ECE DEPARTMENT CO-TERMINAL DEGREE:
BACHELOR OF SCIENCE IN COMPUTER ENGINEERING / MASTER OF SCIENCE IN COMPUTER ENGINEERING

Program objectives:

The objective of this program is to provide an accelerated path for interested undergraduate students in computer engineering to complete the Bachelor of Science in Computer Engineering (BSCPE) and Master of Science in Computer Engineering (MSCPE) degrees with an integrated curriculum, which can be completed in five years. Students enter the co-terminal degree program at the beginning of their third year of study with advanced planning in the fourth year courses to support the curricular requirements in the fifth (final) year.

The undergraduate portion of the curriculum for this co-terminal degree program puts emphasis on both theory and practical applications of computer engineering. Computer engineering involves the design and application of computer hardware and computer software. Computer hardware consists of the physical components that implement a computer system: processor and memory chips, circuit boards, and peripheral devices. Computer software consists of computer programs that accomplish a specific task using sequences of simple, programmable steps.

The graduate portion of the curriculum for this co-terminal degree, the Master of Science in Computer Engineering program builds a strong foundation in all aspects of the design and development of computer systems, with a specialization in a major area. Students have the option to pursue thesis research under the guidance of a faculty adviser. Areas of study include computer hardware design, computer networking and telecommunications, and computer system and application software.

Admission requirements:

Student must be enrolled in BSCPE program, have completed at least 65 credit hours of study toward that degree with a minimum overall GPA of 3.25, and have completed at least 15 credit hours of ECE coursework with a minimum (major) GPA of 3.25.

Requirements for BSCPE-MSCPE Co-Terminal Degree

ECE major requirements 28
ECE 100, 211, 213, 218, 242, 311, 441, 485

Computer Science Major Requirements 16
CS 115, 116, 330, 331, 351, 450

Mathematics Requirements 24
MATH 151, 152, 251, 252, 474, plus MATH 333 or 471

Physics Requirements 11
PHYS 123, 221, 224

Chemistry Requirement 3
CHEM 122

Engineering Science Course Requirement 3
MMAE 200 or MMAE 320

Humanities and Social Sciences Requirements 21
(per General Education specifications)

Junior Computer Engineering Elective 3 to 4
ECE 307, 308, 312, or 319

Science Elective 3
Science Elective BIOL 105, BIOL 107, BIOL 114, BIOL 115, MS 201, or CHEM 126

Professional Computer Engineering Electives 6 to 8
400-level ECE courses identified with (P) in the course descriptions except ECE 448, or 400-level CS courses except CS 401, CS 402, CS 460, CS 461 or CS 485. A maximum of 3 credit hours of ECE 491, CS 491, ECE 497, or CS 497 may be used.

Hardware-design Elective 4
ECE 429 or ECE 446

Computer Systems/Software Elective 3 or 4
ECE 407, ECE 408, ECE 443, ECE 449, CS 425, or CS 487

Interprofessional Projects 6

Graduate Professional CPE Electives (total of 18 credit hours)
18 credit hours of Graduate Professional CPE Electives at the 500-level or higher that must satisfy major and minor requirements and course selection rules defined for MSCPE three areas of master of science in computer engineering (Computer Hardware Design, Computer Systems Software, and Networks and Telecommunications).

Graduate CPE or Technical Electives (total of 6 credit hours)

- MSCPE students with thesis option must use these 6 credit hours for thesis (ECE 591)
- MSCPE students with non-thesis option must select with advisor approved 400-level (excluding 494 and 497) or higher courses from engineering, computer science, mathematics, or science.

TOTAL CREDIT HOURS: 155-159

BSCPE-MSCPE Co-Terminal Degree Requirements

First Semester	Cr-hr	Second Semester	Cr-hr
MATH 151 Calculus I	5	MATH 152 Calculus II	5
CHEM 122 Principles of Chemistry I	3	PHYS 123 General Physics I	4
CS 115 Obj.-Oriented Programming I	2	BIOL 107 or 115, or CHEM 126, or MS 201	3
ECE 100 Introduction to the Profession	3	CS 116 Obj.-Oriented Programming II	2
Social Science Elective	3	HUM 102 or 104 or 106	3
TOTAL	**16**	**TOTAL**	**17**
Third Semester	**Cr-hr**	**FourthSemester**	**Cr-hr**
MATH 252 Intro. to Differerntial Equations	4	MATH 251 Multivar. & Vector Calculus	4
PHYS 221 General Physics II	4	PHYS 224 Gen. Physics III for Engineers	3
ECE 211 Circuit Analysis I	4	ECE 213 Circuit Analysis II	4
ECE 218 Digital Systems	3	ECE 242 Digital Computers/Computing	3
CS 331 Data Structures & Algorithms	3	CS 330 Discrete Structures	3
TOTAL	**18**	**TOTAL**	**17**
Fifth Semester	**Cr-hr**	**Sixth Semester**	**Cr-hr**
MMAE 200 or 320	3	ECE 307, 308, 312, or 319	3/4
ECE 311 Engineering Electronics	4	CS 450 Operating Systems	3
CS 351 Systems Programming	3	MATH 474 Probability & Statistics	3
MATH 333 or MATH 471	3	IPRO Interprofessional Project	3
Humanities Elective (300-level or higher)	3	Social Science Elective	3
TOTAL	**16**	**TOTAL**	**15/16**
Seventh Semester	**Cr-hr**	**Eighth Semester**	**Cr-hr**
ECE 441 Microcomputers	4	Professional CPE Elective	3/4
ECE 485 Computer Org. & Design	3	ECE 429 or ECE 446	4
Computer Systems/Software Elective	3/4	IPRO Interprofessional Project	3
Professional CPE Elective	3/4	Social Science Elective	3
Humanities Elective (300-level or higher)	3	Humanities or Social Science Elective	3
TOTAL	**16/18**	**TOTAL**	**16/17**
Ninth Semester	**Cr-hr**	**Tenth Semester**	**Cr-hr**
Graduate Professional CPE Elective	3	Graduate Professional CPE Elective	3
Graduate Professional CPE Elective	3	Graduate Professional CPE Elective	3
Graduate Professional CPE Elective	3	Graduate Professional CPE Elective	3
Graduate Professional CPE or Tech. Elective	3	Graduate Professional CPE or Tech. Elective	3
TOTAL	**12**	**TOTAL**	**12**