Rutgers University
The State University of New Jersey
School of Engineering

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

UNDERGRADUATE PROGRAM

STUDENT HANDBOOK

Revised July 2014

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INTRODUCTION

The Department offers a four-year undergraduate curriculum leading to the Bachelor of Science degree, a professional degree. A dual-degree program also is offered leading to a B.S. degree in civil engineering and a B.S. or B.A. degree in any liberal arts and science major. There are three joint BS/Master's programs available: http://soe.rutgers.edu/oaa/BS-Masters-programs. A Co-Op Program is available for students who are interested in obtaining practical experience before graduation with external businesses and government agencies.

This booklet is intended to inform and update the undergraduate civil and environmental engineering students regarding academic policies, procedures and requirements that are particular to civil and environmental engineering. This booklet also is intended to provide faculty advisors with codified information necessary for student advising and counseling.

All faculty advisors and civil engineering students should carefully read the Academic Policies and Procedures and Degree Requirements published in the current New Brunswick Undergraduate Catalog located on the web at http://catalogs.rutgers.edu/generated/nb-ug_current/. It also is important to be cognizant of University Policies and Procedures described in the same catalog.

PROGRAM EDUCATIONAL OBJECTIVES

Consistent with the stated mission of the University, the objectives of the civil and environmental engineering program are to provide students with a broad and thorough education in civil and environmental engineering fundamentals, applications, and design so as to prepare graduates for the practice of civil and environmental engineering at the professional level with confidence and skills necessary to meet the technical and social challenges of the future and for continuing their studies at the graduate level. In particular:

1. Graduates should experience successful careers in the Civil Engineering profession that incorporate life-long learning, personal enrichment, and meet professional, societal, and global challenges.
2. Graduates should be applying the highest standards of personal and professional integrity, and ethical responsibility in the practice of civil and environmental engineering.
3. Graduates should be well versed in several areas of civil and environmental engineering, such as structural, geotechnical, transportation, construction, water resources and environmental engineering, and are able to identify, formulate, and solve a wide range of civil and environmental engineering problems using modern engineering tools and techniques
4. Graduates should demonstrate a record of individual and team accomplishments in developing creative and sound engineering solutions to practical problems that incorporate a broad range of considerations such as economic, environmental, ethical, social, and policy implications.

PROGRAM STUDENT OUTCOMES

Each student in the department of civil and environmental engineering is expected to demonstrate the following attributes by the time of graduation:

a) Ability to apply the knowledge of math, science, and engineering.
b) Ability to design and perform experiments; analyze and interpret data.
c) Ability to perform a comprehensive design of structure, system, component, process, facility.
d) Ability to work and function in multi-disciplinary teams.
e) Ability to identify and solve civil engineering problems.
f) Understanding of professional issues and practice ethics.
g) Ability to effectively communicate orally and in writing.
h) Ensure having broad education to understand the impact of engineering solutions in social and global impact.
i) Ability to engage in life-long learning and professional development
j) Attain knowledge of contemporary issues.
k) Ability to solve civil engineering problems using techniques, skills, and modern engineering tools necessary for engineering practice.
l) Adequately learned basic concepts of business, management; understand and learn importance of leadership in discussions and public policy.
m) Adequately learned and practiced key engineering concepts and 'rules of thumb'.
n) Ability to read, understand and interpret standards, codes and manuals of engineering practice.
o) Have proficiency in four recognized major civil engineering disciplines.

PROGRAMS OF STUDY

The objective of the undergraduate program is to provide broad and thorough education to students in civil and environmental engineering fundamentals, applications, and design in order to prepare graduates for the practice of professional engineering. To enable the graduates to meet challenges posed by an ever-changing society and advancing technology, the program intends to provide a broad background in many of the different areas of civil and environmental engineering, and sound exposure to engineering sciences, humanities and social sciences. The curriculum is ABET accredited.

Student may concentrate in one of the five areas of civil and environmental engineering. The first three years (6 semesters) the curricula are identical; changes take place in the senior year. A variety of departmental and technical electives and the "capstone" design courses, permit the student to concentrate in areas of personal interest. A total of 128 credits is required for the undergraduate degree in civil and environmental engineering. The curriculum for civil and environmental engineering is shown on page 12.

