

College of Engineering

Civil Engineering

Overview

In the next decade, another billion people will be added to the Earth's population. This growth creates enormous demands for facilities to produce energy, supply food, provide transportation, handle materials, dispose of wastes, clean the environment, and construct living and working spaces. The skills of civil engineers will be central to meeting these demands.

As a rule, if a facility is one-of-a-kind, large and important in the daily lives of many people, chances are civil engineers participated in its planning, design and construction.

Professional options

Careers

Civil engineers plan, design, build, maintain and manage the global civil infrastructure. The civil engineering profession provides a wide variety of enriching career choices that fit different lifestyles. As a civil engineer, you may choose to work for the county office or for a mega city, for public agencies, consulting firms or large corporations, for local companies or multinational firms, in a design office or on a construction site.

Most civil engineers obtain a professional practice license. Many start their own consulting practice or partner with other civil engineers to provide design services. Best of all, civil engineers contribute to projects that are used by people for decades and sometimes even centuries.

Points of pride

Kansas State University's civil engineering steel bridge team came in first at a regional competition and became eligible for its 11th consecutive appearance at the national competition in May 2015.

Employers

- Town, city and county offices
- State agencies such as departments of transportation or environment
- Federal agencies such as the Environmental Protection Agency or Department of Defense
- The military, including the Navy, Army and Air Force
- Civil contractors and construction companies that build public and private projects
- Consulting firms that provide design solutions to public and private clients
- Large multinational companies that do business around the world
- Major corporations that design and build infrastructure in-house
- Self-employment as a licensed engineer
- Technical colleges and universities for educating future civil engineers

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.

Financial assistance

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

Academics

Degree options

General track

This general program covers environmental, geotechnical, structural, transportation/materials and water resources engineering.

Geotechnical engineering

Geotechnical engineering encompasses design and construction of foundations for structures, bridges, earth embankments, retaining walls and bulkheads, pavement for highways and airports, and waste containment structures.

Structural engineering

Structural engineering deals with the design and construction of a wide variety of buildings and bridges using concrete, steel and other composite materials.

A student pursuing the structural track within the department can fulfill the requirements for a Bachelor of Science in civil engineering by completing the outlined course curriculum listed for civil engineering and the following required structural track courses:

Hrs.	Courses	
3	CE 411	Route Location and Design
3	CE 542	Structural Engineering in Steel
3	CE 732	Advanced Structural Analysis
8		Structures track electives
12		CE electives

Transportation/materials engineering

Transportation engineers are concerned with the planning, design, materials, construction and operation of highways, railways, airports and urban mass transit systems.

This option allows you to obtain a Bachelor of Science in civil engineering while preparing more specifically for employment in the transportation industry. A student pursuing the transportation/materials engineering track can fulfill the requirements for a bachelor's degree in civil engineering by following the course curriculum listed for civil engineering as well as the following selection of courses:

Hrs.	Courses	
3	CE 411	Route Location/Design
and two of the following:		
3	CE 641	Civil Engineering Materials I
3	CE 774	Pavement Design
3	CE 775	Traffic Engineering
8		Transportation/Materials track electives
12		CE electives

Water resources/hydraulic engineering

Water resources engineers evaluate, design, construct and manage structures and systems for flood control and to provide water for drinking and household uses, irrigation, power production, recreation and wildlife.

Construction engineering

This track prepares you specifically for employment in the construction industry — often with general or specialty contractors — as well as construction divisions of major industrial concerns or governmental agencies. Other employment areas might include financial lenders, equipment manufacturers or material producers.

A student pursuing the construction engineering track within civil engineering can fulfill requirements for a Bachelor of Science in civil engineering by following the outlined course curriculum as well as the following selection of construction engineering courses:

Hrs.	Courses
3	CE 411 Route Location and Design
3	CE 542 Structural Engineering in Steel
3	CE 641 Civil Engineering Materials
3	CE 680 Economics of Design and Construction
5	Construction track electives
12	CE electives

Environmental engineering

In this track, you are prepared for employment in the environmental field, specifically water and wastewater industries, regional and federal regulatory agencies, solid waste management, and pollution control industries.

A student pursuing the environmental track within the department can fulfill the requirements for a Bachelor of Science in civil engineering by following the outlined course curriculum listed for civil engineering as well as the following environmental engineering track electives:

Hrs.	Courses
4	BIOL 198 Principles of Biology
3	CHM 531 Organic Chemistry I
10	Environmental track electives
12	CE electives

Accreditation

The civil engineering program at Kansas State University is accredited by the Engineering Accreditation Commission of ABET, abet.org.

