

# M.S. IN ARCHITECTURAL ENGINEERING

## Overview

The Department of Civil and Architectural Engineering (CAE) offers a Master of Science degree in Architectural Engineering (MSAE).

The educational objectives of the Master of Science program in Architectural Engineering are to produce graduates whom:

1. Have advanced technical knowledge in at least one specialty area of Architectural Engineering
2. Have advanced capability to apply knowledge to engineering problems

The degree program has the following options:

- Thesis option
- Non-Thesis option
- 5-Year B.S./M.S. option available for qualified undergraduate students enrolled within the CAE Department

For all options, a minimum of 30 graduate-level credits are required with an average of "B" or better and no grade below "C". A total of 6 credits of transfer and/or exchange coursework (not counted towards the B.S. degree, and with grades of "B" or above) may be taken at another institution (with pre-approval) to satisfy the requirements for the M.S. degree. The M.S. degree can be typically completed within one calendar year.

The Program of Study is the student's specific set of coursework that defines the course requirements for graduation and must be approved by an advisory committee (known as the Supervisory Committee).

## Admission Requirements

1. A B.S. degree from an accredited program.
2. Typically a cumulative grade point average of 3.0 on a 4.0 scale
3. Most international students must provide a TOEFL iBT score of 80 or higher, or an IELTS score of 6.5 or higher to demonstrate English proficiency.

## Curriculum Requirements

### Thesis Option

The graduate course requirements for graduation are:

- Minimum of 30 graduate-level credits with a GPA of at least 3.0, and no grade lower than C
- The requirement list is provided below. The classification of courses into their respective Groups can be found in the CAE Courses (<http://bulletin.miami.edu/graduate-academic-programs/engineering/civil-architectural-environmental-engineering/#coursestext>) section.

Code	Title	Credit Hours
<b>Requirement</b>		
6 credits from Group A		6
Group A: 700-level lecture-based CAE courses in civil and architectural engineering		
3 credits from any of the following Groups: A and/or B		3
Group A: 700-level lecture-based CAE courses in civil and architectural engineering		
Group B: 600-level lecture-based CAE Courses in civil and architectural engineering		
9 credits from any of the following Groups: A, B, C and/or D		9
Group A: 700-level lecture-based CAE courses in civil and architectural engineering		
Group B: 600-level lecture-based CAE Courses in civil and architectural engineering		
Group C: 600- or 700-level CAE courses in Construction Management (CM)		
Group D: Any pre-approved course in any UM Department at the 600- or 700-level (i.e. XXX 600-799) except CAE and UMI		
6 credits from any of the following Groups: A, B, and/or D		6
Group A: 700-level lecture-based CAE courses in civil and architectural engineering		
Group B: 600-level lecture-based CAE courses in civil and architectural engineering		
Group D: Any pre-approved course in any UM Department at the 600- or 700-level (i.e. XXX 600-799) except CAE and UMI		
6 credits from Group F		6
Group F: CAE Master's Thesis		

CAE 810	Master's Thesis
<b>Total Credit Hours</b>	<b>30</b>

Notes: 1. All courses are 3 credit hours, unless otherwise indicated.

2. Independent Study/Special Problems (CAE 695 (<http://bulletin.miami.edu/search/?P=CAE%20695>), CAE 795 (<http://bulletin.miami.edu/search/?P=CAE%20795>)) *will not* count towards the degree requirements.
3. Master's Design Project (CAE 604 (<http://bulletin.miami.edu/search/?P=CAE%20604>)) *will not* count towards the degree requirements.
4. Courses may not count towards multiple requirements.

M.S. Thesis must be defended to, approved by, and signed by the student's Thesis Committee, which is typically the same as the student's Supervisory Committee.

Refer to the Additional Details section (below) for additional options and restrictions.

## Non-Thesis Option

The graduate course requirements for graduation are:

- Minimum of 30 graduate-level credits with a GPA of at least 3.0, and no grade lower than C
- The requirement list is provided below. The classification of courses into their respective Groups can be found in the CAE Courses (<http://bulletin.miami.edu/graduate-academic-programs/engineering/civil-architectural-environmental-engineering/#coursestext>) section.

Code	Title	Credit Hours
<b>Requirement</b>		
6 credits from Group A		6
Group A: 700-level lecture-based CAE courses in civil and architectural engineering		
3 credits from Group G		3
CAE 605	Master's Project	
9 credits from any of the following Groups: A and/or B		9
Group A: 700-level lecture-based CAE courses in civil and architectural engineering		
Group B: 600-level lecture-based CAE courses in civil and architectural engineering		
9 credit from any of the following Groups: A, B, C, and/or D		6
Group A: 700-level lecture-based CAE courses in civil and architectural engineering		
Group B: 600-level lecture-based CAE courses in civil and architectural engineering		
Group C: 600- or 700-level CAE courses in Construction Management (CM)		
Group D: Any pre-approved course in any UM Department at the 600- or 700-level (i.e. XXX 600-799) except CAE and UMI		
6 credits from any of the following Groups: A, B, D, and/or E		6
Group A: 700-level lecture-based CAE courses in civil and architectural engineering		
Group B: 600-level lecture-based CAE courses in civil and architectural engineering		
Group D: Any pre-approved course in any UM Department at the 600- or 700-level (i.e. XXX 600-799) except CAE and UMI		
Group E: CAE Independent Study (Special Problems)		
<b>Total Credit Hours</b>		<b>30</b>

Notes: 1. All courses are 3 credit hours unless otherwise indicated.

