing Log

General Information:

Current Degree Title and Major Name: B.S.C.E.

Proposal Contact Person Name: Scott Yost




Phone: 7-4816

Email: yostsa@engr.uky.edu

INSTRUCTIONS:

Identify the groups or individuals reviewing the proposal; note the date of approval; offer a contact person for each entry; and obtain signature of person authorized to report approval.

Internal College Approvals and Course Cross-listing Approvals:

Reviewing Group	Date Approved	Contact Person (name/phone/email)	Signature
CE Education Team	2/09/11	Nick Stamatiadis / 7-8012 / nstamat@engr.uky.edu	
CE Faculty	2/11/11	George Blandford / 7-1855 / gebland@engr.uky.edu	
<i>Engineering faculty</i>	<i>4/11/11</i>	<i>Richard Swelgard / 78827 / rswelgar@engr.uky.edu</i>	
		/ /	
		/ /	

External-to-College Approvals:

Council	Date Approved	Signature	Approval of Revision ⁴
Undergraduate Council	2/14/2012	Sharon Gill	
Graduate Council			
Health Care Colleges Council			
Senate Council Approval		University Senate Approval	

Comments:

⁴ Councils use this space to indicate approval of revisions made subsequent to that council's approval, if deemed necessary by the revising council.

Current CIVIL ENGINEERING UNDERGRADUATE PROGRAM

FRESHMAN YEAR

<u>First Semester</u>	Credit Hours	<u>Second Semester</u>	Credit Hours
CE 120 - Intro to Civil Engrg	1	CE 106 - Computer Graphics/Comm	3
ENG 104 - Writing: An Accelerated Foundational Crse	4	CHE 105 - Gen Coll Chem I	3
MA 113 - Calculus I	4	MA 114 - Calculus II	4
US: Social Science Elective	3	PHY 231 - Gen Univ Physics	4
US: ECO 201 (R - Social Science)	3	PHY 241 - Gen Univ Physics Lab	1
Semester Hours	15	Semester Hours	15

SOPHOMORE YEAR

<u>First Semester</u>	Credit Hours	<u>Second Semester</u>	Credit Hours
CE 211 - Surveying	4	COM - Communications Elective (1)	3
CHE 107 - Gen Coll Chem II	3	EM 302 - Mech of Deform Solids	3
EM 221 - Statics	3	MNG 303 - Deformable Solids Lab	1
GLY 220 - Physical Geology	4	MA 214 - Calculus IV	3
MA 213 - Calculus III	4	PHY 232 - Gen Univ Physics	4
		PHY 242 - Gen Univ Physics Lab	1
		STA 381 - Statistics for Engrs (2)	3
Semester Hours	18	Semester Hours	18

JUNIOR YEAR

<u>First Semester</u>	Credit Hours	<u>Second Semester</u>	Credit Hours
CE 303 - Intro to Constr Engrg**	4	CE 351 - Intro Envr Engrg	3
CE 331 - Transportation Engrg**	3	CE 382 - Structural Analysis	3
CE 341 - Fluid Mechanics I	4	CE 471G - Soil Mechanics**	4
CE 381 - CE Materials**	3	Computer Science Elective (4)	2 or 3
Engr Science Elective (3)	3	US: HIS 107 (R - Humanities)	3
		Math or Science Elective (5)	3
Semester Hours	17	Semester Hours	18 or 19

SENIOR YEAR

<u>First Semester</u>	Credit Hours	<u>Second Semester</u>	Credit Hours
CE 401 - Seminar**	1	CE 429 - CE Systems Design**	4
CE 461G - Hydrology**	4	CE Tech Design Elective (8)	3
Structures Elective (6)	3	Supportive Elective (9)	3
Tech Elective***	3	Tech Elective***	3
Tech Elective***	3	US: Cross Cultural Elective (7)	3
US: Humanities Elective (7)	3		
Semester Hours	17	Semester Hours	16

TOTAL SEMESTER HOURS

134 or 135

R = Recommended University Studies Course

** CE communication throughout the curriculum component

*** Technical Electives are to be chosen from any of the courses at the 300-level or above that carry a CE prefix and in which a student is qualified to enroll, exclusive of required courses. **Engineering elective courses are typically taught once a year.**

