

COLLEGE OF ENGINEERING  
VIA DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING  
**BACHELOR OF SCIENCE IN CIVIL ENGINEERING**  
FOR STUDENTS GRADUATING IN CALENDAR YEAR 2019  
133 CREDITS REQUIRED FOR GRADUATION

FALL SEMESTER FRESHMAN 2015		Credits	SPRING SEMESTER FRESHMAN 2016		Credits
CHEM 1035 General Chemistry (C-) Pre: None	3		ENGL 1106 First-Year Writing Pre: ENGL 1105	3	
CHEM 1045 General Chemistry Lab (C-) Co: CHEM 1035	1		MATH 1226 Calculus of a Single Variable (C-) Pre: MATH 1225	4	
ENGL 1105 First-Year Writing Pre: None	3		PHYS 2305 Found of Physics I w/lab (C-) Pre: MATH 1225; Co: MATH 1226	4	
MATH 1225 Calculus of a Single Variable (C-) Pre: Math Ready	4		ENGE 1216 Foundations of Engineering (C-) Pre: ENGE 1215	2	
ENGE 1215 Foundations of Engineering (C-) Co: MATH 1225	2		CLE (Area 2 or 3)	3	
CLE (Area 2 or 3)	3				
<b>TOTAL</b>	<b>16</b>		<b>TOTAL</b>	<b>16</b>	
FALL SEMESTER SOPHOMORE 2016		Credits	SPRING SEMESTER SOPHOMORE 2017		Credits
ESM 2104 Statics (C-) Co: MATH 2204	3		ESM 2204 Mechanics of Deformable Bodies (C-) Pre: ESM 2104, MATH 2204	3	
MATH 2114 Introduction to Linear Algebra Pre: MATH 1225 (min grade of B) or MATH 1226	3		GEOS 2104 Elements of Geology (C-)	3	
MATH 2204 Multivariable Calculus Pre: MATH 1226	3		ISE 2014 Engineering Economy Pre: ENGE 1215	2	
PHYS 2306 Foundations of Physics II w/lab Pre: MATH 1226, PHYS 2305	4		MATH 2214 Differential Equations Pre: MATH 1226, MATH 2114	3	
CEE 2804 Introduction to CEE Pre: ENGE 1215	2 <sup>[F]</sup>		CEE 2814 CEE Measurements (C-) Pre: ENGE 1216, MATH 1226	4 <sup>[F,S]</sup>	
CEE 2824 Drawings and CAD	1 <sup>[F,S]</sup>		Science or Engineering Science Elective	3	
<b>TOTAL</b>	<b>16</b>		<b>TOTAL</b>	<b>18</b>	
FALL SEMESTER JUNIOR 2017		Credits	SPRING SEMESTER JUNIOR 2018		Credits
ENGL 3764 Technical Writing	3		CEE 3804 Computer Applications in CEE	3 <sup>[F,S]</sup>	
CEE 3304 Fluid Mechanics for CEE Pre: ESM 2104	3 <sup>[F,S]</sup>		CEE Fundamentals Course	3 <sup>[F,S]</sup>	
CEE Fundamentals Course	3 <sup>[F,S]</sup>		CEE Fundamentals Course	3 <sup>[F,S]</sup>	
CEE Fundamentals Course	3 <sup>[F,S]</sup>		CEE Fundamentals Course	3 <sup>[F,S]</sup>	
CEE Fundamentals Course	3 <sup>[F,S]</sup>		CEE Advanced Course	3	
Additional Elective	3		CLE (Area 6)	1	
<b>TOTAL</b>	<b>18</b>		<b>TOTAL</b>	<b>16</b>	
FALL SEMESTER SENIOR 2018		Credits	SPRING SEMESTER SENIOR 2019		Credits
CEE 4804 Prof & Legal Issues in Engr.	3 <sup>[F,S]</sup>		CEE Advanced Course	3	
CEE Fundamentals Course	3 <sup>[F,S]</sup>		CEE Advanced Course	3	
CEE Advanced Course	3		CLE (Area 2 or 3)	3	
Science or Engineering Science Elective	3		Additional Elective	3	
CLE (Area 2 or 3)	3		Additional Elective	3	
Additional Elective	3		CLE Area 7 may be taken here if not previously satisfied		
<b>TOTAL</b>	<b>18</b>		<b>TOTAL</b>	<b>15</b>	

**General Information about Checksheet:** Superscripted annotation [F,S,SI,SII] in Credits column indicates that a course is known to be offered in terms other than when shown. Course offerings are subject to change and the availability of sufficient resources. CEE Advanced courses may not be offered each academic term. Students should confirm course offerings in advance with their CEE Advisor. The notation (C-) shown in the freshman and sophomore years means that a grade of C- or better is required in that course. A C- or better is also required in the junior and senior years in any course that is a prerequisite for a CEE course.