A. Electives for Civil and Environmental Engineers

1. Departmental Electives are 300/400 level civil and environmental engineering (180: ___) courses listed on page 15. Of the two departmental electives required, the student must take in the spring semester of the senior year at least one "capstone" design course listed below (more than one course may be taken). Before taking a capstone design course, students are required to take at least two courses from the same specialty area. The capstone courses are:

    180:407 Construction Projects
    180:426 Structural Design
    180:431 Design of Environmental Facilities
    180:438 Transportation Engineering II
    180:474 Geotechnical Engineering

2. Technical Electives are those upper level technical courses appropriate for civil and environmental engineers. The CEE curriculum requires two (2) technical electives to be chosen from among the list on pages 16-18 of this booklet. **One of the technical electives must be from one of the basic science disciplines: Biology, Geography, Geology or Bio-Chemistry.** Although students are free to choose, courses 332:373 and 650:351 are strongly recommended to help the students prepare for the Fundamentals of Engineering (FE) examination. Any extra departmental elective course may be used as a technical elective. A student may take Special Problems in Civil and Environmental Engineering (180:491, 492, 493, 494), as technical electives with approval of a professor supervising the work, to a limit of 3 credits in the senior year. This course is generally limited to seniors with GPA of 2.7 or higher. The student must fill out a form to receive approval (page 21).

3. Humanities/Social Science Electives are intended to serve the objectives of a broad education, and to make engineers fully aware of their social responsibilities and better able to consider related factors in the decision-making process. The CEE curriculum contains 18 credits of Humanities/Social Science Electives which must include 355:101 Expository Writing and 220:102 Microeconomics. At least 6 credits must be at an advanced level (300 level or higher). A list of acceptable Humanities/Social Science Electives courses is provided on the School of Engineering website at http://soe.rutgers.edu/oaa/electives.

4. General Electives may be almost any course taught for credit at Rutgers University qualifies as a general elective. There are, however, a few exceptions in certain subject areas. See the School of Engineering website for details: http://soe.rutgers.edu/oaa/electives.

5. Graduate Courses may be taken as departmental or technical electives by qualified undergraduate students. In order to qualify, one is expected to have a cumulative Grade Point Average (GPA) of 3.0 and must obtain approval of the course instructor or Graduate Program Director and also the approval of the Associate Dean. (See page 16 for form).

B. Dual Degree, Double major, and Minor programs:
Minors, majors, and dual degrees provide students with the opportunity to broaden skill sets outside of engineering. These programs are offered in conjunction with various other undergraduate schools at Rutgers University, including the School of Arts and Sciences and the School of Environmental and Biological Sciences. For more information about these programs, see http://soe.rutgers.edu/oaa/minors-majors

C. BS/Master's programs: There are three special joint programs offering the opportunity for engineering students to obtain a Master's degree within one calendar year of completing the baccalaureate degree requirements. Qualified School of Engineering students are eligible to apply for admission to these accelerated Master's Programs in their junior year. For more information, see http://soe.rutgers.edu/oaa/BS-Masters

D. Co-op Internship

The internship provides the student with the opportunity to practice and/or apply knowledge and skills in various civil and environmental engineering professional environments. This internship is intended to provide a capstone experience to the student's undergraduate experience by integrating prior course work into a working engineering environment. The experience also motivates the student for further learning. The credits earned are for the educational benefits of the experience. Co-op Internships count as technical electives. Details are presented on page 22.

GENERAL REGISTRATION RULES FOR ALL CLASSES

1. The average course load is about 15-18 credits per semester. Students should maintain a normal load of engineering-related courses as specified on their program sheet. The minimum load per semester is 12 credits and the maximum is 20 credits. Special permission from the Associate Dean of Academic Affairs is required for course loads outside these limits.

2. Students are not allowed to register for any course without the proper prerequisites, unless approval is received from the instructor and their advisor. A chart of prerequisites for the CEE program can be found on page 13.

3. Students who fail any required course must repeat it. A letter grade of F is a failing grade. In some cases, students can apply to have the F removed from the gpa: http://soe.rutgers.edu/oaa/pnc-repeat

4. All CEE courses, including all Department and Technical Electives, must be taken at Rutgers for the first time. Students who fail a CEE course may repeat it elsewhere. Permission to take the course outside Rutgers must be obtained from the faculty advisor and Associate Dean of Academic Affairs. Authorization forms are available in room EN B-100: http://soe.rutgers.edu/oaa/transfer-courses.

5. Students may register for at most one Pass/No Credit course per semester for a total of two during the entire time at RU-SOE. Obtain the Pass/No credit form from the School of Engineering website at http://soe.rutgers.edu/oaa/pnc-repeat

6. *180:243 Mechanics of Solids,* 440:222 *Dynamics*, and 640:244 *Differential Equations* are prerequisite courses for many courses in the junior year. Make certain to complete these courses before the Fall semester of your junior year.

