



## Program of Study

### Degree Requirements (130-144 hours)

#### 1. **Carolina Core (34-46 hours)**

- a. **CMW** (6 hours)
  - i. ENGL 101 - Critical Reading and Composition –*must be passed with a grade of C or higher*
  - ii. ENGL 102 - Rhetoric and Composition
- b. **ARP** (8 hours) –*must be passed with a grade of C or higher*
  - i. MATH 141 - Calculus I
  - ii. MATH 142 - Calculus II
- c. **SCI** (8 hours) –*must be passed with a grade of C or higher*
  - i. CHEM 111 - General Chemistry I
  - ii. CHEM 111L - General Chemistry I Laboratory
  - iii. PHYS 211 - Essentials of Physics I
  - iv. PHYS 211L - Essentials of Physics I Lab
- d. **GFL** (0-6 hours): Students in the College of Engineering and Computing are required to demonstrate proficiency in one foreign language equivalent to the 121 course by 1) a score of two or better on the foreign language placement test; or 2) completion of the 109 and 110 courses in FREN, GERM, LATN, or SPAN or completion of the 121 course in another foreign language.
- e. **GHS** (3 hours): any approved CC-GHS course
- f. **GSS** (3 hours): any approved CC-GSS course
- g. **AIU** (3 hours): any approved CC-AIU course

#### **Carolina Core Stand Alone or Overlay Eligible Requirements:**

Up to two of these requirements may be met in overlay courses. At least one of these requirements must be satisfied by a course not applied elsewhere in general education. (3-9 Hours)

- h. **CMS** (3 hours) Choose from:
  - i. PHIL 325 - Engineering Ethics (CMS/VSR overlay)
  - ii. SPCH 140 - Public Communication
  - iii. any approved overlay or stand-alone CC-CMS course
- i. **INF** (0-3 hours): any approved overlay or stand-alone CC-INF course
- j. **VSR** (0-3 hours) Choose from:
  - i. PHIL 325 - Engineering Ethics (CMS/VSR overlay)
  - ii. PHIL 322 - Environmental Ethics
  - iii. any approved overlay or stand-alone CC-VSR course

#### 2. **College Requirements:** No college-required courses for this program.

#### 3. **Program Requirements (71-73 hours)**

- a. **Supporting Courses** (71-73 hours)
  - i. CHEM 112 - General Chemistry II
  - ii. CHEM 112L - General Chemistry II Laboratory
  - iii. MATH 241 - Vector Calculus
  - iv. MATH 242 - Elementary Differential Equations
  - v. PHYS 212 - Essentials of Physics II
  - vi. PHYS 212L - Essentials of Physics II Lab
  - vii. STAT 509 - Statistics for Engineers
  - viii. **Lower Division Engineering** (19-21 hours):
    1. ECIV 101 - Introduction to Civil Engineering *or* ENCP 101 - Introduction to Engineering I