**Curriculum for Liberal Education (CLE)**

Consult the CLE Alphabetical Listing at: <http://www.cle.prov.vt.edu/guides/alpha.html>, CLE courses need to be completed prior to graduation

CLE Area 1: Writing and Discourse (6 hrs)	ENGL 1105	(3)	ENGL 1106	(3)
CLE Area 2: Ideas, Cultural Traditions, Values Electives (6 hrs)		(3)		(3)
CLE Area 3: Society & Human Behavior electives (6 hrs)		(3)		(3)
CLE Area 4: Scientific Reasoning and Discovery (8 hrs)	PHYS 2305	(4)	PHYS 2306	(4)
CLE Area 5: Quantitative and Symbolic Reasoning (8 hrs)	MATH 1225	(4)	MATH 1226	(4)
CLE Area 6: Creativity & Aesthetic Experience elective (1 hr)				(1)

CLE Area 7: Global Issues Elective (3 hrs) **may be satisfied by CEE 3104 or CEE 4554. If neither course is taken, an additional three credit course from CLE Area 7 may be needed (3)** If a CLE course is double-counted to satisfy two different CLE areas, a free elective(s) must be taken to maintain a minimum of 133 credits.

**Electives:** The CEE department requires 6 credits of **Science and Engineering Science Electives**, 21 hours of **Fundamental Electives**, 12 hours of **Advanced Electives**, and 12 hours of **Additional Electives** as follows:

**Science and Engineering Science Electives – 6 credits.**

(3) \_\_\_\_\_ (3) \_\_\_\_\_

Up to 3 credits of science electives may be selected from the following: BIOL 1005 or 1006; CHEM 1036; ENSC 3604; GEOG 1514, GEOG 2084; GEOS/GEOG 4354; GEOS 3104, GEOS 3304.

Up to 6 credits of engineering science electives may be selected from the following: CHE 2114; BSE 3154; CS 1044, CS 1114, or CS 1064; ECE 1574, ECE 2004, or ECE 3054; ESM 2304 or ESM 3054; ME 3134.

**CEE Fundamental & Advanced Technical Electives – 33 credits:** CEE electives have been arranged to provide adequate breadth and depth of knowledge in CEE and specialty areas of interest. Thirty-three credits of CEE courses must be selected such that the following four criteria are met:

1. Complete 7 of the 8 fundamentals courses show in the table below.
2. Complete 1 advanced course in 3 of the 7 specialty areas in which fundamentals courses were selected in (1).
3. Complete an additional advanced course in 1 of the 3 specialty areas in which advanced courses were selected in (2).
4. Within the choices above, complete at least one design project course: **CEE 3434, 4014, 4104, 4274, 4334, 4544, 4654, or 4664.**

CEE Specialty Areas	Fundamentals Courses	Advanced Courses (courses may require pre-requisites; see CEE website course listing)
Construction	3014	<b>4014</b> , 4024, 4074
Environmental	3104	<b>4104</b> , 4114, 4134, 4144, 4164, 4174
Geotechnical	3514 (lab)	4514, 4534, <b>4544</b> , 4554, 4564
Land Development	3274	4254, 4264, <b>4274</b> , 4284
Materials	3684 (lab)	4614, 4634, <b>4664</b>
Structures	3404	3424, <b>3434</b> , 4454
Transportation	3604	4604, 4624, 4644, <b>4654</b> , 4674, 4684
Water Resources	3314 (lab)	4304, 4314, 4324, <b>4334</b> , 4344, 4354, 4384

**Additional Electives – 12 credits:**

(3) \_\_\_\_\_ Non-CEE elective at any level (3) \_\_\_\_\_ Elective in CEE or any other department, 3000 level or higher

(3) \_\_\_\_\_ Non-CEE elective 3000 or higher (3) \_\_\_\_\_ Free elective in CEE or any other department at any level

**Change of Major Requirements:** Please see <http://www.enge.vt.edu/undergraduate-changing-majors.html>

**Foreign Language Requirements:** Students must have had 2 years of a foreign language in high school or one year at the college level (6 credit hours) of the same language. College-level credits used to meet this requirement do not count towards the degree.

**Satisfactory Progress Towards Degree:** University Policy 91 outlines university-wide minimum criteria to determine if students are making satisfactory progress towards the completion of their degrees. The CEE Department fully supports this policy. Specific expectations for satisfactory progress for Civil Engineering majors are as follows:

- Each student must meet the minimum University-wide criteria as described in Policy 91 and summarized in the Undergraduate Catalog (<http://www.undergradcatalog.registrar.vt.edu/1617/academic-policies.html#22><http://www.undergradcatalog.registrar.vt.edu/1617/academic-policies.html#22>)
- A 2.5 overall GPA and a 2.5 in-major GPA must be maintained for continued enrollment in CEE. The in-major GPA consists of all courses taken under the CEE designation.

**Statement of Hidden Prerequisites:** Pre-requisites for each course are listed after the course title. The (letter grade) notation, such as (C-), indicates the minimum grade students must earn in the pre-requisite course. There are no hidden pre-requisites in this program of study. Prerequisites may change from what is indicated. Be sure to consult the University Catalog or check with your advisor for the most current pre-requisites.

**Graduation Requirements:** Students must pass all required courses and both the in-major and overall GPA must be at least 2.0 for graduation. The in-major GPA consists of all courses taken under the CEE designation.

**Additional Checksheet Comments:** Displayed course offerings are subject to sufficient resources. Courses are taught in the term in which they appear on the checksheet. CEE Fundamentals courses are typically taught each fall and spring term, whereas CEE Advanced courses may not be offered each academic term. Consult the CEE course listing and your departmental advisor for updates.