



## Required Core

Total: 24 hours

CEVE 101 (F) Fundamentals of CEE	3
CEVE 211 (F) Engineering Mechanics	3
CEVE 310 (F) Principles of Environmental Eng.	3
CEVE 311 (S) Mechanics of Solids and Struct.	3
CEVE 312 (S) Strength of Materials Lab.	1
CEVE 363 (F) Fluid Mechanics	3
CEVE 401 (S) Environmental Chem. & Lab <sup>a</sup>	4
CEVE 470 (F) Principles Soil Mechanics <sup>b</sup>	4
CEVE 480 (S) Senior Design	3
CEVE 481 (F) Introduction to Senior Design	1

- Select 6 credit hours in each Focus Area I-IV below
- Select an additional 6 credit hours in the Focus Area I, II, III or IV you will specialize in.

## Required Math & Science & Suggested Electives

(see back of flyer for more details)

### Overall Hours

Required Core Courses	24 hrs
Focus Area Courses	24 hrs
Focus Area Specialization Courses	6 hrs
Required Math & Science Courses	40/41 hrs
Addl. Required Distribution Courses***	18 hrs
Open Electives/FWIS/LPAP****	21 hrs
<b>Total</b>	<b>133/134 hrs</b>



### Focus Area I

(Mason Tomson\*)

#### Environmental Engineering

CEVE 302 (F) Sustainable Design	3
CEVE 307 (S) Energy and the Environment	3
CEVE 308 (S) Air Pollution Control**	3
CEVE 404 (S) Atmospheric Particulate Matter**	3
CEVE 406 (S) Environmental Law**	3
CEVE 411 (F) Atmospheric Processes	3
CEVE 434 (F) Contaminant Fate and Transport	3
CEVE 442 (S) Water Reuse and Resource Recovery	3
CEVE 444 (F) Environmental Microbiology & Ecology	3



### Focus Area III

(Satish Nagarajaiah\*)

#### Structural Engineering and Mechanics

CEVE 304 (S) Structural Analysis	3
CEVE 400 (S) Advanced Mechanics of Materials	3
CEVE 405 (S) Steel Design	3
CEVE 407 (F) Reinforced Concrete Design	3
CEVE 408 (F) Structures Lab.	1
CEVE 427 (F) Computational Struct. Mech. & FEM**	3
CEVE 476 (F) Structural Dynamic Systems**	3
CEVE 496 (F) System Identification	3



### Focus Area II

(Philip Bedient\*)

#### Hydrology and Water Resources

CEVE 314 (F) Sustainable Water Purification	3
CEVE 412 (S) Hydrology & Water Resources Eng.	3
CEVE 418 (F) Quantitative Hydrogeology	3
CEVE 420 (S) (520) Environmental Restoration	3
CEVE 512 (S) Advanced Hydrology and Hydraulics	3
CEVE 518 (S) Contaminant Hydrogeology	3



### Focus Area IV

(Leonardo Dueñas-Osorio\*)

#### Urban Infrastructure, Reliability & Mgmt

CEVE 301 (S) Project Economics & Project Mgmt	3
CEVE 313 (S) Risk & Uncertainty in Urban Sys.	3
CEVE 424 (F) Time Dependent Systems**	3
CEVE 452 (S) Urban Transportation Systems	3
CEVE 460 (F) Bridge Eng. & Extreme Events**	3
CEVE 492 (F) Modeling & Analysis of Networked Systems.**	3

<sup>a</sup> For Areas I and II, CEVE 401 is required and CEVE 470 is an Area IV elective.

<sup>b</sup> For Areas III and IV, CEVE 470 is required and CEVE 401 is an Area I elective.

\* Faculty Area Advisors authorized to approve required CEVE Area hours.

\*\* Offered alternating years.

\*\*\*B.S. required Math & Science incl. 9 Dist. III courses, only I & II incl.

\*\*\*\*See list of suggested electives on the back.

