Civil Engineering

The School of Civil, Environmental, and Infrastructure Engineering provides educational opportunities that will prepare students for effective and productive careers in Civil Engineering and other related professions. Continued professional growth, discovery, innovation and development of technologies, and service to the community are characteristics of this area of study.

The primary mission of the school is to prepare students for careers that will span forty years or more. Most civil and environmental engineers will be employed by public agencies at all levels of government, by various industries, and by a variety of large and small consulting firms. Virtually all of this practice relates in some way to the health, safety, and welfare of the general public. Those involved in this field will need to possess the ability to conceptualize, plan, design, and construct new and innovative works and systems. Technical knowledge of great sophistication will be needed, as well as an understanding of the interrelated social, political, and environmental issues that will be key elements in the decision making process.

Preparing engineers for this role requires a broad liberal education program as well as one of technical depth and breadth. The undergraduate core curriculum is broad-based and includes courses in mathematics, science, communication, and social science. The civil engineering curriculum begins with fundamental engineering skills and ends with a two-semester capstone design experience. Students are required to take courses in environmental engineering, geotechnical engineering, hydraulic engineering, structural engineering, and surveying.

Program Educational Objectives

The educational goal of the undergraduate civil engineering program is to provide a quality civil engineering education that will prepare our graduates to become practicing professionals able to meet the technological challenges of the 21st century. To this end we strive to instill in our graduates the knowledge, skills, attitudes, and ethical and social values necessary to be successful civil engineering practitioners. Also, we seek to provide the necessary academic background for successful graduate study in engineering or other fields. To meet this goal, we have defined the following objectives that describe what our graduates are expected to attain within three to five years after graduation.

1. Become productive professionals and successfully formulate cost-effective solutions to real-world problems that are fundamental to civil engineering and related fields.
2. Successfully pursue advanced degrees, professional licensure and professional development activities that support life-long learning.
3. Successfully serve the public and improve the quality of life by acting in a professional, safe, and ethical manner.
4. Advance towards leadership positions through effective contribution to multidisciplinary teams.

The program is designed to provide the students with the broad educational background essential to civil engineering practice with emphases in the areas of environmental engineering, geotechnical engineering, hydraulic engineering, and structural engineering. Students may choose to specialize in the area of Environmental Engineering. The program offers sufficient number of courses in the structural engineering area to qualify for structural engineer (SE) license exam.

The School of Civil, Environmental, and Infrastructure Engineering offers a program leading to a Bachelor of Science degree in Civil Engineering. Students may choose to earn a Bachelor of Science degree in Civil Engineering with specialization in Environmental Engineering.

The undergraduate program in civil engineering is accredited by the Engineering Accreditation Commission of ABET, abet.org.

Bachelor of Science (B.S.) in Civil Engineering

Students are required to complete all pre-requisites before they are allowed to take a course. Courses listed as co-requisites or “completion of or concurrent enrollment” can be taken together with the course however, these courses must be completed before or in that semester in order to enroll in the next level course.

B.S. Civil Engineering Degree Requirements

Degree Requirements		Credit Hours
University Core Curriculum Requirements [1]		39
Foundation Skills		13
UNIV 101 [2]	1	
ENGL 101, ENGL 102	6	
MATH 150	3	
CMST 101	3	
Disciplinary Studies		23
Fine Arts	3	
Human Health (BIOL 202 or an approved substitute)	2	
Humanities [3]	6	
Science (see required PHYS and CHEM in major)	6	
Social Science	3	
ECON 240	3	
Integrative Studies		3
Multicultural	3	
Requirements for Major in Civil Engineering		(11)+88
Basic Sciences		(8)+9
Human Health (BIOL 202 or an approved substitute)	(2)	
CHEM 200, CHEM 201, CHEM 210	(3)+4	
PHYS 205A, PHYS 205B, PHYS 255A, PHYS 255B	(3)+5	
Mathematics		(3)+14
MATH 150, MATH 250, MATH 251, MATH 305	(3)+11	

Degree Requirements		Credit Hours
ENGR 351	3	
Required Engineering Courses: ENGR 250, ENGR 261, ENGR 350A, ENGR 370A		12
Required CE Courses: CE 251, CE 263, CE 301, CE 310, CE 310L, CE 320, CE 320L, CE 330, CE 340, CE 418, CE 421, CE 442, CE 444, CE 474, CE 495A, CE 495B [4]		41
Technical Elective: [5]		12
Total [6]		127

[1] Courses required for the major will apply toward nine hours of University Core Curriculum, making a total of 39 in that area. Number of UCC credit hours required for transfer students admitted under capstone option may be less than 39.

