



BS in ELECTRICAL ENGINEERING (393550) MAP Sheet
 Department of Electrical and Computer Engineering
 For students entering the degree program during the 2000–2001 curricular year.

This is a limited-enrollment program requiring departmental admissions approval. Please see the college advisement center or department office for information regarding requirements for admission to this major.

GENERAL EDUCATION AND UNIVERSITY REQUIREMENTS (52.5–57.0 hours)				MAJOR REQUIREMENTS (93–95.0 total hours)			
GENERAL EDUCATION REQUIREMENTS (38.5–43.0 hours)				Complete the following preprofessional courses or approved equivalent courses: ECEn 191 Freshman Seminar 0.5 Math 112* Calculus 1 4.0 Math 113 Calculus 2 4.0 Phscs 121* Princ of Physics 3.0 Phscs 122* Princ of Physics 3.0 Note: ECEn 191 is recommended to be taken as early as possible but is not required prior to application for professional status. 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.) Complete the following supporting courses: ECEn 225 Intro to Computing Systems 4.0 ECEn 491 Senior Seminar 0.5 Math 214 Calculus of Several Variables 3.0 Math 334 Ordinary Differential Equations 3.0 Math 343 Elementary Linear Algebra 3.0 Phscs 281 Prin of Solid State Physics 3.0 Stat 421 Prob & Distribution Theory 3.0 And complete one course from the following: Chem 105* Gen College Chem 4.0 Chem 111* Principles of Chemistry 3.0 And complete one course from the following: Engl 312* Persuasive Writing 3.0 Engl 316* Technical Writing 3.0 And select one course from the following: CS 130 Scientific Computing—C 2.0 CS 142 Intro Comp Prog 3.0 Complete the following professional courses: ECEn 212 Circuit Analysis and Laboratory 5.0 ECEn 313 Electron Circuit Design 1 4.0 ECEn 317 Electronics Lab 1 1.0 ECEn 320 Fundamentals of Digital Systems 5.0 ECEn 360 Transmission Lines and Fields 4.0 ECEn 361 Trans Lines & Fields Lab 1.0 ECEn 380 Signals & Systems 5.0 ECEn 492A Design Project Prop 0.5 ECEn 492B Senior Design Project 1.0 ECEn 492C Design Project Rep 0.5			
GENERAL EDUCATION REQUIREMENTS (38.5–43.0 hours)				Complete at least 24 hours from the following advanced program and technical electives: a. Complete 4 courses selected from at least 3 of the following groups: Group 1 (Microelectronics): ECEn 443 Electron Ckt Des 4.0 ECEn 445 Intro to Mixed Signal VLSI 4.0 ECEn 450 Intro Semicond Dev 3.0 ChEn 493R Integrated Circuit Processing 3.0 Group 2 (Electromagnetics): ECEn 460 Applied Electromagnetic Theory 3.0 Group 3 (Signals and Systems): ECEn 483 Feedback Control of Dyn Systems 4.0 ECEn 485 Intro to Digital Comm Theory 4.0 ECEn 487 Intro to Discrete-Time Signl Proc 4.0 Group 4 (Computers): ECEn 425 Real-Time EMB Systems 4.0 ECEn 427 Computer Input/Output Devices 4.0 ECEn 428 Computer Architecture 4.0 ECEn 451 Intro Dig VLSI Circuits 4.0 b. Complete remaining course hours selected from the following: (1) additional 400-level courses from list (a) above. (2) Any ECEn 500-level course. (3) 300-level and higher courses in mechanical engineering, civil and environmental engineering, mathematics, physics, and/or computer science as specified and posted in the ECEn department office. 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.			
Requirements	# Classes	Hours	Classes				
Languages of Learning							
Precollege Math	0–1	0–3.0	Math 97 or equivalent				
1st Year Writing	1	3.0	Engl 115				
Advanced Writing	1	3.0	Engl 312* or 316*				
Advanced Languages/Math/Music	1	4.0	Math 112*				
Liberal Arts Core							
Biological Science	1	3.0	Biol 100				
Physical Science	2	6–7.0	Chem 105* or 111*, Phscs 121*				
American Heritage	1	3.0	AHtg 100				
Civilization	2	6.0	from approved list				
Wellness	1–3	1.5–2.0	from approved list				
Arts and Sciences Electives							
Arts and Letters	1	3.0	from approved list				
Natural Sciences	1	3.0	Phscs 122*				
Social & Behavioral Sciences	1	3.0	from approved list				
UNIVERSITY REQUIREMENTS							
Religion Courses (14.0 hours)							
Book of Mormon	2	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							
Residence hours		30.0					
Minimum hours needed to graduate		120.0					

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2000–2001

Suggested Sequence of Courses (assuming AP credit received for Math 112):

FRESHMAN YEAR

<u>1st Semester</u>	
ECEn 191 (FW)	0.5
Math 113 (FWSpSu)	4.0
Phscs 121 (FWSpSu)	3.0
RelA 121 (FWSpSu)	2.0
1 st Year Writing	3.0
AHtg 100	3.0
Total Hours	15.5

2nd Semester

CS 130 (FSu) or 142 (FWSpSu)	2–3.0
Chem 111 (F) or 105 (FWSpSu)	3–4.0
Phscs 122 (FWSpSu)	3.0
RelA 122 (FWSpSu)	2.0
HEPE 129 (FWSpSu)	2.0
Social Science elective	3.0
Total Hours	15–17.0

Spring Term

Biological Science	3.0
Arts and Letters elective	3.0
Total Hours	6.0

SOPHOMORE YEAR

<u>3rd Semester</u>	
ECEn 212 (FWSp)	5.0
ECEn 225 (FWSu)	4.0
Math 343 (FWSpSu)	3.0
RelA 211 or 212 (FWSpSu)	2.0
Total Hours	14.0

4th Semester

ECEn 313 (FWSp)	4.0
ECEn 317 (FWSp)	1.0
ECEn 320 (FW)	5.0
Math 214 (FWSpSu)	3.0
RelC 324 or 325 (FWSpSu)	2.0
Total Hours	15.0

JUNIOR YEAR

<u>5th Semester</u>	
ECEn 4xx - adv. core elective	4.0
Phscs 281 (F)	3.0
Math 334 (FWSpSu)	3.0
Stat 421 (FW)	3.0
Religion elective	2.0
Total Hours	15.0

6th Semester

ECEn 380 (FWSp)	5.0
ECEn 4xx - adv. core elective	4.0
ECEn 492A (FW)	0.5
Civilization 1	3.0
Religion elective	2.0
Total Hours	14.5

SENIOR YEAR

<u>7th Semester</u>	
ECEn 360 (FW)	4.0
ECEn 361 (FW)	1.0
ECEn 4xx - adv. core elective	4.0
ECEn 491 (F)	0.5
ECEn 492B (FW)	1.0
Engl 312 or 316 (FWSpSu)	3.0
Religion elective	2.0
Total Hours	15.5

8th Semester

ECEn 492C (FWSp)	0.5
ECEn 4xx - adv. core elective	4.0
ECEn technical elective	4.0
Technical elective	4.0
Civilization 2	3.0
Total Hours	15.5

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 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 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).

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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