2. Up to 6 credits can be Independent Study/Special Problems (CAE 595, CAE 695, CAE 795).
3. Master's Design Project (CAE 604) *will not* count towards the degree requirements.
4. Master's Project (CAE 605) is required for students enrolled in the non-thesis MS program.
5. Master's Thesis (CAE 810) *will not* count towards the degree requirements.
6. Courses may not count towards multiple requirements.

Refer to the Additional Details section (below) for additional options and restrictions.

## Additional Details

- The classification of courses into their respective Groups can be found in the CAE Courses (<http://bulletin.miami.edu/graduate-academic-programs/engineering/civil-architectural-environmental-engineering/#coursestext>) section.
- There is also a 5-Year B.S./M.S. option available for qualified undergraduate students enrolled within the CAE Department. For this combined degree programs only, students are allowed to transfer up to 9 credit hours of graduate coursework from a semester spent abroad. The coursework

resulting in the 9-credit hour transfer is to be approved by the student's M.S. Supervisory Committee **prior** to initiating a study abroad program.

With the exception of the dual M.S. program with UniBo (<http://www.coe.miami.edu/departments/cae-engineering/graduate/dual-ms/>), transferred credits cannot be used to satisfy the requirements of an external degree.

- Admissions requirements for the M.S. degree are listed in this Bulletin under Engineering (<http://bulletin.miami.edu/graduate-academic-programs/engineering/>) and under Master's Degree.
- A total of 6 credits of transfer and/or exchange coursework (not counted towards the B.S. degree, and with grades of "B" or above) may be taken at another institution (with pre-approval) to satisfy the requirements for the M.S. degree.
- Internships, Practical Training, workshops, or other types of practicum are neither required nor optional credit-earning components in the established graduate curriculum (Program of Study). Credit earned through these experiences (such as UMI 605) *will not* count towards any CAE degree requirement.
- The Supervisory Committee must have a minimum of 3 members, including:
  1. Committee Chair (Advisor) shall be full-time CAE faculty and a member of the Graduate Faculty.
  2. Full-Time or Part-Time CAE Faculty
  3. Non-CAE member with an earned Ph.D.

In addition to the Committee Chair, at least one member must be tenured/tenure-earning or a member of the Graduate Faculty.

## Sample Plan of Study

### Thesis Option

The course requirements for the MS (thesis-based) program can be met as follows:

First Year		
First Semester		Credit Hours
3 credits from Group F		3
CAE 810	Master's Thesis	
3 credits from Group A		3
Group A: 700-level lecture-based CAE courses in civil and architectural engineering		
3 credits from Group A or B		3
Group A: 700-level lecture-based CAE courses in civil and architectural engineering		
Group B: 600-level lecture-based CAE courses in civil and architectural engineering		
3 credits from Group A, B, C, or D		3
Group A: 700-level lecture-based CAE courses in civil and architectural engineering		
Group B: 600-level lecture-based CAE courses in civil and architectural engineering		
Group C: 600- or 700-level CAE courses in Construction Management (CM)		
Group D: Any pre-approved course in any UM Department at the 600- or 700-level (i.e. XXX 600-799) except CAE and UMI		
Credit Hours		12
Second Semester		
3 credits from Group A		3
Group A: 700-level lecture-based CAE courses in civil and architectural engineering		
3 credits from Group F		3
CAE 810	Master's Thesis	
3 credits from Group A, B, C, or D		3
Group A: 700-level lecture-based CAE courses in civil and architectural engineering		
Group B: 600-level lecture-based CAE courses in civil and architectural engineering		
Group C: 600- or 700-level CAE courses in Construction Management (CM)		
Group D: Any pre-approved course in any UM Department at the 600- or 700-level (i.e. XXX 600-799)		
3 credits from Group A, B, or D		3
Group A: 700-level lecture-based CAE courses in civil and architectural engineering		
Group B: 600-level lecture-based CAE courses in civil and architectural engineering		
Group D: Any pre-approved course in any UM Department at the 600- or 700-level (i.e. XXX 600-799) except CAE and UMI		
Credit Hours		12

