

B.S. IN ARCHITECTURAL ENGINEERING/MASTER OF ARCHITECTURE

Overview

A six-year dual-degree program leading to a Bachelor of Science in Architectural Engineering and a Master of Science in Architecture is available. The program is open to exceptional students who are admitted to the graduate program at the end of their junior year. Upon completion of this program, graduates are eligible for professional registration as both an engineer and an architect. The course requirements for the BSAE/MArch program are shown in the Plan of Study.

Curriculum Requirements

Code	Title	Credit Hours
BS IN ARCHITECTURAL ENGINEERING REQUIREMENTS (155 CREDIT HOURS)		
Engineering Courses		
CAE 111	Introduction to Engineering I	3
CAE 115	Introduction to Engineering II: Geospatial Data (Surveying and GIS)	1
CAE 210	Mechanics of Solids I	3
CAE 211	Mechanics of Solids II	3
CAE 212	Structural Laboratory	1
CAE 310	Structural Analysis	3
CAE 320	Concrete Structures	3
CAE 321	Steel Structures	3
CAE 330	Fluid Mechanics	3
CAE 370	Geotechnical Engineering I	3
CAE 371	Geotechnical Laboratory	1
CAE 380	Electrical and Illumination Systems for Buildings	3
CAE 381	Building Mechanical Systems I: Hvac Fundamentals	3
CAE 402	Professional Engineering Practice	3
CAE 403	Senior Design Project I - Engineering Design	3
CAE 404	Senior Design Project II - Integrated Engineering Documents	3
CAE 460	Construction Management	3
CAE 470	Foundations and Earth Retaining Systems	3
CAE 480	Plumbing and Life Safety for Buildings	3
CAE 481	Building Mechanical Systems II: HVAC Systems	3
CAE 581	Energy-Efficient Building Design	3
ISE 311	Applied Probability and Statistics	3
MAE 303	Thermodynamics	3
CAE 361	Building Information Modeling I	3
Architecture Courses		
ARC 121	Architecture and Culture	1
ARC 230	Building Technology I: Materials and Methods	3
ARC 267	History of Architecture I: Ancient, Medieval and Renaissance	3
ARC 268	History of Architecture II: Baroque through Contemporary	3
ARC 500	Architecture Theory	3
ARC 501	Architecture Design and Theory I	6
ARC 502	Architecture Design and Theory II	6
ARC 503	Architectural Design and Theory III	6
ARC 504	Architecture Design and Theory I	6
ARC 511	Visual Representation I	3
Math and Science Courses		
MTH 151	Calculus I for Engineers	5
MTH 162	Calculus II	4

MTH 211	Calculus III	3
MTH 311	Introduction to Ordinary Differential Equations	3
CHM 151	Chemistry for Engineers	3
CHM 153	Chemistry Laboratory for Engineers	1
PHY 221	University Physics I	3
PHY 222	University Physics II	3
PHY 223	University Physics III	3
PHY 224	University Physics II Lab	1
PHY 225	University Physics III Lab	1
General Education Requirements		
Written Communication Skills:		
WRS 105	First-Year Writing I	3
WRS 107	First-Year Writing II: STEM	3
Quantitative Skills:		
MTH 151	Calculus I for Engineers (fulfilled through the major)	3
Areas of Knowledge:		
Arts and Humanities Cognate (9 credits) (fulfilled through the ARC courses in the major)		
People and Society Cognate		9
STEM Cognate (9 credits) (fulfilled through the major)		
Additional Required Courses		
GEG 199	Geographic Information Systems for Engineers	1
Technical Elective		3
MASTER OF ARCHITECTURE REQUIREMENTS (45 CREDIT HOURS)		
ARC 608	Integrated Architecture Design Studio	6
ARC 609	Architecture Design	6
ARC 610	Architecture Design Degree Project	6
ARC 613	Spatial Representation + Architectural Media 2	3
ARC 620	Responsible Architecture	3
ARC 652	Management of Professional Practice	3
ARC 699	Directed Research (Architecture Thesis Prep)	6
Architecture Elective		9
Architecture History Elective		3
Total Credit Hours		200

Plan of Study

Year One		Credit Hours
First Semester		
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
ARC 121	Architecture and Culture	1
Credit Hours		15
Second Semester		
CAE 115	Introduction to Engineering II: Geospatial Data (Surveying and GIS)	1
CAE 210	Mechanics of Solids I	3
WRS 107	First-Year Writing II: STEM	3
GEG 199	Geographic Information Systems for Engineers	1
MTH 162	Calculus II	4
PHY 222	University Physics II	3
PHY 224	University Physics II Lab	1
Credit Hours		16

