

Notice of Change for *Minor Curriculum Changes for Civil and Environmental Engineering*

Date: *February 20, 2016*

A. PROGRAM INFORMATION

1. Name of institution

University of Rhode Island

2. Name of department, division, school or college

Department: *Civil and Environmental Engineering*

College: *College of Engineering*

3. Intended initiation date of program change. Include anticipated date for granting first degrees or certificates, if appropriate.

Initiation date: *Fall 2016*

First degree date: *Spring 2017*

4. Intended location of the program: *Kingston Campus, College of Engineering, Bliss Hall*

5. Summary description of proposed program (not to exceed 2 pages).

Some supporting courses (GEO 103, WRT 332, STA 409, ISE 404) were moved up in the curriculum to better prepare students in subsequent engineering courses including labs where principles of writing and statistics are heavily used. One engineering design course (CVE 483) was also moved up to better prepare students for the senior design capstone project. The titles of two courses (CVE 354 and CVE 355) were corrected.

Finally, the “technical elective” course was replaced by a “professional elective” course and the definition of a professional elective was expanded to include the list of courses previously used as technical electives. This was done to provide students with the opportunity to take more CVE design/elective courses. In addition, a limit of 6 credits of special problems used toward the 15 credits of professional electives has been added.

If applicable, please include the existing URI catalog language and proposed catalog language changes that relate to your request.

EXISTING URI CATALOG LANGUAGE:

The *civil engineering major* requires 124 credits.

Freshman Year First semester: 15 credits

CHM 101 (3), 102 (1); ECN 201 (3); EGR 105 (1); MTH 141 (4); and general education requirement (3).

Second semester: 16 credits

EGR 106 (2); MTH 142 (4); PHY 203 (3), 273 (1); and general education requirement (6).

Sophomore Year First semester: 16 credits

CVE 205 (2); GEO 103 (4); MCE 262 (3); MTH 243 (3); and PHY 204 (3), 274 (1);.

Second semester: 16 credits

CHM 112 (3); CVE 220 (3), 230 (1); MCE 263 (3); MTH 244 (3); and general education requirements (3).

Junior Year First semester: 17 credits

CVE 346 (3), 354 (3), 355 (1), 374 (3), 381 (3), 382 (1); and MCE 354 (3).

Second semester: 14 credits

CVE 347 (3), 348 (1), 370 (3), 375 (1), ; STA 409 (3); and technical elective¹ (3)

Senior Year First semester: 15 credits

CVE 400 (1), 465 (3), 497 (2) [**capstone**]; WRT 332 (3); and professional electives² (6).

Second semester: 15 credits

CVE 483 (3), 498 (3) [**capstone**]; ISE 404 (3); professional electives² (6); and take the Fundamentals of Engineering (FE) Examination³.

¹ *Technical Elective Requirement:* Select one (1) of the following: CHE 333, ELE 220, MCE 341, or MTH 215.

² *Professional Elective Requirements:* Three (3) of the twelve credits (12) must be selected from the following courses: CVE 470, 471, 475, 477. The remaining nine (9) credits can be any 300-level and above CVE courses.

³ *Fundamentals of Engineering (FE) Examination:* All CVE majors are required to take the FE Examination offered by NCEES as a part of graduation requirements. Official NCEES proof of having taken the exam is required.

PROPOSED URI CATALOG LANGUAGE:

The civil engineering major requires 124 credits.

Freshman Year First semester: 15 credits

EGR 105 (1); CHM 101 (3), 102 (1); MTH 141 (4); ECN 201 (3); and general education requirement (3).

Second semester: 17 credits

EGR 106 (2); PHY 203 (3), 273 (1); MTH 142 (4); GEO 103 (4); and general education requirement (3).

Sophomore Year First semester: 15 credits

CVE 205 (2); MCE 262 (3); MTH 243 (3); and PHY 204 (3), 274 (1); WRT 332 (3).

Second semester: 16 credits

CVE 220 (3), 230 (1); MCE 263 (3); MTH 244 (3); CHM 112 (3); and STA 409 (3).