**Second Year****First Semester**

3 credits from Group A, B, C or D	3
Group A: 700-level lecture-based CAE courses in civil and architectural engineering	
Group B: 600-level lecture-based CAE courses in civil and architectural engineering	
Group C: 600- or 700-level CAE courses in Construction Management (CM)	
Group D: Any pre-approved course in any UM Department at the 600- or 700-level (i.e. XXX 600-799)	
3 credits from Group A, B, or D	3
Group A: 700-level lecture-based CAE CAE courses in civil and architectural engineering	
Group B: 600-level lecture-based CAE courses in civil and architectural engineering	
Group D: Any pre-approved course in any UM Department at the 600- or 700-level (i.e. XXX 600-799) except CAE and UMI	
<b>Credit Hours</b>	<b>6</b>
<b>Total Credit Hours</b>	<b>30</b>

**Non-Thesis Option**

The course requirements for the MS (non-thesis) program can be met as follows:

<b>First Year</b>	<b>Credit Hours</b>
<b>First Semester</b>	
3 credits from Group G	3
CAE 605                                      Master's Project	
3 credits from Group A	3
Group A: 700-level lecture-based CAE courses in civil and architectural engineering	
3 credits from Group A or B	3
Group A: 700-level lecture-based CAE courses in civil and architectural engineering	
Group B: 600-level lecture-based CAE courses in civil and architectural engineering	
3 credits from Group A, B, C, or D	3
Group A: 700-level lecture-based CAE courses in civil and architectural engineering	
Group B: 600-level lecture-based CAE courses in civil and architectural engineering	
Group C: 600- or 700-level CAE courses in Construction Management (CM)	
Group D: Any pre-approved course in any UM Department at the 600- or 700-level (i.e. XXX 600-799) except CAE and UMI	
<b>Credit Hours</b>	<b>12</b>
<b>Second Semester</b>	
3 credits from Group A	3
Group A: 700-level lecture-based CAE Courses in civil, architectural, and environmental engineering	
3 credits from Group A or B	3
Group A: 700-level lecture-based CAE courses in civil and architectural engineering	
Group B: 600-level lecture-based CAE courses in civil and architectural engineering	
3 credits from Group A, B, C, or D	3
Group A: 700-level lecture-based CAE courses in civil and architectural engineering	
Group B: 600-level lecture-based CAE courses in civil and architectural engineering	
Group C: 600- or 700-level CAE courses in Construction Management (CM)	
Group D: Any pre-approved course in any UM Department at the 600- or 700-level (i.e. XXX 600-799) except CAE or UMI	
3 credits from Group A, B, D, or E	3
Group A: 700-level lecture-based CAE courses in civil and architectural engineering	
Group B: 600-level lecture-based CAE courses in civil and architectural engineering	
Group D: Any pre-approved course in any UM Department at the 600- or 700-level (i.e. XXX 600-799) except CAE and UMI	
Group E: CAE Independent Study (Special Problems)	
<b>Credit Hours</b>	<b>12</b>

**Second Year****First Semester**

3 credits from Group A or B	3
Group A: 700-level lecture-based CAE courses in civil and architectural engineering	
Group B: 600-level lecture-based CAE courses in civil and architectural engineering	
3 credits from Group A, B, D, or E	3
Group A: 700-level lecture-based CAE courses in civil and architectural engineering	
Group B: 600-level lecture-based CAE courses in civil and architectural engineering	
Group D: Any pre-approved course in any UM Department at the 600- or 700-level (i.e. XXX 600-799) except CAE and UMI	
Group E: CAE Independent Study (Special Problems)	
<b>Credit Hours</b>	<b>6</b>
<b>Total Credit Hours</b>	<b>30</b>

## Mission

The mission of the Master of Science in Architectural Engineering program in the Department of Civil and Architectural Engineering is to:

1. Provide high-quality graduate education in architectural engineering that will prepare graduates for professional careers and a lifetime of learning;
2. Provide opportunities to conduct high-quality research that will advance the body of knowledge and improve the quality of human life; and
3. Serve the engineering profession and society through active involvement in professional organizations and contribution of professional expertise.

Students in the program will advance through rigorous coursework to prepare them for professional careers in industry and government. A small-department atmosphere enables faculty to provide students with personal and individualized instruction and career guidance. Faculty in the department have a long history of maintaining close working ties with government agencies, industry, and health sciences. These relationships enable the Department to provide M.S. graduates with a world-class education to strengthen their technical, professional, problem-solving, and leadership capabilities required for them to generate meaningful contributions to society.

## Goals

The educational objectives of the M.S. program in Architectural Engineering are to produce graduates whom:

- Have advanced technical knowledge in at least one specialty area of architectural engineering; and
- Have advanced capability to apply knowledge to engineering problems.

## Student Learning Outcomes

- Students will demonstrate an advanced knowledge of the discipline (mathematics, science, and engineering), including methodology relevant to a specialty area.
- Students will demonstrate an advanced ability to identify, formulate, and solve engineering problems.
- Students will demonstrate an advanced ability to generate technical contributions and effectively communicate them to the scientific community.