



BS in COMPUTER ENGINEERING (393540) MAP Sheet
 Department of Electrical and Computer Engineering
 For students entering the degree program during the 2012–2013 curricular year.

UNIVERSITY CORE AND GRADUATION REQUIREMENTS				PROGRAM REQUIREMENTS (95–96 total hours)		
UNIVERSITY CORE REQUIREMENTS				Complete the following prerequisite courses:		
<u>Requirements</u>	<u>#Classes</u>	<u>Hours</u>	<u>Classes</u>	Math 112*	Calculus 1	4.0
				Math 113*	Calculus 2	4.0
				Phscs 121*	Principles of Physics 1	3.0
				Phscs 220	Principles of Physics 3	3.0
Doctrinal Foundation				Complete the following supporting courses:		
Book of Mormon	2	4.0	RelA 121/H and 122/H	Chem 105*	General College Chemistry	4.0
New Testament	1	2.0	RelA 211/H or 212/H	Or		
Doctrine and Covenants	1	2.0	RelC 324/H or 325/H	Chem 111*	Principles of Chemistry	3.0
The Individual and Society				C S 142	Introduction to Computer Programming	3.0
Citizenship				C S 235	Data Structures and Algorithms	3.0
American Heritage	1–2	3–6.0	from approved list	C S 236	Discrete Structures	3.0
Global & Cultural Awareness	1	3.0	Eng T 231*	C S 240	Advanced Programming Concepts	4.0
Skills				Engl 312*	Persuasive Writing	3.0
Effective Communication				Or		
First-Year Writing	1	3.0	from approved list	Engl 316*	Technical Communication	3.0
Adv Written & Oral Communication	1	3.0	Engl 312* or 316*	Eng T 231*	Foundations of Global Leadership	3.0
Quantitative Reasoning	0–1	0–4.0	Math 112* or 113*	Math 313	Elementary Linear Algebra	3.0
Languages of Learning (Math or Language)	1	4.0	Math 112* or 113*	Math 334	Ordinary Differential Equations	3.0
Arts, Letters, and Sciences				Complete the following courses:		
Civilization 1 and 2	2	6.0	from approved list‡	EC En 124	Introduction to Computing Systems	3.0
Arts	1	3.0	from approved list‡	EC En 191	New Student Seminar	0.5
Letters	1	3.0	from approved list‡	EC En 212	Circuit Analysis and Laboratory	5.0
Scientific Principles & Reasoning				EC En 224	Fundamentals of Digital Systems	3.0
Biological Science	1–2	3–5.0	from approved list	EC En 313	Electronic Circuit Design 1	5.0
Physical Science	2	6–7.0	Chem 105* or 111* and Phscs 121*	EC En 320	Digital System Design	3.0
Social Science	1	3.0	Eng T 231*	EC En 324	Computer Systems	3.0
Core Enrichment: Electives				EC En 362	Transmission Line Fundamentals	2.0
Religion Electives	3–4	6.0	from approved list	EC En 370	Probability Theory	3.0
Open Electives	Variable	Variable	personal choice	EC En 380	Signals and Systems	4.0
GRADUATION REQUIREMENTS:				EC En 391	Junior Seminar	0.5
Minimum residence hours required		30.0		EC En 490	Team Design Project	4.0
Minimum hours needed to graduate		120.0				
				Complete at least 17 hours from the following advanced technical program and technical electives:		
				a. Complete at least two of the following courses:		
				EC En 425	Real-Time Operating Systems	4.0
				EC En 427	Embedded Systems	4.0
				EC En 451	Introduction to Digital VLSI Circuits	4.0
				b. Complete remaining course hours selected from the following:		
				1. Additional courses listed in item a above or other 400-level electrical and computer engineering courses, not including 490 or 493R.		
				2. Any of the following:		
				C S 340	Software Design & Testing	3.0
				C S 345	Operating Systems Design	3.0
				C S 360	Internet Programming	3.0
				C S 428	Software Engineering	3.0
				C S 431	Algorithmic Languages and Compilers	3.0
				C S 452	Database Modeling Concepts	3.0
				C S 455	Computer Graphics	3.0
				C S 456	Introduction to User Interface Software	3.0
				C S 460	Computer Comms & Networking	3.0
				C S 462	Large-Scale Distributed System Design	3.0
				C S 465	Computer Security	3.0
				C S 470	Intro to Artificial Intelligence	3.0
				C S 478	Tools for Machine Learning & Data M	3.0
				CS 484	Parallel Processing	3.0
				3. 500-level computer science courses		
				Note: Contact the Electrical and Computer Engineering Department for current information about added and/or deleted courses, as well as information about when courses are offered.		

