Electrical & Computer Engineering Major, B.S.E.C.E.

This program combines traditional electrical engineering topics with current computer design and analysis topics. The program is concerned with the theory, design, and application of electrical phenomena and digital computers, including electronic circuits, signal analysis, system design, and computer architecture. The program balances theoretical and practical experience in electrical and computer engineering through analysis, synthesis, and experimentation.

Mission: The mission of the Department of Electrical and Computer Engineering is to provide a high quality educational opportunity in electrical and computer engineering for students in the region by delivering a program with a strong hands-on laboratory and design component in conjunction with a thorough foundation in theory and to provide students with the tools and skills to be a life-long major contributor to their profession and society as a whole.

Educational Objectives: The educational objectives of the Electrical and Computer Engineering program are to

1. Provide a high quality educational opportunity in electrical and computer engineering for students in the region.
2. Help each student to prepare for a successful career in industry, academia, or government by learning the substance and methods of the electrical and computer engineering discipline including technical, critical thinking, and communication skills
3. Provide the opportunity for a student to participate fully in the liberal education mission of the University.
4. Foster significant scholarly research for faculty and students.
5. Serve the well-being of the community, state, and region through the multi-faceted efforts of our faculty and graduates.
6. Develop a foundation for our students for life-long learning.

Typical Program of Study:

Fall Semester		*Spring Semester*	
First Year			
ECE 1001 Introduction to Elec/Computer Eng	2 cr	ECE 1315 Digital System Design	4 cr
CS 1511 Computer Science I	5 cr	CS 1521 Computer Science II	5 cr
Math 1296 Calculus I [a]	5 cr	Math 1297 Calculus II	5 cr
Comp 1120 College Writing	3 cr	Phys 2011 General Physics I	4 cr
	15 cr		18 cr
Second Year			
Math 3280 Diff Equations/Linear Algebra	4 cr	Math 3298 Calculus III	4 cr
Phys 2012 General Physics II	4 cr	Chem 1151 General Chemistry I	5 cr
ECE 2006 Electrical Circuit Analysis	4 cr	ECE 2111 Linear Systems & Signals	4 cr
ECE 2325 Microcomputer System Design	4 cr	ECE 2212 Electronics I	4 cr
	16 cr		17 cr
Third Year			
ECE 3151 Control Systems	3 cr	ECE 3341 Digital Computer Circuits	4 cr
CS 2511 Software Analysis and Design	4 cr	ECE 3611 Solid-state Semiconductors	3 cr
ECE 3235 Electronics II	4 cr	CS 5631 Operating Systems	4 cr
Econ 1023 Principles of Economics: Micro	3 cr	Stat 3611 Probability & Statistics	4 cr
Liberal education elective [b]	3 cr	Liberal education elective [b]	3 cr
	17 cr		18 cr
Fourth Year			
ECE 3445 Electromagnetic Fields	3 cr	ECE 4999 Senior Design Project II [c]	3 cr
ECE 4899 Senior Design Project I [c]	1 cr	ECE technical elective [d]	6 cr
ECE technical elective [d]	3 cr	ME 2105 Intro to Materials Science for Engineers	
Engr 4001 Engineering Professionalism	3 cr	**OR** Engr 2015 Statics	3 cr
Liberal education elective [b]	4 cr	Liberal education elective [b]	3 cr
	14 cr		15 cr

[a] First math course is determined by math placement exam. This schedule presupposes placement into Math 1296.

[b] Liberal education electives (including Econ 1023) must include the following: At least one course from category 7, at least one course from category 8, at least two courses from category 9 with different designators, at least 16 credits in categories 6 through 9, and at least one course numbered 2000 or higher AND one 1xxx course with the same designator, both from categories 6 through 9 (OR any course that specifies as prerequisite any course in categories 6 through 9.)

[c] ECE 4951 may be taken in place of ECE 4899 ***and*** 4999

[d] Students are required to complete 9 credits of ECE technical electives and must include at least one of the following courses: ECE 4305; or ECE 5315

Electrical & Computer Engineering Major, B.S.E.C.E.

MAJOR REQUIREMENTS	CREDITS	PREREQUISITES	SEMESTER TO BE COMPLETED	GRADE
YEAR 1				
Comp 1120 College Writing	3			
CS 1511 Computer Science I	5	3.5 years of HS math		
CS 1521 Computer Science II	5	CS 1511		
ECE 1001 Introduction to ECE	2			
ECE 1315 Digital System Design	4			
Math 1296 Calculus I	5	A grade of at least 'C-' Math 1250 or math placement		
Math 1297Calculus II	5	A grade of at least 'C-' Math 1296		
Phys 2011 General Physics I	4	Math 1296		
YEAR 2				
Chem 1151 General Chemistry I	5	HS chemistry (or Chem 1113) and HS algebra		
ECE 2006 Electrical Circuit Analysis	4	Phys 2011; concurrent registration in Math 3280		
ECE 2111 Linear Systems and Signal Analysis	4	ECE 2006		
ECE 2212 Electronics I	4	ECE 2006		
ECE 2325 Microcomputer System Design	4	ECE 1315		
Math 3280 Diff Equations w/ Linear Algebra	4	A grade of at least 'C-' Math 1297		
Math 3298 Calculus III	4	A grade of at least 'C-' Math 1297		
Phys 2012 General Physics II	4	Phys 2011, Math 1297		
YEAR 3				
CS 2511 Software Analysis and Design	4	CS 1521		
CS 5631 Operating Systems	4	CS 2511; CS 2521; CS 3511		
ECE 3151 Control Systems	3	ECE 2111		
ECE 3235 Electronics II	4	ECE 2212		
ECE 3341 Digital Computer Circuits	4	ECE 2325		
ECE 3611 Intro to Solid State Semiconductors	3	Phys 2012		
Econ 1023 Principles of Economics: Micro	3			
Liberal education electives *	6			
Stat 3611 Intro to Probability & Statistics	4	A grade of at least 'C-' Math 1296		
YEAR 4				
ECE 3445 Electromagnetic Fields	3	Math 3280; Math 3298; Phys 2012		
ECE 4899 Senior Design Project I +	1	ECE 3341		
E CE 4999 Senior Design Project II +	3	ECE 4899		
ECE technical electives ^	9			
ME 2105 Intro to Materials Science for Eng	3	Chem 1151		
OR				
Engr 2015 Statics	3	Math 1297; Phys 2011		
Engr 4001 Engineering Professionalism	3	60 credits		
Liberal education electives *	7			

* Liberal education electives (including Econ 1023) must include the following: At least one course from category 7, at least one course from category 8, at least two courses from category 9 with different designators, at least 16 credits in categories 6 through 9, and at least one course numbered 2000 or higher AND one 1xxx course with the same designator, both from categories 6 through 9 (OR any course that specifies as prerequisite any course in categories 6 through 9.)

^ Students are required to complete 9 credits of ECE technical electives and must include at least one of the following courses: ECE 4305 or ECE 5315

+ ECE 4951 may be taken in place of ECE 4899 ***and*** 4999.

For further information:

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Last update Sept. 2006