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 (https://engr.ku.edu/2021-curriculum-guide-links/) 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 are required.

Minimum Academic Standards for Admission to the School of Engineering

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 (https://admissions.ku.edu/major-specific-requirements/) to the University of Kansas by assured admissions or individual review, AND
- Have a 3.0+ high school GPA, AND
- Demonstrate mathematics preparedness by:
  - Obtaining a mathematics ACT score of 22+ (or math SAT score of 540+), or
  - Achieving a ‘B’ or better in ‘college algebra’ or a more advanced mathematics course, or
  - Achieving a ‘C’ or better in a high school calculus course; or
  - Earning credit via IB or AP credit for the above-mentioned courses in accordance with KU placement credit requirements; or
  - Achieving at minimum a qualifying score for MATH 104 on the ALEKS mathematics placement exam.

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) (https://catalog.ku.edu/liberal-arts-sciences/math/#undergraduatetext) may be admitted directly into their chosen major, with the exception of those seeking admission into the Electrical Engineering, Computer Science, Computer Engineering, and Interdisciplinary Computing (EECS) majors. For EECS program admission, students must:

- Be admissible (https://admissions.ku.edu/major-specific-requirements/) to the University of Kansas by assured admissions or individual review, AND
- Have a 3.0+ high school GPA, AND
- Demonstrate mathematics preparedness by:
  - Obtaining a mathematics ACT score of 28+ (or math SAT score of 660+), or
  - Achieving a ‘C’ or better in a high school calculus course; or
  - Earning credit via IB or AP credit for the above-mentioned course in accordance with KU placement credit requirements; or
  - Achieving at minimum a qualifying score for MATH 125 on the ALEKS mathematics placement exam.

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Students who are not admissible to their desired major are
 admitted to the School of Engineering as undecided engineering
 undergraduate students.
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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.

Current KU Students admitted to other academic units may apply to the School of Engineering by completing a Change of School form (https://inowformsprivate.ku.edu/imagenowforms/fs/?form=OUR%20Change%20of%20School%20Form).

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

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
AE 245	3	AE 211	3
AE 290	0.25	AE 290	0.25
MATH 125[H*]	4	MATH 126[H*]	4
CHEM 150[***]	5	EPHX 210	3
Written Communication (KU Core GE 2.1)[*]	3	PHSX 216	1
		Written Communication (KU Core GE 2.1)[*]	3
		KU Core (GE3H, ECON, AE4.1, or AE4.2)[*]	3
	15.25		**17.25**

Sophomore

Fall	Hours	Spring	Hours
AE 290	0.25	AE 290	0.25
AE 345	3	AE 360	3
CE 260[H]	5	AE 445	3
MATH 220[H]	3	MATH 127[H*]	4
PHSX 212	3	CE 310	4
PHSX 236	1	ME 212	3
KU Core (GE3H, ECON, AE4.1, or AE4.2)[*]	3		
	18.25		**17.25**

Junior

Fall	Hours	Spring	Hours
AE 290	0.25	AE 290	0.25
AE 507[H]	3	AE 421	3
AE 550	4	AE 508[H]	3
AE 545[H]	4	AE 551[H]	4
AE 571	3	AE 572[H]	3
MATH 290[H]	2	EECS 316	3
	16.25		**16.25**

Senior

Fall	Hours	Spring	Hours
AE 290	0.25	AE 290	0.25
AE 510	4	AE 430	3
AE 521 or 520	4	AE 522, 523, or 524	4
AE 590	1	Technical Elective[**]	3
Technical Elective[**]	3	KU Core (GE3H, ECON, AE4.1, or AE4.2)[*]	3
KU Core (GE3H, ECON, AE4.1, or AE4.2)[*]	3		
	15.25		**13.25**

Total Hours 129

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 212, CE 260, CE 310,AE 211, AE 245, AE 345, and AE 445.

Curriculum Notes

*Students must ensure the electives they choose fulfill all remaining KU Core requirements.

**Technical electives are selected from upper-level aerospace courses, approved courses from other engineering departments, or approved math courses.

***Students with credit in CHEM 130 may add CHEM 149 to meet the CHEM 150 requirement.

[H] Honors equivalent course is available.

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 129 hours:

Code	Title	Hours
Aerospace Engineering Courses		
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
Select one of the following Design I options:		**4**
AE 520	Space Systems Design I	
AE 521	Aerospace Systems Design I	
Select one of the following Design II options:		**4**
AE 522	Aerospace Systems Design II	
AE 523	Space Systems Design II	
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		
AE 211	Computing for Engineers	3
CE 260	Statics and Dynamics	5
CE 310	Strength of Materials	4
ME 212	Basic Engineering Thermodynamics	3
EECS 316	Circuits, Electronics and Instrumentation	3
Science Courses		
CHEM 150	Chemistry for Engineers	5
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		
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		
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		
Technical Electives are selected from upper level aerospace courses, approved courses from other engineering departments, or approved math courses.		6
Total Hours		**129**

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 2 departmental honors courses and earn a grade of B or better in each. At least one course of which must include an independent research component
  - An AE 700-level technical elective can be used for one of these courses
- The departmental honors courses are

Code	Title	Hours
AE 506	Aerospace Structures I, Honors	3
AE 509	Honors Aerospace Structures II	3
AE 546	Aerodynamics, Honors	4
AE 552	Honors Dynamics of Flight II	4
AE 573	Honors Propulsion	3
AE 593	Honors Research	1-5

Students require permission of instructor to enroll in honors courses. The Application for Departmental Honors (https://deptsec.ku.edu/~engr/forms/form/50/) form must be completed by April 1 during the year of graduation in order to be recognized.