College of Engineering
Charles E. Via, Jr. Department of Civil and Environmental Engineering
Major: Major in Civil Engineering (BSCE)
This guide is for students with a date of entry under
UG Catalog 2026-2027

This is a sample plan. Actual plans will vary based on factors like placement, transfer credit, and course availability. Please use this in conjunction with the official catalog requirements for your date of entry and DARS.

Year 1 (First Year)

Fall Semester (16 credits)
___ CHEM 1035: General Chemistry, 3 cr
___ CHEM 1045: General Chemistry, 1 cr
___ ENGL 1105: First-Year Writing, 3 cr
___ MATH 1225: Calc of a Single Variable (C-), 4 cr
___ ENGE 1215: Foundations of Engineering, 2 cr
___ Pathways 2, 3, or 6a, 3 cr _____

Spring Semester (16 credits)
___ ENGL 1106: First-Year Writing, 3 cr
___ MATH 1226: Calc of a Single Variable, 4 cr
___ PHYS 2305: Foundations of Physics, 4 cr
___ ENGE 1216: Foundations of Engineering, 2 cr
___ Pathways 2, 3, or 6a, 3 cr _____

Year 2 (Sophomore Year)

Fall Semester (15 credits)
___ ESM 2104: Statics, 3 cr
___ MATH 2114: Intro to Linear Algebra, 3 cr
___ MATH 2204: Intro to Multivariable Calc, 3 cr
___ CEE 2834: CE Drawings & Virtual Modeling, 3 cr
___ CEE 2804: Intro to Civil & Environmental Eng, 3 cr

Spring Semester (16 credits)
___ ESM 2204: Mechanics of Deformable Bodies, 3 cr
___ GEOS 2104: Elements of Geology, 3 cr
___ CEE 3804: Computer Apps for CEE, 3 cr
___ MATH 2214: Intro to Differential Equations, 3 cr
___ CEE 2814: Geomatics, 4 cr

Year 3 (Junior Year)

Fall Semester (16 credits)
___ CEE 3304: Fluid Mechanics for CEE, 4 cr
___ ISE 2014: Engineering Economy, 2 cr
___ CEE Fundamental Elective + Lab, 3+1 cr _____
___ CEE Fundamental Elective, 3 cr_____
___ Pathways 2, 3, or 6a, 3 cr _____
___ ENGE 3900: Bridge Experience, 0 cr

Spring Semester (16 credits)
___ CEE 3814: Analytical Tools in CEE, 3 cr
___ CEE Fundamental Elective + Lab, 3+1 cr _____
___ CEE Fundamental Elective, 3 cr_____
___ CEE Fundamental Elective, 3 cr_____
___ CEE 4804: Professional & Legal Issues CE, 3 cr

Year 4 (Senior Year)

Fall Semester (18 credits)
___ CEE Fundamental Elective, 3 cr_____
___ CEE Adv Elective (Design Project), 3 cr_____
___ CEE Advanced Elective, 3 cr_____
___ Technical Elective, 3 cr _____
___ Restricted Elective, 3 cr _____
___ Pathways 2, 3, or 6a, 3 cr _____

Spring Semester (15 credits)
___ CEE Advanced Elective, 3 cr_____
___ CEE Advanced Elective, 3 cr_____
___ Technical Elective, 3 cr _____
___ Restricted Elective, 3 cr _____
___ Pathways 2, 3, or 6a, 3 cr _____

Notes:
- CEE course offerings are subject to change. Some classes have prerequisites.
- For CE fundamental, CE advanced, restricted elective, and technical elective options, see the catalog requirements.

Fundamental, Advanced & Interdisciplinary Electives

Courses listed are 3 credits unless otherwise noted. *Students in their senior year with a 3.00 or better GPA may enroll in 5000-level courses satisfying undergraduate degree requirements. See your academic advisor.*

Construction Engineering and Management

CEE 3014: Construction Management (Fundamental)
CEE 4014: Est, Production, & Cost Engineering
CEE 4024: Const Control Techniques
CEE 4034: Smart Sustainable Infrastructure
CEE 4074: Const Engineering: Means & Methods
CEE 5014: Facility Delivery & Financing
CEE 5024: Contract Admin & Claims Resolution
CEE 5054: Project Control of Built Infrastructure
CEE 5060: Built Enviro Info Modeling & Processing
CEE 5080: Infrastructure Asset Management