- (1) COM 252 - Interpersonal Communication or COM 281 - Communication in Small Groups
- (2) MA/STA 320 - Introductory Probability may be substituted for students pursuing a mathematics minor
- (3) ME 220 - Thermodynamics or EM 313 - Dynamics
- (4) CS 221 (2 credit hours) or CS 115 (3 credit hours)
- (5) MA 321, MA 322, MA 416G, MA 432G, BIO 208, CHE 230, CHE 236, EE 305, GEO 409G, GLY 430, GLY 560, MNG 551, or the other half of the Engineering Science Elective in (3)
- (6) CE 482 (non-structural option) or CE 486G and CE 487G (technical elective)
- (7) Either the Humanities or Cross-Cultural Elective can be used to simultaneously satisfy the second-tier University Writing requirement. In the Humanities area, choosing from the ENG 200-level humanities courses satisfies both. In the Cross Cultural area ENG 264 satisfies both. Only one second-tier writing course is required to meet the graduation writing requirements. Completion of the second-tier course must be in the sophomore year or later and after ENG 104 or equivalent and **you must register for the W section.**
- (8) CE 403, 451, 599 (construction), 533, 539, 549, 579 or 589 (**NOTE:** CE 579 is a co-requisite for CE 589)
- (9) Supportive elective is to be chosen from any university course excluding more elementary versions of required courses such as pre-calculus mathematics or PHY 211. However, each CE area has at least one recommendation for the supportive elective. Please review the Optional Concentration section in the Civil Engineering Undergraduate Handbook. The supportive elective can be taken P/F.

PROPOSED CIVIL ENGINEERING UNDERGRADUATE PROGRAM

FRESHMAN YEAR

First Semester	Credit Hours	Second Semester	Credit Hours
CE 120 - Intro to Civil Engrg	1	CE 106 - Computer Graphics/Comm	3
UK Core: C&C (CIS 110 - Comp and Comm I)	3	MA 114 - Calculus II	4
UK Core: QR QF(MA 113 - Calculus I)	4	UK Core: II Physical (PHY 231 - Gen Univ Physics)	4
UK Core: II Arts & Creativity	3	UK Core: II Physical (PHY 241 - Gen Univ Physics Lab)	1
UK Core: II Social Science	3	CHE 105 - Gen Coll Chem I	3
Semester Hours	14	Semester Hours	15

SOPHOMORE YEAR

First Semester	Credit Hours	Second Semester	Credit Hours
CE 211 - Surveying	4	CS 221 - First Course in CS for Engrs	2
CHE 107 - Gen Coll Chem II	3	EM 302 - Mech of Deform Solids	3
EM 221 - Statics	3	MNG 303 - Deformable Solids Lab	1
MA 213 - Calculus III	4	MA 214 - Calculus IV	3
UK Core: QR Statistical Reasoning (1)	3	PHY 232 - Gen Univ Physics	4
		PHY 242 - Gen Univ Physics Lab	1
		UK Core: C&C (CIS 111 - Comp and Comm II)	3
Semester Hours	17	Semester Hours	17

JUNIOR YEAR

First Semester	Credit Hours	Second Semester	Credit Hours
CE 329 - Civil Engr Comm & Teams**	1	CE 331 - Transportation Engrg**	3
CE 303 - Intro to Constr Engrg	3	CE 351 - Intro Envr Engrg	3
CE 341 - Fluid Mechanics	4	CE 382 - Structural Analysis	3
CE 381 - CE Materials**	3	Engr Science Elective (2)	3
GLY 220 - Physical Geology	4	Math or Science Elective (3)	3
		UK Core: II Humanities (Recommended EGR 201)	3
Semester Hours	15	Semester Hours	18

SENIOR YEAR

First Semester	Credit Hours	Second Semester	Credit Hours
CE 461G - Water Resources Engr**	4	CE 401 - Seminar**	1
CE 471G - Soil Mechanics**	4	CE 429 - CE Systems Design**	3
CE 48X - Structures Elective (4)	3	Design Elective (5)	3
Design Elective (5)	3	Technical Elective (6)	3
UK Core: Citizenship US	3	Supportive Elective (7)	3
		UK Core: Citizenship Global Dynamics	3
Semester Hours	17	Semester Hours	16

TOTAL SEMESTER HOURS

129

** CE communication throughout the curriculum component: In anticipation of changes to the GWR, these courses will be to fulfill the new GWR (CRM) once approved by the Senate

