

Construction Engineering Undergraduate Curriculum (UCORE) Fall 2021

FRESHMAN YEAR

| <u>First Semester</u> | <u>Second Semester</u> |
|--|---|
| <p>(4) Chem 105 Principles of Chem I [PSCI] (Pre Req.) 1 yr hs Chem or Chem 101; Math 106)</p> <p>(3) ECON 101 or 102 Micro or Macro Econ [SSCI]</p> <p>(3) History 105 [ROOTS]</p> <p>(3) Humanities [HUM]</p> <p>(4) Math 171 Calculus I [QUAN] (Math108)</p> <p>(17) Total Hours</p> <p style="text-align: center;">ADMIT TO MAJOR¹</p> | <p>(3) Biological Sciences [BSCI]</p> <p>(3) Creative & Prof Arts [ARTS]</p> <p>(4) Math 172 Calculus II (Math 171)</p> <p>(3) English 101 Intro Writing [WRTG]</p> <p>(2) CstM 102 Intro to CM</p> <p>(15) Total Hours</p> |

SOPHOMORE YEAR

| <u>First Semester</u> | <u>Second Semester</u> |
|--|---|
| <p>(3) Diversity [DIVR]</p> <p>(3) CE 211 Statics(Math 172 c//; Phys 201 c//)</p> <p>(2) CstM 254 Construction Graphics²</p> <p>(3) Phys 201 Classical Phys [PSCI] (Math 171)</p> <p>(1) Phys 211 Physics Lab (Phys 211 c//)</p> <p>(4) SOE 101 or 102 Geology</p> <p>(16) Total Hours</p> <p style="text-align: center;">ADMIT TO MAJOR¹</p> | <p>(3) ME 212 Dynamics (CE 211, Math 172)</p> <p>(3) CE 215 Mech of Materials (CE 211)</p> <p>(3) Stat 360 or 370 Statistics (Math 172)</p> <p>(1) ME 220 Materials Lab (CE 215 c//)</p> <p>(4) Math/Science Electives³</p> <p>(2) CE 203 CE Computer Applications²</p> <p>(16) Total Hours</p> |

JUNIOR YEAR

Writing Portfolio must be completed after 60 semester credits

| <u>First Semester</u> | <u>Second Semester</u> |
|---|---|
| <p>(2) ConE 252 Const. Admin (CstM 254 c//; junior standing)²</p> <p>(2) CE 302 Intro to Surveying (Math 171)²</p> <p>(3) CE 315 Fluid Mechanics (ME 212)²</p> <p>(3) Com 400 Technical Communication [COMM]</p> <p>(3) CE 330 Structural Engineering (CE 215)²</p> <p>(3) ConE 360 H/C Estimating 1 (ConE 252 c//)²</p> <p>(16) Total Hours</p> | <p>(3) Professional Elective⁴</p> <p>(3) CstM 356 Earthwork & Equipment²</p> <p>(2) ConE 351 Delivery Systems (ConE 252)²</p> <p>(4) CE 317 Geotech Engr (CE 215; CE315 c//)² [M]</p> <p>(3) ConE 361 H/C Estimating 2 (ConE 360)²</p> <p>(15) Total Hours</p> |

SENIOR YEAR

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

| <u>First Semester</u> | <u>Second Semester</u> |
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| <p>(3) CE 463 Engineering Admin.²</p> <p>(1) CE 480 Ethics & Professionalism (Senior standing) [M]²</p> <p>(3) CstM 460 Construction Cost Accounting²</p> <p>(3) CstM 462 Plan & Scheduling (CE 317)²</p> <p>(3) CE 400 Highway Materials (ME 220; Stat 360 /370c//)²</p> <p>(3) Professional Elective⁴</p> <p>(16) Total Hours</p> | <p>(4) CE 465 Integrated C E Des [M] [CAPS]^{2,5}</p> <p>(3) CstM 473 Human Productivity²</p> <p>(3) CstM 484 Temporary Structures²</p> <p>(3) CstM 368 Safety & Health²</p> <p>(3) Professional Elective⁴</p> <p>(16) Total Hours</p> |

The professional elective schedules shown on the next page are suggested for those students interested in studying with a Structures/Buildings, Infrastructure/Pavement, Foundations/Heavy Civil, Environmental Facilities, or General Civil emphasis.