7. Seniors must carefully review their progress towards the Civil and Environmental Engineering degree. It is important that the student review his/her academic record to ensure that they have completed the necessary classes required for graduation. The student is urged to obtain a complete transcript from the Registrar (free of charge - https://sis.rutgers.edu/tags/) and check the curriculum sheet against it to find out what courses remain to satisfy the degree requirements. The Office of Academic Affairs, in B-100 of the Engineering Building is available for assistance with regard to degree audit.

8. Seniors with GPA of 3.0 or higher may enroll in the graduate level courses with permission of the instructor, CEE Graduate Director and approval of the Graduate School New Brunswick. The student must fill out the form on page 20 for this purpose.

REQUEST FOR SPECIAL PERMISSION NUMBER

In order to better manage enrollment in CEE Undergraduate Courses for CEE undergraduate majors, SOE undergraduate students, and (SEBS) Bioenvironmental Engineering students, the procedure is changed for enrolling in closed CEE courses and labs. **Students will request to be added to a waiting list for the course.** A Special Permission Number (SPN) will be issued by the CEE Undergraduate Program Administrator, Linda Szary, ljs@rci.rutgers.edu. Depending on enrollment demand, student seniority, CEE/SOE instructional resources, and SOE/Rutgers space availability**, students will be issued a SPN no later than 3 weeks prior to the beginning of a term.** The waiting list period should be shorter in most cases. The CEE Undergraduate Director will be managing enrollment in consultation with the CEE Faculty, Department Chair, Undergraduate Program Administrator, and B100 SOE Deans.

The procedure for obtaining a Special Permission Number (SPN) to enroll in a closed CEE Undergraduate Class is based on a waiting list enrollment demand system. The CEE Undergraduate Program Administrator manages the course waiting list. The steps to obtain an SPN are given below.

Step 1. The student sends the following email message to the CEE i and cc'd individuals in the format shown below.

TO: CEE Undergraduate Program Administrator (Linda Szary, ljs@rci.rutgers.edu)

CC: CEE Undergraduate Director (Prof. Williams, tpw@rci.rutgers.edu)

CC: Your CEE Class Advisor (see page 10 of this Handbook)

HEADER: Your Name, Student ID#, Course Name & ID#, SPN Request

BODY: I am requesting a SPN for Course Name & ID# for TERM (e.g. Fall 2013). [If you have special reason(s) you should be allowed to enroll please state.]

Step 2. You will be placed on a waiting list for the course. The CEE Undergraduate Director will review the request and make a decision no later than 3 weeks prior to the session start date.

Step 4. Once approved, CEE Undergraduate Program Administrator, Linda Szary, will issue the course Special Permission Number to the student via email.

REQUEST FOR PRE-REQUISITE OVERRIDE

General guidelines from the Office of Academic Affairs for pre-requisites and co-requisites for SOE Undergraduate Classes are found at http://soe.rutgers.edu/oaa/prerequisite. Follow the steps below to obtain a Pre-Requisite Override Number for CEE Undergraduate Classes.

Step 1. Student meets with the course advisor requiring the pre-requisite(s) course to discuss the reason for the override and on what basis the student should be able to enroll in the course.

Step 2. If the CEE course instructor agrees to the student enrolling in the course without the pre-requisite course(s), then the **student sends the following email message to the course instructor and cc'd individuals in the format shown below**.

TO: CEE Course Instructor

CC: CEE Undergraduate Director (Prof. Williams, tpw@rci.rutgers.edu)

CC: CEE Undergraduate Program Administrator (Linda Szary, ljs@rci.rutgers.edu)

CC: Your CEE Class Advisor (see page 10 of this Handbook)

HEADER: Your Name, Student ID#, Course Name & ID#, Pre-Requisite Override

BODY: I am requesting a PRO for Course Name & ID# for TERM (e.g. Fall 2013). The reason(s) I should be allowed to enroll without the pre-requisite course(s) (NAME OF COURSES) is/are because (list your reasons).

Step 3. The CEE Undergraduate Director will review the request and send to the SOE B100 Deans for review and approval.

Step 4. Once approved, CEE Undergraduate Program Administrator, Linda Szary, will issue the course Pre-Requisite Override number to the student via email.

