FALL SEMESTER FRESHMAN 2017	Credits
CHEM 1035 General Chemistry (C-) Co: MATH 1225 or MATH 1025	3
CHEM 1045 General Chemistry Lab (C-) Co: CHEM 1035	1
ENGE 1215 Foundations of Engineering (C-)	2
ENGL 1105 First-Year Writing	3
MATH 1225 Calculus of a Single Variable (C-) Pre: Math Ready	4
CLE (Area 2)	3
TOTAL	**16**

SPRING SEMESTER FRESHMAN 2018	Credits
ENGE 1216 Foundations of Engineering (C-) Pre: ENGE 1215 (C-)	2
ENGL 1106 First-Year Writing Pre: ENGL 1105	3
MATH 1226 Calculus of a Single Variable (C-) Pre: MATH 1225 (C-)	4
MATH 2114 Introduction to Linear Algebra Pre: MATH 1225 (B) or MATH 1226	3
PHYS 2305 Foundations of Physics Pre: MATH 1225; Co: MATH 1226 or MATH 1206 or MATH 1206H or PHYS 2325	4
TOTAL	**16**

FALL SEMESTER SOPHOMORE 2018	Credits
CEM 2104 Introduction to CEM Pre: ENGE 1216 or ENGE 1104 or ENGE 1114 or ENGE 1434 (C-)	2
ESM 2104 Statics Co: MATH 2204 or MATH 2204H or MATH 2406H or MATH 2224 or MATH 2224H	3
GEOS 2104 Elements of Geology (C-)	3
MATH 2204 Intro Multivariable Calculus Pre: MATH 1226	3
PHYS 2306 Foundations of Physics Pre: MATH 1226 or MATH 1206 or MATH 1206H, PHYS 2305	4
CLE (Area 2)	3
TOTAL	**18**

SPRING SEMESTER SOPHOMORE 2019	Credits
BC 2114 IT in Design & Construction Pre: BC 1224 or CNST 2104 or CEM 2104	3
CEE 2814 CEE Measurements (C-) Pre: ENGE 1216 (C-) or ENGE 1114 or ENGE 1434 or BC 1224, MATH 1226 (C-) or MATH 1206 or MATH 1206H	4
ECON 2005 Principles of Economics CLE (Area 3)	3
ESM 2204 Mechanics of Deformable Bodies (C-) Pre: ESM 2104 or ESM 2114, MATH 2224 or MATH 2224H or MATH 2204 or MATH 2204H	3
MATH 2214 Intro Differential Equations Pre: MATH 1226 or 1206, MATH 2114 or MATH 2114H or MATH 1114 or MATH 1114H	3
CLE (Area 6)	1
TOTAL	**17**

FALL SEMESTER JUNIOR 2019	Credits
BC 3114 Building Systems Technology Pre: CEM 2104 or CNST 2104 or BC 2024, PHYS 2305	3
CEE 3404 Theory of Structures (C-) Pre: ESM 2204 (C-)	3
CEE 3684 CEE Materials (C-) Pre: CHEM 1035 (C-), CHEM 1045 (C-), ESM 2204 (C-), CEE 2814 (C-), GEOS 2104 (C-)	4
CEM 3024 Construction Estimating & Scheduling Pre: CEM 2104 (C-)	3[F]
ECON 2006 Principles of Economics Pre: ECON 2005 CLE (Area 3)	3
TOTAL	**16**

SPRING SEMESTER JUNIOR 2020	Credits
BC 3064 Integrated Construction II Pre: (CEM 2104, PHYS 2305) or (CNST 2104, PHYS 2305), or (BC 2064, BC 3114, PHYS 2305)	3
CEE 3434 Design of Steel Structures Pre: (CEE 3404 (C-), CEE 3684 (C-)) or BC 2044	4
CEE 3514 Intro to Geotechnical Engr Pre: ESM 2204 (C-), GEOS 2104 (C-) or GEOS 1004	4
CEE 4074 Construction Means & Methods Pre: CEM 2104 (C-) or CEE 3014	3[S]
CEM/BC 3134 Temporary Structures in Construction Pre: CEE 3684 or BC 2044, CEM 2104 or BC 2024 or CEE 3014	3
	17

FALL SEMESTER SENIOR 2020	Credits
BC 4064 Integrated Construction III Pre: BC 3064; Co: CEM 4445	3
CEE 3424 Reinforced Concrete Structures Pre: (CEE 3404 (C-), CEE 3684 (C-)) or BC 2044	3
CEM 3164 Construction Health and Safety Pre: CEM 2104 or CNST 2104	3[F]
CEM 4445 CEM Capstone I Pre: BC 3064 Co: BC 4064	3
Engineering Elective	3
Business or Sustainability Elective (Area 7)	3
TOTAL	**18**

SPRING SEMESTER SENIOR 2021	Credits
CEM 3084 Construction Economy Pre: CEM 2104 or BC 2024	3
CEM 4024 Construction Law & Contract Administration Pre: Senior Standing	3[S]
CEM 4446 CEM Capstone II Pre: CEM 4445	3
Business or Sustainability Elective (Area 7)	3
Engineering Elective	3
TOTAL	**15**

General Information about the Checksheet: Superscripted annotation [F,S] in Credits column indicates that a course is known to be offered only in terms when shown (F=Fall Only and S=Spring Only). Course offerings are subject to change due to the availability of sufficient resources. Students should confirm course offerings in advance with their department.