- (1) UK Core QR Statistical Reasoning can be fulfilled with either BAE 202 or a Civil Engineering approved alternative
- (2) ME 220 - Thermodynamics or EM 313 - Dynamics
- (3) Math or Science Elective Options: MA 321, MA 322, MA 416G, MA 432G, BIO 208, CHE 230, CHE 236, EE 305, GEO 409G, GLY 550, GLY 585, MNG 551, or the other half of the Engineering Science Elective in (2). NOTE: MA 322 is required for a math minor.
- (4) CE 482 or CE 486G
- (5) Students are required to select two design electives from different areas. Choose from: CE 508, CE 531 or CE 533, CE 534, CE 549, CE 551, CE 579, CE 589. **Design elective courses are typically taught once a year.**
- (6) Technical Elective is chosen from any of the courses at the 300-level or above that carry a CE prefix and in which a student is qualified to enroll, exclusive of required courses. **Engineering elective courses are typically taught once a year.**
- (7) Supportive elective is to be chosen from any university course excluding more elementary versions of required courses such as pre-calculus mathematics or PHY 211. However, each CE area has at least one recommendation for the supportive elective. Please review the Optional Concentration section in the Civil Engineering Undergraduate Handbook. The supportive elective can be taken P/F.

Blue: General Education Courses
 Green: Premajor Requirements
 Red: Upper Division Electives
 Purple: Support Electives

The student of civil engineering has a broad field of study to provide a strong foundation for entry into the profession or graduate school. Major areas include construction engineering and project management, environmental engineering, geotechnical engineering, materials engineering, structural engineering, transportation engineering, and water resources engineering. Consistent with the Vision and Mission statements, the Civil Engineering graduates from the University of Kentucky will be prepared to:

- Use technical, teamwork, and communication skills, along with leadership principles, to pursue civil engineering careers in areas such as structural, transportation, geotechnical, materials, environmental, construction, and water resources engineering, and/or other fields.
- Pursue graduate degrees in civil engineering and other fields.
- Function ethically in their professional civil engineering roles.
- Pursue professional licensure.
- Engage in life-long learning through independent study and by participating in professional conferences, workshops, seminars, or continuing education.

Degree Requirements

The following curriculum meets the requirements for a B.S. in civil engineering, provided the student satisfies the graduation requirements listed earlier. Some courses are listed in more than one place, and hence the hours do not add up to the total. Each student must complete the following:

UK Core Requirement Hours

See *UK Core* section of this Bulletin for the complete UK Core Requirements. The courses listed below are (a) recommended by the college, or (b) required courses that also fulfill General Education. Students should work closely with their advisor to complete the University's General Education program area.

Intellectual Inquiry: Arts and Creativity	
Select from UK Core listing	3
Intellectual Inquiry: Humanities	
Select from UK Core listing (Recommended EGR 201)..	3
Intellectual Inquiry: Social Science	
Select from UK Core listing	3
Intellectual Inquiry: Natural/Physical/Mathematical	
PHY 231 General University Physics	4
And PHY 241 General University Physics Lab.....	1
Composition and Communication: Comp and Com I	
CIS 110 Comp and Com I, or equivalent.....	3
Composition and Communication: Comp and Com II	
CIS 111 Comp and Com II, or equivalent.....	3
Quantitative Reasoning: Quantitative Foundations	
MAT 113 Calculus I	3
Quantitative Reasoning: Statistical Inferential Reasoning	
BAE202 Statistical Inferences for Biosystems Engineers	
or CE approved equivalent	3
Citizenship: Community, Culture and Citizenship in the USA	
Select from UK Core listing	3
Citizenship: Global Dynamics	
Select from UK Core listing	3
Subtotal: General Education Hours	32

Premajor Requirements Hours

CE 106 Computer Graphics and Communication	3
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CE 120 Introduction to Civil Engineering	1
CE 211 Surveying	4
CHE 105 General College Chemistry I	3
CHE 107 General College Chemistry II	3
EM 221 Statics	3
CIS 110 Comp and Com I	3
MA 113 Calculus I	4
MA 114 Calculus II	4
MA 213 Calculus III	4
PHY 231 General University Physics	4
PHY 241 General University Physics Laboratory	1
Subtotal: Premajor Hours	37

Major Requirements Hours

CE 329 CE Comm and Teams	1
CE 303 Introduction to Construction Engineering	3
CE 331 Transportation Engineering	3
CE 341 Introduction to Fluid Mechanics	4
CE 351 Introduction to Environmental Engineering	3
CE 381 Civil Engineering Materials I	3
CE 382 Structural Analysis	3
CE 401 Seminar	1
CE 429 Civil Engineering Systems Design	3
CE 461G Water Resources Engineering	4
CE 471G Soil Mechanics	4
CS 221 First Course in Computer Science for Engineers	2
EM 302 Mechanics of Deformable Solids	3
MNG 303 Deformable Solids Laboratory	1
GLY 220 Principles of Physical Geology	4
MA 214 Calculus IV	3
PHY 232 General University Physics	4
PHY 242 General University Physics Laboratory	1
Subtotal: Major Hours	50

