

Civil Engineering Undergraduate Curriculum (UCORE) Fall 2018

FRESHMAN YEAR

First Semester

- (4) Chem 105 Principles of Chem I [PSCI]
(Pre Req.) 1 yr hs Chem or Chem 101; Math 106)
- (3) Creative & Prof Arts [ARTS]
- (3) English 101 Intro Writing [WRTG]
- (4) Math 171 Calculus I [QUAN] (Math108)¹
- (2) ENGR 120 Innovation in Design
- (16) Total Hours

Second Semester

- (4) Biol 102 OR MBioS 101² [BSCI]
- (3) History 105 [ROOTS]
- (4) Math 172 Calculus II (Math 171)¹
- (2) Math 220 Linear Algebra (Math 171 c//)
- (3) ECONS 101 OR 102 Micro/Macro [SSCI]
- (16) Total Hours

SOPHOMORE YEAR

First Semester

- (3) Diversity [DIVR]
- (3) CE 211 Statics(Math 172 c//; Phys 201 c//)¹
- (3) COM 102 OR (4) H D 205 [COMM] OR Humanities [HUM]
- (2) Math 273 Calculus III (Math 172)
- (4) Phys 201 Classical Phys [PSCI] (Math 171)¹
- (15/16) Total Hours

CERTIFY¹

Second Semester

- (3) ME 212 Dynamics (CE 211, Math 172)
- (3) CE 215 Mech of Materials (CE 211)
- (3) Stat 360 or 370 Statistics (Math 172)
- (2) EE 221 Numerical Computing for Engrs (Math 172, 220)
- (1) ME 220 Materials Lab (CE 215 c//)
- (4) Phys 202 Classical Phys (Phys 201) OR Geol 102³ OR Chem 106 (Chem 105)²
- (16) Total Hours

JUNIOR YEAR

Writing Portfolio must complete after 60 semester credits

First Semester

- (2) CstM 254 Construction Graphics (certified CE Major)
- (2) CE 302 Intro to Surveying (Math 171)⁷
- (3) CE 315 Fluid Mechanics (ME 212)⁷
- (4) CE 317 Geotech Engr (CE 215; CE315 c//) [M]⁷
- (3) CE Breadth Elective⁴
- (3) CE Breadth Elective⁴
- (17) Total Hours

Second Semester

- (3) CE Breadth Elective⁴
- (3) CE Breadth Elective⁴
- (2) CE 303 CE Computer Applications⁷
- (3) Math 315 Diff Equations (Math 273, 220 c//)
- (3) Engl 402 Technical Writing [WRTG] OR Com 400 Communicating Science & Technology [COMM]
- (3) MSE 201 Materials Science (Chem 105; Phys 201) OR ME 301 Thermodynamics (Phys 201) OR CE 320 Construction Materials (CE 211; CE 215; Engl 402c//Com 400c//)
- (17) Total Hours

SENIOR YEAR

All students required to take Fundamentals of Engineering Exam and fulfill the Experiential Requirement prior to graduation.

First Semester

- (3) CE 463 Engineering Administration
- (1) CE 466 FE Exam Review
- (3) CE Laboratory (CE400, 414, 415, 416)^{5,7}
- (9) CE Electives^{5,7}
- (16) Total Hours

Second Semester

- (3) CE 465 Integrated C E Des [M] [CAPS]^{6*}
- (1) CE 480 Ethics & Professionalism [M]⁷
- (3) Humanities [HUM] or Upper-Division CE elective
- (9) CE Electives^{5,7}
- (16) Total Hours

The alternate senior year schedules shown on the next page are offered to those students interested in studying with a Construction, Environmental, Water Resources, Structural, or Infrastructure engineering emphasis. This would substitute for the senior year above and complete the study schedule for the Bachelor of Science degree in Civil Engineering.

¹Classes that must be completed prior to certification.

²Course strongly recommended for students emphasizing environmental engineering.

³Course strongly recommended for students emphasizing structural, geotechnical or infrastructure engineering.

⁴Choose three courses from CE 322(Stat 360/370 c//)⁷, 330(CE 215)⁷, 341(Chem 105), and 351(CE 315)⁷ and one other upper-division CE elective; may opt to take all four 300 level courses.

