AEROSPACE ENGINEERING - M.S.

College of Aeronautics and Engineering
School of Engineering
www.kent.edu/cae

About This Program

The Master of Science degree in Aerospace Engineering provides an advanced theoretical and/or research-oriented curriculum with significant depth in aerospace-specific disciplines, beyond the general fundamentals of the engineering bachelor's degree.

Contact Information

- CAEgraduatestudies@kent.edu | 330-672-2892
- Connect with an Admissions Counselor: U.S. Student | International Student

Program Delivery

- **Delivery:**
  - In person
- **Location:**
  - Kent Campus

Examples of Possible Careers and Salaries*

Aerospace engineers

- 2.8% slower than the average
- 66,400 number of jobs
- $118,610 potential earnings

Engineering teachers, postsecondary

- 8.6% much faster than the average
- 44,600 number of jobs
- $103,600 potential earnings

* Source of occupation titles and labor data comes from the U.S. Bureau of Labor Statistics' Occupational Outlook Handbook. Data comprises projected percent change in employment over the next 10 years; nation-wide employment numbers; and the yearly median wage at which half of the workers in the occupation earned more than that amount and half earned less.

For more information about graduate admissions, visit the graduate admission website. For more information on international admissions, visit the international admission website.

Admission Requirements

- Bachelor's degree in aerospace engineering or a closely related area (e.g., mechanical engineering) from an accredited college or university[1]
- Minimum 2.750 undergraduate GPA on a 4.000-point scale
- Official transcript(s)
- Goal statement[2]
- Three letters of recommendation[2]
- English language proficiency - all international students must provide proof of English language proficiency (unless they meet specific exceptions to waive) by earning one of the following:[3]
  - Minimum 79 TOEFL iBT score
  - Minimum 6.5 IELTS score
  - Minimum 58 PTE score
  - Minimum 110 DET score

[1] Applicants with a bachelor's degree in engineering technology or a non-engineering STEM discipline may be considered for admission before or after completing additional coursework as determined on a case-by-case basis. Applicants should reach out to the College of Aeronautics and Engineering via email (caegraduatestudies@kent.edu) for more information.

[2] Current Kent State undergraduate students who want to apply to the combined B.S./M.S. degree program should contact the College of Aeronautics and Engineering via email (caegraduatestudies@kent.edu) to discuss the process and request waivers for certain admission requirements.

[3] International applicants who do not meet the above test scores may be considered for conditional admission.

Application Deadlines

- **Fall Semester**
  - Application deadline: March 1
    All application materials (including applicable fee, transcripts, recommendation letters, etc.) submitted after this deadline will be considered on a space-available basis.
- **Spring Semester**
  - Rolling admissions

Program Requirements

Major Requirements

Code	Title	Credit Hours
Major Requirements		
ENGR 52410	ENGINEERING OPTIMIZATION	3
or ENGR 65700	APPLIED RELIABILITY ENGINEERING	
or ENGR 68005	LINEAR SYSTEM ANALYSIS AND CONTROL	
ENGR 58003	SPACECRAFT DESIGN	3
or ENGR 68013	SPACECRAFT PROPULSION	
ENGR 61091	GRADUATE SEMINAR	1
ENGR 65501	ADVANCED FLUID MECHANICS	3
or ENGR 65502	COMPUTATIONAL FLUID DYNAMICS	
Aerospace Engineering Electives, choose from the following: [1]		6-9
Aerodynamics		
ENGR 65501	ADVANCED FLUID MECHANICS	
ENGR 65502	COMPUTATIONAL FLUID DYNAMICS	
Astronautics		
ENGR 58001	ORBITAL MECHANICS	
ENGR 58002	SPACECRAFT ATTITUDE DYNAMICS, DETERMINATION AND CONTROL	
ENGR 68013	SPACECRAFT PROPULSION	
Dynamics and Control		

