B.S. IN COMPUTER ENGINEERING / M.S. IN BIOMEDICAL ENGINEERING

Overview

The College of Engineering offers a dual-degree program that culminates with students receiving a Bachelor of Science in Computer Engineering and a Master of Science in Biomedical Engineering concurrently. This program is available only to qualified students enrolled in the undergraduate program in Computer Engineering at the University of Miami. This is a structured and integrated program totaling 153 credit hours.

Note the following:

- At least 30 credit hours must be at the graduate (600 or 700) level.
- Interested Computer 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.B.M.E. portion of the program.
- A student wishing to drop out of the five-year program without the M.S.B.M.E. degree could receive the B.S.C.E. degree after completing all its requirements, including the senior design project.
- To qualify for the M.S.B.M.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.B.M.E. degree.
- The student is awarded both the B.S.C.E. and the M.S.B.M.E. degrees after the requirements for both degrees are satisfied.
- 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.

Admission Requirements

The dual B.S. CE/M.S. BME program is available only to qualified undergraduate students enrolled in the Department of Electrical and Computer 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.

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: B.S. Computer Engineering / M.S. Biomedical Engineering

Code	Title	Credit Hours
BS IN COMPUTER ENGINEERING REQUIREMENTS (123 CI	REDIT HOURS)	
Engineering Courses		
EGN 123	Computing and Digital Solutions for the future	3
ECE 112	Introduction to Engineering II	2
ECE 118	Introduction to Programming	3
ECE 201	Electrical Circuit Theory	3
ECE 202	Electronics I	3
ECE 203	Electrical Circuits Laboratory	1
ECE 211	Logic Design	3
ECE 212	Processors: Hardware, Software, and Interfacing	3
ECE 218	Data Structures	3
ECE 315	Digital Design Laboratory	1
ECE 316	Structured Digital Design	1
ECE 318	Algorithms	3
ECE 322	Systems Programming	3
ECE 414	Computer Organization and Design	3
ECE 417	Embedded Microprocessor System Design	3

ECE 487 Database Design and Management	Total Credit Hours		153
ECE 467 Database Design and Management			
ECE 467 Database Design and Management		iveurophysiology for Engineers	1/
ECE 467 Database Design and Management			
ECE 487			
ECE 447 Database Design and Management ECE 481 Senior Project I ECE 482 Senior Project II ECE 205 Circuits, Signals, and Systems ECE 206 Circuits, Signals, and Systems ECE 302 Electronics II ECE 303 Electronics Laboratory ECE 454 Digital System Design and Testing ECE 455 Design-for Testability Laboratory EC Technical Electives I Math and Science Courses ECE 310 Introduction to Engineering Probability MTH 151 Calculus I for Engineers MTH 210 Introduction to Linear Algebra MTH 309 Discrete Mathematics I MTH 311 Introduction to Ordinary Differential Equations PHY 222 University Physics II Or PHY 223 University Physics II PHY 224 University Physics III Or PHY 225 University Physics III Lab Sasic Science Elective + Lab General Education Requirements Written Communication Skills: First-Year Writing I WRS 105 First-Year Writing It STEM Quantitative Ski	-	Ricohomistry and Callular Physiology for Engineers	
ECE 447		negulatory Control of Bioffiedical Devices	3
ECE 4467 Database Design and Management ECE 481 Senior Project I ECE 482 Senior Project I ECE 482 Senior Project II ECE 206 Circuits, Signals, and Systems ECE 303 Electronics II ECE 303 Electronics Laboratory ECE 454 Digital System Design and Testing ECE 455 Design-for-Testability Laboratory CE Technical Electives ¹ Introduction to Engineering Probability Math and Science Courses ECE 310 ECE 310 Introduction to Engineering Probability MTH 151 Calculus I for Engineers MTH 162 Calculus II MTH 309 Discrete Mathematics I MTH 311 Introduction to Uniear Algebra MTH 312 Introduction to Ordinary Differential Equations PHY 223 University Physics II PHY 222 University Physics II or PHY 223 University Physics II Lab Basic Science Elective A University Physics II Lab Basic Science Elective A Electronical Elective Alba Basic Science Elective A			1
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ECE 467 Database Design and Management ECE 481 Senior Project I ECE 482 Senior Project II			
ECE 467 Database Design and Management ECE 481 Senior Project I		Senior Project II	2
ECE 467 Database Design and Management			
ECE 421 Computer Operating Systems		Computer Operating Systems	3

