Civil Engineering Undergraduate Curriculum (UCORE) Fall 2023

FRESHMAN YEAR

First Semester

(4) Chem 105 Principles of Chem I [PSCI]
((Pre Req.) 1 yr hs Chem or Chem 101; Math 106)
(3) UCORE Inquiry[7]
(3) English 101 Intro Writing [WRTG]
(4) Math 171 Calculus I [QUAN] (Math108) [1]
(2) ENGR 120 Innovation in Design

(16) Total Hours

ADMIT TO MAJOR[1]

Second Semester

(3) Biological Sciences [BSCI]
(3) History 105 [ROOTS]
(4) Math 172 Calculus II (Math 171)
(2) Math 220 Linear Algebra (Math 171 c//)
(3) ECONS 101 **OR** 102 Micro/Macro [SSCI]

(15) Total Hours

SOPHOMORE YEAR

First Semester

(3) UCORE Inquiry[7]
(3) CE 211 Statics(Math 172 c//; Phys 201 c//)
(3) UCORE Inquiry[7]
(2) Math 273 Calculus III (Math 172)
(4) Phys 201 & 211 Classical Phys [PSCI] (Math 171)

(15) Total Hours

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) CE 203 CE Computer Applications[6]
(1) ME 220 Materials Lab (CE 215 c//)
(4) Phys 202 & 212 Classical Phys (Phys 201) **OR** SOE 101 or 102[3] **OR** Chem 106 (Chem 105)[2]

(16) Total Hours

JUNIOR YEAR

Writing Portfolio must be completed after 60 semester credits

First Semester

(2) CstM 254 Construction Graphics[6]
(2) CE 302 Intro to Surveying (Math 171)[6]
(3) CE 315 Fluid Mechanics (ME 212)[6]
(4) CE 317 Geotech Engr (CE 215; CE315 c//) [M][6]
(3) CE 330 Structural Engineering (CE 215)[6]
(3) CE 341 Environmental Engineering(Chem 105)

(17) Total Hours

Second Semester

(3) CE 322 Transportation Engineering (Stat 360/370 c//)[6]
(3) CE 351 Water Resource Engineering (CE 315)[6]
(2) CE 321 Numerical Methods for Civ. Engr (Math 273, Math 220)[6]
(3) Math 315 Diff Equations (Math 273, 220 c//)
(3) Engl 402 Technical Writing [WRTG] **OR** Com 400 Communicating Science & Technology [COMM][3]
(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//)[6]

(17) Total Hours

SENIOR YEAR

All students required to fulfill the Experiential Requirement prior to graduation. Recommended to take (FE) Fundamentals of Engineering Exam.

First Semester

(3) CE 463 Engineering Administration[6]
(1) CE 480 Ethics & Professionalism [M][6]
(3) CE Laboratory (CE400, 415, 416)[4,6]
(9) CE Electives[4,6]

(16) Total Hours

Second Semester

(4) CE 465 Integrated C E Des [M] [CAPS][5,6]*
(3) COM 102 **OR (4)** H D 205 [COMM] or Upper-Division CE elective
(9) CE Electives[4,6]

(16) Total Hours

The alternate senior year schedules shown on the next page are offered to those students interested in studying with an 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.

[1]Incoming first-year student or change of major student ready to take Math 171 or a higher math course are directly admitted to the major.
[2]Course strongly recommended for students emphasizing environmental engineering.
[3]Course strongly recommended for students emphasizing structural, geotechnical or infrastructure engineering.
[4] Elective 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.

Environmental Engineering Emphasis

First Semester	***Second Semester***
(3) CE 402 Applied Meteorology (Math 172/182; Physics 201)[4,6]	**(3)** CE 401 Climate Change Science and Engineering (Chem 105; Math 172; Physics 201)[4,6]
OR CE 407 Stormwater (CE 341 or CE 351)[4,6]	**(3)** CE 403 Air Quality Management4,[6]
(3) COM 102 **OR (4)** H D 205 [COMM] OR CE Elective	**(3)** CE 419 Hazardous Waste Treatment (CE 418)[4,6]
(3) CE 415 Env Meas (CE 341; Stat 360/370 or c//)[4,6]	**(3)** CE 442 Water/Waste (CE 341)[4,6]
(3-4) CE 418 Hazardous Waste Eng. (CE 341)[4,6]	**(4)** CE 465 Integrated C E Des [M] [CAPS][5,6]*
(3) CE 463 Engineering Administration	
(1) CE 480 Ethics & Professionalism [M][6]	
(16-17) Total Hours	**(16)** Total Hours

