

College of Engineering

Architectural Engineering

Overview

Architectural engineers bring together various technologically advanced building systems and make them all work together as an integrated whole. They must be aware of the practical, functional and aesthetic possibilities of contemporary materials and mechanical, electrical and structural systems to assure proper building systems integration.

As an important member of the building design team, the engineer must be able to create designs that will satisfy the economic, safety, environmental, sustainability and aesthetic requirements of a project as well as assure that the design complies with various design standards and building codes.

Professional options

Careers

Graduates of this program are in tremendous demand. Architectural engineering opens the door to a variety of interesting jobs with high starting salaries and exciting careers. Some possible careers:

- Engineering consultants in building, mechanical, electrical or structural design work independently or in association with an architectural or engineering firm.
- Mechanical designers engineer heating, ventilating, air conditioning, plumbing and fire protection systems for buildings.
- Electrical designers engineer power distribution, lighting and building communication and control systems.
- Structural designers engineer foundation, framing and building envelope systems.
- Architectural engineers aid the development and marketing of new building products and technology.

Points of pride

The K-State architectural engineering student competition teams have combined to win at least one first-place award in national competitions for five consecutive years. The teams are regularly finalists in national competitions sponsored by the Architectural Engineering Institute and the American Society of Heating, Refrigerating and Air Conditioning Engineers and the American Concrete Institute.

Senior students in this program are eligible to take the Fundamentals of Engineering examination to qualify as an engineer-in-training. Successful completion of this examination allows them to pursue the professional registration examination to become a licensed professional engineer.

Academics

Architectural engineering at Kansas State University is a five-year program in building systems. It covers engineering design theory and how to apply these tools to create completely functional buildings.

Students will complete courses in mathematics and engineering science, as well as take courses in materials, construction drawings, architectural design and all building systems. Students will graduate with a basic competency in structural, mechanical and electrical design for buildings and may, upon selection of the proper technical electives, strengthen personal and professional knowledge in any of these areas.

The primary goal of most students is to practice as a consulting engineer in one or more of the engineering disciplines noted above.

Degree options

Bachelor/Master of Science

A combination bachelor's and master's degree program is only offered to undergraduates in architectural engineering. This professional Master of Science degree challenges top students with research experiences, faculty mentoring and advanced coursework. The program gives the student an opportunity to specialize in an emphasis area of systems engineering applied to building design and analysis. Current emphasis areas include: mechanical systems, electrical power distribution, illumination and building structural design.

Accreditation

The program is one of a small number of programs accredited by the Engineering Accreditation Commission of ABET, abet.org, and is a leading source of building system design engineers for consulting engineering firms.

Faculty

Architectural engineering faculty members are licensed professional engineers and architects or experts in their area or discipline. They have significant industry experience they bring into the classroom to facilitate the understanding and practical application of engineering theory. The faculty members keep up to date on building codes and design standards to assure students graduate with the most current understanding of engineering design requirements. The department faculty members have won numerous teaching and advising awards as a result of their dedication to students and their commitment to quality engineering and construction education.

Admission

Admission is selective based on academic performance. Submit application, application fee, all transcripts and ACT or SAT scores postmarked by the priority Feb. 1 deadline. Transfer students will be considered for all terms. Freshmen will be considered only for summer and fall terms.

Preprofessional program

Incoming students apply to Kansas State University through the general university admissions process. When enrolling in courses, those wishing to declare a major in architectural engineering may enroll directly in the curriculum titled ARE and start in the preprofessional program.

Professional program

Preprofessional architectural engineering students must complete the first three semesters of the program before taking any upper-level professional program courses in architectural engineering. The criteria for acceptance to the professional program are outlined in the undergraduate catalog.

Graduate program

Master of Science

The minimum requirement for coursework is 30 semester hours of graduate credit with options as specified in the catalog and required undergraduate work in an ABET-accredited engineering program and subject to the approval of the department. More information is available on the department's website.

