

## Emphasis - Environmental

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## **B.S.C.E. in Civil Engineering** **Description**

The B.S.C.E. degree emphasizes engineering sciences and civil engineering design with four proficiency areas: structural engineering, water resources and environmental engineering, transportation and construction management, and geotechnical engineering. The curriculum prepares the student for both professional practice and graduate study.

**Minimum Total Credit Hours: 129**

### **Goals/Mission Statement**

#### **Mission**

The Department of Civil Engineering (CE) within the School of Engineering (SoE) at the University of Mississippi (UM) strives to continuously improve the quality of its three functions: teaching, research and service. In so doing, the Department shall:

- prepare students with a broad based education for entering the civil and other related engineering professions, for advanced studies, and for careers in research;
- provide a top quality research program and graduate education in selected areas of science and engineering technology with its impact extending to regional, national, and global communities; and
- provide service to citizens, industry, and government via technological and educational innovations.

#### **Goals**

- Improve and maintain effective state-of-the-art graduate and undergraduate programs
- Perform quality research in line with national trends and achieve national recognition in selected areas
- Become a locally and nationally visible department through professional service
- Build stronger ties with civil engineering alumni

#### **Program Educational Objectives**

BSCE Graduates of the Civil Engineering Program at the University of Mississippi, within 3-5 years after graduation, will:

- Practice in civil engineering, environmental engineering or a related area to serve society.
- Continue to develop professionally by obtaining advanced degrees, professional registration and/or certification as appropriate for their qualifications and careers.
- Assume leadership roles in their profession and/or communities.

#### **Student Outcomes**

In accordance with ABET accreditation requirements, BSCE students at the University of Mississippi should demonstrate the attainment of the following student outcomes:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

#### **General Education Requirements**

Students must complete at least 18 semester hours of general education requirements: 3 hours must be in speech or oral communication (Spch 102 or 105), 3 hours in humanities, 6 hours in social science (including Econ 310), and 3 hours in fine arts. The remaining 3 hours can be in any of the humanities/fine arts categories.

#### **Course Requirements**

Specific requirements for the B.S.C.E. include Writ 100, Writ 101, or Hon 101; Writ 102, Liba 102, or Hon 102; Math 261-264, Math 353; Chem 105, 115; Phys 211, 212, 221, 222; Csci 251, Engr 309, 310, 312, 323, 400; C E 101, 102, 205, 207, 208, 305, 311, 315, 371, 401, 405, 412, 413, 417, 431, 433, 455, 456, 472, and 481; 3 hours of basic science elective; at least 6 hours from List A technical electives (C E 414, 435, 495, 500, 513, 514, 516, 536, 541, 572, 574, 575, 581, Engr 573); and no more than 9 additional hours from List B technical electives (Category B.I: any course from List A; Category B.II: C E 511, 521, 531, 570, 578, 585, 590, Engr 321, 360, 497, 541, 547, 555, 571, 591, 593, G E 440, 450; other courses with the approval of the student's adviser and department chair including any relevant independent study course, e.g., Hon 401, C E 497, Engr 596, 597, 598; Category B.III: No more than one course from the approved list of the business minor.



## Other Academic Requirements

Students in the Department of Civil Engineering are encouraged to take the Fundamentals of Engineering examination prior to awarding of the baccalaureate degree.

## Emphasis - Environmental Description

The B.S.C.E. degree with the Environmental Engineering emphasis stresses engineering sciences and civil and environmental engineering design with proficiency areas in: environmental and water resources engineering, structural engineering, transportation and construction management, and geotechnical engineering. The curriculum prepares the student for both professional practice and graduate study.

## Course Requirements

COURSE REQUIREMENTS FOR ENVIRONMENTAL EMPHASIS Specific requirements for the B.S.C.E. with the Environmental Emphasis include Writ 100, Writ 101, or Hon 101; Writ 102, Liba 102, or Hon 102; Math 261-264, Math 353; Chem 105, 106, 115; Phys 211, 212, 221, 222; Csci 251, Engr 309, 310, 312, 323, 400; C E 101, 102, 205, 207, 208, 305, 311, 315, 371, 401, 405, 412, 417, 431, 433, 455, 456, 472, and 481; 3 hours of basic environmental science elective (Bisc 104, Geol 104, or Geol 105); 12 hours from Environmental Technical Electives (C E 572, 574, 575, Engr 321, Engr 571, Engr 573, Ch E 545, G E 450, G E 503; only one of C E 495, G E 470, G E 510; other courses with the approval of the student's adviser and department chair including any relevant independent study course, e.g., Hon 401, C E 497, Engr 596, 597, 598; no more than one course from the approved list of the business minor).