TAKING A COURSE AT ANOTHER SCHOOL

Students may take certain courses at another institution over the summer or winter sessions (not during the spring or fall terms) and transfer the credit (not the grade) to be applied towards your Engineering degree at Rutgers. A grade of C or better is required for the credits to be eligible for transfer (the grade does not transfer into the transcript/GPA). Courses eligible to be taken outside of RU during the summer/winter include first and second year courses of the engineering curriculum: math, physics, chemistry, humanities/social science electives, tech electives, sophomore level introductory major courses. Junior and Senior level major courses may NOT be taken outside of RU unless failed first at RU or unless there is some extenuating circumstances. Taking a junior/senior level major course outside of RU requires the approval of the civil engineering undergraduate director. For more details, see http://soe.rutgers.edu/oaa/transfer-courses

TRANSFERRING INTO THE SCHOOL OF ENGINEERING

Advising of students transferring to Rutgers School of Engineering is directed by Dean Peng Song, School of Engineering, Office of Academic Affairs, EN-B100. Email: peng.song@rutgers.edu
To be eligible to apply, ensure that you will have completed the appropriate courses by the time you intend to begin your studies at Rutgers. Generally we look for the equivalent of our first year - 2 semesters of calculus, 1 semester of calc based physics, Matlab computer programming, 2 semesters of chemistry. Some other relevant courses to take are: engineering mechanics-statics, micro economics, English Composition. For more details see http://soe.rutgers.edu/oaa/transfer

RUTGERS UNIVERSITY
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DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

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Student advisees with last names beginning in the indicated alphabetical range are assigned to one designated CEE faculty member throughout the 8-semester undergraduate curriculum while at Rutgers.

Dr. Nenad Gucunski, Chair	gucunski@rci.rutgers.edu	848-445-2232/2569	CORE 611
Dr. Trefor Williams, Undergraduate Director	tpw@rci.rutgers.edu	848-445-2880	CORE 605

Dr. Williams's Advising Hours, Fall Semester 2014, M W 1-3 PM

Advisors: Class of 2015

Dr. Hao Wang (A-F)	hwang.cee@rutgers.edu	848-445-2874	CORE 608
Dr. Yook-Kong Yong (G-N)	yyong@rci.rutgers.edu	848-445-3219	CORE 616
Dr. Jie Gong (O-Z)	jg931@rci.rutgers.edu	848-445-2881	CORE 604

Advisors: Class of 2016

Dr. Hani Nassif (A-F)	nassif@rci.rutgers.edu	848-445-4414	CORE 715
Dr. Nicole Fahrenfeld (G-N)	nfahrenf@rci.rutgers.edu	848-445-8416	CORE 610
Dr. Monica Mazurek (O-Z)	mmazurek@rci.rutgers.edu	848-445-2871	CORE 612

Advisors: Class of 2017

Dr. Jing Jin (A-F)	peter.j.jin@rutgers.edu	848-445-8563	CORE 613
Dr. Ali Maher (G-N)	mmaher@rci.rutgers.edu	848-445-2951	CAIT 211E
Dr. Husam Najm (O-Z)	hnajm@rci.rutgers.edu	848-445-7980	SOE A139

Advisors: Class of 2018

Dr. Qizhong Guo (A-F)	qguo@rci.rutgers.edu	848-445-2983	CORE 614
Dr. Xiang Liu (G-N)	xiang.liu@rutgers.edu	848-445-2868	CORE 606
Dr. Perumalsamy Balaguru (O-Z)	balaguru@rci.rutgers.edu	848-445-2877	CORE 618

Students are encouraged to see their advisors as often as necessary, but are required to see them at least once a year. The Chairman and the Undergraduate Director also are available for discussion of individual or departmental matters. GENERAL ADVISING AND SCHEDULING ARE CONDUCTED WITH THE CLASS ADVISOR. Please send an email to your class faculty advisor to schedule an appointment.

