

Richard A. Rula School of Civil and Environmental Engineering

Department Head: Professor Isaac Howard

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Civil and Environmental Engineers plans, designs, and supervises construction of almost every facility essential to modern life. Roads, bridges, buildings, water supply and waste disposal systems, transit systems, airfields, dams and irrigation projects are examples of the creative efforts of Civil and Environmental Engineers. The field of Civil and Environmental Engineering offers limitless employment opportunities that range from high-tech computer-aided design to hands-on field engineering. Civil and Environmental Engineers find rewarding careers in government, military, industry or private practice to meet the challenges of pollution control, energy, transportation, housing and other problems that face modern society.

The mission of the Department of Civil and Environmental Engineering is to proactively utilize teaching, research, and service to educate baccalaureate, masters, and doctoral students so they can become competent, dynamic, and ethical engineers of the future. To complement the classroom experience, students are encouraged to reinforce instruction by participating in cooperative education programs, assisting faculty with research, or becoming involved in professional societies. Students are expected to develop an appreciation for life-long learning and pursue professional engineering licensure. The ultimate goal is to prepare students to be future leaders who will positively impact their profession and society.

Furthermore, students should become prepared to combine research and classroom experiences to solve complex interdisciplinary problems. The overall goal of the program is to challenge students to study and innovatively solve the global sustainability challenges that they encounter. Finally, faculty, students, and staff will be engaged in professional organizations, campus committees, consultancy, student organizations, and continuing education. Through these service activities, the department will be a reliable professional resource for the University, alumni, and society.

The educational objectives of the Department of Civil and Environmental Engineering are to enable graduates to achieve career and professional accomplishments that include:

1. Demonstrate a broad knowledge of the principles and fundamentals of civil engineering and their applications through their successful practice as professional civil engineers, their pursuit of graduate or professional degrees, or their engagement in other professional careers that involve the application of the engineering method.
2. Achieve success in the multidisciplinary environment of the 21st century and demonstrate their ability to adapt to emerging and evolving technologies, social conditions, professional standards, and career opportunities by attaining leadership, managerial, administrative, supervisory, or other positions of responsibility.
3. Demonstrate an understanding and appreciation of the ethical, societal and professional responsibilities of a civil engineer through professional registration and active membership in professional organizations.
4. Demonstrate an appreciation for lifelong learning and for the value of continuing professional development in maintaining their professional competence through participation in graduate and continuing education activities.

The department offers a Bachelor of Science in Civil Engineering. For those interested in Environmental Engineering, the department offers an Environmental Engineering concentration within the Bachelor of Science in Civil Engineering. The B. S. program in Civil Engineering is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Civil and similarly named engineering programs.

BS in Civil Engineering

General Education Requirements

English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

Creative Discovery

Select from General Education courses	3
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Humanities

Select from General Education courses	6
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Social/Behavioral Sciences

Select from General Education courses	6
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Quantitative Reasoning

