B.S. IN ENVIRONMENTAL ENGINEERING/M.S. IN INDUSTRIAL ENGINEERING

Overview

The College of Engineering offers a dual-degree program that culminates with students receiving a Bachelor of Science in Environmental Engineering and a Master of Science in Industrial Engineering concurrently. This program is available only to qualified students enrolled in the undergraduate program in Environmental Engineering at the University of Miami. This is a structured and integrated program totaling 152 credit hours.

Note the following:

- At least 30 credit hours must be at the graduate (600 or 700) level.
- Interested environmental engineering Juniors with a cumulative GPA above 3.0 may declare their intent to participate by submitting an official application to the Graduate School for admission into the M.S.I.S.E. portion of the program.
- A student wishing to drop out of the five-year program without the M.S.I.S.E. degree could receive the B.S.En.E. degree after completing all its requirements, including the senior design project.
- To qualify for the M.S.I.E. degree, students must meet all the pertinent Graduate School requirements, including a minimum of 3.0 GPA in the 30 credit hours applied towards the M.S.I.E. degree.
- The student is awarded both the B.S.En.E. and the M.S.I.E. degrees after the requirements for both degrees are satisfied.
- If their schedule allows, students may be able to complete 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.

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 the industrial and systems engineering MS degree for details regarding the distribution of the credits.
- Completion of the BSEnE degree requirements

Admission Requirements

The dual B.S. EnE/M.S. IE program is available only to qualified undergraduate students enrolled in the environmental engineering undergraduate program at UM. 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
B.S. IN ENVIRONMENTAL ENGINEERING REQUIREMENTS		
Engineering Courses		
EGN 114	Global Challenges Addressed by Engineering and Technology	3
CET 300	Computational Methods for Engineers (Computational Methods for Engineers (NEW COURSE))	3
CET 330	Fluid Mechanics	3
CET 340	Introduction to Environmental Engineering	3
CET 345	Environmental Laboratory and Analysis [1]	3
CET 403	Senior Design Project I - Engineering Design [1]	3
CET 430	Water-Resources Engineering I	3
CET 440	Water Quality Control Systems	3
CET 530	Water Resources Engineering II	3
CET 533	Water-Quality Control in Natural Systems	3

CET 540	Environmental Chemistry	3
CET 541	Environmental Engineering Microbiology	3
CET 543	Air Pollution Control Engineering	3
CAE 115	Introduction to Engineering II: Geospatial Data (Surveying and GIS)	2
CAE 210	Mechanics of Solids I	3
CAE 402	Professional Engineering Practice [1]	3
ECE 205	Principles of Electrical Engineering--I	3
ISE 311	Applied Probability and Statistics	3
MAE 303	Thermodynamics	3
Technical Elective		6
Marine Science Courses		
MSC 301	Introduction to Physical Oceanography	3
Marine/Atmospheric Science Elective		3
Math and Science Courses		
MTH 151	Calculus I for Engineers [2]	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 224	University Physics II Lab	1
CHM 121	Principles of Chemistry	4
CHM 113	Chemistry Laboratory I	1
Biology Elective		3
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)	
Areas of Knowledge:		
Arts and Humanities Cognate		9
People and Society Cognate		9
STEM Cognate (9 credits) (fulfilled through the major)		
M.S. IN INDUSTRIAL ENGINEERING REQUIREMENTS (30 CREDIT HOURS)		
ISE 694	Master's Capstone Design Project	3
ISE 712	Design of Experiments	3
ISE 742	Linear Programming and Extensions	3
ISE 757	Ergonomics and Occupational Biomechanics	3
ISE 763	Project Management Techniques	3
or ISE 764	Supply Chain Management	
Additional graduate electives		15
Total Credit Hours		**152**

Internships, Practical Training, or other types of practicum are neither required nor optional credit-earning components in the established undergraduate curriculum. Credit earned through these experiences via UMI 305 will not count towards the degree requirements.

At the graduate level, 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). The Program of Study is tailored to the student's background and goals by their advisor, and must be approved as constituting an MS in Civil Engineering by the student's Supervisory Committee.

The graduate course requirements for graduation are:

- Completion of the BSEnE degree
- Minimum of 30 graduate-level credits with a GPA of at least 3.000, and no grade lower than C.

Transfer of credits from other institutions

- A total of 6 credits of transfer and/or exchange coursework not counted towards the student's B.S. may be taken at another institution and used to satisfy requirements for the M.S. The number of eligible credits for transfer is 9, when pre-approved coursework is taken as part of a semester abroad experience.

Plan of Study

Freshman Year		
Fall		**Credit Hours**
EGN 114	Global Challenges Addressed by Engineering and Technology	3
MTH 151	Calculus I for Engineers	5
PHY 221	University Physics I	3
WRS 105	First-Year Writing I	3
	Credit Hours	**14**
Spring		
CAE 115	Introduction to Engineering II: Geospatial Data (Surveying and GIS)	2
MTH 162	Calculus II	4
PHY 222	University Physics II	3
PHY 224	University Physics II Lab	1
WRS 107	First-Year Writing II: STEM	3
PS Cognate		3
	Credit Hours	**16**
Sophomore Year		
Fall		
CET 300	Computational Methods for Engineers	3
CAE 210	Mechanics of Solids I	3
MTH 211	Calculus III	3
CHM 121	Principles of Chemistry	4
CHM 113	Chemistry Laboratory I	1
PS Cognate		3
	Credit Hours	**17**
Spring		
CET 340	Introduction to Environmental Engineering	3
ECE 205	Principles of Electrical Engineering--I	3
MTH 311	Introduction to Ordinary Differential Equations	3
Biology Elective		3
AH Cognate		3
	Credit Hours	**15**
Junior Year		
Fall		
CET 330	Fluid Mechanics	3
CET 345	Environmental Laboratory and Analysis	3
MAE 303	Thermodynamics	3
ISE 311	Applied Probability and Statistics	3
MSC 301	Introduction to Physical Oceanography	3
	Credit Hours	**15**
Spring		
CET 430	Water-Resources Engineering I	3
CET 440	Water Quality Control Systems	3
Environmental Engineering Course		3
Marine/Atmospheric Science Elective		3

Technical elective		3
AH Cognate		3
	Credit Hours	**18**
Senior Year		
Fall		
CET 403	Senior Design Project I - Engineering Design	3
CET 530	Water Resources Engineering II	3
Environmental Engineering Course		3
Environmental Engineering Course		3
AH Cognate		3
Graduate course		3
	Credit Hours	**18**
Spring		
CET 404	Senior Design Project II – Integrated Engineering Documents	3
CAE 402	Professional Engineering Practice	3
Environmental Engineering Course		3
PS Cognate		3
Graduate Course		3
	Credit Hours	**15**
Fifth Year (Graduate)		
Fall		
ISE 712	Design of Experiments	3
ISE 763	Project Management Techniques	3
ISE 742	Linear Programming and Extensions	3
Graduate Elective		3
	Credit Hours	**12**
Spring		
ISE 757	Ergonomics and Occupational Biomechanics	3
ISE 764	Supply Chain Management	3
ISE 694	Master's Capstone Design Project	3
Graduate Elective		3
	Credit Hours	**12**
	Total Credit Hours	**152**

* In the Spring of the Senior year, students enroll in CAE 604 instead of CET 404. CAE 604 counts towards both the undergraduate and graduate degrees.