Department of Civil & Environmental Engineering
Departmental Electives: Civil Engineering
Effective Fall 2022

***Science Technical Electives** for Civil Engineering (3 credits required)*

- These courses will ONLY fulfill the "Science Technical Elective" category and **cannot** be used to fulfill the requirements for "Engineering Technical Elective" or additional "Technical Elective" listed below.

Course Number and Title	Credits
BSPM 102 Insects, Science, and Society	3 credits
BZ 110 Principles of Animal Biology	3 credits
BZ120 Principles of Plant Biology	4 credits
GEOL120 Exploring Earth: Physics Geology	3 credits
GEOL 122 The Blue Planet: Geology of the Environment	3 credits
GEOL150 Physical Geology for Scientists and Engineers	4 credits
HORT/SOCR 171 Environmental Issues in Agriculture	3 credits
LAND/LIFE 220 Fundamentals of Ecology	3 credits
LIFE102 Attributes of Living Systems	4 credits
MIP 149 Microbial World	3 credits
NR 120A Environmental Conservation	3 credits
NR 130 Global Environmental Systems	3 credits
NR 150 Oceanography	3 credits
SOCR 240 Introductory Soil Science	4 credits

***Engineering Technical Electives** for Civil Engineering (at least 9 credits required)*

Course Number and Title	Credits
CIVE 305 Intermediate AutoCAD	3 credits
CIVE 330 Ecological Engineering	3 credits
CIVE 405 Sustainable Civil/Environmental Engineering	3 credits
CIVE 413 Environmental River Mechanics	3 credits
CIVE 423 Groundwater Engineering	3 credits
CIVE 437 Wastewater Treatment Fac. Design	3 credits
CIVE 439 Environmental Engineering Chemical Concepts	3 credits
CIVE 440 Nonpoint Source Pollution	3 credits
CIVE 442 Air Quality Engineering	3 credits
CIVE 455 Applications in Geotechnical Engineering	3 credits
CIVE 458 Environmental Geotechnics	3 credits
CIVE 502 Fluid Mechanics	3 credits
CIVE 507 Transportation Engineering	3 credits
CIVE 508 Bridge Engineering	3 credits
CIVE 510 Applied Hydraulic System Design	3 credits
CIVE 511 Coastal Engineering	3 credits

CIVE 512 Irrigation Systems Design	3 credits
CIVE 514 Hydraulic Structures/Systems	3 credits
CIVE 519 Irrigation Water Management	3 credits
CIVE 521 Hydrometry	3 credits
CIVE 524 Modeling Watershed Hydrology	3 credits
CIVE 525 Water Engineering: International Development	3 credits
CIVE 526 Pollution, Exposure, and the Environment	3 credits
CIVE 529 Environmental Organic Chemistry	3 credits
CIVE 530 Env Engr at the Water-Energy-Health Nexus	3 credits
CIVE 531 Groundwater Hydrology	3 credits
CIVE 532 Wells and Pumps	3 credits
CIVE 533 Biomolecular Tools for Engineers	3 credits
CIVE 538 Aqueous Chemistry	3 credits
CIVE 540 Advanced Biological Wastewater Processing	3 credits
CIVE 541 Environmental Unit Operations Treatment/Design	3 credits
CIVE 542 Water Quality Modeling	3 credits
CIVE 544 Water Resources Planning and Management	3 credits
CIVE 547 Statistics for Environmental Monitoring	3 credits
CIVE 549 Drainage and Wetlands Engineering	3 credits
CIVE 550 Foundation Engineering	3 credits
ENGR 550 Numerical Methods in Science and Engineering	3 credits
CIVE 555 Mining Engineering	3 credits
CIVE 556 Seepage and Earth Dams	3 credits
CIVE 558 Containment Systems for Waste Disposal	3 credits
CIVE 559 Special Topics in Geotechnical Engineering	3 credits
CIVE 560 Advanced Mechanics of Materials	3 credits
CIVE 561 Advanced Steel Behavior and Design	3 credits
CIVE 562 Fundamentals of Vibrations	3 credits
CIVE 565 Finite Element Method	3 credits
CIVE 566 Intermediate Structural Analysis	3 credits
CIVE 567 Advanced Concrete Design	3 credits
CIVE 568 Design of Masonry and Wood Structures	3 credits
CIVE 571 Pipeline Engineering and Hydraulics	3 credits
CIVE 572 Analysis of Urban Water Systems	3 credits
CIVE 573 Urban Stormwater Management	3 credits
CIVE 574 Civil Engineering Project Management	3 credits
CIVE 575 Sustainable Water and Waste Management	3 credits
CIVE 576 Engineering Applications of GIS & GPS	3 credits
CIVE 578 Infrastructure and Utility Management	3 credits
CIVE 580 Material Point Method	3 credits

Additional Technical Electives** **for Civil Engineering (only 3 credits total from a 4 or 5 credit course will be applied toward a Technical Elective from this list).

- Students may select from the list of courses below or select an additional course from the above list of approved “Engineering Technical Electives” to fulfill this requirement.

Course Number and Title	Credits
AA 301 Astrophysics I	5 credits
BC 351 Principles of Biochemistry	4 credits
CHEM 245 Fundamentals of Organic Chemistry	4 credits
CHEM 345 Organic Chemistry	4 credits
*°CON 365 Construction Estimating II	3 credits
*°CON 367 Construction Contracts and Project Administration	3 credits
*CON 370 Asphalt Pavement Materials & Construction	3 credits
*°CON 461 Construction Project Scheduling & Cost Control	3 credits
*°CON 496 Precast Bootcamp	1 credit
ERHS 446 Environmental Toxicology	3 credits
+*FIN 305 Fundamentals of Finance	3 credits
GEOL 442 Applied Geophysics	4 credits
LIFE 320 Ecology	3 credits
MATH 332 Partial Differential Equations	3 credits
MATH 369 Linear Algebra	3 credits
+*MGT 305 Fundamentals of Management	3 credits
MIP 300 General Microbiology	3 credits
+*MKT 305 Fundamentals of Marketing	3 credits
NR 319 Introduction to Geospatial Science	4 credits
NR 323 Remote Sensing and Image Interpretation	3 credits

Please Note:

***These courses may require approval from the respective Department/College to enroll**

°These course count towards the Construction Management Minor

+At most, one course in business management or economics at the 300-level or above may be counted towards