Electives Hours

CE Technical Design Electives	6
Engineering Science Elective.....	3
Structures Elective.....	3
CE Technical Electives	3
Supportive Elective	3
Math or Science Elective	3
UK Core Electives	15
Subtotal: Electives	36
TOTAL HOURS:	129

Curriculum

Freshman Year

First Semester Hours

CE 120 Introduction to Civil Engineering	1
UK Core: C&C (CIS 110 - Comp and Comm I)	3
UK Core: QR QF(MA 113 - Calculus I)	4
UK Core: II Arts & Creativity	3
UK Core: II Social Science	3

Second Semester

CE 106 Computer Graphics and Communication	3
UK Core: II Physical (CHE 105 - Gen Coll Chem I).....	3
MA 114 Calculus II	4
PHY 231 General University Physics	4
PHY 241 General University Physics Laboratory	1

Sophomore Year

First Semester Hours

CE 211 Surveying	4
CHE 107 General College Chemistry II	3
EM 221 Statics	3
UK Core: QR Statistical Reasoning [1].....	3
MA 213 Calculus III	4

Second Semester

CS 221 First Course in Computer Science for Engineers	2
EM 302 Mechanics of Deformable Solids	3
MNG 303 Deformable Solids Laboratory	1
MA 214 Calculus IV	3
PHY 232 General University Physics	4
PHY 242 General University Physics Laboratory	1
UK Core: C&C (CIS 111 - Comp and Comm II)	3

Junior Year

First Semester Hours

CE 329 Civil Engr Comm & Teams**	1
CE 303 Introduction to Construction Engineering	3
CE 341 Introduction to Fluid Mechanics	4

CE 381 Civil Engineering Materials I**	3
GLY 220 Principles of Physical Geology	3

Second Semester

CE 331 Transportation Engineering**	3
CE 351 Introduction to Environmental Engineering	3
CE 382 Structural Analysis	3
Engineering Science Elective [2]	3
Math Elective or Science Elective [3]	3
UK Core: II Humanities (Recommended EGR 201)	3

Senior Year

First Semester Hours

CE 461G Water Resources Engineering**	4
CE 471G Soil Mechanics**	4
CE 48X - Structures Elective [4]	3
CE Technical Design Elective [5]	3
UK Core: Citizenship US	3

Second Semester

CE 401 Seminar**	1
CE 429 Civil Engineering Systems Design**	3
CE Technical Design Elective [5]	3
CE Technical Elective [6]	3
Supportive Elective [7]	3
UK Core: Citizenship Global Dynamics	3

***CE communication throughout the curriculum component.*

[1] BAE 202 Statistical Inferences for Biosystems Engineers, or a Civil Engineering approved alternative.

[2] To be chosen from ME 220 Thermodynamics or EM 313 Dynamics.

[3] Math or Science Elective Options: MA 321, MA 322, MA 416G, MA 432G, BIO 208, CHE 230, CHE 236, EE 305, GEO 409G, GLY 550, GLY 585, MNG 551, or the other half of the Engineering Science Elective in [2]. NOTE: MA 322 is required for a math minor.

[4] CE 482 or CE 486G.

[5] Students are required to select two design electives from different areas. Choose from: CE 508,

CE 531 or CE 533, CE 534, CE 549, CE 551, CE 579, CE 589. Design elective courses are typically taught once a year.

[6] CE Technical Elective is chosen from any of the courses at the 300-level or above that carry a CE prefix and in which a student is qualified to enroll, exclusive of required courses. Engineering elective courses are typically taught once a year.

[7] Supportive elective is to be chosen from any University course, excluding a more elementary version of a required course, such as pre-calculus mathematics or PHY 211. However, each CE area has at least one recommendation for the supportive elective. Please review the Optional Concentration section in the Civil Engineering Undergraduate Handbook. The supportive elective can be taken pass-fail.

Engineering Standing Admission

Civil Engineering: Completion of CE 106, CE 120, CE 211, CHE 105, CHE 107, EM 221, CIS110, MA 113, MA 114, MA 213, PHY 231, PHY 241 with a minimum cumulative grade point average (GPA) of 2.50 in these classes and a C or better in each of them as well as 45 or more semester credit hours. University repeat options may be utilized. Students who do not meet this GPA requirement may request consideration based upon departmental review if this core GPA is 2.25 or greater. Students are limited to two applications for engineering standing.