## Required Science and Math Courses

CAAM 210	Introduction to Engineering Comp	3
CAAM 335	Matrix Analysis (or MATH 354 or MATH 355)	3
CHEM 121	General Chemistry I	3
CHEM 122	General Chemistry II	3
CHEM 123	General Chemistry I Laboratory	1
CHEM 124	General Chemistry II Laboratory	1
ESCI 115	or any ESCI course or BIOC 201	3-4
MATH 101	Single Variable Calculus I or MATH 105	3
MATH 102	Single Variable Calculus II or MATH 106	3
MATH 211	Ordinary Differential Equations	3
MATH 212	Multivariable Calculus	3
PHYS 101	Mechanics with Lab	4
PHYS 102	Electricity and Magnetism with Lab	4
PHYS 103	Mechanics Discussion	0
PHYS 104	Electricity and Magnetism Discussion	0
STAT 310	Probability and Statistics	3
	(or any STAT course 300+ except STAT 305)	

## Suggested Electives

Any CEVE course from Focus Areas or 500 Level Courses

CEVE 320	Ethics and Engineering Leadership	3
CEVE 417	Finite Element Analysis	3
CEVE 424	Time-dependent Reliability of Eng. Systems	3
CEVE 454	Computational Fluid Mechanics	3
CEVE 499	Special Topics	1-12
CAAM 336	Diff Equations in Sci & Eng.	3
CAAM 378	Intro to O.R. and Optimization	3
CAAM 453	Numerical Analysis I	3
CAAM 471	Linear and Integer Programming	3
CHEM 211	Organic Chemistry I	3
ECON 100	Principles of Economics	3
ECON 445	Managerial Economics	3
MECH 343	Modeling of Dynamic Systems	4
MECH 412	Vibrations	3
STAT 385	Methods for Data Analysis	3

## Professional Licensure

The FE exam is generally your first step in the process of becoming a professional licensed engineer (P.E.). It is designed for recent graduates and students who are close to finishing an undergraduate engineering degree from an EAC/ABET- accredited program.

## PE vs SE Exams

The PE exam is designed to test for a minimum level of competency in a particular engineering discipline and for engineers who with a minimum of four years of work experience in their chosen engineering discipline. The SE exam is designed for engineers who practice in jurisdictions that license structural engineers separately from other professional engineers. **For more details see:** <http://ncees.org/engineering>.

## Department Centers

Our faculty lead four centers within our department in addition to their individual research groups. Most also serve on collaborative interdisciplinary research groups and centers across Rice and across the globe. Our undergraduates benefit from an ever-expanding network of resources and opportunities to develop education and skills, broaden experiences, refine career focus or expand career paths. We are excited to be part of each student's journey!

1. **Nanosystems Engineering Research Center for Nanotechnology-Enabled Water treatment (NEWT)**
2. **Severe Storm Prediction, Education, and Evacuation from disasters (SSPEED)**
3. **Brine Chemistry Consortium**
4. **China-U.S. Center for Environmental Remediation and Sustainable Development**

## Undergraduate Clubs

Our undergrads participate in a variety of engineering and interest focused clubs. A sampling with CEE faculty advisors are below. Be civil, stay environmental and most importantly, expand and enjoy your unique Rice experience!



1. **American Society of Civil Engineers Student**
2. **Chi Epsilon**
3. **Engineers without Borders (EWB)**
4. **Concrete Canoe Team**
5. **Earthquake Engineering Research Institute Council**

The program leading to the BSCE is accredited by the Engineering Accreditation Commission of ABET. Website: <http://www.abet.org>

## Program Educational Objectives for the BSCE

(Please visit <http://ceve.rice.edu> for additional information.)

1. Demonstrate strong problem-solving and communication skills
2. Achieve leadership position in a technical or managerial areas
3. Demonstrate initiative and innovative thinking in project work
4. Demonstrate keen awareness of ethical, social, environmental, and global concerns
5. Remain engaged in continuing learning, including advanced degrees
6. Obtain a Professional Engineering License



Engineering  
Accreditation  
Commission