

# Electrical Engineering, BSE

## Academic Plans

### Sample Plan of Study

Sample plans represent one way to complete a program of study. Actual course selection and sequence will vary and should be discussed with an academic advisor. For additional sample plans, see MyUI.

### Electrical Engineering, BSE

- Computer Track [p. 1]
- Electrical Track [p. 2]

### Computer Track

Course	Title	Hours
<b>Academic Career</b>		
<b>Any Semester</b>		
Students select one of several established focus areas or work with their academic advisor to create a customized plan. Focus areas require at least 26 s.h. in elective and/or required courses. See General Catalog, the Department of Electrical and Computer Engineering website, or an advisor for more information. <sup>a</sup>		
<b>Hours</b>		<b>0</b>
<b>First Year</b>		
<b>Fall</b>		
RHET:1030	Rhetoric <sup>b</sup>	4
MATH:1550	Engineering Mathematics I: Single Variable Calculus <sup>c, d</sup>	4
CHEM:1110	Principles of Chemistry I <sup>b, e</sup>	4
ENGR:1100	Introduction to Engineering Problem Solving <sup>f</sup>	3
ENGR:1000	Engineering Success for First-Year Students <sup>f</sup>	1
CSI:1600	Success at Iowa	0
<b>Hours</b>		<b>16</b>
<b>Spring</b>		
GE: Approved Course Subjects <sup>g</sup>		3
MATH:1560	Engineering Mathematics II: Multivariable Calculus <sup>c</sup>	4
MATH:2550	Engineering Mathematics III: Matrix Algebra <sup>b</sup>	2
PHYS:1611	Introductory Physics I <sup>c</sup>	4
ENGR:1300	Introduction to Engineering Computing <sup>c</sup>	3
<b>Hours</b>		<b>16</b>
<b>Second Year</b>		
<b>Fall</b>		
GE: Diversity, Equity, and Inclusion <sup>h</sup>		3
MATH:2560	Engineering Mathematics IV: Differential Equations <sup>b</sup>	3
PHYS:1612	Introductory Physics II <sup>b</sup>	4
ENGR:2120	Electrical Circuits <sup>b</sup>	3

ENGR:2730	Computers in Engineering <sup>c</sup>	3
<b>Hours</b>		<b>16</b>
<b>Spring</b>		
MATH:3550	Engineering Mathematics V: Vector Calculus <sup>c</sup>	3
CS:2210	Discrete Structures <sup>b</sup>	3
CS:2230	Computer Science II: Data Structures <sup>b</sup>	4
ECE:2400	Linear Systems I <sup>c</sup>	3
ECE:2410	Principles of Electronic Instrumentation <sup>c</sup>	4
<b>Hours</b>		<b>17</b>
<b>Third Year</b>		
<b>Fall</b>		
STAT:2020	Probability and Statistics for the Engineering and Physical Sciences <sup>b</sup>	3
CS:3330	Algorithms <sup>b</sup>	3
ECE:3320	Introduction to Digital Design <sup>f</sup>	3
ECE:3330	Introduction to Software Design <sup>c</sup>	3
ECE:3700	Electromagnetic Theory <sup>f</sup>	3
ECE:3000	Electrical and Computer Engineering Professional Seminar <sup>f</sup>	1
<b>Hours</b>		<b>16</b>
<b>Spring</b>		
GE: Engineering Be Creative <sup>i</sup>		3
ECE:3350	Computer Architecture and Organization <sup>j</sup>	3
ECE:3360	Embedded Systems <sup>c</sup>	3
Focus Area: elective ECE course <sup>k</sup>		3 - 4
Focus Area: technical elective <sup>k</sup>		3
Focus Area: additional elective <sup>k</sup>		2 - 3
<b>Hours</b>		<b>17-19</b>
<b>Fourth Year</b>		
<b>Fall</b>		
GE: Approved Course Subjects <sup>g</sup>		3
ECE:4880	Principles of Electrical and Computer Engineering Design <sup>c</sup>	3
Focus Area: breadth elective <sup>l</sup>		3 - 4
Focus Area: elective ECE course numbered above 5000 <sup>m</sup>		3
Focus Area: technical elective <sup>k</sup>		3 - 4
<b>Hours</b>		<b>15-17</b>
<b>Spring</b>		
GE: Approved Course Subjects <sup>g</sup>		3
ECE:4890	Senior Electrical and Computer Engineering Design <sup>c</sup>	3
Focus Area: depth elective <sup>n</sup>		3
Focus Area: elective ECE course numbered above 5000 <sup>m</sup>		3
Focus Area: additional elective <sup>k</sup>		3
Degree Application: apply on MyUI before deadline (typically in February for spring, September for fall) <sup>o</sup>		
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>128-132</b>

a Students in the computer track complete nine focus area courses including: one breadth elective (3-4 s.h.); one depth

elective (3 s.h.); two courses with prefix ECE numbered above 5000 (6 s.h.); and five additional elective courses (at least 14 s.h.). See General Catalog and Department of Electrical and Computer Engineering website or consult an advisor for more information.

