



**BS in ELECTRICAL ENGINEERING (393550) MAP Sheet**  
 Department of Electrical and Computer Engineering  
 For students entering the degree program during the 2008–2009 curricular year.

UNIVERSITY CORE AND GRADUATION REQUIREMENTS				PROGRAM REQUIREMENTS (91-92 total hours)	
UNIVERSITY CORE REQUIREMENTS (48.5 hours minimum)				<b>Complete the following prerequisite courses:</b> Math 112* Calculus 1 Math 113* Calculus 2 Phscs 121* Principles of Physics 1 Phscs 220* Principles of Physics 3  <b>Complete the following:</b> EC En 124 Introduction to Computing Systems EC En 191 New Student Seminar EC En 212 Circuit Analysis and Laboratory EC En 224 Fundamentals of Digital Systems EC En 313 Electronic Circuit Design 1 EC En 360 Transmissions Lines and Introductory Fields EC En 361 Transmissions Lines and Introductory Fields Lab EC En 370 Probability Theory EC En 380 Signals and Systems EC En 391 Junior Seminar EC En 490 Team Design Project  <b>Complete at least 19 hours from the following advanced technical program and technical electives:</b> <b>a.</b> Complete four courses from the following: CH En 381 Intro to Semiconductor Programming EC En 320 Digital System Design EC En 324 Computer Systems EC En 425 Real-Time Operating Systems EC En 427 Embedded Systems EC En 443 Communication and Power Circuits EC En 445 Introduction to Mixed-Signal VLSI EC En 450 Introduction to Semiconductor Devices EC En 451 Introduction to Digital VLSI Circuits EC En 464 Wireless Communication Circuits EC En 466 Introduction to Optical Engineering EC En 483 Design of Control Systems EC En 485 Introduction to Digital Communication Theory EC En 487 Introduction to Discrete-Time Signal Processing	
<b>Requirements</b> <b>#Classes</b> <b>Hours</b> <b>Classes</b>				<b>b.</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. 2. 500-level electrical and computer engineering courses. 3. Other engineering, mathematics, physics, or computer science courses as specified or approved by the Electrical and Computer Engineering Department.  <b>Complete the following supporting courses:</b> Chem 105* General College Chemistry <b>Or</b> Chem 111* Principles of Chemistry  C S 142 Introduction to Computer Programming C S 235 Data Structures and Algorithms  Engl 312* Persuasive Writing <b>Or</b> Engl 316* Technical Writing  Math 214 Calculus of Several Variables Math 334 Ordinary Differential Equations Math 343 Elementary Linear Algebra Phscs 281 Principles of Solid State Physics  <b>Note:</b> 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.	
<b>Doctrinal Foundation</b>					
Book of Mormon	2	4.0	Rel A 121/H and 122/H		
New Testament	1	2.0	Rel A 211/H or 212/H		
Doctrine and Covenants	1	2.0	Rel C 324/H or 325/H		
<b>The Individual and Society</b>					
Wellness	1or3	1.5–2.0	from approved list		
Citizenship					
American Heritage	1–2	3–6.0	from approved list		
Global & Cultural Awareness	1	3.0	from approved list†		
<b>Skills</b>					
Effective Communication					
First-Year Writing	1	3.0	from approved list		
Adv Written & Oral Communication	1	3.0	Engl 312* or 316*		
Quantitative Reasoning	0–1	0–4.0	Math 112* or 113*		
Languages of Learning (Math or Language)	1	4.0	Math 112* or 113*		
<b>Arts, Letters, and Sciences</b>					
Civilization 1 and 2	2	6.0	from approved list‡		
Arts	1	3.0	from approved list‡		
Letters	1	3.0	from approved list‡		
Scientific Principles & Reasoning					
Biological Science	1–2	3–6.0	from approved list		
Physical Science	2	6–7.0	Chem 105* or 111*, and Phscs 121* or 220*		
Social Science	1	3.0	from approved list		
<b>Core Enrichment: Electives</b>					
Religion Electives	3–4	6.0	from approved list†		
Open Electives	Variable	Variable	personal choice		
GRADUATION REQUIREMENTS:					
Minimum residence hours required		30.0			
Minimum hours needed to graduate		120.0			

FOR GE QUESTIONS CONTACT THE ADVISEMENT CENTER ♦ FOR PROGRAM QUESTIONS SEE YOUR DEPARTMENT ADVISOR  
 \*THESE CLASSES FILL BOTH UNIVERSITY CORE AND PROGRAM REQUIREMENTS (13–14.0 hours overlap)

†REDUCTION OF TOTAL CREDITS IS RECOMMENDED by satisfying the Global & Cultural Awareness requirement using either 1) Rel C 351 or a combination of Rel C 355 and 356 (which also double counts to satisfy part of the religion elective requirements) or 2) a combination of a foreign-language mission with the 300- or 400-level foreign language culminating course (which many students take anyway).

‡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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2008–2009

**Suggested Sequence of Courses\*:**

**FRESHMAN YEAR**

<u>1st Semester</u>	
EC En 191 (FW)	0.5
C S 142 (FWSpSu)	3.0
Chem 105 (FWSpSu)	4.0
1 <sup>st</sup> Year Writing	3.0
Math 112 (FWSpSu)	4.0
Rel A 121 (FWSpSu)	2.0
<b>Total Hours</b>	<b>16.5</b>

2nd Semester

EC En 124 (FWSp)	3.0
Math 113 (FWSpSu)	4.0
Phscs 121 (FWSpSu)	3.0
American Heritage requirement	3.0
Wellness requirement	2.0
Rel A 122 (FWSpSu)	2.0
<b>Total Hours</b>	<b>17.0</b>

**SOPHOMORE YEAR**

<u>3rd Semester</u>	
C S 235 (FWSpSu)	3.0
EC En 224 (FWSu)	3.0
Math 343 (FWSpSu)	3.0
Phscs 220 (FWSp)	3.0
University core requirement	3.0
Rel A 211 or 212 (FWSpSu)	2.0
<b>Total Hours</b>	<b>17.0</b>

4th Semester

EC En 212 (FWSp)	5.0
EC En 370 (FW)	3.0
Math 334 (FWSpSu)	3.0
University core requirement	3.0
Religion elective	2.0
<b>Total Hours</b>	<b>16.0</b>

**JUNIOR YEAR**

<u>5th Semester</u>	
EC En 313 (FWSp)	5.0
EC En 391 (F)	0.5
Engl 312 or 316	3.0
Math 214 (FWSpSu)	3.0
Phscs 281 (F)	3.0
Rel A 324 or 325	2.0
<b>Total Hours</b>	<b>16.5</b>

6th Semester

EC En 360 (FW)	4.0
EC En 361 (FW)	1.0
EC En 380 (FWSp)	5.0
Technical elective	4.0
Religion elective	2.0
<b>Total Hours</b>	<b>16.0</b>

**SENIOR YEAR**

<u>7th Semester</u>	
Technical elective	4.0
Technical elective	4.0
University core requirement	3.0
University core requirement	3.0
<b>Total Hours</b>	<b>14.0</b>

8th Semester

EC En 490 (FW)	4.0
Technical elective	3.0
Technical elective	4.0
University core requirement	3.0
Religion elective	2.0
<b>Total Hours</b>	<b>16.0</b>

\*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 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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