MA 1713	Calculus I	3
MA 1723	Calculus II	3
Natural Sciences		
CH 1213 & CH 1211	Chemistry I and Investigations in Chemistry I	4
CH 1223 & CH 1221	Chemistry II and Investigations in Chemistry II	4
PH 2213	Physics I	3
Additional Requirements		
MA 2733	Calculus III	3
MA 2743	Calculus IV	3
MA 3253	Differential Equations I	3
Major Core		
EG 1143	Graphic Communication	3
IE 3913	Engineering Economy I	3
ST 3123	Introduction to Statistical Inference	3
ME 3513	Thermodynamics I	3
EM 2413	Engineering Mechanics I	3
EM 2433	Engineering Mechanics II	3
EM 3213	Mechanics of Materials	3
EM 3313	Fluid Mechanics	3
CE 1001	Introduction to Civil Engineering	1
CE 2213	Surveying	3
CE 2803	Environmental Engineering Issues	3
CE 3113	Transportation Engineering	3
CE 3311	Construction Materials Lab	1
CE 3313	Construction Materials	3
CE 3411	Soil Mechanics Laboratory	1
CE 3413	Soil Mechanics	3
CE 3501	Water Resource Engineering Lab	1
CE 3503	Water Resource Engineering	3
CE 3603	Structural Mechanics	3
CE 3801	Environmental Engineering and Water Resources Engineering Lab	1
CE 3823	Environmental Engineering	3
CE 4903	Civil Engineering Comprehensive	3
Oral Communication Requirement		
Fulfilled in GE 3513 and various CE courses		
Writing Requirement		
GE 3513	Technical Writing	3
Computer Literacy		
Fulfilled in various Engineering Topics courses		
Civil Engineering Electives		12
Choose one course from each of the following two lists:		
List A		
CE 4513	Engineering Hydrology	
CE 4523	Open Channel Hydraulics	
CE 4863	Water and Wastewater Engineering	
CE 4883	Engineered Environmental Systems	
List B		
CE 4963	Steel Structures I	
CE 4973	Concrete Structures I	
Choose one course from two of the following four lists:		

List C	
CE 4133	Geometric Design of Highways
CE 4143	Traffic Engineering
List D	
CE 4103	Pavement Design
List E	
CE 4433	Foundations
List F	
CE 4703	Construction Engineering and Management
Basic Science Elective ¹	
	3
Additional Civil Engineering Electives	
	6
Any CE course, except CE 4233 or CE 4243, not applied to another curriculum requirement.	
Technical Elective	
GR 4303	Principles of GIS
	3
Total Hours	
	130
Environmental Engineering Concentration Electives (in place of Civil Engineering Electives above)	
Environmental Engineering Concentration Electives	Choose one course from each of the following three lists:
	12
List A:	
CE 4513	Engineering Hydrology
CE 4523	Open Channel Hydraulics
List B:	
CE 4883	Engineered Environmental Systems
CE 4863	Water and Wastewater Engineering
List C:	
CE 4963	Steel Structures I
CE 4973	Concrete Structures I
Choose one course from the following list:	
List D:	
CE 4133	Geometric Design of Highways
CE 4143	Traffic Engineering
CE 4103	Pavement Design
CE 4433	Foundations
CE 4703	Construction Engineering and Management
Environmental Engineering Concentration Basic Science Elective ²	
	3
Restricted Environmental Engineering Concentration Electives ³	
	6
Environmental Engineering Concentration Technical Electives ⁴	
	3
Total hours	
	130

¹ Civil Engineering Basic Science Electives: GG 4153, GG 4433, GG 4503

² Environmental Engineering Concentration Basic Science Electives: BIO 1123, BIO 1134, BIO 1144, BIO 3304, GG 4523, GG 4613, GG 4623

³ Restricted Environmental Engineering Concentration Electives: CE 4000, CE 4513, CE 4523, CE 4533, CE 4563, CE 4583, CE 4843, CE 4863, CE 4883, CE 4893, CE 4990

⁴ Environmental Engineering Concentration Technical Electives: ABE 4313, ABE 4803, ABE 4843, BIO 3304, BIO 4324, BL 4263, CHE 4613, GG 4613, GR 4303

Minor in Civil Engineering

Civil engineers design, build, and maintain the infrastructure, the very foundation of any civilization. All undergraduate students at Mississippi State University, with the exception of those already majoring in civil engineering, are eligible to pursue a minor in civil engineering. Civil engineering is an incredibly broad field, and students have a choice of five specialty tracks to match interests and career objectives: Construction Engineering and Management, Environmental and Water Resources Engineering, Geotechnical and Materials Engineering, Structural Engineering, and Transportation

Engineering. The civil engineering minor requires at least 15 credit hours of undergraduate coursework, typically at the junior and senior levels. Students develop a program of study in consultation with CEE faculty members.

Students interested in pursuing a civil engineering minor should consult with a CEE advisor for specific information regarding specialty tracks, prerequisites, and other requirements.