

# CIVIL ENGINEERING - BS, COASTAL ENGINEERING TRACK

The Coastal Engineering Track to fulfill the BS in Civil Engineering degree emphasizes breadth across civil engineering with a focus on working in coastal environments. The focus electives prepare students to analyze and design civil engineering systems suited to aspects of the coastal region. The track is appropriate for a career related to coastal engineering and resilience, and for those planning on further specialization in graduate studies.

## Program Requirements

### Second Year

		Semester Credit Hours
<b>Fall</b>		
CVEN 207	Introduction to the Civil Engineering Profession	2
CVEN 221	Engineering Mechanics: Statics	3
CVEN 250	Introduction to Graphics and Visualization Applications in Civil Engineering Design	2
ENGR 217/ PHYS 217	Experimental Physics and Engineering Lab III - Electricity and Magnetism	2
MATH 251	Engineering Mathematics III	3
PHYS 207	Electricity and Magnetism for Engineering and Science	3
STAT 211	Principles of Statistics I	3
<b>Semester Credit Hours</b>		<b>18</b>
<b>Spring</b>		
CVEN 302	Computer Applications in Engineering and Construction	3
CVEN 303	Civil Engineering Measurement	3
CVEN 305	Mechanics of Materials	3
CVEN 311/ EVEN 311	Fluid Dynamics	3
ENGL 210 or COMM 205	Technical and Professional Writing or Communication for Technical Professions	3
MATH 308	Differential Equations	3
<b>Semester Credit Hours</b>		<b>18</b>

### Third Year

		Semester Credit Hours
<b>Fall</b>		
CVEN 306	Materials Engineering for Civil Engineers	3
CVEN 322	Civil Engineering Systems	3
CVEN 345	Theory of Structures	3
CVEN 363	Engineering Mechanics: Dynamics	3
Technical coursework <sup>6</sup>		3
<b>Semester Credit Hours</b>		<b>15</b>
<b>Spring</b>		
CVEN 399	Mid-Curriculum Professional Development	0
Technical coursework <sup>6</sup>		12

University Core Curriculum ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/</a> ) <sup>3</sup>		3
<b>Semester Credit Hours</b>		<b>15</b>
<b>Fourth Year</b>		
<b>Fall</b>		
CVEN 424	Civil Engineering Professional Practice <sup>7</sup>	2
Technical coursework <sup>6</sup>		11
University Core Curriculum ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/</a> ) <sup>3</sup>		3
<b>Semester Credit Hours</b>		<b>16</b>
<b>Spring</b>		
PHIL 482/ ENGR 482	Ethics and Engineering	3
Technical coursework <sup>6</sup>		9
University Core Curriculum ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/</a> ) <sup>3</sup>		3
<b>Semester Credit Hours</b>		<b>15</b>
<b>Total Semester Credit Hours</b>		<b>97</b>

<sup>6</sup> A total of 35 hours of technical coursework is required. Technical coursework is divided into five categories: breadth courses, design courses, focus courses, a science course, and a capstone design course. The total number of hours between breadth, design, and focus courses must add up to 29 hours. The choice of courses to be taken in each of the five categories depends on the track chosen and must be made in consultation with the student's advisor and/or the Civil and Environmental Engineering Undergraduate Student Services Office to ensure pre- and co-requisites are satisfied. Capstone design courses must include more than one civil engineering context.

<sup>7</sup> All students must take at least two courses in their major that are designated as writing intensive (W). CVEN 207 and CVEN 424 taken at Texas A&M satisfy this requirement. Other CVEN courses may be approved as W courses at a later date. A grade of C or better is required in these courses.

A grade of C or better is required in all science, mathematics and engineering courses taken to satisfy degree requirements.

## Total Program Hours 128

## Coastal Engineering Track - Technical Coursework

Technical coursework for the BS in Civil Engineering, Coastal Engineering Track are composed of breadth courses (10-12 semester credit hours), design courses (6-15 semester credit hours), focus courses (2-13 semester credit hours), a science course (3 semester credit hours), and a capstone design course (3 semester credit hours), as delineated below, for a total of 35 semester credit hours. A substitution for any course in the track must be approved in writing by the Civil and Environmental Engineering Undergraduate Student Services Office.

Code	Title	Semester Credit Hours
<b>BREADTH</b>		
CVEN 301/ EVEN 301	Environmental Engineering	3
CVEN 339/ EVEN 339	Water Resources Engineering	3
Select from the following:		4-6
CVEN 304/ EVEN 304	Environmental Engineering Lab <sup>1</sup>	
CVEN 336	Fluid Dynamics Laboratory <sup>1</sup>	
CVEN 342	Materials of Construction <sup>1</sup>	
	or CVEN 343 Portland Cement Concrete Materials for Civil Engineers	
CVEN 365	Introduction to Geotechnical Engineering <sup>1</sup>	
EVEN 404	Environmental Unit Operations Laboratory <sup>1</sup>	
<b>DESIGN</b>		
CVEN 465	Coastal Resilience	3
Select from the following:		3-12
CVEN 402/ EVEN 402	Engineered Environmental Systems	
CVEN 455	Urban Stormwater Management	
CVEN 458/ EVEN 458	Hydraulic Engineering of Water Distribution Systems	
CVEN 462/ EVEN 462	Engineering Hydrogeology	
<b>FOCUS</b>		
Select from the following:		2-13
BAEN 320	Engineering Thermodynamics	
	or MEEN 315 Principles of Thermodynamics	
CVEN 314	Sensor Technology in Civil Engineering	
	or CVEN or Sensor Technology for the Built Environment	
CVEN 406/ EVEN 406	Environmental Protection and Public Health	
CVEN 413/ EVEN 413	Natural Environmental Systems	
CVEN 423	Geomatics for Civil Engineering	
CVEN 450	AutoCAD in Civil Engineering	
CVEN 463/ EVEN 463	Engineering Hydrology	
CVEN 464	Environmental Fluid Mechanics	
CVEN 485	Directed Studies <sup>2</sup>	
CVEN 491	Research <sup>2</sup>	
EVEN 466	Sustainability and Life Cycle Analysis	
<b>SCIENCE</b>		
Select from the following:		3
ATMO 201	Weather and Climate	
ATMO 363	Introduction to Atmospheric Chemistry and Air Pollution	
BESC 201	Introduction to Bioenvironmental Sciences	
BIOL 113	Essentials in Biology	
ECCB 205	Fundamentals of Ecology	
GEOL 104	Physical Geology	
GEOL 320	Geology for Civil Engineers	
GEOG 203	Planet Earth	
GEOS 105	Introduction to Environmental Geoscience	
OCNG 310	Physical Oceanography	
RWFM 375	Conservation of Natural Resources	
<b>CAPSTONE DESIGN</b>		
CVEN 400	Design Problems in Civil Engineering	3
<b>Total Semester Credit Hours</b>		<b>35</b>

<sup>1</sup> The following courses satisfy the laboratory course requirement, CVEN 304/EVEN 304, CVEN 336, CVEN 342 or CVEN 343, CVEN 365, EVEN 404.

<sup>2</sup> Up to 2 hours of CVEN 485 or CVEN 491 may be used.