

# Electrical Engineering (Electronics and Communications)

123 credit hours total

| YEAR 1   |  | YEAR 2   |  | YEAR 3  |   | YEAR 4   |  |
|--|--|--|--|---|---|--|--|
| FALL   | SPRING   | FALL   | SPRING   | FALL  | SPRING  | FALL   | SPRING   |
| <b>*MATH 220 (4)</b><br>Analytic Geometry and Calculus I<br>KSC-3    | <b>MATH 221 (4)</b><br>Analytic Geometry and Calculus II<br>PR: MATH 220 ≥ C | <b>MATH 340 (4)</b><br>Elementary Differential Equations<br>PR: MATH 221 ≥ C     | <b>MATH 222 (4)</b><br>Analytic Geometry and Calculus III<br>PR: MATH 221 ≥ C    | <b>ECE 431 (3)</b><br>Microcontrollers<br>PR: ECE 241, CIS 209  | <b>ECE 512 (3)</b><br>Linear Systems<br>PR: ECE 410 or 519, ECE 540, MATH 340 | <b>ECE 590 (3)</b><br>Senior Design Experience I<br>PR: ECE 525, 540             | <b>ECE 591 (2)</b><br>Senior Design Experience II<br>PR: ECE 590   |
| <b>CHM 210 (4)</b><br>Chemistry I                                    | <b>ECE 241 (3)</b><br>Introduction to Electrical and Computer Engineering    | <b>*PHYS 213 (5)</b><br>Engineering Physics I<br>KSC-4<br>PR/CO: MATH 220        | <b>PHYS 214 (5)</b><br>Engineering Physics II<br>PR: PHYS 213<br>PR/CO: MATH 221 | <b>ECE 525 (3)</b><br>Electronics I<br>PR: ECE 410 or ECE 519   | <b>ECE 526 (3)</b><br>Electronics II<br>PR: ECE 511, 525                      | <b>ECE 530 (3)</b><br>Control Systems Design<br>PR: MATH 340, ECE 512            | <b>● ECE 660 (3)</b><br>Communication Systems I<br>PR: ECE 512 ≥ C |
| <b>DEN 160 (1)</b><br>College of Engineering Orientation             | <b>CIS 209 (3)</b><br>Computer Programming for Engineers<br>PR: MATH 220 ≥ C | <b>STAT 510 (3)</b><br>Introductory Probability and Statistics I<br>PR: MATH 221 | <b>ECE 441 (3)</b><br>Design of Digital Systems<br>PR: ECE 241                   | <b>ECE 540 (3)</b><br>Applied Scientific Computing for Engineers<br>PR: STAT 510 and CIS 209 or CIS 200 | <b>ECE 502 (2)</b><br>Electronics Laboratory<br>PR: ECE 511, PR/CO: ECE 526   | <b>ECE 647 (3)</b><br>Digital Signal Processing<br>PR: ECE 512 ≥ C               | <b>▲ Elective (3)</b><br>Technical                                 |
| <b>DEN 161 (1)</b><br>Engineering Problem Solving<br>PR/CO: MATH 150 | <b>* Elective (3)</b><br>Social and Behavioral Sciences<br>KSC-5             | <b>ECE 410 (4)</b><br>Circuit Theory I<br>PR: MATH 221                           | <b>ECE 511 (4)</b><br>Circuit Theory II<br>PR: MATH 340, ECE 410                 | <b>ECE 557 (4)</b><br>Electromagnetic Theory I<br>PR: ECE 410, MATH 222, PHYS 214                       | <b>ECE 581 (3)</b><br>Energy Conversion I<br>PR: ECE 410 or ECE 519           | <b>● ECE 662 (3)</b><br>Design of Communication Circuits<br>PR: ECE 502, 526 ≥ C | <b>* Elective (3)</b><br>Social and Behavioral Sciences<br>KSC-5   |
| <b>*ENGL 100 (3)</b><br>Expository Writing I<br>KSC-1                | <b>*ENGL 200 (3)</b><br>Expository Writing II<br>KSC-1<br>PR: ENGL 100       |  |  | <b>* Elective (3)</b><br>Arts and Humanities<br>KSC-6   | <b>* Elective (3)</b><br>Institutional<br>KSC-7                               | <b>* Elective (3)</b><br>Arts and Humanities<br>KSC-6                            | <b>* Elective (3)</b><br>Institutional<br>KSC-7                    |
| <b>*COMM 106 (3)</b><br>Public Speaking<br>KSC-2                     |  |  |  |   |   |  |  |

(16 credit hours)

(16 credit hours)

(16 credit hours)

(16 credit hours)



(16 credit hours)

(14 credit hours)

(15 credit hours)

(14 credit hours)

## 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         |   |

# 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/](http://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.

## Substitutions

ECE 696 or ECE 764 can be substituted for ECE 662.

## 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](http://k-state.edu/provost/kstate-core).

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