

ROWAN COLLEGE
CURRICULUM COMMITTEE

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M I N O R C H A N G E

PROPOSAL TITLE: Civil Engineering Program

UNDERGRADUATE GRADUATE CREDIT HOURS

SPONSOR(S): Ralph Alan Dusseau, Chair, Civil Engineering Program

DEPARTMENT & TELEPHONE# Engineering, 4628

CHECK ONE:

- CHANGES IN APPROVED ~~MINORS, SPECIALIZATIONS, CONCENTRATIONS~~ PROGRAM
- CATALOGUE DESCRIPTIONS AND/OR PREREQUISITE CHANGES
- SMALL CHANGES IN COURSE CONTENT OF EXISTING COURSES WHICH DO NOT SUBSTANTIALLY VARY THE CURRICULUM
- CHANGES IN HEGIS NUMBER

<p>STEP #1 (DEPARTMENT)</p> <p><input checked="" type="checkbox"/> APPROVED / DATE: <u>2/10/97</u></p> <p><input type="checkbox"/> NOT APPROVED / DATE: _____</p> <p><u><i>[Signature]</i></u> <u>2/10/97</u> (DEPT. CURRICULUM CHR./ DATE)</p> <p><u><i>[Signature]</i></u> <u>2/10/97</u> DEPT. CHR./DATE</p>	<p>STEP #2 (SCHOOL)</p> <p>DATE REVIEWED <u>2/10/97</u></p> <p><input checked="" type="checkbox"/> RECOMMEND TO APPROVE</p> <p><input type="checkbox"/> RECOMMEND NOT TO APPROVE</p> <p>COMMENTS:</p> <p><u><i>[Signature]</i></u> TRC <u><i>[Signature]</i></u> JLS</p> <p><u><i>[Signature]</i></u> RAD <u><i>[Signature]</i></u> CSS</p> <p><u><i>[Signature]</i></u> SCHOOL CURRICULUM CHR.</p>	<p>STEP #3 (ACADEMIC DEAN)</p> <p><input checked="" type="checkbox"/> RECOMMEND <input type="checkbox"/> NOT RECOMMENDED</p> <p>DATE REVIEWED: <u>2/19/97</u></p> <p><u><i>[Signature]</i></u> DEAN OF SCHOOL SIGNATURE</p>
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<p>STEP #4 (CURRICULUM COMMITTEE)</p> <p>SCC# <u>96-97-104 CH 4-24-97</u></p> <p>DATE RECEIVED: <u>2-20-97</u></p> <p><input checked="" type="checkbox"/> APPROVED <input type="checkbox"/> NOT APPROVED</p> <p><u><i>[Signature]</i></u> CURRICULUM COMMITTEE CHR. SIGNATURE</p>	<p>STEP #5 EXE. VP/PROVOST</p> <p><input type="checkbox"/> APPROVED</p> <p><input type="checkbox"/> NOT APPROVED</p> <p><u><i>[Signature]</i></u> SIGNATURE/DATE</p>
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REGISTRAR'S SIGNATURE/DATE *[Signature]* 4 June 97



ROWAN

School of Engineering
(609) 256-4670
Fax: (609) 256-4950

To: Ron Czocho, Chairman
Senate Curriculum Committee

From: Ralph Alan Dusseau, Chair
Civil Engineering Program

Date: February 10, 1997

Subject: Minor Program Changes to the Civil Engineering Program

I would like to request the following Minor Program Changes to the Civil Engineering Program (please see the attached copies of the old and new curricula):

Details:

1. Change the names of the Environmental and Infrastructure Engineering Options to the Environmental and Infrastructure Emphases, respectively.
2. Drop the following courses from the Infrastructure Emphasis (reduction of 11 credits):
 - a. Surveying and Planning (first semester of senior year). This course would become an elective for both Environmental and Infrastructure students.
 - b. Two Infrastructure Engineering Electives (one each semester of the senior year).
 - c. Engineering Core Elective (second semester of the senior year).
3. Drop the following courses from the Environmental Emphasis (reduction of 11 credits):
 - a. Transportation Engineering (first semester of senior year). This course would become an elective for Environmental students, but would remain a required course for Infrastructure students.
 - b. Two Environmental Engineering Electives (one each semester of the senior year).
 - c. Engineering Core Elective (second semester of the senior year).

