

Bachelor of Science in Aerospace Engineering

Careers

Professional Opportunities

Aerospace engineers design, develop, and test aircraft, spacecraft, and missiles and supervise manufacture of these products. They explore advances in air flight and space exploration. Aerospace engineers typically work for aircraft, guided missile and space vehicle industries, national research laboratories, commercial airlines, and federal government agencies.

Undergraduate Admission to the School of Engineering

Admission to the KU School of Engineering (and its degree programs) is selective.

Students may be admitted to an engineering or computer science degree program (http://enr.ku.edu/sites/enr.drupal.ku.edu/files/docs/pdfs/Majors_and_Curriculum_Guide_2014_Online.pdf) as freshmen (first year) students, but all admissions, for both in-state and out-of-state students, are selective. Applications are judged on several factors, such as high school record, scores on national tests, academic record at college or university level, and trend of grades and more. High school transcripts and ACT scores (or equivalent SAT scores) are required.

Minimum Academic Standards for Admission

To be considered for admission to the School of Engineering, beginning first-year students must meet or exceed the following minimum standards:

- Must be admissible (<http://admissions.ku.edu/apply/requirements/usfreshmen>) to the University of Kansas by assured admissions or individual review **AND**
- Have a 3.0+ GPA **AND**
- Have a mathematics ACT score of 22 (or math SAT score of 540).

Important: Simply meeting these requirements won't guarantee admission to a School of Engineering degree program. Students who perform beyond these minimums will have a better probability of being admitted to their selected major.

Minimum Academic Standards for Direct Admission into Degree Program for incoming Freshmen

Students with a 26+ Math ACT (600+ Math SAT) or meet eligibility requirements for MATH 125 (Calculus I) (<http://catalog.ku.edu/liberal-arts-sciences/math/#undergraduatetext>) may be admitted directly into their chosen major, with the exception of those seeking admission into an EECS program. Electrical Engineering, Computer Science, Computer Engineering, and Interdisciplinary Computing students must have a 28+ Math ACT (640+ Math SAT) or eligibility for MATH 125 for direct admission.

First-Year General Engineering Program

Students with a 22-25 Math ACT (540-580 Math SAT) or meet eligibility requirements for Math 104 (Pre-Calculus) (<http://catalog.ku.edu/>

[liberal-arts-sciences/math/#undergraduatetext](http://catalog.ku.edu/liberal-arts-sciences/math/#undergraduatetext)) are admitted to the School of Engineering First-Year Experience non-degree program for undergraduate students.

First-year Engineering students have one academic year (two semesters and one summer) to transition into a degree program. Admission to a degree program is possible after one of the following is met:

- Complete 12+ credit hours at KU, earn a "B" or higher in Math 104 (Pre-Calculus), earn a "C" or higher in all science and engineering courses, and earn a KU GPA of 2.5+ OR
- Earn a "C" or better in MATH 125 (Calculus I), earn a "C" or better in all science and engineering courses, and earn a KU GPA of 2.5+

Exploring Engineering

Students not admitted directly to the School of Engineering or their major but who are admissible to the university may be admitted to the College of Liberal Arts and Sciences as an Undecided student. They can later re-apply to the School of Engineering during the semester they are completing the admission requirements for transfer students.

Transfer Admission Standards

Applications from all transfer students, whether from other institutions or from other academic schools at the University of Kansas, are evaluated on a case-by-case basis. Transfer students must be admissible (<http://admissions.ku.edu/apply/requirements/ustransfer>) to KU **AND** have a cumulative college transferable grade-point average of 2.5+ to be considered. In addition, students must have grades of "C" or better in those courses in math (must include MATH 125 Calculus I or equivalent), science, and engineering applicable to the engineering degree.

Students interested in the **Information Technology** program are admitted as juniors. They must have completed 60 hours of pre-requisite courses including foundational courses in math, science, and computer science and have a 2.5+ cumulative GPA or better. The Information Technology program resides at the Edwards Campus in Overland Park, KS. Click here (<http://edwardscampus.ku.edu/overview-bachelors-information-technology>) for more information.

Current KU Students admitted to other academic units may apply to the School of Engineering by completing a Change of School form (<http://engineering.ku.edu/forms>). This must be turned in to the School of Engineering Dean's Office by the appropriate deadlines indicated below.

Already Applied to KU, But Not Engineering?

Don't worry. It's not too late to change your mind if you've already applied to KU and selected a major outside the School of Engineering. If you think one of the 12 engineering or computer science majors is a better fit for your talents, you can still change your requested major — preferably before May 1 — and be considered for admission to the School of Engineering and all the benefits that go with it.

To update your application, visit Undergraduate Admissions (<http://admissions.ku.edu/update-your-application>) and click on "Change application term, major, mailing address, and/or email address."

Please contact a member of our recruitment team (studyengineering@ku.edu), 785-864-3881, if you have any difficulty.

Application Deadlines For New Freshman and Transfer Applicants

Semester	Applicants	Deadline
September 15	Priority deadline for current KU students to apply for spring admission to Engineering.	
November 1	Final deadline for scholarship consideration for incoming freshmen planning to enter in fall or summer semesters.	
December 1	Final deadline to apply for the Self Engineering Leadership Fellows Program for incoming freshmen	
February 1	Final deadline for scholarship consideration for transfer students planning to enter in fall or summer semesters. Applications available for the Engineering Learning Community	
February 15	Priority deadline for current KU students to apply for summer or fall admission to Engineering.	
May 1	Enrollment Deposit due.	

