

Electrical Engineering Computer Engineering

Electrical engineers and computer engineers are involved in the design of electrical and computer-oriented systems.

Examples of the areas K-State graduates in electrical and computer engineering work on in their careers include renewable energy; electrical power transmission and distribution; biomedical devices for human and animal health care; GPS receivers; wireless communications devices; satellite and space-based communication transceivers; computers designed for use on aircraft, spacecraft, and missiles; semiconductor design for microprocessors; future Internet technologies; audio electronics; image processing; and instrumentation for a variety of environmental and sensor applications.

Careers

Electrical engineering and computer engineering students are prepared for careers in research, development, design, testing, operation and plant engineering, manufacturing, technical sales, applications, field engineering, and management.

Individuals completing either program will find many employment opportunities with industrial organizations, governmental agencies, utilities, consulting firms, and educational institutions.

You may also continue your education at advanced degree levels or enter medicine, law, or business administration.

Many common career opportunities exist for computer and electrical engineering graduates. The differences in these careers typically occur relative to the level of involvement in computer software and hardware.

Curriculum

The objective of the electrical engineering and computer engineering programs at K-State is to prepare you for a professional career in engineering.

Our goal is to provide you with the best possible education within the guidelines provided by the Accreditation Board for Engineering and Technology.

The electrical and computer engineering curricula provide:

- ▶ An understanding of basic sciences, mathematics, and communication skills.
- ▶ A theoretical basis in computer engineering or electrical engineering.
- ▶ The application of basic concepts to practical problems.
- ▶ Advanced skills in problem solving where hardware and software trade-offs are necessary.
- ▶ A strong laboratory experience stressing system design and implementation.
- ▶ A general education that complements the technical content.
- ▶ An understanding of the ethical, social, safety, and economic factors required for engineering practice.

A sequence of advanced courses stressing engineering design and based on earlier courses prepare the student for entry-level positions in the profession.

Electrical engineering areas of specialization are bioengineering; communication systems and signal processing; digital electronics; power systems; and integrated circuits and devices.

Computer engineering areas of specialization are architectural systems; embedded systems; and multimedia and networking.

Programs of study leading to the degrees of master of science in electrical engineering and doctor of philosophy in engineering are also available.

Facilities

The department is located in Rathbone Hall. This 100,000-square-foot facility provides a superior academic environment. There are numerous well-equipped instructional and research laboratories.

Computing resources are available to support the educational objectives of the program. Access to computers and the Internet is provided in College of Engineering and other university labs.

Electrical engineering

(129 hours total)

Freshman

Hrs. Fall semester

3	ENGL 100	Expository Writing I
2	COMM 105	Public Speaking IA
4	CHM 210	Chemistry I
4	MATH 220	Analytic Geometry and Calculus I
3	EECE 210	Introduction to Electrical Engineering
0	EECE 015	New Student Assembly
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Hrs. Spring semester

3	ECON 110	Principles of Macroeconomics
5	PHYS 213	Engineering Physics I
4	MATH 221	Analytic Geometry and Calculus II
4	CHM 230	Chemistry II
	or	
	BIOL 198	Principles of Biology
0	EECE 015	New Student Assembly
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Sophomore

Hrs. Fall semester

3	EECE 241	Introduction to Computer Engineering
4	MATH 240	Elementary Differential Equations
5	PHYS 214	Engineering Physics II
3	EECE 410	Circuit Theory I
1	DEN 325	Introduction to Personal and Professional Development
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Hrs. Spring semester

3	CIS 209	C Programming for Engineers
4	MATH 222	Analytic Geometry and Calculus III
3	EECE 511	Circuit Theory II
3	EECE 525	Electronics I
3	UGE humanities or UGE social science	elective
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Junior

Hrs. Fall semester

3	EECE 431	Microcontrollers
3	STAT 510	Introduction to Probability and Statistics
3	EECE 526	Electronics II
3		Technical elective
3	UGE humanities or UGE social science	elective
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Hrs. Spring semester

2	EECE 502	Electronics Lab
3	EECE 512	Linear Systems
3	EECE 557	Electromagnetic Theory I
3	EECE 581	Energy Conversion I
3	ENGL 415	Written Communications for Engineers
3	UGE humanities or UGE social science	elective
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Senior

Hrs. Fall semester

3	EECE 530	Control Systems and Design
3	CE 530	Statics and Dynamics
2	CHE 350	Electronic Materials
9		Technical electives
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Hrs. Spring semester

1	EECE 590	Seminar
3	ME 513	Thermodynamics I
9		Technical electives
3	UGE humanities or UGE social science	elective
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Computer engineering

(129 hours total)

Freshman

Hrs. Fall semester

3	ENGL 100	Expository Writing I
2	COMM 105	Public Speaking IA
4	CHM 210	Chemistry I
4	MATH 220	Analytic Geometry and Calculus I
3	EECE 241	Introduction to Computer Engineering
0	EECE 015	New Student Assembly
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Hrs. Spring semester

5	PHYS 213	Engineering Physics I
4	MATH 221	Analytic Geometry and Calculus II
4	CIS 200	Fundamentals of Computer Programming
3	EECE 210	Introduction to Electrical Engineering
0	EECE 015	New Student Assembly
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Sophomore

Hrs. Fall semester

3	EECE 441	Design of Digital Systems
5	PHYS 214	Engineering Physics II
4	MATH 240	Elementary Differential Equations
3	CIS 300	Algorithms and Data Structures
1	DEN 325	Introduction to Personal and Professional Development
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Hrs. Spring semester

4	MATH 222	Analytic Geometry and Calculus III
3	MATH 510	Discrete Mathematics
3	ECON 110	Principles of Macroeconomics
1	CIS 308	C/C++ Language Lab
3	EECE 431	Microcontrollers
3	EECE 410	Circuit Theory I
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Junior

Hrs. Fall semester

3	CIS 501	Software Architecture and Design
3	EECE 511	Circuit Theory II
3	EECE 525	Electronics I
3	STAT 510	Introduction to Probability and Statistics
3	UGE humanities or UGE social science	elective
3		Technical elective
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Hrs. Spring semester

3	EECE 512	Linear Systems
3	EECE 557	Electromagnetic Theory I
3	EECE 649	Computer Design I
3	UGE humanities or UGE social science	elective
3		Technical elective
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Senior

Hrs. Fall semester

3	CIS 543	Software Engineering Design Project I*
3	ENGL 415	Written Communications for Engineers
3	EECE 643	Computer Engineering Design Lab
3	UGE humanities or UGE social science	elective
3		Technical elective
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Hrs. Spring semester

3	EECE 645	Digital Electronics
1	EECE 590	Seminar
3	UGE humanities or UGE social science	elective
9		Technical electives
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*Offered only semester shown in curriculum

Students must complete the appropriate prerequisite credits for ENGL 415 but may apply only three hours of ENGL 415 prerequisite credits toward degree requirements.

Humanities and social science (H & SS) electives must be from the official College of Engineering, University General Education (UGE) H & SS list. At least one course must be in humanities. Students may transfer up to 6 hours of H & SS courses if not needed to meet UGE requirements.

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

For more information about electrical or computer engineering, contact:

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119 Anderson Hall

Manhattan, KS 66506-0102

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785-532-6250

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