## Degree Requirements

The academic regulations for this degree program, as entered in the University of Mississippi Catalog, are in effect for the current or selected academic year and semester. The University of Mississippi reserves the right to 1) change or withdraw courses; 2) change rules for registration, instruction, and graduation; and 3) change other regulations affecting the student body at any time.

## B.S.C.E. in Civil Engineering

### General Education

REQUIREMENT	HOURS	DESCRIPTION
First Year Writing I	3	Complete <a href="#">Hon 101</a> , <a href="#">Writ 100</a> or <a href="#">Writ 101</a> with a passing grade.
First Year Writing II	3	Complete one of the following courses with a passing grade: <a href="#">Liba 102</a> , <a href="#">Writ 102</a> or <a href="#">Hon 102</a> .
3 hrs fine arts	3	Complete 3 hrs of fine arts with a passing grade chosen from art history, music, dance, and theatre arts. Studio and workshop courses cannot be used to satisfy this requirement. Courses that satisfy this requirement are any Art History (AH); <a href="#">Liba 130</a> , <a href="#">204</a> , <a href="#">314</a> ; <a href="#">Mus 101</a> , <a href="#">102</a> , <a href="#">103</a> , <a href="#">104</a> , <a href="#">105</a> ; <a href="#">Danc 200</a> ; <a href="#">Thea 201</a> , <a href="#">202</a> .
3 hrs humanities	3	Successfully complete 3 hrs of humanities with a passing grade chosen from the following: African American studies ( <a href="#">Aas 201</a> , <a href="#">202</a> ), classics (Clc), environmental studies ( <a href="#">Envs 101</a> ), gender studies ( <a href="#">G St 201</a> , <a href="#">202</a> ), history (Hst), liberal arts ( <a href="#">Liba 202</a> , <a href="#">305</a> , <a href="#">312</a> ), literature ( <a href="#">Eng 103</a> , <a href="#">220-226</a> ), philosophy (Phil), religion (Rel), Southern studies 100-level, and either <a href="#">Hon 101</a> or <a href="#">102</a> (if not being used to fulfill composition requirements).
3 hrs Lang, Hum or FA	3	Complete 3 additional hours with a passing grade of humanities, languages (modern, Greek, or Latin), or Fine Art
3 hrs social sciences	3	Successfully complete 3 hrs of social science with a passing grade chosen from anthropology (Anth), economics (Econ), political science (Pol), psychology (Psy), sociology (Soc), <a href="#">Liba 203</a> , <a href="#">313</a> , or <a href="#">Hon 101</a> , <a href="#">102</a>
<a href="#">Econ 310</a>	3	Complete <a href="#">Econ 310</a> with a passing grade.
<a href="#">Spch 102</a> or <a href="#">105</a>	3	Complete <a href="#">Spch 102</a> or <a href="#">Spch 105</a> with a passing grade.

### General Education II

REQUIREMENT	HOURS	DESCRIPTION
<a href="#">Math 261</a> - C min	3	Complete <a href="#">Math 261</a> with a grade of C or better.
<a href="#">Math 262</a> - C min	3	Complete <a href="#">Math 262</a> with a C grade or better.
<a href="#">Math 263</a> - C min	3	Complete <a href="#">Math 263</a> with a C grade or better.
<a href="#">Math 264</a>	3	Complete <a href="#">Math 264</a> with a passing grade.
<a href="#">Math 353</a>	3	Complete <a href="#">Math 353</a> with a passing grade.
<a href="#">Chem 105</a>	3	Complete <a href="#">Chem 105</a> with a passing grade.
<a href="#">Chem 115</a>	1	Complete <a href="#">Chem 115</a> with a passing grade.
<a href="#">Phys 211</a>	3	Complete <a href="#">Phys 211</a> with a passing grade.
<a href="#">Phys 212</a>	3	Complete <a href="#">Phys 212</a> with a passing grade.
<a href="#">Phys 221</a>	1	Complete <a href="#">Phys 221</a> with a passing grade.
<a href="#">Phys 222</a>	1	Complete <a href="#">Phys 222</a> with a passing grade.