Junior Year First semester: 17 credits

CVE 346 (3), 354 (3), 355 (1), 374 (3), 381 (3), 382 (1); and MCE 354 (3).

Second semester: 14 credits

CVE 347 (3), 348 (1), 370 (3), 375 (1); ISE 404 (3); and general education requirement (3).

Senior Year First semester: 15 credits

CVE 400 (1), 465 (3), 483 (3), 497 (2) [**capstone**]; and professional electives¹ (6).

Second semester: 15 credits

CVE 498 (3) [**capstone**]; professional electives¹ (9); general education requirement (3); and take the Fundamentals of Engineering (FE) Examination².

¹ *Professional Elective Requirements:* Three (3) of the fifteen (15) credits must be selected from the following courses: CVE 470, 471, 475, 477. The remaining twelve (12) credits can be any 300-level and above CVE courses and may include three (3) credits from the following courses: CHE 333, ELE 220, MCE 341, or MTH 215. A maximum of six (6) credits of Special Problems (CVE 491 or 492) may be taken.

² *Fundamentals of Engineering (FE) Examination:* All CVE majors are required to take the FE Examination offered by NCEES as a part of graduation requirements. Official NCEES proof of having taken the exam is required.

6. Signature of the President

David M. Dooley

EXISTING CIVIL ENGINEERING CURRICULUM

Freshman Year - Fall		
Course	Description	Cr
EGR 105	Foundations of Engineering I	1
CHM 101	General Chem I Lecture	3
CHM 102	General Chem I Lab	1
MTH 141	Intro Calculus w/Analytic Geometry	4
ECN 201	Principles of Microeconomics	3
	General Education Elective	3
		15

Freshman Year - Spring		
Course	Description	Cr
EGR 106	Foundations of Engineering II	2
PHY 203	Elementary Physics I Lecture	3
PHY 273	Elementary Physics I Lab	1
MTH 142	Intermed Calculus w/Analytic Geometry	4
	General Education Elective	3
	General Education Elective	3
		16

Sophomore Year - Fall		
Course	Description	Cr
CVE 205	Intro to Civil Engineering Tools	2
GEO 103	Understanding the Earth	4
MCE 262	Statics	3
MTH 243	Calculus for Functions of Several Variables	3
PHY 204	Elementary Physics II Lecture	3
PHY 274	Elementary Physics II Lab	1
		16

Sophomore Year - Spring		
Course	Description	Cr
CVE 220	Mechanics of Materials	3
CVE 230	Mechanics of Materials Laboratory	1
MCE 263	Dynamics	3
MTH 244	Differential Equations	3
CHM 112	General Chemistry II	3
	General Education Elective	3
		16

Junior Year - Fall		
Course	Description	Cr
CVE 346	Transportation Engineering	3
CVE 354	Structural Analysis	3
CVE 355	Structural Analysis Lab	1
CVE 374	Environmental Engineering	3
CVE 381	Geotechnical Engineering	3
CVE 382	Geotechnical Engineering Lab	1
MCE 354	Fluid Mechanics	3
		17

Junior Year - Spring		
Course	Description	Cr
CVE 347	Highway Engineering	3
CVE 348	Highway Engineering Lab	1
CVE 370	Hydraulic Engineering	3
CVE 375	Environmental Engineering Lab	1
STA 409	Statistics	3
	Technical Elective *	3
		14

Senior Year - Fall		
Course	Description	Cr
CVE 400	Civil Engineering Licensure	1
CVE 465	Anal & Design of Concrete Structures	3
CVE 497	Civil Engineering Design I	2
WRT 332	Technical or Scientific Writing	3
	Professional Elective**	3
	Professional Elective**	3
		15

Senior Year - Spring		
Course	Description	Cr
CVE 483	Foundation Engineering	3
CVE 498	Civil Engineering Design II	3
ISE 404	Eng. Economy & Project Planning	3
	Professional Elective**	3
	Professional Elective**	3
	Take FE Exam	
		15