Suggested coursework

128 hours.

Freshman

Hrs.	Fall semester
4	MATH 220 Analytic Geometry and Calculus I
4	CHM 210 Chemistry I
3	ENGL 100 Expository Writing I
3	ECON 110 Principles of Macroeconomics I
3	CE 202 Engineering Graphics
1	CE 101 Introduction to Civil Engineering
0	CE 015 Engineering Assembly
18	

Hrs. Spring semester

4	MATH 221 Analytic Geometry and Calculus II
4	CHM 230 Chemistry II
3	CIS 209 C Programming for Engineers
3	GEOL 100 Earth in Action
0	CE 015 Engineering Assembly
3	Track elective***
17	

Sophomore

Hrs.	Fall semester
4	MATH 222 Analytic Geometry and Calculus III
5	PHYS 213 Engineering Physics I
2	COMM 105 Public Speaking IA
3	CE 212 Elementary Surveying

0	CE 015 Engineering Assembly
3	Track elective***
17	

Hrs. Spring semester

4	MATH 240 Elementary Differential Equations
5	PHYS 214 Engineering Physics II
3	CE 333 Statics
3	STAT 510 Introductory Probability and Statistics I
0	CE 015 Engineering Assembly
3	Track elective***
18	

Junior

Hrs. Fall semester

3	ME 512 Dynamics
3	ME 513 Thermodynamics I
3	CE 533 Mechanics of Materials
1	CE 534 Mechanics of Materials lab
0	CE 015 Engineering Assembly
6	Track elective***
16	

Hrs. Spring semester

3	CE 537 Introduction to Structural Analysis
3	ME 571 Fluid Mechanics
3	CE 522 Soil Mechanics I
3	CE 563 Environmental Engineering Fundamentals
3	ENGL 415 Written Communications for Engineers*
0	CE 015 Engineering Assembly
15	

Senior

Hrs. Fall semester

6	Civil engineering electives****
3	CE 550 Water Resources Engineering I
3	Humanities/social sciences electives**
3	Track electives***
0	CE 015 Engineering Assembly
15	

Hrs. Spring semester

3	CE 585 Civil Engineering Project
6	Civil engineering electives****
6	General education humanities or general education social sciences electives**
0	CE 015 Engineering Assembly
15	

*Students must complete the appropriate prerequisite credits for ENGL 415 but may apply only 3 hours of prerequisite credits toward degree requirements.

**Humanities and social science electives are to be selected from the College of Engineering humanities and social science elective course list approved by the College of Engineering. Students should select these courses as needed to complete the requirements of the K-State 8 general education program.

***Track electives are to be selected in consultation with the student's faculty advisor to satisfy the requirements of the track the student has chosen. One course from either the engineering materials or the circuits, fields and electronics engineering science group is required in the general option.

****CE electives are to be selected from the list approved by the department to satisfy option requirements approved by the department to satisfy option requirements.

For more information about civil engineering, contact:

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For more information about engineering, contact:

Office of Recruitment
 College of Engineering
 1141 Engineering Hall
 1701D Platt St.
 Manhattan, KS 66506-5201
 785-532-5455
kstateengg@k-state.edu
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For more information about Kansas State University, contact:

Office of Admissions
 Kansas State University
 119 Anderson Hall
 919 Mid-Campus Drive North
 Manhattan, KS 66506-0102
 1-800-432-8270 (toll free) or
 785-532-6250
k-state@k-state.edu
k-state.edu/admissions

KANSAS STATE UNIVERSITY

Notice of nondiscrimination
 Kansas State University prohibits discrimination on the basis of race, color, ethnicity, national origin, sex (including sexual harassment and sexual violence), sexual orientation, gender identity, religion, age, ancestry, disability, genetic information, military status, or veteran status, in the University's programs and activities as required by applicable laws and regulations. The person designated with responsibility for coordination of compliance efforts and receipt of inquiries concerning nondiscrimination policies is the University's Title IX Coordinator: the Director of the Office of Institutional Equity, equity@k-state.edu, 103 Edwards Hall, Kansas State University, Manhattan, Kansas 66506, (785) 532-6220. The campus ADA Coordinator is the Director of Employee Relations, charlott@k-state.edu, who may be reached at 103 Edwards Hall, Kansas State University, Manhattan, Kansas 66506, (785) 532-6277.

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