Department of Civil Engineering

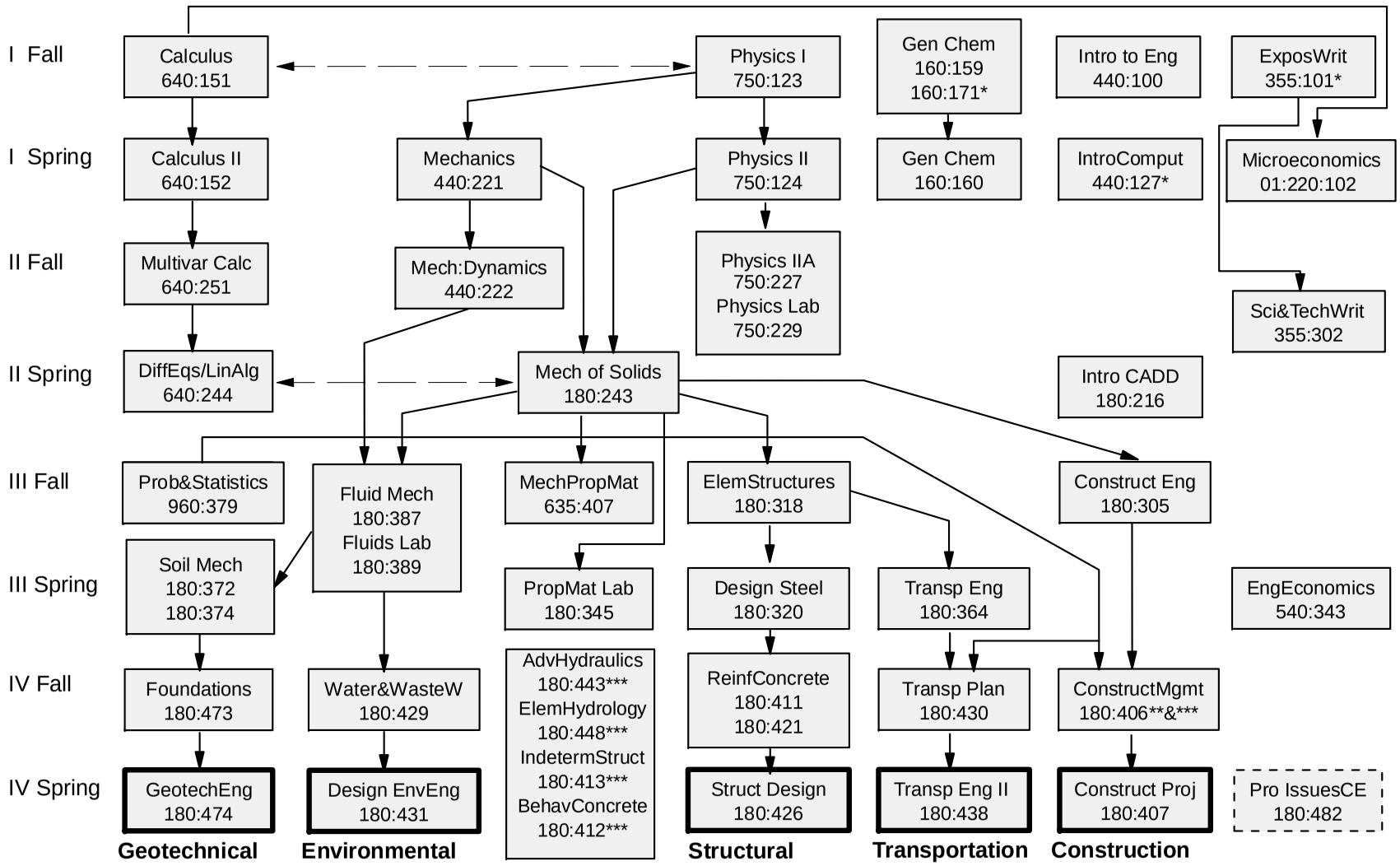
Effective with the Class of 2016

Name_____

	Fall			**Spring**	
160:159	Gen Chem for Engrs	3	160:160	Gen Chem for Engrs	3
160:171	Intro to Experiment.	1	640:152	Calculus II: Math/Phys	4
355:101	Expository Writing I	3	750:124	Analytical Physics Ib	2
640:151	Calculus I: Math/Phys	4	440:127	Intro Comp for Engrs	3
750:123	Analytical Physics Ia	2	440:221	Eng'g Mech: Statics	3
440:100	Eng'g Orient Lecture	1	_____	Hum/Soc Elective	3
_____	Hum/Soc Elective	3		Total	18
	Total	17			
355:302	Scien. & Tech. Writing	3	220:102	MicroEconomics	3
640:251	Multivariable Calculus	4	640:244	Differential Equations	4
750:227	Analytical Physics IIa	3	180:216	Intro CADD	3
750:229	Analytical Phys IIa Lab	1	180:243	Mech of Solids	3
440:222	Eng'g Mech: Dynamics	3	_____	Hum/Soc Elective (300+)	3
_____	Hum/Soc Elective (300+)	3		Total	16
	Total	17			
960:379	Basic Prob & Statistics	3	180:320	Elem Structural Design	3
180:305	Construction Eng'g	3	180:345	Prop Materials Lab	1
180:318	Elem of Structures	3	180:364	Transportation Eng'g	3
180:387	Fluid Mechanics	3	180:372	Soil Mechanics	3
180:389	Fluid Mechanics Lab	1	180:374	Soil Mech Lab	1
635:407	Mech Prop Materials	3	540:343	Eng'g Economics	3
	Total	16		Total	14
180:411	Reinforced Concrete	3	180:482	Prof Issues in CE	1
180:421	Reinforced Concr't Lab	1	_____	*Design Project	4
180:429	Water&Waste Wtr Eng	3	_____	Departmental Elective	3
180:430	Transportation Plan'g	3	_____	Technical Elective*	3
180:473	Foundation Eng'g	3	_____	General Elective	3
_____	Science Elective	3		Total	14
	Total	16		**Total Credits: 128**	

*One or two of the departmental electives 407, 426, 431, and 438 will be offered each year to satisfy the design requirement.

