

# CONSTRUCTION ENGINEERING, BS

Construction engineering majors typically like to build things and figure out ways to do so more quickly and with less waste materials. In the field, construction engineers work on different types of building projects, coordinating with team members to create cities and communities where people live and work.

## Program Educational Objectives

The educational objectives of the University of Alabama's Bachelor of Science in Construction Engineering (BSConE), program is to have graduates who, within a few years of graduation, are in demand and lead fulfilling professional careers, in their chosen area of professional practice, through their demonstrated abilities to:

1. Apply foundational knowledge of mathematics, science, humanities, and social sciences; and
2. Synthesize technical knowledge of engineering analysis and design to identify, formulate, and solve problems; and
3. Employ their professional practice skills.

## Student Outcomes

Students, upon completion of the BSConE, program, will be able to:

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 met 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 judgements, 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 judgement to draw conclusions.
7. An ability to require and apply new knowledge as needed, using appropriate learning strategies.

All students are strongly encouraged to prepare for and pass the Fundamentals of Engineering (FE) examination prior to graduation.

## Construction Engineering Curriculum

### Freshman

Fall	Hours	Spring	Hours
CE 121 or ENGR 111	1	ENGR 171	1
ENGR 103 or 123	3	MATH 126 or 146	4
MATH 125 or 145	4	PH 105 or 125	4
EN 101	3	EN 102	3
CH 100, 101, or 117	4	History (HI) or social and behavioral sciences (SB) elective <sup>1,4</sup>	3
	<b>15</b>		<b>15</b>

### Sophomore

Fall	Hours	Spring	Hours
CE 260	2	CE 262	3
AEM 201	3	AEM 250	3
MATH 227 or 247	4	AEM 264	3
Approved natural science (N) elective <sup>2</sup>	4	MATH 238	3
GES 255	3	PH 106 or 126	4
	<b>16</b>		<b>16</b>

### Junior

Fall	Hours	Spring	Hours
CE 331	3	CE 418	3
CE 340	4	CE 462	3
CE 366	3	CE 463	3
Engineering systems elective <sup>5</sup>	3	Engineering systems elective <sup>5</sup>	3
History (HI) or social and behavioral sciences (SB) elective <sup>1,4</sup>	3	History (HI) or social and behavioral sciences (SB) elective <sup>1,4</sup>	3
	<b>16</b>		<b>15</b>

### Senior

Fall	Hours	Spring	Hours
CE 461	3	CE 402 or 404	4
CE 468	3	CE 464	3
Senior (plan of study) elective <sup>3</sup>	3	Senior (plan of study) electives <sup>3</sup>	6
COM 123 or 124	3	Humanities (HU), literature (L), or fine arts (FA) elective <sup>1,4</sup>	3
Humanities (HU), literature (L), or fine arts (FA) elective <sup>1,4</sup>	3		
	<b>15</b>		<b>16</b>

### Total Hours: 124

### Footnotes

<sup>1</sup> Students are encouraged to consider EC 110 Principles of Microeconomics as an SB, CE 220 Society Infrastructure & Environm as an SB, and/or a foreign language as an HU.

<sup>2</sup> Approved natural science (N) electives include:  
 BSC 114 Principles Of Biology I and BSC 115 Laboratory Biology I or BSC 118 Honors General Biology I  
 CH 102 General Chemistry or CH 118 Honors General Chemistry  
 GEO 101 The Dynamic Earth  
 GEO 102 The Earth Through Time  
 GEO 104 Hazardous Earth  
 GEO 105 Sustainable Earth  
 GY 101 Atmospheric Proc & Patterns  
 GY 102 Earth Surface Processes  
 GY 207 Field Water and Climate

## 2 *Construction Engineering, BS*

- <sup>3</sup> Senior (plan of study) electives must include at least one course in project management (PM) and at least one course in design (CD); one course may be a general technical elective (GT). See the department for a list of approved electives including approved project management (PM), design (CD) and general technical (GT) electives.
- <sup>4</sup> The College of Engineering core curriculum requires a minimum of nine hours of HU, L, or FA courses and nine hours of HI or SB courses.  
Students must satisfy the College of Engineering in-depth requirement (minimum of six hours in one core designation (HU, L, FA, HI or SB) in the same discipline (subject)).  
[Click here for a list of UA Core Courses.](#)
- <sup>5</sup> Students must complete six hours of systems electives chosen from: ECE 320 Fundmtl Electrical Engr, ME 215 Thermodynamics I or ME 216 Thermal Engineering Survey, and AEM 311 Fluid Mechanics.

The College of Engineering requires a grade of "C-" or better be earned in all courses that are a pre-requisite to classes used to fulfill degree requirements. If a grade lower than "C-" is received in a course that is a pre-requisite, that course must be repeated and a grade of "C-" or higher must be earned before enrolling in the subsequent course.

All construction engineering students are strongly encouraged to prepare for and pass the Fundamentals of Engineering (FE) examination prior to graduation. A graduate of the program who has passed the FE exam would then be an engineer intern under model law as maintained by the National Council of Examiners for Engineering and Surveying ([ncees.org](http://ncees.org)). It is recommended that the FE be taken the semester prior to graduation.

Related department policies and updates of catalog information are posted on the department website.

Construction engineers pursue careers in the public sector, managing projects that benefit society, working on highways, mass transit systems, dams, bridges, and infrastructure. Careers are also available with private sector engineering design and construction firms that manage commercial and industrial projects for clients throughout the world. Construction engineering careers frequently serve as a gateway to executive leadership positions or self-employment. Construction engineers lead and inspire people and effectively manage large budgets and challenging schedules.

## **Types of Jobs Accepted**

Construction engineering graduates often begin their careers with field-based assignments. Many serve as assistant project managers on construction sites. They may assist in the management of a project's cost and schedule or serve in a variety of engineering functions. Other graduates go directly to positions with major industrial firms serving as corporate client representatives on major projects. Still others find career opportunities with state and federal agencies helping plan and oversee major public sector projects.

## **Jobs of Experienced Alumni**

Experienced construction engineers plan and execute major projects and frequently are directly accountable for overall safety, cost, and schedule performance. Many manage million and billion dollar projects with schedules extending over many years. Most construction engineers have organizational management responsibilities for the corporations or agencies they serve, and many ultimately serve in executive leadership positions.

Learn more about opportunities in this field at the Career Center