2. ECIV 111 - Introduction to Engineering Graphics and Visualization *or* ENCP 102 - Introduction to Engineering II
  3. ECIV 200 - Statics *or* ENCP 200 - Statics –*must be passed with a grade of C or higher*
  4. ECIV 201 - Computational Methods for Civil Engineering *or* ENCP 201 - Introduction to Applied Numerical Methods
  5. ECIV 210 - Dynamics *or* ENCP 210 - Dynamics –*must be passed with a grade of C or higher*
  6. ECIV 220 - Mechanics of Solids *or* ENCP 260 - Introduction to the Mechanics of Solids – *must be passed with a grade of C or higher*
  7. ECIV 360 - Fluid Mechanics *or* ENCP 360 - Fluid Mechanics
- ix. **ECIV Laboratory Courses** (2 hours) Select two of the following:
1. ECIV 303L - Civil Engineering Materials Laboratory
  2. ECIV 330L - Geotechnical Laboratory
  3. ECIV 340L - Transportation Engineering Laboratory
  4. ECIV 350L - Introduction to Environmental Engineering Laboratory
  5. ECIV 362L - Introduction to Water Resources Engineering Laboratory
- x. **ECIV Distribution Courses** (12 hours) One course from four of the following five areas:
1. **Environmental Engineering**
    - ECIV 551 - Elements of Water and Wastewater Treatment
    - ECIV 555 - Principles of Municipal Solid Waste Engineering
    - ECIV 556 - Air Pollution Control Engineering
    - ECIV 557 - Sustainable Construction for Engineers
    - ECIV 558 - Environmental Engineering Process Modeling
  2. **Structural Engineering**
    - ECIV 325 - Structural Steel Design
    - ECIV 327 - Reinforced Concrete Design
  3. **Transportation Engineering**
    - ECIV 540 - Transportation Systems Planning
    - ECIV 541 - Highway Design
    - ECIV 542 - Traffic Engineering
    - ECIV 580 - Railway Engineering I
  4. **Geotechnical Engineering**
    - ECIV 530 - Foundation Analysis and Design
  5. **Water Resources Engineering**
    - ECIV 560 - Open Channel Hydraulics
    - ECIV 562 - Engineering Hydrology
    - ECIV 563 - Subsurface Hydrology
- xi. **ECIV Elective Courses** (12 hours): Four ECIV electives chosen from additional ECIV courses numbered 300 and above.
- xii. **Science Electives** (3 hours):
1. BIOL 101 - Biological Principles I
  2. BIOL 102 - Biological Principles II
  3. BIOL 110 - General Biology
  4. BIOL 250 - Microbiology
  5. BIOL 270 - Introduction to Environmental Biology
  6. BIOL 300 or above
  7. ENVR 321 - Environmental Pollution and Health
  8. GEOL 201 - Observing the Earth
  9. GEOG 563 - Advanced Geographic Information Systems
  10. GEOL 300 or above
  11. MSCI 300 and above
- xiii. **Engineering, Science or Mathematics (ESM) Electives** (6 hours)
1. Additional ECIV courses from the Distribution and Elective categories
  2. ENCP 290 or above (not 310 or 360)
  3. ECHE 310 and above

4. ELCT above 201
5. EMCH 290 or above (not 310 or 360)
6. CSCE 211 and above
7. PHYS above 212
8. GEOG 563 - Advanced Geographic Information Systems
9. GEOL 300 or above
10. BIOL 101 - Biological Principles I
11. BIOL 102 - Biological Principles II
12. BIOL 110 - General Biology
13. BIOL 250 - Microbiology
14. BIOL 300 and above
15. MSCI 300 and above
16. CHEM above 112
17. MATH 521 - Boundary Value Problems and Partial Differential Equations
18. MATH 544 - Linear Algebra
19. MATH 550 - Vector Analysis
20. STAT 511 - Probability
21. NAVY 201 - Naval Ships Systems I
22. NAVY 202 - Naval Ships Systems II
23. NAVY 301 - Navigation/Naval Operations I
24. ENVR 501 - Special Topics in the Environment

4. **Major Requirements (25 hours)**

a. **Major Courses (25 hours)**

- i. ECIV 303 - Civil Engineering Materials
- ii. ECIV 320 - Structural Analysis I
- iii. ECIV 330 - Introduction to Geotechnical Engineering
- iv. ECIV 340 - Introduction to Transportation Engineering
- v. ECIV 350 - Introduction to Environmental Engineering
- vi. ECIV 362 - Introduction to Water Resources Engineering
- vii. ECIV 405 - Systems Applications in Civil Engineering
- viii. ECIV 470 - Civil Engineering Design

**Program GPA**

Program GPA requirement policies are described in the College of Engineering and Computing section of this bulletin. For the purpose of these policies, the following courses are used to determine the Program GPA for the Civil Engineering B.S.E. program: all Civil Engineering Lower Division courses, all Civil Engineering Major courses and all courses used to satisfy an ECIV Laboratory Elective, ECIV Distribution Elective, and ECIV Elective.

**Professional Development Requirement**

This requirement is satisfied by completing one or more program-accepted Carolina Core courses for CMS and VSR, by ENGL 462, ENGL 463, PHIL 323, PHIL 324, or SPCH 230.