Civil and Environmental Engineering Prerequisite Chart of Required & Elective Courses



School of Engineering
Department of Civil and Environmental Engineering

The School of Engineering policies state that each student must graduate with a minimum 2.0 grade point average in 'major' courses. Major courses for Civil Engineering are defined as: All 180:xxx courses; 960:379; 540:343; 635:407; technical electives, science elective.

For more details, see: http://soe.rutgers.edu/oaa/gpa-calculation

All departmental and technical electives must conform to guidelines published in Departmental Advising Handbooks or be approved by the student's departmental academic advisor.

Departmental Electives

180:331	Fundamentals of Environmental Engineering	3 cr
180:382	Hydraulic and Environmental Engineering	3 cr
180:402	Finite Element Methods in Civil Engineering	3 cr
180:406	Construction Engineering Management	3 cr
180:407	Construction Projects	4 cr
180:412	Behavior of Concrete Materials and Systems	3 cr
180:413	Theory of Indeterminate Structures	3 cr
180:426	Structural Design	4 cr
180:431	Design of Environmental Engineering Facilities	4 cr
180:438	Transportation Engineering II	4 cr
180:443	Advanced Hydraulics	3 cr
180:448	Elements of Hydrology	3 cr
180:471	Elements of Environmental Geotechnology	3 cr
180:474	Geotechnical Engineering	4 cr

Notes:

1) Student is required to take at least one of "capstone" design courses (407, 426, 431, 438, 474).
2) For course description of these course, see Undergraduate Catalogue http://catalogs.rutgers.edu/generated/nb-ug_current/pg21485.html

School of Engineering
Department of Civil and Environmental Engineering

Recommended and Acceptable Technical Electives
(Refer to Undergraduate Catalog for descriptions)

- Course must carry at least 3 credits
- Excluded are individual study, recitation special topic and seminar courses
- **In Addition**:Any additional Civil and Environmental Engineering Elective Courses (14:180:___), including 491, 492, 493 and 494 are acceptable as technical electives.

Strongly Recommended		
Electrical/Computer Engineering	**14:332:**	14:332:373 Elements of Electrical Engineering
Mechanical Engineering	**14:650:**	14:650:351 Thermodynamics
Acceptable		
Bio-Chemistry	01:115:	All except 202, 392
Biology	01:119:	101, 102; any course higher than 302
Chemistry	01:160:	Any 200 or higher-level course
Comp. Science	01:198:	All except 105, 107, 110, 111, 113, and 170
Geography	**01:450:**	01:450:321 Geographic Information Systems 01:450:417 Coastal Geomorphology
Geology	01:460:	101; any course higher than 300
Math	01:640:	Any course 300 or higher
Physics	01:750:	Any course higher than 300 except 301, 323, 324, 370, 397
Statistics	01:960:	All except 201, 211, 212, 285, 379, 381
Planning and Public Policy	10:762:	10:762:306 Principles of Urban Planning 10:762:316 Physical Design and Site Planning 10:762:413 Urban Revitalization 10:762:420 GIS for Health and Planning 10:762:451 Environmental Policy and Regulations 10:762:473 Transportation Policy 10:762:440 Principles of Real Estate
Bioenvironmental Engineering	11:117:	11:117:494 Land and Water Resources Engineering 11:117:495 Environmental Systems Analysis for Engineers 11:117:496 Planning and Design of Land Treatment Systems
Environmental Resources	11:372:	11:372:371 Air photo Interpretation 11:372:444 Watershed Management: An Interdisciplinary Perspective 11:372:442 Applied Principles of Hydrology
Environmental	11:375:	11:375:302 Elements of Water and Wastewater Treatment 11:375:307 Elements of Solid Waste Management