Activities

Clubs

The department offers many active student professional organizations with ample opportunity for involvement and leadership, as well as interaction with industry professionals, field trips, scholarships and student competition teams. These student-run organizations include:

- Architectural Engineering Institute
- American Society of Heating, Refrigerating and Air-Conditioning Engineers
- Illuminating Engineering Society
- Structural Engineers Association of Kansas and Missouri
- Mechanical Contractors Association of America
- American Concrete Institute
- Phi Alpha Epsilon-Architectural Engineering Honor Society
- Department Student Ambassadors

Financial assistance

Applications for admission are accepted up to 15 months before the first class day each semester. Apply for admission and fill out the Kansas State University scholarship application at k-state.edu/admit/apply.

The priority deadline for incoming freshmen to submit the K-State scholarship application is Nov. 1, or Feb. 1 for transfer students. Students should submit their Free Application for Federal Student Aid by March 1. For additional details, go to k-state.edu/sfa.

Suggested coursework

Bachelor of Science degree in architectural engineering (128 hours)

Preprofessional program

Hrs. First semester

0	ARE 020	Architectural Engineering Seminar
2	ARE 100	Architectural Engineering Orientation
3	CNS 110	History of Building and Construction
4	CHM 210	Chemistry I
4	MATH 220	Analytical Geometry and Calculus I
2	COMM 105	Public Speaking IA
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Hrs. Second semester

0	ARE 020	Architectural Engineering Seminar
1	CNS 210	Graphic Communications I
2	CNS 220	Construction Materials
5	PHYS 213	Engineering Physics I
4	MATH 221	Analytical Geometry and Calculus II
3	ECON 110	Principals of Macroeconomics
15		

Hrs. Third semester

0	ARE 020	Architectural Engineering Seminar
3	ARE 295	Building Systems Introduction
5	PHYS 214	Engineering Physics II
3	CE 333	Statics
3	ENGL 200	Expository Writing II
4	MATH 222	Analytic Geometry and Calculus III
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Professional program

Hrs. Fourth semester

0	ARE 020	Architectural Engineering Seminar
3	CNS 321	Graphic Communications II
3		Science elective
3	ME 513	Thermodynamics
3	CE 533	Mechanics of Materials
1	CE 534	Mechanics of Materials Lab
4	MATH 240	Elementary and Differential Equations
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Hrs. Fifth semester

0	ARE 020	Architectural Engineering Seminar
3	ARE 460	Architectural Engineering Professional Practice
3	ARE 551	Electrical Systems I
3	ARE 552	Mechanical Systems I
3	ARE 553	Structures I
3	CE 537	Introduction to Structural Analysis
15		

Hrs. Sixth semester

0	ARE 020	Architectural Engineering Seminar
3	ARE 421	Plan Reading and Systems Communications
2	ARE 521	Computer-Aided Architectural Engineering
3	ARE 521	Electrical Systems II
3	ARE 562	Mechanical Systems II
3	ARE 563	Structures II
3	ART 180	2D Design
	or	
	ART 190	Drawing I
	or	
	ART 200	3D Design
17		

Hrs. Seventh semester

0	ARE 020	Architectural Engineering Seminar
3	ARE 571	Systems Integration and Design
3	ENGL 415	Writ Comm Engineers
3		Complementary elective**
3		Complementary elective**
3		Complementary elective/engineering elective***
15		

Hrs. Eighth semester

0	ARE 020	Architectural Engineering Seminar
4	ARE 671	Architectural Engineering Capstone
3		Engineering elective***
3		Engineering elective***
3		Complementary elective**
3		Humanities and social science elective*
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*Humanities and social science electives are to be selected from the College of Engineering humanities and social science elective course list.

** Complementary electives are to be selected from the approved departmental list.

*** Engineering electives are to be selected from the current approved department list.

**** Science electives are to be selected from the current approved department list.

For more information about architectural engineering, contact:

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For more information about engineering, contact:

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1141 Engineering Hall
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For more information about Kansas State University, contact:

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1-800-432-8270 (toll free) or
785-532-6250
k-state@k-state.edu
k-state.edu/admissions

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Post-Graduation Statistics
k-state.edu/postgrad-stats
ksdegreestats.org