Water Resources Emphasis

First Semester	***Second Semester***
(3) COM 102 **OR (4)** H D 205 [COMM] OR CE Elective	**(3)** CE 416 Hydraulics Lab (CE 315; Stat 360/370 or c//)[4,6]
(3) CE 450 Design and Simulation of WR Systems (CE 351; EE 221 or CE 321)[4,6]	**(3)** CE 460 Advanced Hydrology (CE 351)[4,6]
(3) CE 456 Sustainable Dev. in Water Resources (CE 351; EE 221 or CE 321)[4,6]	**(3)** CE 451 Open Channel Flow (CE 351)[4,6]
(3) CE 407 Stormwater (CE 341 or CE 351)[4,6]	**(4)** CE 465 Integrated C E Des [M] [CAPS][5,6]*
(3) CE 475 Groundwater (CE 317; Math 172/182c//)[4,6]	**(3)** CE 463 Engineering Administration[6]
(1) CE 480 Ethics & Professionalism [M][6]	
(16) Total Hours	**(16)** Total Hours

Structural Engineering Emphasis

First Junior Semester	***Second Junior Semester***
(3) CE 330 Structural Engineering (CE 215)[6]	**(3)** CE 351 Water Resource Engr (CE 315)[6]
(3) CE 322 Transportation Engr (Stat 360/370 c//; CE 302 c//)[6]	**(3)** CE 414 Structural Design Loads (CE 330; Stat 360/370 or c//)[4,6]
First Senior Semester	***Second Senior Semester***
(3) CE 463 Engineering Administration[6]	**(3)** CE 431 Structural Steel Design (CE 414)[4,6]
(3) CE 430 Analysis of Indeterminate Structures (CE 330; Math 220; EE 221 or CE 321)[4,6]	**(3)** CE 434 Masonry Design (CE 414)[4,6]
(3) CE 433 Reinforced Concrete Des. (CE 414)[4,6]	**(4)** CE 465 Integrated C E Des [M] [CAPS][5,6]*
(3) CE 436 Design of Timber Structures (CE 414)[4,6]	**(3)** CE Elective [CE 435 recommended (CE 317)[4,6]]
(3) CE 400 CE Materials (Stat 360 /370c//; ME 220)[4,6]	**(3)** CE 341 Environmental Engr (Chem 105)
(1) CE 480 Ethics & Professionalism [M][6]	
(16) Total Hours	**(16)** Total Hours

Infrastructure Engineering Emphasis

First Junior Semester	***Second Junior Semester***
(3) CE 322 Transportation Engr (Math/Stat 360/370 c//; CE 302 c//)[6]	**(3)** CE 341 Environmental Engr (Chem 105)[6]
(3) CE 330 Structural Engineering (CE 215)[6]	**(3)** CE 414 Structural Design Loads (CE 330; Stat 360/370 or c//)[4,6]
First Senior Semester	***Second Senior Semester***
(3) CE 400 CE Materials (Stat 360 /370c//; ME 220)[4,6]	**(3)** CE 463 Engineering Administration
(3) CE 351 Water Resource Engr (CE 315)[6]	**(3)** CE 435 Foundations (CE 317)[4,6]
(3) CE 476 Pavement Mgmt. and Rehabilitation (CE 317)[4,6] OR CE 405 Sustainable Infrastructure[4,6]	**(4)** CE 465 Integrated C E Des [M] [CAPS][5,6]*
(3) CE 433 Reinforced Concrete Design (CE 414)[4,6]	**(3)** CE 472 Durable & Sustainable Pavementt & Bridges (CE 215)[4,6]
(3) CE 425 Soil and Site Improvement (CE 317)[4,6]	**(3)** CE 473 Pavement Design (CE 317; CE 322 c//; Econs 101/102)[4,6]
(1) CE 480 Ethics & Professionalism [M][6]	
(16) Total Hours	**(16)** Total Hours

[5]CE 465 must be taken in the final semester. *Two CE elective courses must be completed before enrollment in CE 465.
[6]Admitted major in CE, or instructor permission required.

[7]UCORE Inquiry: Must complete 3 of these 4 UCORE designations: ARTS, DIVR, EQJS, or HUM.