TOTAL CREDIT HOURS 124

* Select one of CHE 333, ELE 220, MCE 341, or MTH 215

** Three of the 12 credits must be one of the following courses: CVE 470, 471, 475, 477;

The remaining 9 credits can be any 300-level and above CVE courses

PROPOSED CHANGES

Freshman Year - Fall			Freshman Year - Spring		
Course	Description	Cr	Course	Description	Cr
EGR 105	Foundations of Engineering I	1	EGR 106	Foundations of Engineering II	2
CHM 101	General Chem I Lecture	3	PHY 203	Elementary Physics I Lecture	3
CHM 102	General Chem I Lab	1	PHY 273	Elementary Physics I Lab	1
MTH 141	Intro Calculus w/Analytic Geometry	4	MTH 142	Intermed Calculus w/Analytic Geometry	4
ECN 201	Principles of Microeconomics	3	GEO 103	General Education Elective	3
	General Education Elective	3		Understanding the Earth	4
		15		General Education Elective	3
					16
					17
Sophomore Year - Fall			Sophomore Year - Spring		
CVE 205	Intro to Civil Engineering Tools	2	CVE 220	Mechanics of Materials	3
GEO 103	Understanding the Earth	4	CVE 230	Mechanics of Materials Laboratory	1
WRT 332	Technical Writing	3	MCE 263	Dynamics	3
MCE 262	Statics	3	MTH 244	Differential Equations	3
MTH 243	Calculus for Functions of Several Variables	3	CHM 112	General Chemistry II	3
PHY 204	Elementary Physics II Lecture	3	STA 409	General Education Elective	3
PHY 274	Elementary Physics II Lab	1		Statistics	3
		16			16
		15			16
Junior Year - Fall			Junior Year - Spring		
CVE 346	Transportation Engineering	3	CVE 347	Highway Engineering	3
CVE 354	Structural Engineering	3	CVE 348	Highway Engineering Lab	1
CVE 355	Structural Engineering Lab	1	CVE 370	Hydraulic Engineering	3
CVE 374	Environmental Engineering	3	CVE 375	Environmental Engineering Lab	1
CVE 381	Geotechnical Engineering	3	STA 409	Statistics	3
CVE 382	Geotechnical Engineering Lab	1		General Education Elective	3
MCE 354	Fluid Mechanics	3		Technical Elective*	2
		17	ISE 404	Engineering Economy and Project Planning	3
		17			14
Senior Year - Fall			Senior Year - Spring		
CVE 400	Civil Engineering Licensure	1	CVE 483	Foundation Engineering	3
CVE 465	Anal & Design of Concrete Structures	3		General Education Elective	3
CVE 497	Civil Engineering Design I	2	CVE 498	Civil Engineering Design II	3
WRT 332	Technical or Scientific Writing	3	ISE 404	Eng. Economy & Project Planning	3
CVE 483	Foundation Engineering	3		Professional Elective *	3
	Professional Elective*	3		Professional Elective*	3
	Professional Elective*	3		Take FE Exam**	
		15			15

TOTAL CREDIT HOURS 124

* Select one of CHE 333, ELE 220, MCE 341, or MTH 215

** Three of the 12 credits must be one of the following courses: CVE 470, 471, 475, 477; The remaining 9 credits can be any 300-level and above CVE courses

Three (3) of the fifteen (15) credits must be selected from the following courses: CVE 470, 471, 475, 477. The remaining twelve (12) credits can be any 300-level and above CVE courses and may include three (3) credits from the following courses: CHE 333, ELE 220, MCE 341, or MTH 215. A maximum of six (6) credits of Special Problems (CVE 491 or 492) may be taken.

** Fundamentals of Engineering (FE) Examination: All CVE majors are required to take the FE Examination offered by NCEES as a part of graduation requirements. Official NCEES proof of having taken the exam is required.

Comment [M1]: Moved GEO103 to freshman year to make space for moving WRT and STA up to sophomore year. It is also a 100-level course so it is appropriate at the 100-level. There is no pre-requisites.

Need to contact GEO dept.