- b Typically this course is offered in fall, spring, and summer sessions. Check MyUI for course availability since offerings are subject to change.
- c Typically this course is offered in fall and spring semesters. Check MyUI for course availability since offerings are subject to change.
- d Enrollment in math courses requires completion of a placement exam.
- e Enrollment in chemistry courses requires completion of a placement exam.
- f Typically this course is offered in fall semesters only. Check MyUI for course availability since offerings are subject to change.
- g See General Catalog for list of approved course subjects.
- h Students select a course from one of two GE CLAS Core areas: Diversity and Inclusion or Values and Culture.
- i See General Catalog for list of approved courses. Students who intend to enroll in a Be Creative course with prerequisites must request a waiver by completing the Request Prerequisite Special Permission form on MyUI.
- j Typically this course is offered in spring semesters only. Check MyUI for course availability since offerings are subject to change.
- k Students in the computer track complete two technical electives that align with the focus area (6-7 s.h.), one elective with prefix ECE (3-4 s.h.), and two additional electives (5 s.h.). Additional electives may be selected from the breadth, depth, or ECE elective lists or from a list of suggested electives for the specific focus area. Consult the Department of Electrical and Computer Engineering website or an academic advisor for more information.
- l Students in the computer track take ECE:3540 or choose their track breadth elective from the list of required electrical track courses. Specific recommendations vary based on focus area. See General Catalog for full list of approved courses; see Department of Electrical and Computer Engineering website or consult an advisor for more information about your specific focus area.
- m Students complete at least two courses with prefix ECE numbered above 5000. Specific recommendations vary based on focus area. Consult the Department of Electrical and Computer Engineering website or an academic advisor for more information.
- n The depth elective must be an advanced course, normally numbered 4000 or above, in a computer-related subject area; it is typically an ECE course. Specific recommendations vary based on focus area. See Department of Electrical and Computer Engineering website or consult an advisor for more information.
- o Please see Academic Calendar, Office of the Registrar website for current degree application deadlines. Students should apply for a degree for the session in which all requirements will be met. For any questions on appropriate timing, contact your academic advisor or Graduation Services.

## Electrical Track

Course	Title	Hours
<b>Academic Career</b>		
<b>Any Semester</b>		
Students select one of several established focus areas or work with their academic advisor to create a customized plan. Focus areas require at least 23 s.h. in elective and/or required courses. See General Catalog, the Department of Electrical and Computer Engineering website, or an advisor for more information. <sup>a</sup>		
<b>Hours</b>		<b>0</b>
<b>First Year</b>		
<b>Fall</b>		
RHET:1030	Rhetoric <sup>b</sup>	4
MATH:1550	Engineering Mathematics I: Single Variable Calculus <sup>c, d</sup>	4
CHEM:1110	Principles of Chemistry I <sup>b, e</sup>	4
ENGR:1100	Introduction to Engineering Problem Solving <sup>f</sup>	3
ENGR:1000	Engineering Success for First-Year Students <sup>f</sup>	1
CSI:1600	Success at Iowa	0
<b>Hours</b>		<b>16</b>
<b>Spring</b>		
GE: Approved Course Subjects <sup>g</sup>		3
MATH:1560	Engineering Mathematics II: Multivariable Calculus <sup>c</sup>	4
MATH:2550	Engineering Mathematics III: Matrix Algebra <sup>b</sup>	2
PHYS:1611	Introductory Physics I <sup>c</sup>	4
ENGR:1300	Introduction to Engineering Computing <sup>c</sup>	3
<b>Hours</b>		<b>16</b>
<b>Second Year</b>		
<b>Fall</b>		
GE: Diversity, Equity, and Inclusion <sup>h</sup>		3
MATH:2560	Engineering Mathematics IV: Differential Equations <sup>b</sup>	3
PHYS:1612	Introductory Physics II <sup>b</sup>	4
ENGR:2120	Electrical Circuits <sup>b</sup>	3
ENGR:2730	Computers in Engineering <sup>c</sup>	3
<b>Hours</b>		<b>16</b>
<b>Spring</b>		
MATH:3550	Engineering Mathematics V: Vector Calculus <sup>c</sup>	3
STAT:2020	Probability and Statistics for the Engineering and Physical Sciences <sup>b</sup>	3
PHYS:2704	Physics IV <sup>i</sup>	3
ECE:2400	Linear Systems I <sup>c</sup>	3
ECE:2410	Principles of Electronic Instrumentation <sup>c</sup>	4
<b>Hours</b>		<b>16</b>
<b>Third Year</b>		
<b>Fall</b>		
ECE:3000	Electrical and Computer Engineering Professional Seminar <sup>f</sup>	1
ECE:3320	Introduction to Digital Design <sup>f</sup>	3

