

AERONAUTICAL SYSTEMS ENGINEERING TECHNOLOGY - B.S.

College of Aeronautics and Engineering

Aeronautics and Technology Building
Kent Campus
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Description

The Bachelor of Science degree in Aeronautical Systems Engineering Technology prepares graduates to enter careers in the design, installation, manufacturing, testing, evaluation, technical sales and maintenance of aeronautical/aerospace systems. Students gain technical expertise in engineering materials, statics, strength of materials, applied aerodynamics, applied propulsion and electronics. Graduates will have strengths in the analysis, applied design, development, implementation and oversight of more advanced aeronautical/aerospace systems and processes.

The B.S. degree in Aeronautical Systems Engineering Technology is accredited by the Engineering Technology Accreditation Commission of ABET, <http://www.abet.org>

Fully Offered At:

- Kent Campus

Admission Requirements

The university affirmatively strives to provide educational opportunities and access to students with varied backgrounds, those with special talents and adult students who graduated from high school three or more years ago.

Freshman Students on the Kent Campus: The freshman admission policy on the Kent Campus is selective. Admission decisions are based upon the following: cumulative grade point average, ACT and/or SAT scores, strength of high school college preparatory curriculum and grade trends. The Admissions Office at the Kent Campus may defer the admission of students who do not meet admissions criteria but who demonstrate areas of promise for successful college study. Deferred applicants may begin their college coursework at one of seven Regional Campuses of Kent State University. For more information on admissions, including additional requirements for some academic programs, visit the admissions website for new freshmen.

Freshman Students on the Regional Campuses: Kent State campuses at Ashtabula, East Liverpool, Geauga, Salem, Stark, Trumbull and Tuscarawas, as well as the Regional Academic Center in Twinsburg, have open enrollment admission for students who hold a high school diploma, GED or equivalent.

Transfer, Transitioning and Former Students: For more information about admission criteria for transfer, transitioning and former students, please visit the admissions website.

English Language Proficiency Requirements for International Students:

All international students must provide proof of English language proficiency (unless they meet specific exceptions) by earning a minimum 525 TOEFL score (71 on the Internet-based version), minimum 75 MELAB score, minimum 6.0 IELTS score or minimum 48 PTE Academic score, or by completing the ELS level 112 Intensive Program. For more information on international admission, visit the Office of Global Education's admission website.

Transfer students will be required to hold a minimum 2.250 overall GPA in all college-level coursework for admission.

Program Learning Outcomes

Graduates of this program will be able to:

1. Select and apply the knowledge, techniques, skills and modern tools of the discipline to broadly-defined engineering technology activities.
2. Select and apply a knowledge of mathematics, science, engineering and technology to engineering technology problems that require the application of principles and applied procedures or methodologies.
3. Conduct standard tests and measurements; conduct, analyze and interpret experiments; and apply experimental results to improve processes.
4. Design systems, components or processes for broadly defined engineering technology problems appropriate to program educational objectives.
5. Function effectively as a member or leader on a technical team.
6. Identify, analyze and solve broadly defined engineering technology problems.
7. Apply written, oral and graphical communication in both technical and non-technical environments; identify and use appropriate technical literature.
8. Understand the need for and engage in self-directed continuing professional development.
9. Recognize and commit to professional and ethical responsibilities, including respect for diversity.
10. Understand the impact of engineering technology solutions in a societal and global context.
11. Commit to quality, timeliness and continuous improvement.

University Requirements

All students in a bachelor's degree program at Kent State University must complete the following university requirements for graduation.

NOTE: University requirements may be fulfilled in this program by specific course requirements. Please see Program Requirements for details.

Requirement	Credits/ Courses
Destination Kent State: First Year Experience	1
Course is not required for students with 25 transfer credits, excluding College Credit Plus, or age 21+ at time of admission.	
Diversity Domestic/Global (DIVD/DIVG)	2 courses
Students must successfully complete one domestic and one global course, of which one must be from the Kent Core.	
Experiential Learning Requirement (ELR)	varies
Students must successfully complete one course or approved experience.	

Kent Core (see table below)	36-37
Writing-Intensive Course (WIC)	1 course
Students must earn a minimum C grade in the course.	
Upper-Division Requirement	39 (or 42)
Students must successfully complete 39 upper-division (numbered 30000 to 49999) credit hours to graduate. Students in a B.A. and/or B.S. degree in the College of Arts and Sciences must complete 42 upper-division credit hours.	
Total Credit Hour Requirement	120
Some bachelor's degrees require students to complete more than 120 credit hours.	

Kent Core Requirements

Requirement	Credits/ Courses
Kent Core Composition (KCOMP)	6
Kent Core Mathematics and Critical Reasoning (KMCR)	3
Kent Core Humanities and Fine Arts (KHUM/KFA) (min one course each)	9
Kent Core Social Sciences (KSS) (must be from two disciplines)	6
Kent Core Basic Sciences (KBS/KLAB) (must include one laboratory)	6-7
Kent Core Additional (KADL)	6
Total Credit Hours:	36-37

Program Requirements

Major Requirements

[AR-BS-AESE]

Major Requirements (courses count in major GPA)