Structural Engineering and Materials

CEE 3404: Intro to Structural Engineering (Fundamental)
CEE 4424: Design of Reinforced Concrete Structures*
CEE 4434: Intro to Steel Design*
CEE 4444: Topics in Structural Eng Design*, 1 cr
CEE 4404: Intermediate Structural Analysis
CEE 4454: Masonry Structural Design
CEE 5400: Design of Prestressed Concrete
CEE 5410: Intermediate Reinforced Concrete Structures
CEE 5414: Finite Element Analysis of Structures
CEE 5420: Computer Methods of Structural Analysis
CEE 5430: Intermediate Design of Steel Buildings
CEE 5450: Forensic Struct Engineering
CEE 5464: Structural Dynamics & Earthquake Engineering
CEE 5490: Structural Mechanics
CEE 5744: Topics in Structural Steel Design
***Design course is either CEE 4424+CEE 4444 or CEE 4434+CEE 4444**

Environmental Engineering

CEE 3104: Intro to Environmental Eng (Fundamental)
CEE 4104: Water & Wastewater Treatment Design
CEE 4114: Fundamentals of Public Health Engineering
CEE 4134: Enviro Sustainability - A Systems Approach
CEE 4144: Air Resources Engineering
CEE 5104: Environmental Chemistry
CEE 5125: Environmental Engineering Design
CEE 5126: Environmental Engineering Design
CEE 5704: Drinking Water & Health
CEE 5794: Environmental Engineering Principles

Materials

CEE 3684: CE Materials (Fundamental)
CEE 3784: CE Materials Lab (Fundamental Lab), 1 cr
CEE 4610: Mechanics of Composite Materials
CEE 4614: Concrete Materials
CEE 4634: Infrastructure Condition Assessment
CEE 4664: Pavement Design
CEE 5610: Advanced Mechanics of Composite Materials
CEE 5664: Advanced Concrete Materials
CEE 5764: Asphalt Technology

Land Development

CEE 3274: Intro to Land Develop Design (Fundamental)
CEE 4254: Land Develop: Stakeholders, Policy, & Practice
CEE 4264: Sustainable Land Development
CEE 4274: Land Development Design
CEE 4284: Advanced Land Development Design
CEE 5004: Adaptive Reuse and Redevelopment
CEE 5034: Smart Sustainable Infrastructure
CEE 5264: Sustainable Land Development
CEE 5274: Land Development Design Projects

Geotechnical Engineering

CEE 3514: Intro to Geotechnical Eng (Fundamental)
CEE 3714: Intro to Geotech Eng Lab (Fundamental Lab), 1cr
CEE 4534: Earth Pressures & Foundation Structures
CEE 4544: Design of Earth Structures
CEE 4564: Intro to Coastal & Marine Geotechnics
CEE 5500: Numerical Methods in Geotechnics
CEE 5504: Risk Analysis Geotechnical Engineering
CEE 5534: Foundation Engineering I
CEE 5544: Foundation Engineering II
CEE 5554: Soil & Site Improvement
CEE 5594: Geological Engineering
CEE 5874: Coastal & Marine Geotechnics

Water Resources Engineering

CEE 3314: Water Resources Eng (Fundamental)
CEE 3734: Water Resource Eng Lab (Fundamental Lab), 1cr
CEE 4304: Hydrology
CEE 4314: Groundwater Resources
CEE 4324: Open Channel Flow
CEE 4334: Hydraulic Structures
CEE 4344: Water Resources Planning
CEE 4364: Geospatial Analysis & Hydrologic Design
CEE 4384: Coastal Engineering
CEE 4394: Urban Water Sustainability
CEE 5304: Environmental Fluid Mechanics
CEE 5314: River Mechanics and Sediment Transport
CEE 5334: Analysis of Water Resources Systems
CEE 5364: Compound Flood Hazard Modeling
CEE 5384: Advanced Open Channel Flow
CEE 5390: Advanced Urban Water Sustainability

Transportation Engineering

CEE 3604: Intro to Transportation Eng (Fundamental)
CEE 4604: Traffic Engineering
CEE 4624: Planning Transportation Facilities
CEE 4654: Geometric Design of Highways
CEE 4674: Airport Planning & Design
CEE 4684: Transportation Safety
CEE 4694: Freight Operations
CEE 5204: GIS Applications in Civil Engineering
CEE 5600: Transportation Systems Analysis
CEE 5604: Traffic Characteristics & Flow
CEE 5614: Analysis of Air Transportation Systems
CEE 5624: Transportation & Land Use
CEE 5634: Analysis & Planning of Mass Transit Systems
CEE 5640: Highway Transportation Safety
CEE 5654: Critical Issues in Transportation

