# Department of Civil and Environmental Engineering

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Office: 235 Walker Engineering Building

The Civil Engineer 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 Engineers. The field of Civil Engineering offers limitless employment opportunities that range from high-tech computer-aided design to hands-on field engineering. Civil 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 Civil and Environmental Engineering Department at Mississippi State University is to provide students in the civil engineering program with the knowledge and skills needed to enter professional practice, or continue their studies at the graduate level, and develop a sense of personal responsibility to the needs of society and the profession.

The program 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 application, through their successfully 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 within their organization.
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 civil engineering degree program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org .

## General Education Requirements

| | | |
|---|---|---|
| **English Composition** | | |
| EN 1103 | English Composition I | 3 |
| or EN 1163 | Accelerated Composition I | |
| EN 1113 | English Composition II | 3 |
| or EN 1173 | Accelerated Composition II | |
| **Mathematics** | | |
| See Major Core | | |
| **Science** | | |
| See Major Core | | |
| **Humanities** | | |
| See General Education courses | | 6 |
| **Fine Arts** | | |
| See General Education courses | | 3 |
| **Social/Behavioral Sciences** | | |
| See General Education courses | | 6 |
| **Major Core** | | |
| **Math and Basic Science** | | |
| MA 1713 | Calculus I | 3 |
| MA 1723 | Calculus II | 3 |
| MA 2733 | Calculus III | 3 |
| MA 2743 | Calculus IV | 3 |
| MA 3253 | Differential Equations I | 3 |
| CH 1213 | Chemistry I | 3 |
| CH 1211 | Investigations in Chemistry I | 1 |
| CH 1223 | Chemistry II | 3 |
| CH 1221 | Investigations in Chemistry II | 1 |
| PH 2213 | Physics I | 3 |
| **Engineering Topics** | | |
| 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 |

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| **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 | | |
| **Choose one of the following sets of courses to complete the degree:** | | |
| **Civil Engineering Degree** | | |
| PH 2223 | Physics II | 3 |
| Civil Engineering Electives | | 12 |
| Choose one course from four of the following six 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 4953 | Concrete and Steel Structures | |
| 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 | |
| **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 |
| **Environmental Engineering Concentration** | | |
| Basic Science Elective [1] | | 3 |
| Environmental Engineering Concentration Electives | Choose two of the following: | 12 |
| **List A:** | | |
| CE 4513 | Engineering Hydrology | |
| CE 4523 | Open Channel Hydraulics | |
| CE 4883 | Engineered Environmental Systems | |
| CE 4863 | Water and Wastewater Engineering | |
| Choose one course from two of the following five lists: | | |
| **List B:** | | |
| CE 4953 | Concrete and Steel Structures | |
| **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 | |
| **Restricted Environmental Engineering Electives** [2] | | |
| **Technical Elective** [3] | | |
| To be chosen from an approved list available from the student's advisor. | | |
| **Total hours** | | 130 |

1. Basic Science Elective: BIO 1123, BIO 1134, BIO 1144, BIO 3304, CH 2503, PH 2223.
2. Restricted Additional Environmental Engineering Electives: CE 4000, CE 4513, CE 4523, CE 4533, CE 4563, CE 4583, CE 4843, CE 4863, CE 4883, CE 4893, CE 4990
3. Technical Electives: ABE 4313, ABE 4803, ABE 4844, BIO 3304, BIO 4324, BL 4263, CHE 4613, GG 4613, GR 4303