Sciences		11:375:333 Environmental Law I 11:375:334 Environmental Law II 11:375:405 Fund. of Water and Wastewater Analysis 11:375:409 Environmental Statement and Impact 11:375:421 Principles of Air Pollution Control 11:375:430 Hazardous Wastes (Pre-requisite 375:307) 11:375:444 Water Resources – Water Quality
Marine and Coastal Sciences	11:628:	11:628:401 Applied Shoreline Management
Natural Resource Management	11:704:	11:704:421 Wetland Ecology
Electrical/Computer Engineering	14:332:	14:332:231 Digital Logic Design 14:332:252 Programming Methodology 14:332:373 Elements of Electrical Engineering
General Engineering	14:440:	14:440:404 Special Topics: Innovation and Entrepreneurship for Science and Technology
Industrial and Systems Engineering	14:540:	14:540:210 Engineering Probability 14:540:311 Deterministic Models in Oper. Res. 14:540:410 Linear Programming 14:540:421 Industrial Organization and Management 14:540:433 Quality Engineering and Statistics 14:540:461 Engineering Law
Mechanical and Aerospace Engineering	14:650:	14:650:443 Vibrations and Controls 14:650:449 Introduction to Mechanics of Composites 14:650:458 Aerospace Structures 14:650:460 Aerodynamics 14:650:462 Power Plants 14:650:474 Solar Thermal Energy Collection and Storage 14:650:477 Environmental Control of Buildings

List of Acceptable Courses for the Required Science Elective

Bio-Chemistry	01:115:	All except 202, 392
Biology	01:119:	101, 102; any course higher than 302
Chemistry	01:160:	Any 200 or higher-level course
Ecology and Natural Resources	11:704:	11:704:351 Principles of Ecology
Geography	01:450:	450:212 Water resources 450:321 Geographical Information Systems 450:421 Advanced Geographical Information Systems 450:414 Geographical Hydrology
Geology	01:460:	01:460:___ 101; any course higher than 300
Marine and Costal Science	11:628:	11:628:401 Science in Shoreline Management (3 Credits) 11:628:451 Physical Oceanography (4 Credits)
Physics	01:750:	any course higher than 300

UNDERGRADUATE REGISTRATION FOR GRADUATE COURSES

Undergraduates wishing to register for graduate courses numbered 500 and above should have senior standing and a cumulative grade point average of at least 3.0.

SECTION 1. **TO BE COMPLETED BY THE STUDENT:**

_____ /_____/_____/_____/_____/_____

Name of Student School Class Major Cum. GPA Student ID. #

E-mail Address_____

Application for Graduate Course:

_____ /_____/_____/_____/_____

Course Title Subject Number Course Number Registration Index No. Term/Yr

Special reasons for seeking this course:

_____

_____

_____

SECTION 2. **OBTAIN SIGNATURES IN THE FOLLOWING ORDER:**

Graduate Instructor or Director of Graduate Program Offering Course

Recommend Approval _____/_____
(prerequisites have been satisfied) Date

Do Not Recommend Approval _____/_____
Date

Administrator of Graduate School Offering Course:

Approved _____/_____
Date

Not Approved _____/_____
Date

Approval of this form does not constitute approval for degree credits. Students should check with college and department offices for graduation/degree requirements.

Request for Approval to Enroll In
Special Problems in Civil or Environmental Engineering
(180:491, 492, 493, 494)

Eligibility:

(1) Student must be in senior standing with a cumulative GPA of 2.70 or better;

(2) Has not received previous credit for the course; and

(3) Has approval from a supervising professor.

Name_____ Class_____

GPA_____

Research Topic:

Number of Credits Registered:_____ Cr. Term:_____

Supervising Professor's Name:_____

Signature_____

Date_____

_____ . _____. _____. _____ . _____ .

Official Use

Special Permission Number:_____

CO-OP INTERNSHIP APPLICATION FORM

Course ID: 180: 496/497 CO-OP INTERNSHIP IN CIVIL AND ENVIRONMENTAL ENGINEERING (3,3 CREDITS)

Catalog Description: The internship provides the student with the opportunity to practice and/or apply knowledge and skills in various civil and environmental engineering professional environments. This internship is intended to provide a capstone experience to the student's undergraduate studies by integrating prior course work into a working engineering environment. The experience also motivates the student for further learning. The credits earned are the educational benefits of the experience.

Eligibility: Open only to junior (summer only) and senior (summer, Fall, Spring Semesters) Civil and Environment students.

Prerequisite: Students must satisfy the following criteria to be eligible to enter an internship:

(i) Completed a minimum of 90 credits with a cumulative grade point average of at least 2.5.
(ii) Completed a minimum of 18 credits in the major, with a major cumulative grade point average of at least 2.5.
(iii) The Internship can be taken at the summer going into the junior year. The workload should follow a standard credit definition, i.e., 4 hours of work per week per credit for 14 weeks or 56 total hours per credit. The student must spend a minimum of 12 to 15 hours per week to earn these 3 credits.
(iv) Students electing to participate in the Co-op Internship program for Pass/No credit cannot designate any additional Technical Electives as Pass/No Credit.