Interdisciplinary Electives, Independent Study, Undergraduate Research
CEE 4554: Natural Disaster Mitigation & Recovery
CEE 4824: Intro to Forensic Engineering
CEE 4844: BIM & Integrated Practices
CEE 4854: Machine Learning Applications in CEE
CEE 4974: Independent Study, 1-19 cr
CEE 4994: Undergraduate Research, 1-19 cr

Restricted Electives

Study Abroad
CEE 3954: Study Abroad, 1-19 cr

Programming
CS 1044: Intro to Programming in C
CS 1064: Intro to Programming in Python
CS 1114: Intro to Software Design
CS 2064: Intermediate Programming in Python

Engineering Fundamentals, Mechanics, & Materials
AOE 4054: Stability of Structures
BSE 3154: Thermodynamics of Biological Systems
CHE 2114: Mass and Energy Balances
ESM 3054: Mechanical Behavior of Materials
ESM 2304: Dynamics
ISE 3204: Manufacturing Processes
ME 2134: Thermodynamics
MSE 2034: Elements of Materials Engineering
MSE 4304: Metals and Alloys
SBIO 2124: Struct & Properties of Sustainable Biomaterials
SBIO 3324: Green Building Systems
SBIO 4314: Design of Wood Structures
SBIO 4714: Sustain Biomaterials in Buildings

Statistics and Math
MATH 3414: Numerical Methods
MATH 4564: Operational Methods for Engineers
STAT 4604: Statistical Methods for Engineers

Science
CHEM 1036: General Chemistry
PHYS 2306: Foundations of Physics
BIOL 1105: Principles of Biology
GEOS 3014: Environmental Geosciences
GEOG 3304: Geomorphology
GEOS 4634: Environmental Geochemistry
GEOS 4824: Engineering Geology

Public Policy and Planning
SPIA 2314: Active Transp for a Healthy Sustainable Planet
SPIA 2554: Collaborative Policy-Making & Planning
SPIA 3554: Transdisciplinary Problem Solv for Social Issues
SPIA 3704: Urban Contention & Mobilization
SPIA 4454: Future of Cities
SPIA 4464: Data & the Art of Policy-Making & Planning
UAP 3014: Urban Policy & Planning
UAP 3024: Urban & Regional Analysis
UAP 3224: Policy Implementation

Real Estate
REAL 4754: Real Estate Law
UAP 2004: Principles of Real Estate
REAL 2034: Real Estate Data Analysis

Sustainability, Environment, Climate Change
GEOG 2244: Sustainable Urbanization
AAEC 3314: Environmental Law
BSE 3324: Small Watershed Hydrology
BSE 4224: Field Methods in Hydrology
CEM 3074: Global Dsgn & Construction- Sustainable Dev
FREC 2124: Forests, Society & Climate
FREC 4464: Water Resources Policy & Economics
FREC 4784: Wetland Hydrology & Biogeochemistry
ENGR 3124: Intro to Green Engineering
ENGR 4134: Environmental Life Cycle Assessment
MINE 2114: Energy & Raw Material
SBIO 2504: Circular Econ Analytics for Sustainable Systems
UAP 3354: Intro to Environmental Policy and Planning
UAP 4374: Land Use & Environment
BSE 4344: Geographic Info Systems for Engineers
GEOG 2084: Principles of GIS
AAEC 2104: Personal Financial Planning
AAEC 3324: Environment & Sustainable Dev Economics
ECON 2005: Principles of Economics
ECON 2006: Principles of Economics
ISE 4304: Global Issues in Industrial Management

Construction
CEM 2714: Construction Safety Systems
CEM 4714: Construction Safety Culture
CEM 4724: Construction Safety Futures

Approved Minors
- Business (BUSR)
- Computer Science (CS)
- Data and Decisions (DTDC)
- Economics (ECAS)
- Engineering Science and Mechanics (ESM)
- Entrepreneurship-New Venture Growth (ENVG)
- Environmental Policy and Planning (EPP)
- Geographic Information Science (GIS)
- Geosciences (GEOS)
- Green Engineering (GREN)
- Industrial Design (IDS)
- Mathematics (MATH)
- Public and Urban Affairs (PUA)
- Real Estate (REAL)
- Smart and Sustainable Cities (SSC)
- Statistics (STAT)
- Watershed Management (WSM)