Structures/Buildings Emphasis

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|---|--|
| <u>Required course</u> | <u>Elective courses (Choose two)</u> |
| (3) CE 414 Struct. Design Loads(CE 330; Stat 360/70 c//) ^{2,3} | (3) CE 431 Steel Design (CE 414) ^{2,3} (3) CE 433 Reinforced Concrete Design (CE 414) ^{2,3} (3) CE 436 Timber Design (CE 414) ^{2,3} |

Infrastructure/Pavement Emphasis

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|--|--|
| <u>Required courses</u> | <u>Elective course (Choose one)</u> |
| (3) CE 322 Transportation Engineering ^{2,3} (3) CE 473 Pavement Design (CE 317; CE 322 c//) ^{2,3} | (3) CE 425 Soil and Site Improvement (CE 317) ^{2,3} (3) CE 472 Durable and Sustainable Pavement (CE 215) ^{2,3} (3) CE 474 Intermediate Transportation Engr. (UI) (3) CE 476 Pavement Evaluation (CE 317) ^{2,3} |

Foundations/Heavy Civil Emphasis

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|---|--------------------------------|
| <u>Required courses</u> | <u>Elective courses</u> |
| (3) CE 414 Struct. Design Loads (CE 330; Stat 360/70 c//) ^{2,3} (3) CE 433 Reinforced Concrete Design (CE 414) ^{2,3} (3) CE 435 Foundations (CE 317) ^{2,3} | N/A |

Environmental Facilities Emphasis

| | |
|--|--|
| <u>Required courses</u> | <u>Elective course (Choose one)</u> |
| (3) CE 341 Environmental Engineering (Chem 105) ³ (3) CE 442 Water/Waste (CE 341) ^{2,3} | (3) CE 351 Water Resources Engr. (CE 315) ^{2,3} (3) CE 407 Stormwater (CE 341 or CE 351) ^{2,3} (3) CE 415 Environmental Measurements (CE 341; Stat 360/70 c//) ^{2,3} (3) CE 416 Hydraulic Lab (CE 315; Stat 360/70 c//) ^{2,3} (3-4) CE 418 Hazardous Waste Engr. (CE 341) ^{2,3} |

General Civil Emphasis

| | |
|---|---|
| <u>Required courses (Choose one)</u> | <u>Elective courses (Choose two)</u> |
| (3) CE 403 Air Quality Management (CE 341) ^{2,3} (3) CE 419 Hazardous Waste Treatment (CE 418) ^{2,3} (3) CE 425 Soil and Site Improvement (CE 317) ^{2,3} (3) CE 431 Steel Design (CE 414) ^{2,3} (3) CE 433 Reinforced Concrete Design (CE 414) ^{2,3} (3) CE 434 Masonry Design (CE 414) ^{2,3} (3) CE 435 Foundations (CE 317) ^{2,3} (3) CE 436 Timber Design (CE 414) ^{2,3} (3) CE 442 Water/Waste (CE 341) ^{2,3} (3) CE 451 Open Channel Flow (CE 351) ^{2,3} (3) CE 460 Engineering Hydrology (CE 351) ^{2,3} (3) CE 473 Pavement Design (CE 317; CE 322 c//) ^{2,3} (3) CE 474 Intermediate Transportation Engr. (UI) (3) CE 476 Pavement Evaluation (CE 317) ^{2,3} | All courses in left column eligible as electives Other eligible electives listed below (3) CE 320 Construction Materials (CE 215; Com 400/Engr 402 c//) ^{2,3} (3) CE 322 Transportation Engineering (Stat 360/70 c//) ^{2,3} (3) CE 341 Environmental Engineering (Chem 105) ³ (3) CE 351 Water Resources Engr. (CE 315) ^{2,3} (3) CE 401 Climate Change Engr. (Chem 105; Math 172; Phys 201/11) ^{2,3} (3) CE 402 Applied Meteorology (Math 172; Phys 201/11) ^{2,3} (3) CE 405 Sustainable Infr. ^{2,3} (3) CE 407 Stormwater (CE 341 or CE 351) ^{2,3} (3) CE 414 Struct. Design Loads (CE 330; Stat 360/70 c//) ^{2,3} (3) CE 415 Environmental Measurements (CE 341; Stat 360/70 c//) ^{2,3} (3) CE 416 Hydraulic Lab (CE 315; Stat 360/70 c//) ^{2,3} (3-4) CE 418 Hazardous Waste Engr. (CE 341) ^{2,3} (3) CE 472 Durable and Sustainable Pavement (CE 215) ^{2,3} (3) CE 475 Groundwater (CE 317; Math 172 c//) ^{2,3} |

¹ Incoming first-year, transfer, and change of major students ready to take Math 171 or a higher math course are directly admitted to the major.
²Courses requiring admission to major in Construction Engineering.
³ Students may select either 4 credits of Math (Math 220, Math 273) or one lab-based science elective (Phys 202 + 212, Chem 106, SOE 110, or SOE 210)
⁴ Students must choose an area of emphasis and complete the required courses and additional professional electives: 1) Structures/Buildings: CE 414; two of CE 431, 433, or 436 2) Infrastructure/Pavement: CE 322, 473; one of CE 425, 472, 474 or 476 3) Foundations/Heavy Civil: CE 414, 433, 435 4) Environmental Facilities: CE 341, 442; one of CE 351, 407, 415, 416, or 418 5) General Civil: At least 9 credits of 300-400 level CE courses not used for other major requirements. 3 credits must be one of the following 400-level CE design courses: CE 403, 419, 425, 431, 433, 434, 435, 436, 442, 451, 460, 473, 474, or 476.
⁵ CE 465 to be taken in the final semester.