The following are the requirements to satisfy the undergraduate internship activities for credit:

1. A suitable project must be formulated as a self-contained individual effort under the supervision of a practicing professional and a faculty member.
2. A written proposal must be submitted to the Department by the student. The proposal must be approved by the Undergraduate Director and the Faculty Advisor. The written proposal should include educational benefits, engineering related responsibilities at work site, project tasks, and the plan for evaluation.
3. The proposal defined above, with the signatures of approval by a faculty member and the practicing professional is required. This must be submitted to the Undergraduate Director before registration. The registration is by special permission only.
4. Students hired on an hourly basis within the Department cannot use this to fulfill the Co-op Internship requirements.
5. All internship work will include a daily/weekly logbook, progress report, and final report. The final report and the semester grade must be signed by the supervising practicing professional and the faculty member.

Rutgers University-School of Engineering

Department of Civil & Environmental Engineering

Proposal for Cooperative Education Internship Proposal

Student:

Semester of Enrollment:

Length of Internship(s):

Employer(s):

Total Hours:

Academic Credits:

Faculty Advisor:

Plan for Evaluation:

A written summary of work experiences will be submitted by the student at either the end of the employment period or any time prior to the end of the semester for which the experience will be credited. The Faculty Advisor will meet with the student, evaluate the summary, and assign a grade.

The summary may include particular experiences of the student and general descriptions of the tasks achieved during the period of employment.

_____ Date:_____
Student

_____ Date:_____
Faculty Advisor

_____ Date:_____
Undergraduate Director - Civil/Env. Engg. Dept.

Rutgers, The State University of New Jersey
School of Engineering

Department of Civil and Environmental Engineering Faculty

Balaguru, P.N.	Ph.D.	U. Illinois	Concrete Structural Systems, Composite Materials, Construction Management
Fahrenfeld, N.	Ph.D.	Virginia Tech	Water Resources, Bioremediation, Air Pollution, Environmental Engineering.
Gong, J.	Ph.D.	U. Texas	Construction management; Visual sensing and computing for construction operation processes; Building Information Modeling
Gucunski, N. (Chairman)	Ph.D.	U. Michigan	Soil-Structure Interaction, Exploration by Seismic Methods, Numerical Methods, Soil/Structural Dynamics
Guo, Q.	Ph.D.	U. Minnesota	Hydraulics: Environmental, Coastal, Urban and Cold Regions Applications; Water Quality; Sediment Transport
Jin, J.	Ph.D.	U. Wisconsin	Mobile Sensor Data Modeling and Applications; Microscopic Vehicle Characteristics and Control in Connected Vehicle Environment; Transportation Big Data Analytics; Freeway Operations
Liu, X.	Ph.D.	U. Illinois	Transportation Safety and Security; Hazardous Materials Multimodal Transportation Risk Management; Rail and Transit Transportation; Maritime Transportation and Port Operations; Risk-Based Transportation Infrastructure Management; Transportation Data Analytics

Department of Civil and Environmental Engineering Faculty
(Cont'd)

Maher, A.	Ph.D.	U. Michigan	Soil/Site Improvement, Soil Composite Materials, Geosynthetics, Environmental Geotechnology
Mazurek, M.	Ph.D.	UCLA	Air Quality Eng., Environmental Engg., Biogeochemistry, Sustainable Systems Engg.
Najm, H.	Ph.D.	U. Michigan	Structural System Design, Bridge Design, Concrete Material
Nassif, H. A.	Ph.D.	U. Michigan	Reliability Analysis; Design, Analysis, and Field Testing of Bridges; Adv. High-Performance Materials
Wang, H.	Ph.D.	U. Illinois	Advanced Infrastructure Material Characterization Recycled and Environment-Friendly Material for Pavement Construction and Rehabilitation, Computational Modeling
Williams, T.P.	Ph.D.	GA Tech.	Data Mining and Information Technology for Construction Management, Railroad Engineering, Configuration Management
Yong, Y.K.	Ph.D.	Princeton	Crystal Plates, Structural Behavior, Finite Element Analysis, Structural Dynamics

Part-Time Lecturers

Howard Kliger	Ph.D.	U. of DE	Engineering Mechanics
Steven Medlar	M.S.	Tufts	Water Resources, Environmental Engineering