



BS in COMPUTER ENGINEERING (393540)
 Department of Electrical and Computer Engineering
 For students entering the degree program during the 1998–99 curricular year.

GENERAL EDUCATION AND UNIVERSITY REQUIREMENTS (53.5–57.0 hours)				MAJOR REQUIREMENTS (93–96.0 total hours)								
GENERAL EDUCATION REQUIREMENTS (39.5–43.0 hours)				Complete the following preprofessional courses or approved equivalent courses:								
<u>Requirements</u>	<u># Classes</u>	<u>Hours</u>	<u>Classes</u>	ECEn 191	Freshman Seminar	0.5	ECEn 492A	Design Project Proposal	0.5			
Academic Skills				Math 112*	Calculus 1	4.0	ECEn 492B	Senior Design Project	1.0			
Precollege Math	1	0–3.0	Math 97 or equivalent	Math 113	Calculus 2	4.0	ECEn 492C	Design Project Report	0.5			
1st Year Writing	1	3.0	Engl 115	Phscs 121*	Princ of Physics	3.0	CS 235	Foundations Computer Sci 1	4.0			
Advanced Writing	1	3.0	Engl 316*	Phscs 122*	Princ of Physics	3.0	CS 240	Advanced Programming Concepts	3.0			
Advanced Languages/Math/Music	1	4.0	Math 112*	Note: ECEn 191 is recommended to be taken as early as possible but is not required prior to application for professional status.				CS 345	Operating Systems Design	3.0		
Core Courses				During the semester of completing the above, obtain an application from the college advisement center and apply for professional status. (Contact the department office or the college advisement center for additional details.)								
Biological Science	1	3.0	Biol 100	Complete the following supporting courses:								
Physical Science	2	7.0	Chem 105*, Phscs 121*	a. Complete the following:								
American Heritage	1	3.0	A Hgt 100	Chem 105*	Gen College Chem	4.0	CS 428	Software Systems Design	3.0			
Civilization	2	6.0	from approved list	CS 142	Intro Comp Prog	3.0	CS 431	Algorithmic Lang & Compilers	3.0			
Wellness	1–3	1.5–2.0	from approved list	ECEn 220	Digital State Machines	4.0	CS 452	Database Modeling Concepts	3.0			
Elective Courses				ECEn 491	Senior Seminar	0.5	CS 453	Advanced Data Structures	3.0			
Arts and Letters	1	3.0	from approved list	Engl 316*	Technical Writing	3.0	CS 455	Computer Graphics	3.0			
Natural Sciences	1	3.0	Phscs 122*	Phscs 281	Prin of Solid St	3.0	CS 456	Intro User Interface Software	3.0			
Social & Behavioral Sciences	1	3.0	from approved list	Stat 421	Prob & Dist Th	3.0	CS 470	Intro Artificial Intelligence	3.0			
				b. Complete one of the following sequences:								
				1) For the standard math sequence, complete the following:								
				Math 312	Adv Engr Math	3.0	And complete one course from the following:					
				Math 313	Adv Engr Math	3.0	ECEn 315	Signals & Systems	4.0			
				2) For the optional math sequence, complete the following:								
				Math 343	Elem Linear Al	3.0	ECEn 360	Transmission Lines & Intro Fields	4.0			
				Math 344	Calculus Svr Variables	3.0	ECEn 450	Intro Semiconductor Devices	3.0			
				Math 434	Ord Diff Equat	3.0	Select courses from the list below so that the total credit hours from this section and the previous section total at least 9:					
				Complete the following professional courses:								
				ECEn 311	Circuits Lab	1.0	(1) Selected 400- and 500-level CS courses					
				ECEn 312	Circuit Analysis	4.0	(2) Any 300-level EC En course except 301R.					
				ECEn 313	Electron Ckt D	4.0	(3) Any 400- or 500-level EC En course.					
				ECEn 317	Electronics Lab 1	1.0	(4) Or complete 6 hours from the following:					
				ECEn 325	Intro Comp Design w/Appli	5.0	Math 323	Intro Partial Differential	3.0			
				ECEn 425	Comp Architecture w/Appli	4.0	Math 332	Intro Complex Analysis	3.0			
				ECEn 427	Comp Input/Output Devices	3.0	Math 411	Numerical Methods	3.0			
				ECEn 451	Intro Digital VLSI Circuits	4.0	Phscs 471	Optics & Electromag	3.0			
				(Continued in next column)						Phscs 561	Fund of Acoustics	3.0
UNIVERSITY REQUIREMENTS												
Religion Courses (14.0 hours)												
Book of Mormon		4.0	RelA 121 and 122									
New Testament	1	2.0	RelA 211 or 212									
Doctrine & Covenants	1	2.0	RelC 324 or 325									
Elective courses	2–6	6.0										
Graduation Requirements												
Upper division hours		40.0	300+ level courses									
Residence hours		30.0	at BYU									
Total hours needed to graduate		128.0										