FOR UNIVERSITY CORE QUESTIONS CONTACT THE ADVISEMENT CENTER ■ FOR PROGRAM QUESTIONS SEE YOUR DEPARTMENT ADVISOR

*THESE COURSES FILL BOTH UNIVERSITY CORE AND PROGRAM REQUIREMENTS (16–17.0 hours overlap)

‡REDUCTION OF TOTAL CREDITS IS RECOMMENDED by choosing a Civilization 2 course that also double counts for the Arts requirement (if a separate Letters course is taken) or the Letters requirement (if a separate Arts course is taken) — see the University Core list for specifics.

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2012–2013

Suggested Sequence of Courses*:

FRESHMAN YEAR

1st Semester

EC En 191 (FW)	0.5
C S 142 (FWSpSu)	3.0
Chem 105 (FWSpSu)	4.0
1 st Year Writing or A Htg	3.0
Math 112 (FWSpSu)	4.0
Rel A 121 (FWSpSu)	2.0
Total Hours	16.5

2nd Semester

EC En 124 (FWSp)	3.0
Math 113 (FWSpSu)	4.0
Phscs 121 (FWSp)	3.0
First-Year Writing or A Htg	3.0
Rel A 122 (FWSpSu)	2.0
Total Hours	15.0

SOPHOMORE YEAR

3rd Semester

C S 235 (FWSpSu)	3.0
EC En 224 (FW)	3.0
Math 313 (FWSpSu)	3.0
Phscs 220 (FWSu)	3.0
Eng T 231	3.0
Rel A 211 or 212 (FWSpSu)	2.0
Total Hours	17.0

4th Semester

C S 236 (FWSpSu)	3.0
EC En 212 (FWSp)	5.0
EC En 324 (FWSp)	3.0
University core requirement	3.0
Religion elective	2.0
Total Hours	16.0

JUNIOR YEAR

5th Semester

C S 240 (FWSu)	4.0
EC En 313 (FWSp)	5.0
EC En 391 (F)	0.5
Engl 312 or 316	3.0
Math 334 (FWSpSu)	3.0
Rel A 324 or 325	2.0
Total Hours	17.5

6th Semester

EC En 320 (FW)	3.0
EC En 362 (FWSp)	2.0
EC En 380 (FWSp)	4.0
Technical elective	3.0
University core requirement	3.0
Total Hours	15.0

SENIOR YEAR

7th Semester

EC En 370 (FW)	3.0
Technical elective	4.0
Technical elective	4.0
University core requirement	3.0
Religion elective	2.0
Total Hours	16.0

8th Semester

EC En 490 (FW)	4.0
Technical elective	3.0
Technical elective	3.0
University core requirement	3.0
Religion elective	2.0
Total Hours	15.0

*Actual course sequences should be adapted to individual needs. For example, students with AP credits in Math, Physics, or Computer Science will already have credit for some initial courses. Many students find it beneficial to attend one or more spring or summer terms. On average, students take about nine semesters to graduate in this program.

THE DISCIPLINE:

Electrical and computer engineers study phenomena, devices, and systems for information processing, communication, and systems control. These studies, grounded primarily in physics and mathematics, have enabled engineers to develop the innovative new technologies for information acquisition, processing, storage, and communication that have made possible our contemporary Age of Information.

Examples of systems developed by electrical and computer engineers include radio, television, radar, satellite communication systems, cellular telephones, laptop computers, fiber-optic communications devices, global and local computer networks, robotic systems, control systems, fax machines, medical image processing computer modems, lasers, pagers, computer vision, programmable calculators, VLSI chips, computer-aided design tools, and medical instruments.

Although it is the goal of engineering to produce useful objects, electrical and computer engineers typically play a limited role in construction, assembly, or mass production. Instead, they focus on design, analysis, and the development of the underlying theory and knowledge applied in the design process.

CO-OP and INTERNSHIP EXPERIENCES:

Optional co-op and internship experiences with engineering firms throughout the USA are available. These experiences may extend over one semester plus the spring/summer terms, for a total of eight months.

PROFESSIONAL AND HONOR SOCIETIES:

The student chapter of the Institute of Electrical and Electronic Engineers is the professional organization; Eta Kappa Nu is the electrical and computer engineering honor society; and Tau Beta Pi is the honor society for all engineering fields.

CAREERS:

Electrical and computer engineers are among the most actively recruited students graduating from a four-year program. Baccalaureate engineers typically start their careers as members of project teams with one or more of the following responsibilities: designing digital, analog, or opto-electronic circuits; creating or testing application-specific software; testing components or systems; or providing technical support for sales. Later on, many engineers find themselves pursuing managerial careers, starting their own companies, or even managing entrepreneurial funds. Top graduates are also well received by medical schools, law schools, and professional and management programs.

The BS curriculum for both the electrical engineering and computer engineering degrees is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, Inc. (ABET).

The student advisor in the department can assist you in choosing electives to meet your total hour requirement.

Note: Students are encouraged to complete an average of 16 credit hours each semester or 32 credit hours each year, which could include spring and/or summer terms. Taking fewer credits substantially increases the cost and the number of semesters to graduate.

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