Environmental Engineering Emphasis

First Semester

- (3) CE 402 Applied Meteorology (Math 172/182; Physics 201)⁵
 - (3) Humanities [HUM]
 - (3) CE 415 Env Meas (CE 341; Stat 360/370 or c//)^{5,7}
 - (3) CE 418 Hazardous Waste Eng. (CE 341)⁵
 - (3) CE 463 Engineering Administration
 - (1) CE 466 FE Exam Review
- (16) Total Hours

Second Semester

- (3) CE 401 Climate Change Science and Engineering (Chem 105; Math 172; Physics 201)^{5,7}
 - (3) CE 403 Air Quality Management⁵
 - OR CE 419 Hazardous Waste Treatment (CE 418)⁵
 - (3) CE 442 Water/Waste (CE 341)⁵
 - (3) CE 465 Integrated C E Des [M] [CAPS]^{6*}
 - (1) CE 480 Ethics & Professionalism [M]⁷
 - (3) CE 405 Sustainability: The Green Environment⁵
- (16) Total Hours

Water Resources Emphasis

First Semester

- (3) Humanities [HUM]
 - (3) CE 451 Open Channel Flow (CE 351)⁵
 - (3) CE 450 Hydraulic Engineering Design (CE 351)⁵
 - (3) CE 463 Engineering Administration
 - (3) CE 475 Groundwater (CE 317; Math 172/182c//)⁵
 - (1) CE 466 FE Exam Review
- (16) Total Hours

Second Semester

- (3) CE 416 Hydraulics Lab (CE 315; Stat 360/370 or c//)^{5,7}
 - (3) CE 460 Advanced Hydrology (CE 351)⁵
 - (3) CE Elective⁵
 - (3) CE 465 Integrated C E Des [M] [CAPS]^{6*}
 - (1) CE 480 Ethics & Professionalism [M]⁷
 - (3) CE 405 Sustainability: The Green Environment⁵
- (16) Total Hours

Structural Engineering Emphasis

Breadth Electives, First Junior Semester

- (3) CE 330 Structural Engineering (CE 215)
- (3) CE 322 Transportation Engr (Stat 360/370 c//; CE 302 c//)

First Senior Semester

- (3) CE 463 Engineering Administration
 - (3) CE 430 Analysis of Indeterminate Structures (CE 330; Math 220; EE 221)^{5,7}
 - (3) CE 433 Reinforced Concrete Des. (CE 414)^{5,7}
 - (3) CE 436 Design of Timber Structures (CE 414)^{5,7}
 - (3) CE 400 CE Materials (Stat 360 /370c//; ME 220)^{5,7}
 - (1) CE 466 FE Exam Review
- (16) Total Hours

Breadth Electives, Second Junior Semester

- (3) CE 351 Water Resource Engr (CE 315)
- (3) CE 414 Structural Design (CE 330; Stat 360/370 or c//)^{5,7}

Second Senior Semester

- (3) CE 431 Structural Steel Design (CE 414)^{5,7}
 - (3) CE 434 Prestressed Concrete & Masonry (CE 433)^{5,7}
 - (3) CE 465 Integrated C E Des [M] [CAPS]^{6*}
 - (1) CE 480 Ethics & Professionalism [M]⁷
 - (3) CE Elective [CE 435 recommended (CE 317)^{5,7}]
 - (3) Humanities [HUM]
- (16) Total Hours

Infrastructure Engineering Emphasis

Breadth Electives, First Junior Semester

- (3) CE 322 Transportation Engr (Math/Stat 360/370 c//; CE 302 c//)
- (3) CE 341 Environmental Engr (Chem 105)

First Senior Semester

- (3) CE 400 CE Materials (Stat 360 /370c//; ME 220)^{5,7}
 - (3) CE 476 Pavement Management and Rehabilitation (CE 317)^{5,7}
 - (3) CE 414 Structural Design (CE 330; Math/Stat 360 /370 or c//)^{5,7}
 - (3) CE 463 Engineering Administration
 - (3) CE 425 Soil and Site Improvement (CE 317)^{5,7}
 - (1) CE 466 FE Exam Review
- (16) Total Hours

Breadth Electives, Second Junior Semester

- (3) CE 330 Structural Engineering (CE 215)
- (3) CE 473 Pavement Design (CE 317; CE 322 c//; Econs 101/102)^{5,7}

Second Senior Semester

- (3) CE 433 Reinforced Concrete Design (CE 414)^{5,7} OR CE 405 Sustainability: Green Engr^{5,7}
 - (3) CE 435 Foundations (CE 317)^{5,7}
 - (3) CE 465 Integrated C E Des [M] [CAPS]^{6*}
 - (1) CE 480 Ethics & Professionalism [M]⁷
 - (3) CE 472 Durable & Sustainable Pavementt & Bridges (CE 215)^{5,7}
 - (3) Humanities [HUM]
- (16) Total Hours

⁵Elective Courses: The total credit hours for elective courses must be distributed such that at least 3 courses, not including the lab, are design emphasis in order for a student to qualify for a degree. CE electives including CE laboratory will be selected from at least two different areas (construction, environmental, geotechnical, hydraulics, structural, sustainability, and transportation/pavement). CstM 462 and CstM 466 are approved as elective courses.

⁶CE 465 must be taken in the final semester. *Two CE elective courses must be completed before enrollment in CE 465.

⁷Certified major in CE, or instructor permission required.