Fundamental and Advanced Electives (32 credits)

Fundamental and Advanced Electives must meet the following criteria:

1. Fundamental Electives: These include the CEE 3000-level Fundamental Lecture and Fundamental Lab elective and they count toward fulfilling degree core requirements (20 credits). Complete Fundamental Lecture courses in 6 of the 8 specialty areas. Within these six courses, two of the following three combinations of Fundamental Lecture and Fundamental Lab courses must be completed:
    a. CEE 3314-Water Resources Eng (3 cr) + CEE 3734-Water Resources Eng Laboratory** (1 cr)
    b. CEE 3514-Intro to Geotechnical Eng (3 cr) + CEE 3714-Intro to Geotechnical Eng Laboratory** (1 cr)
    c. CEE 3684-Civil Engineering Materials (3 cr) + CEE 3784-Civil Engineering Materials Laboratory** (1 cr)
2. Primary Specialty Area Advanced Electives: Complete two CEE 4000 or CEE 5000 level Advanced Electives in 1 of the 6 areas in which the fundamental course was completed in Step 1 (6 credits).
3. Secondary Specialty Area Advanced Electives: Complete one CEE 4000 or CEE 5000 level Advanced Elective in two additional specialty areas in which the fundamental course was completed in Step 1 (6 credits).
4. Design Project Advanced Elective: Within the selections made in Steps 2 and 3 above, complete at least one of the options listed below:
    a. CEE 4014 Estimating, Production, & Cost Engineering
    b. CEE 4104 Water & Wastewater Treatment Design
    c. CEE 4274 Land Development Design
    d. CEE 4334 Hydraulic Structures
    e. CEE 4364 Geospatial Analysis & Hydrologic Design
    f. CEE 4424 Design of Reinf Concrete Struct (3 cr) + CEE 4444 Topics in Struct Eng Design (1 cr)**
    g. CEE 4434 Intro to Steel Design (3 cr) + CEE 4444 Topics in Struct Eng Design (1 cr)**
    h. CEE 4544 Design of Earth Structures
    i. CEE 4654 Geometric Design of Highways
    j. CEE 4664 Pavement Design

**Corequisite requirement applies.

Interdisciplinary Electives, Independent Study, and Undergraduate Research courses do not satisfy the Fundamental and Advanced Electives requirements but may be taken to satisfy the Technical Electives.

Technical and Restricted Electives (12 credits)

Six credits of Technical Electives are earned by completing any of the CEE 3000, CEE 4000, or CEE 5000 level courses not previously completed, except for CEE 3954. These credits are in addition to courses used to fulfill the Fundamental and Advanced Electives; they cannot double count. Prerequisites may apply to some courses. CEE 4974 and CEE 4994 must be taken on a A-F grade basis to count for graduation credit as an Interdisciplinary Elective.

Six credit hours of Restricted Electives are earned by:

1) completing any of the CEE 3000, CEE 4000, CEE 5000 level courses not previously completed, or
2) completing courses in the list of approved Restricted Electives, or
3) completing a minor from the list of approved minors.

These credits are in addition to courses used to fulfill the Fundamental and Advanced Electives; they cannot double count. Prerequisites and enrollment restrictions may apply to some courses.

Graduate Level Courses

- Undergraduate students in their senior year with a 3.0 or better GPA may enroll in CEE 5000-level courses to satisfy one or more Advanced, Technical or Restricted Electives with the permission of the course instructor and the Department Head. Should the student become a graduate student, these courses may not be used on the Plan of Study for a graduate degree.
- Dual Student Status- Seniors in CEE who have a GPA of 3.0 or better may be eligible for *Dual* status during the final semester of their undergraduate degree. Graduate coursework taken during the semester of *Dual* registration may only be designated for use in the graduate degree when it is not used to meet bachelor's degree requirements. See your undergraduate advisor for more information. A grade of B or higher must be earned in each *Dual* course to be placed on the graduate transcript.
- Accelerated Undergraduate/Graduate Program- Seniors in CEE who have a GPA of 3.3 or better may be eligible for the *Accelerated Undergraduate/Graduate Program*. A maximum of 12 credits of graded coursework may be used in the accelerated program. See your undergraduate advisor for more information. A grade of B or higher must be earned in each course to be double counted.