Four Year Degree Completion Plan

The following are recommended enrollments:

Freshman

Fall	Hours	Spring	Hours
MATH 125	4	MATH 126	4
CHEM 150 or 130 (KU Core GE 3N)**	5	AE 211	3
Written Communication (KU Core GE 2.1)*	3	Written Communication (KU Core GE 2.1)*	3
AE 245	3	PHSX 210 (KU Core GE 1.1)	3
AE 290	0.25	PHSX 216	1
		AE 290	0.25
		KU Core (GE3H, ECON, AE4.1, AE4.2, or AE5)	3
	15.25		17.25

Sophomore

Fall	Hours	Spring	Hours
MATH 220	3	AE 445	3
CE 301	5	AE 360	3
AE 345	3	CE 310	4

PHSX 212	3	ME 312	3
PHSX 236	1	MATH 127	4
AE 290	0.25	AE 290	0.25
KU Core (GE3H, ECON, AE4.1, AE4.2, or AE5)	3		
	18.25		17.25

Junior

Fall	Hours	Spring	Hours
AE 507	3	AE 508	3
AE 550	4	AE 551	4
AE 571	3	AE 572	3
AE 545	4	AE 421	3
AE 290	0.25	EECS 316	3
MATH 290	2	EECS 318	1
		AE 290	0.25
	16.25		17.25

Senior

Fall	Hours	Spring	Hours
AE 521 (part of KU Core AE 6)	4	AE 522, 523, or 524 (part of KU Core AE 6)	4
AE 510	4	AE 430	3
AE 560 (or Technical Elective)	3	AE 290	0.25
AE 590	1	Technical Electives	6
AE 290	0.25	KU Core (GE3H, ECON, AE4.1, AE4.2, or AE5)	3
KU Core (GE3H, ECON, AE4.1, AE4.2, or AE5)	3		
	15.25		16.25

Total Hours: 133

Requirements for Enrollment in Junior-Level Aerospace Courses

Enrollment in junior-level aerospace courses is limited to students who have received grades of C or higher in all first- and second-year courses in mathematics, physics, ME 312, CE 301, CE 310, AE 245, AE 345, and AE 445.

Bachelor of Science in Aerospace Engineering Degree Requirements

The typical number of credit hours required for a Bachelor's of Science in Aerospace Engineering is 136 hours:

Aerospace Engineering Courses (34)

AE 245	Introduction to Aerospace Engineering	3
AE 290	Aerospace Colloquium	2
AE 345	Fluid Mechanics	3
AE 360	Introduction to Astronautics	3
AE 421	Aerospace Computer Graphics	3
AE 430	Aerospace Instrumentation Laboratory	3
AE 445	Aircraft Aerodynamics and Performance	3
AE 507	Aerospace Structures I	3
AE 508	Aerospace Structures II	3

AE 510	Aerospace Materials and Processes	4
AE 521	Aerospace Systems Design I	4
Select one of the following: (23)		4
AE 522	Aerospace Systems Design II	
AE 523	Space Systems Design	
AE 524	Propulsion Systems Design I	
AE 545	Fundamentals of Aerodynamics	4
AE 550	Dynamics of Flight I	4
AE 551	Dynamics of Flight II	4
AE 571	Fundamentals of Airplane Reciprocating Propulsion Systems	3
AE 572	Fundamentals of Jet Propulsion	3
AE 590	Aerospace Senior Seminar	1
Engineering Science Courses (19)		
AE 211	Computing for Engineers	3
CE 301	Statics and Dynamics	5
CE 310	Strength of Materials	4
ME 312	Basic Engineering Thermodynamics	3
EECS 316	Circuits, Electronics and Instrumentation	3
EECS 318	Circuits and Electronics Lab	1
Science Courses (13)		
CHEM 150	Chemistry for Engineers	5
	or CHEM 130 General Chemistry I	
PHSX 210	General Physics I for Engineers	3
PHSX 216	General Physics I Laboratory	1
PHSX 212	General Physics II	3
PHSX 236	General Physics II Laboratory	1
Mathematics Courses (17)		
MATH 125	Calculus I	4
MATH 126	Calculus II	4
MATH 127	Calculus III	4
MATH 220	Applied Differential Equations	3
MATH 290	Elementary Linear Algebra	2
KU Core (18)		
KU Core GE 2.1	Written Communication*	6
KU Core GE 3H	Humanities	3
KU Core AE 4.1	Human Diversity	3
KU Core AE 4.2	Global Awareness*	3
ECON 104	Introductory Economics	3
	or ECON 142 Principles of Microeconomics	
	or ECON 144 Principles of Macroeconomics	
Technical Electives (9)		
Technical Electives are selected from upper level aerospace courses, approved courses from other engineering departments, or approved math courses.		9
Total Hours		133

Credit for ROTC Courses: A student enrolled in one of the ROTC programs can receive 3 hours of technical electives if the ROTC program is completed.

*The Written Communication and Global Awareness goals can be satisfied in ways other than standard coursework. See <http://kucore.ku.edu/> for your options.

Departmental Honors

To complete the departmental honors program, an aerospace engineering undergraduate student must

- Graduate with a KU grade-point average of 3.5.
- Take at least one departmental honors course. The departmental honors courses are

AE 546	Honors Aerodynamics	5
AE 573	Honors Propulsion	3
AE 509	Honors Aerospace Structures II	3
AE 552	Honors Dynamics of Flight II	4
AE 593	Honors Research	1-5

Students who intend to use departmental honors courses to meet the requirements of the University Honors Program or the departmental honors program must meet with the departmental honors advisor for permission to enroll.