

**Class of 2011  
CIVIL ENGINEERING  
UNDERGRADUATE CURRICULUM**

Revised v4 3/27/08

First Semester			Second Semester		
APMA 111	Single Variable Calculus II	4	APMA 212	Multivariable Calculus	4
CHEM 151	Intro. Chemistry for Engrs.	3	PHYS 142E	General Physics I	3
CHEM 151L	Intro. Chemistry Lab	1	PHYS 142W	Physics I Workshop	1
ENGR 162	Introduction to Engineering	4	CS 101	Intro. to Computer Science	3
STS 101	Lang. Comm. & Tech. Soc.	<u>3</u>		Science I elective (1)	3
		15		HSS elective (2)	<u>3</u>
					17
Third Semester			Fourth Semester		
APMA 308	Linear Algebra	3	APMA 213	Ordinary Diff. Equations	4
PHYS 241E	General Physics II	3	CE 231	Strength of Materials	3
PHYS 241L	General Physics II Lab	1	CE 205	Intro to Env. Eng.	3
CE 201	Civil Engr. Techniques	3	CE 315/365	Fluid Mechanics/Lab	4
CE 230	Statics	3	STS ____	STS 2xx/3xx elective	<u>3</u>
	HSS elective (2)	<u>3</u>			17
		16			
Fifth Semester			Sixth Semester		
APMA 311	App. Statistics & Prob.	3	CE 316/316L	Intro. to Geotech. Eng./Lab	4
CE 319	Structural Mechanics	3	CE 326	Design of Concrete Str.	3
CE 323/363	Properties & Behavior of Materials/Lab)	4	CE 344	Trans. Facilities Design	3
CE 336	Water Resources Eng.	3		HSS elective (2)	3
	Unrestricted elective (6)	<u>3</u>		Science/Eng elective (3)	<u>3</u>
		16			16
Seventh Semester			Eighth Semester		
CE 490	CE Design and Practice	4	STS 402	Engineer, Ethics & Society	3
STS 401	Western Tech. & Culture	3		Civil Eng elective (4)	3
	Civil Eng elective (4)	3		Civil Eng elective (4)	3
	Civil Eng elective (4)	3		Engineering elective (5)	3
	Unrestricted elective (6)	<u>3</u>		Unrestricted elective (6)	<u>3</u>
		16			15

**Minimum Requirements for Graduation:**

**128 Credit Hours, 4 Civil Engineering Proficiency Areas and 1 Design Elective** (see back)

- (1) Science I elective – chosen from: BIOL 201, 202; CHE 200; CHEM 152; ECE 200; MSE 209; and PHYS 252.  
(see also footnote (3) below)
- (2) Humanities & Social Sciences (HSS) elective – chosen from the approved list available in Thornton A122.
- (3) Science/Engineering elective – chosen from the Science II list on back. However, if your Science I elective was BIOL 201, 202 or MSE 209, a student may also select one of the following: CHEM 152, 212; PHYS 252; all 200-level SEAS courses (with the exception of STS courses) and any course meeting the requirements of the Engineering Elective.  
(see footnote (5) below)
- (4) Civil engineering elective – chosen from all 300- and 400-level Civil Engineering courses.
- (5) Engineering Elective – chosen from all 300- and 400-level SEAS courses (with the exception of STS courses) plus other approved technical courses (listed on back).
- (6) Unrestricted electives – chosen from any graded course in the University except mathematics courses below MATH 131 and courses that substantially duplicate any others offered for the degree, including PHYS 201, 202; CS 110, 120; or any introductory programming course. Students in doubt as to what is acceptable to satisfy a degree requirement should get the approval of their advisor and the dean's office, located in Thornton Hall, Room A122. APMA 109 counts as a three-credit unrestricted elective.

**PLEASE CHECK [www.cee.virginia.edu](http://www.cee.virginia.edu) FOR MOST CURRENT INFORMATION**

To complete a proficiency area, at least two courses must be completed within that area. All students will satisfy the first three areas (\*) through required courses. One of the last three areas must also be completed. Each student must complete at least one design elective.

<b>PROFICIENCY AREAS AND DESIGN ELECTIVES</b>	<b>Required/ Elective</b>	<b>Design Elective</b>
<b>Civil Engineering Materials*</b>		
CE 316 Introduction to Geotechnical Eng.	R	
CE 323 Properties and Behavior of Material	R	
CE 411 Foundation Engineering	E	D
CE 453 Asphalt Materials	E	D
CE 455 Mechanics of Composite Materials	E	
<b>Structural Engineering*</b>		
CE 319 Structural Mechanics	R	
CE 326 Design of Concrete Structures	R	
CE 401 Design of Metal Structures I	E	D
CE 402 Design of Metal Structures II	E	D
CE 403 Adv. Reinforced Concrete Design	E	D
CE 405 Pre-stressed Concrete Design	E	D
CE 462 Advanced Structural Analysis	E	
<b>Water Resources Engineering*</b>		
CE 315 Fluid Mechanics	R	
CE 336 Water Resources Engineering	R	
CE 436 Stormwater Management	E	D
CE 427 Hydraulics of Rivers, Streams & ...	E	D
CE 440 Groundwater Hydrology	E	D
<b>Transportation Engineering</b>		
CE 344 Transportation Facilities Design	R	
CE 444 Traffic Operations	E	D
CE 445 Intro to Transportation Planning	E	
<b>Environmental Engineering</b>		
CE 205 Intro. to Environmental Engineering	R	
CE 330 Water for the World	E	D
CE 410 Water Chemistry for Env. Eng	E	
CE 416 Env. Microbiology for Engineers	E	
CE 420 Experimental Analyses in Env. Eng.	E	
CE 426 Environmental Systems Management	E	
CE 430 Environmental Engineering	E	D
<b>Infrastructure Engineering and Management</b>		
CE 201 Civil Eng. Techniques	R	
CE 341 Civil Engineering System Analysis	E	
CE 404 Concrete Technology	E	
CE 421 Pavement Analysis and Design	E	D
CE 431 Construction II: Earthwork (or LAR 534 cross-listing)	E	
CE 441 Construction Eng. & Economics (or ARCH 534)	E	

The following classes do not fall within any proficiency, but may be used as a civil engineering elective; they do not satisfy the design elective requirement:

CE 446 Introduction to GIS  
CE 461 Computer Applications in Civil Eng.  
CE 471 Finite Element Analysis

In addition, other CE 451/CE 452 or graduate level classes may satisfy CE elective, design elective and/or proficiency area requirements. Please get pre-approval in writing from your advisor.

**The following are approved Science II electives:**

BIO 201, 202; MSE 209  
EVSC 280, 320, 350; 384, 427, 428

**The following are approved technical courses from outside of SEAS that will also satisfy the Civil Engineering curriculum requirement for an Engineering Elective:**

Any EVSC class 3xx or 4xx, with the exceptions of EVSC 340 and special topic courses, EVSC 493/494\*

EVGE 507 Aqueous Geochemistry  
EVEC 521 Aquatic Ecology  
EVEC 522 Terrestrial Ecology  
EVEC 523 Microbial Ecology  
EVHY 544 Catchment Hydrology  
EVHY 545 Hydrological Transport Processes  
ARCH 323 Building and Climate  
ARCH 541 Computer Aided Architectural Design  
PLAC 556/LAR 528 Green Cities / Green Site Design

\*EVSC 493 and 494 (Special Topics courses) might be suitable, depending on topic. Civil engineering students must petition CEE dept. to use as engineering electives.