# Electrical Engineering (Bioengineering)

123 credit hours total

## YEAR 1

### FALL

***MATH 220 (4)**
Analytic Geometry and Calculus I
KSC-3

**CHM 210 (4)**
Chemistry I

**DEN 160 (1)**
College of Engineering Orientation

**DEN 161 (1)**
Engineering Problem Solving
PR/CO: MATH 150

***ENGL 100 (3)**
Expository Writing I
KSC-1

***COMM 106 (3)**
Public Speaking
KSC-2

(16 credit hours)

### SPRING

**MATH 221 (4)**
Analytic Geometry and Calculus II
PR: MATH 220 ≥C

**ECE 241 (3)**
Introduction to Electrical and Computer Engineering

**CIS 209 (3)**
Computer Programming for Engineers
PR: MATH 220 ≥C

***Elective (3)**
Social and Behavioral Sciences
KSC-5

***ENGL 200 (3)**
Expository Writing II
KSC-1
PR: ENGL 100

(16 credit hours)

## YEAR 2

### FALL

**MATH 340 (4)**
Elementary Differential Equations
PR: MATH 221 ≥ C

***PHYS 213 (5)**
Engineering Physics I
KSC-4
PR/CO: MATH 220

**STAT 510 (3)**
Introductory Probability and Statistics I
PR: MATH 221

**ECE 410 (4)**
Circuit Theory I
PR: MATH 221

(16 credit hours)

### SPRING

**MATH 222 (4)**
Analytic Geometry and Calculus III
PR: MATH 221 ≥ C

**PHYS 214 (5)**
Engineering Physics II
PR: PHYS 213
PR/CO: MATH 221

**ECE 441 (3)**
Design of Digital Systems
PR: ECE 241

**ECE 511 (4)**
Circuit Theory II
PR: MATH 340, ECE 410

(16 credit hours)

## YEAR 3

### FALL

**ECE 431 (3)**
Microcontrollers
PR: ECE 241, CIS 209

**ECE 525 (3)**
Electronics I
PR: ECE 410 or ECE 519

**ECE 540 (3)**
Applied Scientific Computing for Engineers
PR: STAT 510 and CIS 209 or CIS 200

**ECE 557 (4)**
Electromagnetic Theory I
PR: ECE 410, MATH 222, PHYS 214

***Elective (3)**
Arts and Humanities
KSC-6

(16 credit hours)

### SPRING

**ECE 512 (3)**
Linear Systems
PR: ECE 410 or 519, ECE 540, MATH 340

**ECE 526 (3)**
Electronics II
PR: ECE 511, 525

**ECE 502 (2)**
Electronics Laboratory
PR: ECE 511, PR/CO: ECE 526

**ECE 581 (3)**
Energy Conversion I
PR: ECE 410 or ECE 519

**●BME 200 (3)**
Introduction to Biomedical Engineering

(14 credit hours)

## YEAR 4

### FALL

**ECE 590 (3)**
Senior Design Experience I
PR: ECE 525, 540

**ECE 530 (3)**
Control Systems Design
PR: MATH 340, ECE 512

**● ECE 772 (2)**
Theory and Techniques of Bioinstrumentation
CO: ECE 773

**● ECE 773 (1)**
Bioinstrumentation Design Laboratory
PR: ECE 502 ≥ C
CO: ECE 772

**ECE 647 (3)**
Digital Signal Processing
PR: ECE 512 ≥ C

***Elective (3)**
Arts and Humanities
KSC-6

(15 credit hours)

### SPRING

**ECE 591 (2)**
Senior Design Experience II
PR: ECE 590

**▲Elective (3)**
Technical

***Elective (3)**
Social and Behavioral Sciences
KSC-5

***Elective (3)**
Institutional
KSC-7

***Elective (3)**
Institutional
KSC-7

(14 credit hours)

KANSAS STATE UNIVERSITY | Carl R. Ice College of Engineering

**KEY**

- ◪ = Prerequisite for another course
- PR = Prerequisite requirement
- PR/CO = Prerequisite or concurrent requirement
- ▭ = Class applies as specialization
- * = K-State Core (KSC) course
- ▲ = See department approved electives
- ● = Only offered in the semester shown

*Degree map is for advising purposes only. Students are responsible for complying with University Catalog requirements.*

# Electrical Engineering Curriculum Notes

Students pursuing a B.S. in electrical engineering degree are required to complete one of the subplan options. These options include bioengineering, electronics and communications, and power systems.

For the good and benefit of the student and their future employer, the ECE department enforces a C-prerequisite policy for ECE or BME all courses listed by number in the curriculum and for any in-major ECE or BME technical elective course applied toward the degree. A grade of C or better must be earned in all prerequisites to such a course before enrolling in that course.

## Technical Electives

Technical electives must be selected to complete one of the option areas.

See list of option areas and required electives at **ece.k-state.edu/academics/undergraduate/electrical-engineering/specialization/**.

No more than 12 credit hours of courses with prefix ECE may be transferred to Kansas State University for credit toward a bachelor's degree in either electrical engineering or computer engineering. Further, those courses selected for transfer credit must be equivalent to courses in the list below and must be such that the prerequisites for the listed course are also satisfied. Any courses transferred must be taken from ABET accredited programs: ECE 210, ECE 241, ECE 410, ECE 525, ECE 557, ECE 581.

## K-State Core

The K-State Core (KSC) is the university's version of the systemwide general education framework established by the Kansas Board of Regents.

**KSC requirement 1** – English (6 hours)
**KSC requirement 2** – Communications (3 hours)
**KSC requirement 3** – Math and Statistics (3 hours)
**KSC requirement 4** – Natural and Physical Sciences (4-5 hours)
**KSC requirement 5*** – Social and Behavioral Sciences (6 hours)
**KSC requirement 6*** – Arts and Humanities (6 hours)
**KSC requirement 7** – Institutional Electives (6 hours)

To view course lists for each requirement, visit **k-state.edu/provost/kstate-core**.

**Requires two courses from two different subject areas.*