4. Add four Civil Engineering Electives to both the Infrastructure Emphasis and the Environmental Emphasis (with two electives the first semester of the senior year and two electives the second semester of the senior year). These additions would total 12 credits (a net increase of 1 credit) and would be accompanied by the following footnotes:
 - a. Infrastructure Emphasis - students must choose their four civil engineering electives such that their complete program contains a minimum of two courses each in structural engineering, geotechnical engineering, water resources engineering, and transportation engineering.
 - b. Environmental Emphasis - students must choose their four civil engineering electives such that their complete program contains a minimum of two courses each in environmental engineering, structural engineering, geotechnical engineering, and water resources engineering.

Rationale:

During the visit by the ABET-endorsed engineering curriculum consultant, Dr. Guy Jester, in the Fall of 1996, the following changes to the Civil Engineering Program were recommended:

1. With two engineering options, the Environmental and Infrastructure Engineering Options, the possibility exists that an ABET reviewer may insist on evaluating these engineering options as separate engineering programs. Dr. Jester recommended changing the names of these engineering options to emphases. Hence the change listed in #1 above.
2. The Infrastructure Emphasis currently requires three courses in structural engineering and one course each in geotechnical, water resources, transportation, and surveying. Similarly, the Environmental Emphasis currently requires three courses in environmental engineering and one each in structural, geotechnical, water resources, and transportation. Dr. Jester felt that a typical ABET reviewer may not consider this combination of civil engineering courses to be adequate coverage of "at least four areas of civil engineering" as required by the ABET Guidelines. Thus, Dr. Jester recommended revising the senior electives in order to guarantee that all students take at least two courses each in four different areas of civil engineering. Hence the changes listed in #2, #3, and #4 above.

While other changes were also recommended by Dr. Jester, only the two changes listed above were deemed to be important for ABET accreditation of the Civil Engineering Program.

Consultations:

Consultations were held within the School of Engineering regarding these changes to the Civil Engineering Program. Because none of these changes would impact any of the other schools or departments on the Rowan College Campus, no other consultations were sought.

Thank you very much.

CIVIL ENGINEERING PROGRAM - ENVIRONMENTAL EMPHASIS - 132 SH

FIRST YEAR:

Freshman Engineering Clinic I	3	Freshman Engineering Clinic II	3
Calculus I	4	Calculus II	4
Chemistry I	4	Physics I	4
Composition I	3	Computer Science and Programming	4
General Education Course	3	General Education Course	3

Total	17	Total	18

SECOND YEAR:

Sophomore Engineering Clinic I	3	Sophomore Engineering Clinic II	3
Math for Engineering Analysis I	4	Math for Engineering Analysis II	4
Chemistry II	4	Organic Chemistry I	4
Statics	2	Structural Engineering I	3
Solid Mechanics	2	Public Speaking	3
General Education Course	3	-----	
Total	18	Total	17

THIRD YEAR:

Junior Engineering Clinic I	3	Junior Engineering Clinic II	3
Engineering Materials I	2	Geotechnical Engineering	3
Civil Engineering Materials	2	Environmental Engineering I	3
Fluid Mechanics I	2	Water Resources Engineering	3
Thermodynamics I	2	General Education Course	3
Microeconomics	3	-----	
General Education Course	3	Total	15
Total	17		

FOURTH YEAR:

Senior Engineering Clinic I	3	Senior Engineering Clinic II	3
Civil Engineering Elective *	3	Civil Engineering Elective *	3
Environmental Engineering II	3	Civil Engineering Elective *	3
Solid Waste Management	3	Technical Elective	3
Civil Engineering Elective *	3	Health and Wellness	3

Total	15	Total	15

TOTAL = 132 SH

* students must choose their four civil engineering electives such that their complete program contains a minimum of two courses each in environmental engineering, structural engineering, geotechnical engineering, and water resources engineering.

CIVIL ENGINEERING PROGRAM - INFRASTRUCTURE EMPHASIS - 132 SH

FIRST YEAR:

Freshman Engineering Clinic I	3	Freshman Engineering Clinic II	3
Calculus I	4	Calculus II	4
Chemistry I	4	Physics I	4
Composition I	3	Computer Science and Programming	4
General Education Course	3	General Education Course	3

Total	17	Total	18

SECOND YEAR:

Sophomore Engineering Clinic I	3	Sophomore Engineering Clinic II	3
Math for Engineering Analysis I	4	Math for Engineering Analysis II	4
Chemistry II	4	Organic Chemistry I *	4
Statics	2	Structural Engineering I	3
Solid Mechanics	2	Public Speaking	3
General Education Course	3	-----	
Total	18	Total	17