Year Two		
First Semester		
CAE 211	Mechanics of Solids II	3
CAE 212	Structural Laboratory	1
ARC 230	Building Technology I: Materials and Methods (ARC 630) ¹	3
ARC 267	History of Architecture I: Ancient, Medieval and Renaissance (ARC 667) ¹	3
PHY 223	University Physics III	3
PHY 225	University Physics III Lab	1
ISE 311	Applied Probability and Statistics	3
Credit Hours		17
Second Semester		
CAE 310	Structural Analysis (ARC 631) ¹	3
CHM 151	Chemistry for Engineers	3
CHM 153	Chemistry Laboratory for Engineers	1
MAE 303	Thermodynamics	3
MTH 211	Calculus III	3
MTH 311	Introduction to Ordinary Differential Equations	3
Credit Hours		16
Year Three		
Summer		
Required 10 Week Semester		
ARC 203	Architecture Design III (ARC 606) ² \$	6
Credit Hours		6
First Semester		
CAE 320	Concrete Structures (ARC 633) ¹ \$	3
CAE 330	Fluid Mechanics	3
PS Cognate ¹		3
ARC 501	Architecture Design and Theory I (ARC 292/ARC604) ¹ \$	6
ARC 511	Visual Representation I (ARC 611) ² \$	3
PS Cognate *		3
Credit Hours		21
Second Semester		
CAE 321	Steel Structures (ARC 632) ¹ \$	3
CAE 380	Electrical and Illumination Systems for Buildings (ARC 663) ¹ \$	3
CAE 381	Building Mechanical Systems I: Hvac Fundamentals (ARC 662) ¹ \$	3
ARC 502	Architecture Design and Theory II (ARC 293/ARC 605) ¹ \$	6
ARC 513	Advanced Visual Representation (ARC 613) ² \$	3
Credit Hours		18
Summer (Required 10-week semester)		
ARC 503	Architectural Design and Theory III	6
Credit Hours		6
Year Four		
First Semester		
CAE 480	Plumbing and Life Safety for Buildings \$	3
ARC 500	Architecture Theory (ARC 620) ² \$	3
ARC 504	Architecture Design and Theory I (ARC 607) ² \$	6
CAE 361 Building Information Modeling I		3
Credit Hours		15
Second Semester		
CAE 370	Geotechnical Engineering I \$	3
CAE 371	Geotechnical Laboratory \$	1
CAE 402	Professional Engineering Practice	3

CAE 460	Construction Management (Arch Elective) ¹ §	3
ARC 268	History of Architecture II: Baroque through Contemporary (ARC 668) ² §	3
Architecture Elective ²		3
Credit Hours		16
Year Five		
First Semester		
CAE 403	Senior Design Project I - Engineering Design [§]	3
CAE 470	Foundations and Earth Retaining Systems [§]	3
CAE 481	Building Mechanical Systems II: HVAC Systems (ARC Elective) ¹ §	3
ARC 608	Integrated Architecture Design Studio ² §	6
Credit Hours		15
Second Semester		
CAE 404	Senior Design Project II - Integrated Engineering Documents [§]	3
ARC 609	Architecture Design ²	6
Architecture Elective ²		3
PS Cognate [*]		3
Credit Hours		15
Year Six		
First Semester		
ARC 699	Directed Research ² §	3
ARC 652	Management of Professional Practice ² §	3
History of Architecture Elective ²		3
Architecture Elective ²		3
PS Cognate [*]		3
Credit Hours		15
Second Semester		
CAE 581	Energy-Efficient Building Design (ARC Elective) ¹ §	3
ARC 610	Architecture Design Degree Project ² §	6
Architecture Elective ²		3
Credit Hours		12
Total Credit Hours		203

Note: ARC 292 (<http://bulletin.miami.edu/search/?search=arc+292>) or ARC 293 (<http://bulletin.miami.edu/search/?search=arc+293>), ARC 267 (<http://bulletin.miami.edu/search/?search=arc+267>), and ARC 268 (<http://bulletin.miami.edu/search/?search=arc+268>) are required to satisfy the Humanities and Arts (HA) cognate in Architecture: Design and Theory.

Footnotes

- ¹ Shared BSAE/M.Arch Curriculum
² M.Arch Curriculum
^{*} To be selected from a People and Society (PS) Cognate
[§] Only offered one per year.