

# BACHELOR OF SCIENCE IN ARCHITECTURAL ENGINEERING AND 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.

## Curriculum Requirements

Code	Title	Credit Hours
<b>Architecture Courses</b>		
ARC 121	Architecture and Culture	1
ARC 267	History of Architecture I: Ancient, Medieval and Renaissance	3
ARC 268	History of Architecture II: Baroque through Contemporary	3
ARC 230	Building Technology I: Materials and Methods	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
ARC 513	Advanced Visual Representation	3
ARC 608	Integrated Architecture Design Studio	6
ARC 609	Architecture Design	6
ARC 610	Architecture Design Degree Project	6
ARC 652	Management of Professional Practice	3
ARC 699	Directed Research	3
<b>Engineering Courses</b>		
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
<b>Additional Courses and Electives</b>		
CHM 151	Chemistry for Engineers	3

CHM 153	Chemistry Laboratory for Engineers	1
GEG 198	Geographic Information System for Engineers	1
WRS 105	First-Year Writing I	3
WRS 107	First-Year Writing II: STEM	3
ISE 311	Applied Probability and Statistics	3
MAE 303	Thermodynamics	3
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
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
Architecture Elective		12
Architecture History Elective		3
Technical Elective <sup>2</sup>		3
Cognate Elective <sup>1</sup>		15
<b>Total Credit Hours</b>		<b>200</b>

## Suggested Plan of Study

<b>Year One</b>		
<b>First Semester</b>		<b>Credit Hours</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
ARC 121	Architecture and Culture	1
<b>Credit Hours</b>		<b>15</b>
<b>Second Semester</b>		
CAE 115	Introduction to Engineering II: Geospatial Data (Surveying and GIS)	1
GEG 198	Geographic Information System for Engineers	1
CAE 210	Mechanics of Solids I	3
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
<b>Credit Hours</b>		<b>16</b>
<b>Year Two</b>		
<b>First Semester</b>		
CAE 211	Mechanics of Solids II	3
CAE 212	Structural Laboratory	1
ARC 267	History of Architecture I: Ancient, Medieval and Renaissance	3
ARC 230	Building Technology I: Materials and Methods	3
PHY 223	University Physics III	3
PHY 225	University Physics III Lab	1
ISE 311	Applied Probability and Statistics	3
<b>Credit Hours</b>		<b>17</b>
<b>Second Semester</b>		
CAE 310	Structural Analysis	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
<b>Credit Hours</b>		<b>16</b>
<b>Year Three</b>		
<b>First Semester</b>		
CAE 320	Concrete Structures	3
CAE 330	Fluid Mechanics	3
ARC 501	Architecture Design and Theory I	6
ARC 511	Visual Representation I	3
Cognate Elective <sup>1</sup>		3
<b>Credit Hours</b>		<b>18</b>
<b>Second Semester</b>		
CAE 321	Steel Structures (ARC 532)	3
CAE 380	Electrical and Illumination Systems for Buildings (ARC 563)	3
CAE 381	Building Mechanical Systems I: Hvac Fundamentals (ARC 562)	3
ARC 502	Architecture Design and Theory II	6
ARC 513	Advanced Visual Representation	3
<b>Credit Hours</b>		<b>18</b>
<b>Summer (Required 10-week semester)</b>		
ARC 503	Architectural Design and Theory III	6
<b>Credit Hours</b>		<b>6</b>
<b>Year Four</b>		
<b>First Semester</b>		
CAE 480	Plumbing and Life Safety for Buildings	3
ARC 500	Architecture Theory	3
ARC 504	Architecture Design and Theory I	6
Technical Elective <sup>2</sup>		3
Cognate Elective <sup>1</sup>		3
<b>Credit Hours</b>		<b>18</b>
<b>Second Semester</b>		
CAE 370	Geotechnical Engineering I	3
CAE 371	Geotechnical Laboratory	1
CAE 402	Professional Engineering Practice	3
CAE 460	Construction Management (Arch Elective)	3
Architecture Elective		3
ARC 268	History of Architecture II: Baroque through Contemporary	3
<b>Credit Hours</b>		<b>16</b>
<b>Year Five</b>		
<b>First Semester</b>		
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	3
ARC 608	Integrated Architecture Design Studio	6
<b>Credit Hours</b>		<b>15</b>
<b>Second Semester</b>		
CAE 404	Senior Design Project II - Integrated Engineering Documents	3
ARC 609	Architecture Design	6
Architecture Elective		3
Cognate Elective <sup>1</sup>		3
<b>Credit Hours</b>		<b>15</b>

<b>Year Six</b>		
<b>First Semester</b>		
ARC 652	Management of Professional Practice	3
ARC 699	Directed Research	3
Architecture History Elective		3
Architecture Elective		3
Cognate Elective <sup>1</sup>		3
<b>Credit Hours</b>		<b>15</b>
<b>Second Semester</b>		
CAE 581	Energy-Efficient Building Design	3
ARC 610	Architecture Design Degree Project	6
Architecture Elective		3
Cognate Elective <sup>1</sup>		3
<b>Credit Hours</b>		<b>15</b>
<b>Total Credit Hours</b>		<b>200</b>

<sup>1</sup> To be selected from approved lists of People and Society (PS)/Arts and Humanities (HA). Students take a minimum of 3 courses (9 credit hours) in HA cognate and 3 courses in PS Cognate (9 credit hours). Students are advised to select the HA Cognate that includes the following courses: ARC 230 or ARC 630, ARC 268 or ARC 476 and ARC 594.

<sup>2</sup> To be selected from approved list of Technical Electives