ECE:3400	Linear Systems II <sup>f</sup>	3
ECE:3410	Electronic Circuits <sup>f</sup>	4
ECE:3700	Electromagnetic Theory <sup>f</sup>	3
Focus Area: technical elective <sup>j</sup>		3
<b>Hours</b>		<b>17</b>
<b>Spring</b>		
GE: Engineering Be Creative <sup>k</sup>		3
ECE:3360	Embedded Systems <sup>c</sup>	3
ECE:3500	Communication Systems <sup>i</sup>	3
ECE:3600	Control Systems <sup>i</sup>	3
ECE:3720	Semiconductor Devices <sup>i</sup>	3
Focus Area: additional elective <sup>j</sup>		2 - 3
<b>Hours</b>		<b>17-18</b>
<b>Fourth Year</b>		
<b>Fall</b>		
GE: Approved Course Subjects <sup>g</sup>		3
ECE:4880	Principles of Electrical and Computer Engineering Design <sup>c</sup>	3
Focus Area: elective ECE course numbered above 5000 <sup>i</sup>		3
Focus Area: technical elective <sup>j</sup>		3 - 4
Focus Area: breadth elective <sup>m</sup>		3 - 4
<b>Hours</b>		<b>15-17</b>
<b>Spring</b>		
GE: Approved Course Subjects <sup>g</sup>		3
ECE:4890	Senior Electrical and Computer Engineering Design <sup>c</sup>	3
Focus Area: elective ECE course numbered above 5000 <sup>i</sup>		3
Focus Area: additional elective <sup>j</sup>		3
Focus Area: depth elective <sup>n</sup>		3
Degree Application: apply on MyUI before deadline (typically in February for spring, September for fall)		
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>128-131</b>

- a Students in the electrical track complete eight focus area courses including: one breadth elective (3-4 s.h.); one depth elective (3 s.h.); two courses with prefix ECE numbered above 5000 (6 s.h.); two technical electives (6 s.h.); and two additional elective courses (at least 5 s.h.). See General Catalog and Department of Electrical and Computer Engineering website or consult an advisor for more information.
- b Typically this course is offered in fall, spring, and summer sessions. Check MyUI for course availability since offerings are subject to change.
- c Typically this course is offered in fall and spring semesters. Check MyUI for course availability since offerings are subject to change.
- d Enrollment in math courses requires completion of a placement exam.
- e Enrollment in chemistry courses requires completion of a placement exam.
- f Typically this course is offered in fall semesters only. Check MyUI for course availability since offerings are subject to change.
- g See General Catalog for list of approved course subjects.
- h Students select a course from one of two GE CLAS Core areas: Diversity and Inclusion or Values and Culture.

i Typically this course is offered in spring semesters only. Check MyUI for course availability since offerings are subject to change.

j Students in the electrical track complete two technical electives that align with the focus area (6-7 s.h.) and two additional electives (5 s.h.). Additional electives may be selected from the breadth, depth, or ECE elective lists or from a list of suggested electives for the specific focus area. Consult the Department of Electrical and Computer Engineering website or an academic advisor for more information.

k See General Catalog for list of approved courses.

Students who intend to enroll in a Be Creative course with prerequisites must request a waiver by completing the Request Prerequisite Special Permission form on MyUI.

l Students complete at least two courses with prefix ECE numbered above 5000. Specific recommendations vary based on focus area. Consult the Department of Electrical and Computer Engineering website or an academic advisor for more information.

m Students in the electrical track take ECE:3540 or choose their track breadth elective from the list of required computer track courses. Specific recommendations vary based on focus area. See General Catalog for full list of approved courses; see Department of Electrical and Computer Engineering website or consult an advisor for more information about your specific focus area.

n The depth elective must be an advanced course, normally numbered 4000 or above, in an electrical-related subject area; it is typically an ECE course. Specific recommendations vary based on focus area. See Department of Electrical and Computer Engineering website or consult an advisor for more information.

o Please see Academic Calendar, Office of the Registrar website for current degree application deadlines. Students should apply for a degree for the session in which all requirements will be met. For any questions on appropriate timing, contact your academic advisor or Graduation Services.