AERN 15300	INTRODUCTION TO ENGINEERING ANALYSIS USING MATLAB®	3
AERN 15500	INTRODUCTION TO AEROSPACE ENGINEERING	3
AERN 20000	PROFESSIONAL DEVELOPMENT IN AERONAUTICS I	1
AERN 25200	STATICS	2
AERN 30000	PROFESSIONAL DEVELOPMENT IN AERONAUTICS II	1
AERN 35040	AIRCRAFT SYSTEMS I	3
AERN 35150	AIRCRAFT STRUCTURES	3
AERN 45030	AIRCRAFT SYSTEMS II	3
AERN 45121	AEROSPACE PROPULSION FOR ENGINEERING AND ENGINEERING TECHNOLOGY	3
AERN 45150	APPLIED FLIGHT DYNAMICS I	3
AERN 45151	APPLIED FLIGHT DYNAMICS II	3
AERN 45360	PROFESSIONAL DEVELOPMENT IN AERONAUTICS III	1
AERN 45700	AIRCRAFT DESIGN (ELR)	3
AERN 45850	AIRCRAFT DESIGN II (WIC) ¹	3
TECH 13580	ENGINEERING GRAPHICS I	3
TECH 20002	MATERIALS AND PROCESSES	3
TECH 21021	SURVEY OF ELECTRICITY AND ELECTRONICS	4
TECH 33031	PROGRAMMABLE LOGIC CONTROLLERS	3
TECH 33032	PROGRAMMABLE LOGIC CONTROLLERS II	3
TECH 33040	MOTORS AND CONTROLLERS	3
TECH 33111	STRENGTH OF MATERIALS	3
TECH 43030	MECHATRONICS	3
TECH 47200	SYSTEMS ENGINEERING	3

Aeronautics (AERN) Electives		6
Additional Requirements (courses do not count in major GPA)		
COMM 15000	INTRODUCTION TO HUMAN COMMUNICATION (KADL)	3
ECON 22060	PRINCIPLES OF MICROECONOMICS (KSS)	3
MATH 12002	ANALYTIC GEOMETRY AND CALCULUS I (KMCR)	5
MATH 12003	ANALYTIC GEOMETRY AND CALCULUS II (min C grade)	5
MATH 22005	ANALYTIC GEOMETRY AND CALCULUS III (min C grade)	4
PHY 23101	GENERAL UNIVERSITY PHYSICS I (KBS) (KLAB)	5
PHY 23102	GENERAL UNIVERSITY PHYSICS II (KBS) (KLAB)	5
UC 10097	DESTINATION KENT STATE: FIRST YEAR EXPERIENCE	1
Kent Core Composition		6
Kent Core Humanities and Fine Arts (minimum one course from each)		9
Kent Core Social Sciences (cannot be ECON)		3
Kent Core Additional		3
Minimum Total Credit Hours:		121

¹ A minimum C grade must be earned to fulfill the writing-intensive requirement.

Graduation Requirements

Minimum Major GPA	Minimum Overall GPA
2.500	2.500

- A minimum C grade may be required in some courses.

Roadmap

This roadmap is a recommended semester-by-semester plan of study for this major. However, courses designated as critical (!) must be completed in the semester listed to ensure a timely graduation.

Course	Title	Credits
Semester One		
AERN 15300	INTRODUCTION TO ENGINEERING ANALYSIS USING MATLAB®	3
COMM 15000	INTRODUCTION TO HUMAN COMMUNICATION (KADL)	3
TECH 13580	ENGINEERING GRAPHICS I	3
UC 10097	DESTINATION KENT STATE: FIRST YEAR EXPERIENCE	1
Kent Core Requirement		3
Kent Core Requirement		3
Credit Hours		16
Semester Two		
AERN 15500	INTRODUCTION TO AEROSPACE ENGINEERING	3
MATH 12002	ANALYTIC GEOMETRY AND CALCULUS I (KMCR)	5
PHY 23101	GENERAL UNIVERSITY PHYSICS I (KBS) (KLAB)	5
TECH 20002	MATERIALS AND PROCESSES	3
Credit Hours		16
Semester Three		
AERN 20000	PROFESSIONAL DEVELOPMENT IN AERONAUTICS I	1
AERN 25200	STATICS	2
MATH 12003	ANALYTIC GEOMETRY AND CALCULUS II	5
PHY 23102	GENERAL UNIVERSITY PHYSICS II (KBS) (KLAB)	5
Kent Core Requirement		3
Credit Hours		16
Semester Four		
AERN 35040	AIRCRAFT SYSTEMS I	3
ECON 22060	PRINCIPLES OF MICROECONOMICS (KSS)	3
MATH 22005	ANALYTIC GEOMETRY AND CALCULUS III	4
TECH 21021	SURVEY OF ELECTRICITY AND ELECTRONICS	4
Credit Hours		14
Semester Five		
AERN 45030	AIRCRAFT SYSTEMS II	3
AERN 45150	APPLIED FLIGHT DYNAMICS I	3
TECH 33031	PROGRAMMABLE LOGIC CONTROLLERS	3
TECH 33111	STRENGTH OF MATERIALS	3
Kent Core Requirement		3
Credit Hours		15
Semester Six		
AERN 30000	PROFESSIONAL DEVELOPMENT IN AERONAUTICS II	1
AERN 35150	AIRCRAFT STRUCTURES	3
AERN 45121	AEROSPACE PROPULSION FOR ENGINEERING AND ENGINEERING TECHNOLOGY	3
TECH 33032	PROGRAMMABLE LOGIC CONTROLLERS II	3
TECH 33040	MOTORS AND CONTROLLERS	3
Kent Core Requirement		3
Credit Hours		16
Semester Seven		
AERN 45151	APPLIED FLIGHT DYNAMICS II	3

AERN 45360	PROFESSIONAL DEVELOPMENT IN AERONAUTICS III	1
AERN 45700	AIRCRAFT DESIGN (ELR)	3
TECH 43030	MECHATRONICS	3
Kent Core Requirement		3
Credit Hours		13
Semester Eight		
AERN 45850	AIRCRAFT DESIGN II (WIC)	3
TECH 47200	SYSTEMS ENGINEERING	3
Aeronautics (AERN) Electives		6
Kent Core Requirement		3
Credit Hours		15
Minimum Total Credit Hours:		121