### Major Requirements

REQUIREMENT	HOURS	DESCRIPTION
<a href="#">C E 101/102</a> or <a href="#">Engr 100</a>	2	Complete <a href="#">C E 101</a> and <a href="#">C E 102</a> or complete <a href="#">Engr 100</a> . Coursework must be completed with a passing grade.
<a href="#">C E 205</a>	1	Complete <a href="#">C E 205</a> with a passing grade.
<a href="#">C E 207</a>	2	Complete <a href="#">C E 207</a> with a passing grade.
<a href="#">C E 208</a>	1	Complete <a href="#">C E 208</a> with a passing grade.
<a href="#">C E 305</a>	1	Complete <a href="#">C E 305</a> with a passing grade.
<a href="#">C E 311</a>	3	Complete <a href="#">C E 311</a> with a passing grade.
<a href="#">C E 315</a>	3	Complete <a href="#">C E 315</a> with a passing grade.
<a href="#">C E 371</a>	3	Complete <a href="#">C E 371</a> with a passing grade.
<a href="#">C E 401</a>	1	Complete <a href="#">C E 401</a> with a passing grade.
<a href="#">C E 405</a>	1	Complete <a href="#">C E 405</a> with a passing grade.
<a href="#">C E 412</a>	3	Complete <a href="#">C E 412</a> with a passing grade.
<a href="#">C E 417</a>	3	Complete <a href="#">C E 417</a> with a passing grade.
<a href="#">C E 431</a>	3	Complete <a href="#">C E 431</a> with a passing grade.
<a href="#">C E 433</a>	3	Complete <a href="#">C E 433</a> with a passing grade.
<a href="#">C E 455</a>	2	Complete <a href="#">C E 455</a> with a passing grade.
<a href="#">C E 456</a>	3	Complete <a href="#">C E 456</a> with a passing grade.
<a href="#">C E 472</a>	3	Complete <a href="#">C E 472</a> with a passing grade.
<a href="#">C E 481</a>	3	Complete <a href="#">C E 481</a> with a passing grade.
School of Engineering GPA		Must be at least a 2.0

### Major Requirements II

REQUIREMENT	HOURS	DESCRIPTION
<a href="#">Csci 251</a> or <a href="#">256</a>	3	Complete <a href="#">Csci 251</a> or <a href="#">CSci 256</a> with a passing grade.
<a href="#">Engr 309</a>	3	Complete <a href="#">Engr 309</a> with a passing grade.
<a href="#">Engr 310</a>	3	Complete <a href="#">Engr 310</a> with a passing grade.
<a href="#">Engr 312</a>	3	Complete <a href="#">Engr 312</a> with a passing grade.
<a href="#">Engr 323</a>	3	Complete <a href="#">Engr 323</a> with a passing grade.
<a href="#">Engr 400</a>	1	Complete <a href="#">Engr 400</a> with a passing grade.

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REQUIREMENT	HOURS	DESCRIPTION
<a href="#">Chem 106</a>	3	Complete <a href="#">Chem 106</a> with a passing grade.
3 hrs envir sci electives	3	Complete 3 hrs of environmental science elective courses with a passing grade chosen from: <a href="#">Bisc 104</a> , <a href="#">160</a> , <a href="#">Geol 104</a> , <a href="#">Geol 105</a>
12 hrs envir tech elect	12	Complete 12 hrs of environmental technical electives with a passing grade chosen from: <a href="#">C E 572</a> , <a href="#">574</a> , <a href="#">575</a> , <a href="#">Engr 321</a> , <a href="#">571</a> , <a href="#">573</a> , <a href="#">Ch E 545</a> , <a href="#">G E 450</a> , <a href="#">503</a> only one of <a href="#">C E 500</a> , <a href="#">G E 470</a> , <a href="#">G E 510</a> , other elective course with the approval of the student's adviser and department chair including any relevant independent study course, e.g., <a href="#">Hon 401</a> , <a href="#">C E 497</a> , <a href="#">Engr 596</a> , <a href="#">597</a> , <a href="#">598</a> .
3 hrs Tech Elective B	3	Complete 3 additional hours from List B technical electives (Category B.I: any course from List A; Category B.II: <a href="#">C E 511</a> , <a href="#">521</a> , <a href="#">531</a> , <a href="#">570</a> , <a href="#">578</a> , <a href="#">585</a> , <a href="#">590</a> , <a href="#">Engr 321</a> , <a href="#">360</a> , <a href="#">497</a> , <a href="#">541</a> , <a href="#">547</a> , <a href="#">555</a> , <a href="#">571</a> , <a href="#">591</a> , <a href="#">593</a> , <a href="#">G E 440</a> , <a href="#">450</a> ; other courses with the approval of the student's adviser and department chair including any relevant independent study course, e.g., <a href="#">Hon 401</a> , <a href="#">C E 497</a> , <a href="#">Engr 596</a> , <a href="#">597</a> , <a href="#">598</a> ; Category B.III: No more than one course from the approved list of the business minor.