[2] Required only for students who have completed less than 12 credit hours after high school graduation.

[3] School requirements for University Core Curriculum are more restrictive than those of the University as a whole. Students should consult advisor for approved courses. Students transferring from other programs or institutions will be required to meet the University Core Curriculum requirements for engineering students.

[4] CE 495A and CE 495B must be completed at SIU Carbondale. In addition, all required 400-level Civil Engineering courses and at least 2 technical electives must be completed at SIU Carbondale, unless approved by the Director of the School of CEIE.

[5] Approved technical electives: CE 331 and CE 400-level courses.

[6] Total number of credit hours required for graduation may be different for transfer students. However, all students are required to complete all major specific math, science, and engineering courses.

Environmental Engineering Specialization

Students are required to complete all pre-requisites before they are allowed to take a course. Courses listed as co-requisites or “completion of or concurrent enrollment” can be taken together with the course however, these courses must be completed before or in that semester in order to enroll in the next level course.

B.S Civil Engineering - Environmental Engineering Specialization Degree Requirements

Degree Requirements		Credit Hours
University Core Curriculum Requirements [1]		39
Foundation Skills		13
UNIV 101 [2]	1	

Degree Requirements		Credit Hours
ENGL 101, ENGL 102	6	
MATH 150	3	
CMST 101	3	
Disciplinary Studies		23
Fine Arts	3	
Human Health (BIOL 202 or an approved substitute)	2	
Humanities [3]	6	
Science (see required PHYS and CHEM in major)	6	
Social Science	6	
ECON 240	3	
Integrative Studies		3
Multicultural	3	
Requirements for Major in Civil Engineering		(11)+88
Basic Sciences		(8)+9
Human Health (BIOL 202 or an approved substitute)	(2)	
CHEM 200, CHEM 201, CHEM 210	(3)+4	
PHYS 205A, PHYS 205B, PHYS 255A, PHYS 255B	(3)+5	
Mathematics		(3)+14
MATH 150, MATH 250, MATH 251, MATH 305	(3)+11	
ENGR 351	3	
Required Engineering Courses: ENGR 250, ENGR 261, ENGR 350A, ENGR 370A		12
Required CE Courses: CE 251, CE 263, CE 301, CE 310, CE 310L, CE 320, CE 320L, CE 330, CE 340, CE 418, CE 421, CE 442, CE 444, CE 474, CE 495A, CE 495B [4]		41

Degree Requirements	Credit Hours
Technical Elective [5]	12
Total [6]	127

[1] *Courses required for the major will apply toward nine hours of University Core Curriculum, making a total of 39 in that area. Number of UCC credit hours required for transfer students admitted under capstone option may be less than 39.*

[2] *Required only for students who have completed less than 12 credit hours after high school graduation.*

[3] *School requirements for University Core Curriculum are more restrictive than those of the University as a whole. Students should consult advisor for approved courses. Students transferring from other programs or institutions will be required to meet the University Core Curriculum requirements for engineering students.*

[4] *CE 495A and CE 495B must be completed at SIU Carbondale. In addition, all required 400-level Civil Engineering courses and at least 2 technical electives must be completed at SIU Carbondale, unless approved by the Director of the School of CEIE.*

[5] *Approved technical electives: CE 410, CE 412, CE 413, CE 416, CE 419, CE 422, CE 466, CE 471, CE 472, CE 473, and ME 416.*

[6] *Total number of credit hours required for graduation may be different for transfer students. However, all students are required to complete all major specific math, science, and engineering courses.*

Capstone Option for Transfer Students

The SIU Capstone Option is available to students who have earned an Associate in Engineering Sciences (A.E.S.) degree with a minimum cumulative 2.0/4.0 GPA on all accredited coursework prior to the completion of the A.E.S., as calculated by the transfer institution's grading policies. The Capstone Option reduces the University Core Curriculum requirements from 39 to 30 hours, therefore reducing the time to degree completion. Students interested in the Capstone Option should contact the School of Civil, Environmental and Infrastructure Engineering Advisement Office to develop a personal coursework pathway to degree completion.

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