Comment [M2]: Moved WRT332 from senior year to sophomore year to allow students the opportunity to learn how to write technical matters before they begin intensive lab experience in junior year.

Removed reference to scientific writing (not offered yet) to correspond with course number of WRT 332. There are no pre-requisites for this course.

No need to contact WRT dept because course stayed in fall semester.

Comment [M3]: Moved STA409 from junior year to sophomore year to help prepare students for labs in junior year.

Pre-req MTH 131 or 141.

No need to contact STA dept because course stayed in spring semester.

Comment [M4]: Corrected name. Structural Engineering not Structural Analysis

Comment [M5]: Moved ISE 404 to junior year so that by the end of the fall semester of senior year, students would have taken all topics on FE exam.

This move also allows space so that all professional electives (and former technical elective) be taken at the senior level.

Comment [M6]: Moved CVE 483 to fall so students would have all design courses before they start senior design.

It also helps with FE exam because students generally take exam at end of fall

Comment [M7]: Updated definition of professional electives to include the list of courses previously considered as technical electives. Also added a sentence to limit the number of credits taken as special problems to be counted as professional electives.

Comment [M8]: Added to match the catalog

2019
2020

CIVIL ENGINEERING CURRICULUM

Freshman Year - Fall		
Course	Description	Cr
EGR 105	Foundations of Engineering I	1
CHM 101	General Chem I Lecture	3
CHM 102	General Chem I Lab	1
MTH 141	Intro Calculus w/Analytic Geometry	4
ECN 201	Principles of Microeconomics	3
	General Education Elective	3
		15
Sophomore Year - Fall		
CVE 205	Intro to Civil Engineering Tools	2
MCE 262	Statics	3
MTH 243	Calculus for Functions of Several Variables	3
PHY 204	Elementary Physics II Lecture	3
PHY 274	Elementary Physics II Lab	1
WRT 332	Technical Writing	3
		15
Junior Year - Fall		
CVE 346	Transportation Engineering	3
CVE 354	Structural Engineering	3
CVE 355	Structural Engineering Lab	1
CVE 374	Environmental Engineering	3
CVE 381	Geotechnical Engineering	3
CVE 382	Geotechnical Engineering Lab	1
MCE 354	Fluid Mechanics	3
		17
Senior Year - Fall		
CVE 400	Civil Engineering Licensure	1
CVE 465	Anal & Design of Concrete Structures	3
CVE 483	Foundation Engineering	3
CVE 497	Civil Engineering Design I	2
	Professional Elective*	3
	Professional Elective*	3
		15

Freshman Year - Spring		
Course	Description	Cr
EGR 106	Foundations of Engineering II	2
PHY 203	Elementary Physics I Lecture	3
PHY 273	Elementary Physics I Lab	1
MTH 142	Intermed Calculus w/Analytic Geometry	4
GEO 103	Understanding the Earth	4
	General Education Elective	3
		17
Sophomore Year - Spring		
CVE 220	Mechanics of Materials	3
CVE 230	Mechanics of Materials Laboratory	1
MCE 263	Dynamics	3
MTH 244	Differential Equations	3
CHM 112	General Chemistry II	3
STA 409	Statistics	3
		16
Junior Year - Spring		
CVE 347	Highway Engineering	3
CVE 348	Highway Engineering Lab	1
CVE 370	Hydraulic Engineering	3
CVE 375	Environmental Engineering Lab	1
ISE 404	Engineering Economy and Project Planning	3
	General Education Elective	3
		14
Senior Year - Spring		
CVE 498	Civil Engineering Design II	3
	Professional Elective *	3
	Professional Elective*	3
	Professional Elective*	3
	General Education Elective	3
	Take FE Exam	
		15

TOTAL CREDIT HOURS 124

* Three (3) of the fifteen (15) credits must be selected from the following courses: CVE 470, 471, 475, 477. The remaining twelve (12) credits can be any 300-level and above CVE courses and may include three (3) credits from the following courses: CHE 333, ELE 220, MCE 341, or MTH 215. A maximum of six (6) credits of Special Problems (CVE 491 or 492) may be taken.

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