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

Overview

The College of Engineering offers a dual-degree program that culminates with students receiving a Bachelor of Civil Engineering and a Master of Science in Mechanical Engineering concurrently. This program is available only to qualified students enrolled in the undergraduate program in Civil Engineering at the University of Miami. This program is intended to give qualified Civil Engineering students the opportunity to acquire both a baccalaureate degree (BSCE) and a Master of Science (MSME) degree in five years rather than the 4 plus 2 years (approximately) that is traditionally expected. The two degrees are awarded simultaneously when the combined requirements have been met for both degrees.

- Juniors enrolled in CE who have maintained at least a 3.0 CGPA have the option to apply for admission to the combined B.S. CE-M.S. ME program.
- Those who are accepted into this accelerated program must maintain at least a 3.0 CGPA and a minimum of a 3.0 GPA for the final 30 credit hours to meet the requirements of the Graduate School.
- Up to 6 credit hours of technical electives earned during the fourth year can be counted toward the 30 credit hours required for the M.S. degree. If their schedule allows, students may be able to complete an additional 6 credits of graduate classes during their fourth year.
- Students must be registered for a minimum of 12 undergraduate credit hours per semester in their fourth year.
- Students can register for a maximum of 6 graduate credit hours in each semester of their fourth year.
- If a student needs to withdraw from the B.S. CE/M.S. ME program, then all the requirements for the BS degree must be completed for graduation with the B.S. CE degree.

Admission Requirements

The dual B.S. CE/M.S. ME program is available only to qualified undergraduate students enrolled in the Department of Civil Engineering. Students must have undergraduate student status and a cumulative G.P.A. of at least 3.0 at the time of application.

Qualified students are strongly advised to apply to the dual degree program as early as possible in their junior year to facilitate academic advising and course selection in the second semester of their junior year. Students opting for an M.S. degree in a discipline different from their B.S. degree may need to take some prerequisite coursework. Before submitting an application, students should discuss the program and possibility of entering with an academic adviser.

Graduation Requirements

Students accepted into the dual degree program must maintain at least a 3.0 Cumulative GPA, and meet all other pertinent Graduate School requirements, including a minimum of 3.0 GPA in the credits applied toward the MS degree.

Admission Requirements

Students must have undergraduate student status and a cumulative G.P.A. of at least 3.0 at the time of application.

Qualified students are strongly advised to apply to the dual degree program as early as possible in their junior year to facilitate academic advising and course selection in the second semester of their junior year. Students opting for an M.S. degree in a discipline different from their B.S. degree may need to take some prerequisite coursework. Before submitting an application, students should discuss the program and possibility of entering with an academic adviser.

This program is intended for exceptional students to acquire both a Bachelor of Science and a Master of Science degree simultaneously, in five years rather than the 4 plus 2 years (approximately) it normally requires.

Curriculum Requirements

Code	Title	Credit Hours
MAJOR REQUIREMENTS		
Engineering Courses		
EGN 110	Innovation and Entrepreneurship in Engineering	3
or EGN 114	Global Challenges Addressed by Engineering and Technology	
or EGN 123	Computing and Digital Solutions for the future	
CAE 115	Introduction to Engineering II: Geospatial Data (Surveying and GIS)	2
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
CET 340	Introduction to Environmental Engineering	3
CAE 350	Transportation Engineering I	3
CAE 370	Geotechnical Engineering I	3
CAE 371	Geotechnical Laboratory	1
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 430	Water-Resources Engineering I	3
CET 440	Water Quality Control Systems	3
CAE 470	Foundations and Earth Retaining Systems	3
MAE 303	Thermodynamics	3
ISE 311	Applied Probability and Statistics	3
CEN Design Electives		6
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 (3 credits) (fulfilled through MTH 151)		
Areas of Knowledge:		
Arts and Humanities Cognate		9
People and Society Cognate		9
STEM Cognate (9 credits) (fulfilled through the major)		
ADDITIONAL REQUIRED COURSES		
Basic Science Elective		3
MSME REQUIREMENTS (30 CREDITS)		
Technical electives taken as graduate courses		6
MAE 601	Methods of Engineering Analysis	3
MAE 751	Master's Project	3
MAE electives		18
Total Credit Hours		**151**

Plan of Study

Freshman Year		
Fall		**Credit Hours**
MTH 151	Calculus I for Engineers	5
PHY 221	University Physics I	3

WRS 105	First-Year Writing I	3
EGN 110, 114, or 123	Innovation and Entrepreneurship in Engineering or Global Challenges Addressed by Engineering and Technology or Computing and Digital Solutions for the future	3
	Credit Hours	**14**
Spring		
CAE 115	Introduction to Engineering II: Geospatial Data (Surveying and GIS)	2
WRS 107	First-Year Writing II: STEM	3
MTH 162	Calculus II	4
PHY 222	University Physics II	3
PHY 224	University Physics II Lab	1
CAE 210	Mechanics of Solids I	3
	Credit Hours	**16**
Sophomore Year		
Fall		
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
HA Cognate [1]		3
	Credit Hours	**17**
Spring		
MTH 311	Introduction to Ordinary Differential Equations	3
CHM 151	Chemistry for Engineers	3
CHM 153	Chemistry Laboratory for Engineers	1
CAE 310	Structural Analysis	3
HA Cognate [1]		3
Basic Science Elective [1]		3
	Credit Hours	**16**
Junior Year		
Fall		
CAE 320	Concrete Structures	3
CAE 330	Fluid Mechanics	3
CAE 350	Transportation Engineering I	3
MAE 303	Thermodynamics	3
CET 340	Introduction to Environmental Engineering	3
PS Cognate [1]		3
	Credit Hours	**18**
Spring		
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
HA Cognate [1]		3
	Credit Hours	**16**
Senior Year		
Fall		
CAE 403	Senior Design Project I - Engineering Design	3
CAE 470	Foundations and Earth Retaining Systems	3

PS Cognate [1]		3
CEN Design Elective 1 [2]		3
Technical elective taken as graduate course [3]		3
Graduate Course [3]		3
	Credit Hours	**18**
Spring		
CAE 402	Professional Engineering Practice	3
CAE 404	Senior Design Project II - Integrated Engineering Documents	3
CEN Design Elective 2 [2]		3
PS Cognate [1]		3
Graduate Course [3]		3
Technical elective taken as graduate course [3]		3
	Credit Hours	**18**
Fifth Year (Graduate)		
Fall		
MAE 601	Methods of Engineering Analysis	3
MAE electives		6
	Credit Hours	**9**
Spring		
MAE 751	Master's Project	3
MAE electives		6
	Credit Hours	**9**
	Total Credit Hours	**151**

1 To be selected from lists of approved People and Society (PS)/Humanities and Arts (HA) cognates, Technical, CEN Technical, and Basic Science electives. Students take a minimum of 3 courses (9 credit hours) in HA cognate and 3 courses in PS Cognate (9 credit hours)

2 CEN Design Elective 1 is CAE 530 or CAE 570
CEN Design Elective 2 is CAE 520 or CAE 521

3 Graduate courses are selected from courses at the 600 or 700 level. Contact the Graduate Program Coordinator in Mechanical Engineering for additional guidance.