FOR GE QUESTIONS CONTACT THE ADVISEMENT CENTER — FOR MAJOR QUESTIONS SEE YOUR FACULTY ADVISOR

*THESE CLASSES FILL BOTH GE AND MAJOR REQUIREMENTS (17 hours overlap)

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1998–99

Suggested Sequence of Courses:

FRESHMAN YEAR

<u>1st Semester</u>	
CS 142 (FWSpSu)	3.0
ECEn 191 (FW)	0.5
Math 112 (FWSpSu)	4.0
Phscs 121 (FWSpSu)	3.0
RelA 121 (FWSpSu)	2.0
General Education courses	4.5
Total Hours	17.0

2nd Semester

ECEn 220 (FWSu)	4.0
Math 113 (FWSpSu)	4.0
Phscs 122 (FWSpSu)	3.0
RelA 122 (FWSpSu)	2.0
General Education courses	4.0
Total Hours	17.0

SOPHOMORE YEAR

<u>3rd Semester</u>	
ECEn 311 (FWSp)	1.0
ECEn 312 (FWSu)	4.0
CS 235 (FWSpSu)	4.0
Math 312 (FWSp)	3.0
RelA 211 or 212 (FWSpSu)	2.0
General Education courses	3.0
Total Hours	17.0

4th Semester

ECEn 313 (FWSp)	4.0
ECEn 317 (FWSpSu)	1.0
ECEn 325	5.0
Math 313 (FWSu)	3.0
RelC 324 or 325 (FWSpSu)	2.0
General Education courses	2.0
Total Hours	17.0

JUNIOR YEAR

<u>5th Semester</u>	
CS 240 (FW*)	3.0
ECEn 425 (FW)	4.0
ECEn 451 (FW)	4.0
Religion elective	2.0
General Education courses	3.0
Total Hours	16.0

6th Semester

CS 345 (FW*)	3.0
Phscs 281 (F)	3.0
ECEn 315 (FWSp)	4.0
or ECEn 360 (FW)	(4.0)
or ECEn 450 (W)	(3.0)
ECEn 427 (FW)	3.0
Religion elective	2.0
General Education courses	1.0
Total Hours	15–16.0

*alternates between Spring and Summer terms

SENIOR YEAR

<u>7th Semester</u>	
CS 400-level elective	3.0
MeEn 321 or 401	3.0
ECEn 491 (F)	0.5
ECEn 492A (FW)	0.5
Technical elective	3.0
Engl 316 (FWSpSu)	3.0
Religion elective	2.0
General Education courses	1.0
Total Hours	16.0

8th Semester

Stat 421 (FW)	3.0
Chem 105 (FWSpSu)	3.0
ECEn 492B (FWSp)	1.0
ECEn 492C (FWSp)	0.5
Technical electives	3.0
General Education courses	4.0
Total Hours	14.5

THE DISCIPLINE:

Electrical and computer engineers study phenomena, devices, and systems for information processing, communication, and systems control. These studies, which are 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.

While 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 EXPERIENCES:

Optional co-op experiences with engineering firms throughout the USA are available. These experiences typically 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, 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 in 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).

Your faculty advisor 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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