ENGR 65400	ADVANCED DYNAMICS	
ENGR 65401	VIBRATIONS	
ENGR 68004	OPTIMAL CONTROL THEORY	
ENGR 68005	LINEAR SYSTEM ANALYSIS AND CONTROL	
ENGR 68006	NONLINEAR SYSTEMS AND CONTROL	
ENGR 68007	DIGITAL CONTROL SYSTEMS	
ENGR 68008	INTRODUCTION TO ROBUST CONTROL	
ENGR 68101	AUTONOMOUS UNMANNED AERIAL SYSTEMS	
Structures and Materials		
ENGR 52111	STRENGTH OF MATERIALS FOR ENGINEERS	
ENGR 52363	MATERIALS SELECTION IN DESIGN AND APPLICATIONS	
ENGR 55901	INTRODUCTION TO FINITE ELEMENT METHOD AND APPLICATIONS	
Systems and Design		
ENGR 52410	ENGINEERING OPTIMIZATION	
ENGR 55799	AIRCRAFT DESIGN I	
ENGR 57200	SYSTEMS ENGINEERING	
ENGR 58003	SPACECRAFT DESIGN	
ENGR 68102	INTELLIGENT SENSING AND PLANNING OF UNMANNED AERIAL SYSTEMS	
Graduate Electives, choose from the following:		6
Any Computer Science (CS) Graduate course (50000 level or higher)		
Any Engineering (ENGR) Graduate course (50000 level or higher)		
Any Mathematics (MATH) Graduate course (50000 level or higher) [2]		
Other graduate courses as approved by the graduate advisor		
Mathematics Elective, choose from the following: [2]		3
MATH 50015	APPLIED STATISTICS	
MATH 52011	MATHEMATICAL OPTIMIZATION	
MATH 52031	MATHEMATICAL MODELS AND DYNAMICAL SYSTEMS	
MATH 52045	PARTIAL DIFFERENTIAL EQUATIONS	
MATH 52201	NUMERICAL LINEAR ALGEBRA	
MATH 52202	NUMERICAL APPROXIMATION AND OPTIMIZATION	
Culminating Requirement		
Choose from the following:		3-6
ENGR 65098	RESEARCH [1]	
ENGR 65199	THESIS I [3]	
Minimum Total Credit Hours:		**31**

[1] Students selecting the non-thesis option as their culminating requirement need to complete 3 credit hours of ENGR 65098 by working with a faculty member to complete a project. Students should meet with their advisor to discuss project topics well before their final semester. Additionally, these students are required to take an additional 3 credit hours from the Aerospace Engineering Electives list (for a total of 9 credit hours) to ensure that 31 credit hours are completed for the degree.

[2] Before registering for a mathematics (MATH) course, students must contact the Department of Mathematical Sciences to request a prerequisite override. Students may be required to demonstrate prerequisite knowledge depending on the course.

[3] Students selecting the thesis option must successfully defend their research thesis in a public setting before the thesis committee. Upon approval of the thesis topic, the student is required to register continuously for ENGR 65199 each semester for a total of 6 credit hours. A student who has completed the required 6 credit hours of ENGR 65199 but has not finished the thesis is expected, thereafter, to register continuously for ENGR 65299 each semester until all degree requirements are met. No more than 6 credit hours of ENGR 65199 may be counted toward the completion of degree requirements. Credit hours earned in ENGR 65299 do not, under any circumstances, count toward the degree.

Graduation Requirements

Minimum Major GPA	Minimum Overall GPA
-	3.000

- No more than one-half of a graduate student's coursework may be taken in 50000-level courses.
- Grades below C are not counted toward completion of requirements for the degree.

Program Learning Outcomes

Graduates of this program will be able to:

1. Conduct literature searches, comprehend advanced research materials and uncover connections between related work.
2. Perform research, discovery and integration by applying advanced knowledge of aerospace engineering.
3. Communicate problems and solutions in aerospace engineering clearly, both verbally and in writing.