

# B.S./M.S. IN CIVIL ENGINEERING

## Overview

The Department of Civil and Architectural Engineering (CAE) offers a 5-year BS/MS program that allows students to earn both a Bachelor's and Master's degree in civil or architectural engineering.

The educational objectives, specialty areas, and learning outcomes of each Master of Science program are shown in their respective sections MSAE (<http://bulletin.miami.edu/graduate-academic-programs/engineering/civil-architectural-environmental-engineering/architectural-engineering-ms/>) and MSCE (<http://bulletin.miami.edu/graduate-academic-programs/engineering/civil-architectural-environmental-engineering/civil-engineering-ms/>).

This 5-Year program is open to students who are admitted to the graduate program at the end of their junior year. Students applying for this program should have a minimum grade point average (GPA) of 3.0.

## Admission Requirements

Undergraduate students of the CAE department having a GPA of 3.0 or better are encouraged to apply to the 5-year BS/MS program during their junior year. Applicants are required to submit official transcripts, and three letters of reference. Admission criteria are described under College of Engineering - Graduate Admission Requirements (<https://bulletin.miami.edu/graduate-academic-programs/engineering/>).

## Graduation

Requirements for graduation are:

- Minimum of 30 graduate-level credits with a GPA of at least 3.000, and no grade lower than C; refer to the Curriculum Requirements for details regarding the distribution of the credits
- Completion of the BS degree requirements

## Plan of Study

The course requirements for the BS and MS portion of the five-year BS/MS program can be met as follows:

Freshman Year		Credit Hours
<b>First Semester</b>		
CAE 111	Introduction to Engineering I	3
WRS 105	First-Year Writing I	3
MTH 151	Calculus I for Engineers	5
PHY 221	University Physics I	3
PS Cognate		3
		<b>Credit Hours</b>
		<b>17</b>
<b>Second Semester</b>		
CAE 115	Introduction to Engineering II: Geospatial Data (Surveying and GIS)	1
GEG 199	Geographic Information Systems for Engineers	1
MTH 162	Calculus II	4
WRS 107	First-Year Writing II: STEM	3
PHY 222	University Physics II	3
PHY 224	University Physics II Lab	1
CAE 210	Mechanics of Solids I	3
		<b>Credit Hours</b>
		<b>16</b>
<b>Sophomore Year</b>		
<b>First Semester</b>		
CAE 211	Mechanics of Solids II	3
CAE 212	Structural Laboratory	1
ISE 311	Applied Probability and Statistics	3
PHY 223	University Physics III	3
PHY 225	University Physics III Lab	1
MTH 211	Calculus III	3
AH Cognate		3
		<b>Credit Hours</b>
		<b>17</b>

<b>Second Semester</b>		
CAE 310	Structural Analysis	3
MTH 311	Introduction to Ordinary Differential Equations	3
CHM 151	Chemistry for Engineers	3
CHM 153	Chemistry Laboratory for Engineers	1
Basic Science Elective		3
AH Cognate		3
<b>Credit Hours</b>		<b>16</b>
<b>Junior Year</b>		
<b>First Semester</b>		
CAE 320	Concrete Structures	3
CAE 330	Fluid Mechanics	3
CET 340	Introduction to Environmental Engineering	3
CAE 350	Transportation Engineering I	3
MAE 303	Thermodynamics	3
PS Cognate		3
<b>Credit Hours</b>		<b>18</b>
<b>Second Semester</b>		
CAE 321	Steel Structures	3
CAE 370	Geotechnical Engineering I	3
CAE 371	Geotechnical Laboratory	1
CAE 430	Water-Resources Engineering I	3
CET 440	Water Quality Control Systems	3
CAE 450	Transportation Engineering II	3
AS Cognate		3
<b>Credit Hours</b>		<b>19</b>
<b>Senior Year</b>		
<b>First Semester</b>		
CAE 403	Senior Design Project I - Engineering Design	3
CAE 470	Foundations and Earth Retaining Systems	3
CEN Design Elective		3
PS Cognate		3
Graduate Level Course		3
Graduate Level Course		3
<b>Credit Hours</b>		<b>18</b>
<b>Second Semester</b>		
CAE 402	Professional Engineering Practice	3
CEN Tech Elective Course		3
CEN Design Elective		3
CAE 604	Master's Design Project	3
Graduate Level Course		3
<b>Credit Hours</b>		<b>15</b>
<b>Fifth Year</b>		
<b>First Semester</b>		
Graduate Level Course		3
Graduate Level Course		3
Graduate Level Course		3
<b>Credit Hours</b>		<b>9</b>
<b>Second Semester</b>		
Graduate Level Course		3
Graduate Level Course		3

Graduate Level Course	3
<b>Credit Hours</b>	<b>9</b>
<b>Total Credit Hours</b>	<b>154</b>