

Approved February 19, 2019

COLLEGE OF ENGINEERING
 VIA DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING
BACHELOR OF SCIENCE IN CIVIL ENGINEERING (BSCE)
 FOR STUDENTS GRADUATING IN CALENDAR YEAR 2021
 131 CREDITS REQUIRED FOR GRADUATION

FALL SEMESTER FRESHMAN 2017		Credits	SPRING SEMESTER FRESHMAN 2018		Credits
CHEM 1035 General Chemistry	3		ENGL 1106 First-Year Writing <i>Pre: ENGL 1105</i>	3	
CHEM 1045 General Chemistry Lab <i>Co: CHEM 1035</i>	1		MATH 1226 Calculus of a Single Variable (C-) <i>Pre: MATH 1225 (C-)</i>	4	
ENGL 1105 First-Year Writing	3		PHYS 2305 Foundations of Physics I (with lab) <i>Pre: MATH 1225 or MATH 1226</i>	4	
MATH 1225 Calculus of a Single Variable <i>Pre: Math Ready</i>	4		ENGE 1216 Foundations of Engineering (C-) <i>Pre: ENGE 1215 (C-)</i>	2	
ENGE 1215 Foundations of Engineering (C-)	2		CLE (Area 2 or 3)	3	
CLE (Area 2 or 3)	3				
	TOTAL	16		TOTAL	16
FALL SEMESTER SOPHOMORE 2018		Credits	SPRING SEMESTER SOPHOMORE 2019		Credits
ESM 2104 Statics <i>Co: MATH 2204 or MATH 2204H</i>	3		ESM 2204 Mechanics of Deformable Bodies <i>Pre: ESM 2104, (MATH 2204 or MATH 2204H)</i>	3	
MATH 2114 Introduction to Linear Algebra <i>Pre: MATH 1225 (min grade of B) or MATH 1226</i>	3		GEOS 2104 Elements of Geology	3	
MATH 2204 Multivariable Calculus <i>Pre: MATH 1226</i>	3		ISE 2014 Engineering Economy <i>Pre: ENGE 1215 or ENGE 1414</i>	2	
PHYS 2306 Foundations of Physics I (with lab) <i>Pre: MATH 1226, PHYS 2305</i>	4		MATH 2214 Introduction to Differential Equations <i>Pre: (Math 2114 or Math 2114H), Math 1226</i>	3	
CEE 2804 Introduction to Civil and Environmental Engineering	3 ^[F]		CEE 2814 Civil and Environmental Engineering Measurements (with lab) <i>Pre: (ENGE 1216 or ENGE 1414), MATH 1226; Co: CEE 2824</i>	4 ^[F,S]	
CEE 2824 Civil Engineering Drawings and CAD	1 ^[F,S]		Science and Engineering Elective	3	
	TOTAL	17		TOTAL	18
FALL SEMESTER JUNIOR 2019		Credits	SPRING SEMESTER JUNIOR 2020		Credits
CEE 3304 Fluid Mechanics for Civil and Environmental Engineering (with lab) <i>Pre: CEE 2804, ESM 2104</i>	4 ^[F,S]		CEE Fundamentals Course	3 ^[F,S]	
CEE 3804 Computer Applications for Civil and Environmental Engineers	3 ^[F,S]		CEE Fundamentals Course (with Lab)	4 ^[F,S]	
CEE Fundamentals Course (with Lab)	4 ^[F,S]		CEE Fundamentals Course	3 ^[F,S]	
CEE Fundamentals Course	3 ^[F,S]		CEE Fundamentals Course	3 ^[F,S]	
Additional Elective	3		CEE Advanced Course	3	
			CLE (Area 6)	1	
	TOTAL	17		TOTAL	17
FALL SEMESTER SENIOR 2020		Credits	SPRING SEMESTER SENIOR 2021		Credits
CEE 4804 Professional and Legal Issues in Civil Engineering <i>Pre: CEE 3304</i>	3 ^[F,S]		CEE Advanced Course	3	
CEE Advanced Course	3		CEE Advanced Course	3	
Fundamental or Advanced Course (If 4 cr. course taken, reduce Free Elective by 1 credit)	3		CLE (Area 2 or 3)	3	
CLE (Area 2 or 3)	3		Additional Elective	3	
Additional Elective	3		Additional Elective	3	
	TOTAL	15	<i>CLE Area 7 may be taken here if not previously satisfied</i>	TOTAL	15

General Information about Checksheet: Superscripted annotation [F,S,SI,II] in Credits column indicates that a CEE 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 must confirm course offerings in advance with their CEE Advisor. **A C- or better grade is required in any course that is a prerequisite for a CEE course.** The notation (C-) shown in the freshman year is provided for advising purposes only and means that CEE requires a grade of C- or better in that course. This notation is not shown in subsequent years; therefore, students must verify prerequisites when forming their academic plan.

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 (6 hrs)		(3)		(3)
CLE Area 3: Society & Human Behavior (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 (1 hr)				(1)

CLE Area 7: Global Issues (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).**

Electives: The CEE department requires 3 credits of **Science and Engineering Electives**, 20 credits of **Fundamental Electives**, 12 credits of **Advanced Electives**, 3 additional credits of **either Fundamental or Advanced electives**, and 12 credits of **Additional Electives** as follows:

Science and Engineering Electives – 3 credits. Select from the following: BIOL 1005 or 1006; CHEM 1036; ENSC 3604; GEOG 1514; GEOG 2084; GEOS/GEOG 4354; GEOS 3104; GEOS 3304; CS 1044; CS 1064; ECE 1574; ESM 2304; ESM 3054; BSE 4344.

CEE Fundamental & Advanced Technical Electives–35 credits (C- policy applies): Electives have been arranged to provide adequate breadth and depth of knowledge in CEE and specialty areas of interest. Thirty-two credits of courses must be selected, meeting the following four criteria:

1. Complete 6 of the 8 Fundamentals courses shown in the table below, at least two of which must have a lab.
2. Complete 1 Advanced course in 3 of the 6 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. Complete one additional course from either the Fundamental or Advanced category. C- policy applies.
5. 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; C- policy applies; see CEE website course listing)
Construction	3014	4014 , 4024, 4074
Environmental	3104	4104 , 4114, 4134, 4144, 4174
Geotechnical	3514 (lab)	4514, 4534, 4544 , 4554, 4564
Land Development	3274	4254, 4264, 4274 , 4284
Materials	3684 (lab)	4614, 4634, 4664
Structures	3404	3424, 3434* , 4454
Transportation	3604	4604, 4624, 4644, 4654 , 4674, 4684
Water Resources	3314 (lab)	4304, 4314, 4324, 4334 , 4344, 4384

*Course is 4-cr. If taken, reduce the Free Elective by 1 credit.

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 two 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>)
- 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. There are no hidden pre-requisites in the program of study. Prerequisites may change from what is indicated. 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.