THIRD YEAR:

Junior Engineering Clinic I	3	Junior Engineering Clinic II	3
Structural Engineering II	3	Structural Engineering III	3
Fluid Mechanics I	2	Water Resources Engineering	3
Dynamics	2	Geotechnical Engineering	3
Engineering Materials I	2	General Education Course	3
Civil Engineering Materials	2	-----	
Microeconomics	3	Total	15

Total	17		

FOURTH YEAR:

Senior Engineering Clinic I	3	Senior Engineering Clinic II	3
Civil Engineering Elective +	3	Civil Engineering Elective +	3
Civil Engineering Elective +	3	Civil Engineering Elective +	3
Transportation Engineering	3	Technical Elective	3
General Education Course	3	Health and Wellness	3

Total	15	Total	15

TOTAL = 132 SH

* Physics II may be substituted for Organic Chemistry I

+ students must choose their four civil engineering electives such that their complete program contains a minimum of two courses each in structural engineering, geotechnical engineering, water resources engineering, and transportation engineering.

CIVIL ENGINEERING PROGRAM - ENVIRONMENTAL OPTION - 131 SH

FIRST YEAR:

Freshman Engineering Clinic I	3	Freshman Engineering Clinic II	3
Calculus I	4	Calculus II	4
Chemistry I	4	Physics I	4
Composition I	3	Computer Science and Prog.	4
General Education Course	3	General Education Course	3
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Total	17	Total	18

SECOND YEAR:

Sophomore Engineering Clinic I	3	Sophomore Engineering Clinic II	3
Math. for Engineering Analysis I	4	Math. for Engineering Analysis II	4
Chemistry II	4	Organic Chemistry I	4
Statics	2*	Structural Engineering I	3
Solid Mechanics	2*	Public Speaking	3
General Education Course	3		
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Total	18	Total	17

THIRD YEAR:

Junior Engineering Clinic I	3	Junior Engineering Clinic II	3
Engineering Materials I	2*	Geotechnical Engineering	3
Civil Engineering Materials	2*	Environmental Engineering I	3
Fluid Mechanics I	2*	Water Resources Engineering	3
Thermodynamics I	2*	General Education Course	3
Microeconomics	3		
General Education Course	3		
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Total	17	Total	15

FOURTH YEAR:

Senior Engineering Clinic I	3	Senior Engineering Clinic II	3
Environmental Engineering Elective	3	Environmental Engineering Elective	3
Environmental Engineering II	3	Engineering Core Elective	2*
Solid Waste Management	3	Technical Elective	3
Transportation Engineering	3	Health and Wellness	3
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Total	15	Total	14

* seven-week quarter courses

TOTAL = 131 SH

CIVIL ENGINEERING PROGRAM - INFRASTRUCTURE OPTION - 131 SH

FIRST YEAR:

Freshman Engineering Clinic I	3	Freshman Engineering Clinic II	3
Calculus I	4	Calculus II	4
Chemistry I	4	Physics I	4
Composition I	3	Computer Science and Prog.	4
General Education Course	3	General Education Course	3

Total	17	Total	18

SECOND YEAR:

Sophomore Engineering Clinic I	3	Sophomore Engineering Clinic II	3
Math. for Engineering Analysis I	4	Math. for Engineering Analysis II	4
Chemistry II	4	Organic Chemistry I	4+
Statics	2*	Structural Engineering I	3
Solid Mechanics	2*	Public Speaking	3
General Education Course	3	-----	
Total	18	Total	17

THIRD YEAR:

Junior Engineering Clinic I	3	Junior Engineering Clinic II	3
Structural Engineering II	3	Structural Engineering III	3
Fluid Mechanics I	2*	Water Resources Engineering	3
Dynamics	2*	Geotechnical Engineering	3
Engineering Materials I	2*	General Education Course	3
Civil Engineering Materials	2*	-----	
Microeconomics	3	Total	15

Total	17		

FOURTH YEAR:

Senior Engineering Clinic I	3	Senior Engineering Clinic II	3
Infrastructure Engineering Elective	3	Infrastructure Engineering Elective	3
Surveying and Planning	3	Engineering Core Elective	2*
Transportation Engineering	3	Technical Elective	3
General Education Course	3	Health and Wellness	3

Total	15	Total	14

* seven-week quarter courses

+ Physics II may be substituted for Organic Chemistry I

TOTAL = 131 SH