Curriculum for Liberal Education (CLE)

Consult the CLE Alphabetical Listing at: https://www.pathways.prov.vt.edu/cle.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)	ECON 2005	(3)	ECON 2006	(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: Critical Issues in a Global Context (3 hrs)	Sustainability Elective			(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 135 credits.

Business Electives

The CEM degree requires 3 hours of business electives from the following list:

- ACIS 2115 (3) - Principles of Accounting (Pre: Sophomore Standing)
- BIT 2405 (3) - Quantitative Methods (Pre: MATH 1225, 1226, 2114)
- CEM 4964 [F] (1-19)* - Field Work/Practicum
- ECON 3104 (3) - Microeconomic Theory (Pre: ECON 2005 (C), MATH 1225 (C-), MATH 1226 (C-), MATH 2114 (C-))
- ECON 3214 (3) - Money and Banking (Pre: ECON 2005 & ECON 2006)
- ECON 4014 [F] (3) - Environmental Economics (Pre: ECON 2005)
- FIN 3054 (3) - Legal and Ethical Environment of Business (Pre: Junior Standing)
- MGT 3064 (3) - Cornerstones of Entrepreneurship (Pre: Completion of 45 credit hours and two CLE Area 5 courses)
- MGT 3304 (3) - Management Theory and Leadership Practice (Pre: Sophomore Standing)
- REAL/UAP 2004 (3) - Principles of Real Estate
- UAP 4374 [F] (3) - Land Use and Environment: Planning and Policy (Pre: Junior Standing)
- UAP 4754 [F] (3) - Legal Foundations of Planning (Pre: Junior Standing)

* Course must be taken for 3 credit hours.

Engineering Electives

The CEM degree requires 6 hours of engineering electives from the following list:

- CEE 3274 (3) - Introduction to Land Development Design (Pre: CEE 2814 (C-))
- CEE 3604 (3) - Intro to Transportation Engineering (Pre: Junior Standing)
- CEE 3804 (3) - Computer Applications for Civil and Environmental Engineers (Pre: Junior Standing)
- CEE 3954 [S] (1-19)* - Study Abroad
- CEE 4134 [S] (3) - Environmental Sustainability – A Systems Approach (Pre: MATH 2214 (C-), Senior Standing)
- CEE 4264 [F] (3) - Sustainable Land Development (Pre: Senior Standing)
- CEE 4454 [S] (3) - Masonry Structural Design (Pre: CEE 3424 (C-), CEE 3684 (C-))
- CEE 4514 [F] (3) - Methods in Geotechnical Engineering (Pre: CEE 3514 (C-))
- CEE 4534 (3) - Earth Pressures and Foundation Structures (Pre: CEE 3514 (C-))
- CEE 4544 [S] (3) - Design of Earth Structures (Pre: CEE 3514 (C-))
- CEE 4614 [F] (3) - Advanced Structural Concretes (Pre: CEE 3684 (C-))
- CEE 4634 [S] (3) - Infrastructure Condition Assessment (Pre: CEE 3684 (C-))
- CEM 3064 [F] (3) - Intro to Lean Construction (CEM 2104)
- CEM 3074 (3) - Global Design and Construction for Sustainable Development (Pre: Junior Standing)
- CEM 3154 [S] (3) - Smart Construction (Pre: CEM 2104, BC 2114)
- CEM 4974 (1-19)* - Independent Study
- CEM 4994 (1-19)* - Undergraduate Research
- ECE 3054 (3) - Electrical Theory (Pre: PHYS 2305; Co: MATH 2214)
- ESM 3054 (3) - Mechanical Behavior of Materials (Pre: ESM 2204, CEE 3684)
- ISE 4004 [F] (3) - Theory of Organization (Pre: Senior Standing)
- SBIO 4314 [F] (3) - Design of Wood Structures (Pre: CEE 3404)

* Course must be taken for 3 credit hours.

Sustainability Elective

The CEM degree requires 3 hours of sustainability electives from the following list:
      CEE 3104 (3) - Intro to Environmental Engineering (Pre: CHEM 1035 (C-), 1045 (C-), MATH 1226 (C-), PHYS 2305 (C-))
      CEE 4554 [S] (3) - Natural Disasters (Pre: Senior Standing)
      ENGR 1814 [F] (3) - Energy, Resource & Environment

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 Myers-Lawson School of Construction fully supports this policy. Specific expectations for satisfactory progress for CEM 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.) • Upon completion of 70 hours, students must have completed CEM 2104 and CEE 2814 with a C- or better and have a minimum 2.0 in-major and a minimum 2.0 overall GPA.
In-Major GPA: consists of all courses taken under the CEE, CEM and BC 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.
Graduation Requirements: Students must pass all required courses and both the in-major and overall GPA must be at least 2.0 for graduation.