Suggested Plan of Study: B.S. Computer Engineering / M.S. Biomedical Engineering

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Freshman Year		
Fall		Credit Hours
EGN 123	Computing and Digital Solutions for the future	3
ECE 118	Introduction to Programming	3

WRS 105	First-Year Writing I	3
MTH 151	Calculus I for Engineers	5
-	Credit Hours	14
Spring	0.0411.1041.0	
ECE 112	Introduction to Engineering II	2
ECE 218	Data Structures	3
WRS 107	First-Year Writing II: STEM	
MTH 162	Calculus II	3
PHY 221		
PHT ZZI	University Physics I	3 15
	Credit Hours	15
Sophomore Year		
Fall		
ECE 211	Logic Design	3
ECE 318	Algorithms	3
MTH 210	Introduction to Linear Algebra	3
PHY 222 or 223	University Physics II or University Physics III	3
PHY 224 or 225	University Physics II Lab or University Physics III Lab	1
Arts and Humanities Cognate ¹		3
	Credit Hours	16
Spring		
ECE 201	Electrical Circuit Theory	3
ECE 212	Processors: Hardware, Software, and Interfacing	3
ECE 315	Digital Design Laboratory	1
ECE 310	Introduction to Engineering Probability	3
MTH 309	Discrete Mathematics I	3
People and Society Cognate 1	Discrete Mathematics i	3
reopie and Society Cognate	Credit Hours	16
Junior Year	Credit Hours	10
Fall		
ECE 202	Electronics I	3
ECE 203	Electrical Circuits Laboratory	1
ECE 316	Structured Digital Design	1
ECE 322	Systems Programming	3
ECE 414	Computer Organization and Design	3
Basic Science Elective 1		3
Arts and Humanities Cognate 1		3
	Credit Hours	17
Spring		
ECE 302	Electronics II	3
ECE 454	Digital System Design and Testing	3
ECE 455	Design-for-Testability Laboratory	1
ECE 467	Database Design and Management	3
MTH 311	Introduction to Ordinary Differential Equations	3
Basic Science Elective ¹		3
Basic Science Lab Elective ¹		1
	Credit Hours	17
Senior Year		
Fall		
ECE 206	Circuits, Signals, and Systems	3
ECE 303	Electronics Laboratory	1
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ECE 417	Embedded Microprocessor System Design	3
ECE 481	Senior Project I ²	1
Technical elective taken as graduate course	3	3
Graduate Course ³		3
Arts and Humanities Cognate ¹		3
People and Society Cognate ¹		3
	Credit Hours	20
Spring		
ECE 421	Computer Operating Systems	3
ECE 482	Senior Project II	2
CE Technical Elective ²		3
CE Technical Elective ²		3
Graduate Course ³		3
Technical elective taken as graduate course	3	3
People and Society Cognate ¹		3
	Credit Hours	20
Fifth Year		
Fall		
BME 707	Master's Project I	1
BME 612	Regulatory Control of Biomedical Devices	3
BME 602	Human Physiology for Engineers	3
Graduate Elective		3
	Credit Hours	10
Spring		
BME 603	Neurophysiology for Engineers	3
BME 708	Master's Project II	2
Graduate Elective		3
	Credit Hours	8
	Total Credit Hours	153

Humanities and Arts (HA) Cognates and the People and Society (PS) Cognates can be selected from the appropriate University List.

² See the department electives page for a detailed list of available options.

Graduate courses should be selected with the assistance of the Graduate Program Coordinator in Biomedical Engineering