

# AEROSPACE ENGINEERING - M.S.

College of Aeronautics and 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

- Program Coordinator: **Ali Abdul-Aziz, Ph.D., P.E.** | CAEgraduatestudies@kent.edu | 330-672-1032
- 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

### Architectural and engineering managers

- 2.6% slower than the average
- 198,100 number of jobs
- \$149,530 potential earnings

### Avionics technicians

- 4.4% about as fast as the average
- 22,800 number of jobs
- \$67,840 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 from an accredited college or university
- Minimum 2.750 undergraduate GPA on a 4.000-point scale
- Official transcript(s)
- Goal statement
- Three letters of recommendation
- English language proficiency - all international students must provide proof of English language proficiency (unless they meet specific exceptions) by earning one of the following:
  - Minimum 550 TOEFL PBT score
  - Minimum 79 TOEFL IBT score
  - Minimum 77 MELAB score
  - Minimum 6.5 IELTS score
  - Minimum 58 PTE score
  - Minimum 110 Duolingo English score

## Application Deadlines

- **Fall Semester**
  - Application deadline: November 1

*Applications submitted after this deadline will be considered on a space-available basis.*

## Program Requirements

### Major Requirements

| Code   | Title   | Credit Hours |
|--|---|--------------|
| <b>Major Requirements</b>  |   |              |
| ENGR 61091   | GRADUATE SEMINAR  | 1            |
| ENGR 65098   | RESEARCH  | 3            |
| Mathematics Elective, choose from the following:                       |   | 3            |
| MATH 50015   | APPLIED STATISTICS                                      |              |
| MATH 52011   | MATHEMATICAL OPTIMIZATION                               |              |
| MATH 52031   | MATHEMATICAL MODELS AND DYNAMICAL SYSTEMS               |              |
| MATH 52045   | PARTIAL DIFFERENTIAL EQUATIONS                          |              |
| MATH 52201   | NUMERICAL COMPUTING I                                   |              |
| MATH 52202   | NUMERICAL COMPUTING II                                  |              |
| Engineering-Focus Electives, choose one course from three focus areas: |   | 9            |
| <b>Aeronautics</b>   |   |              |
| ENGR 58001   | ORBITAL MECHANICS                                       |              |
| ENGR 58002   | SPACECRAFT ATTITUDE DYNAMICS, DETERMINATION AND CONTROL |              |
| ENGR 58004   | OPTIMAL CONTROL THEORY                                  |              |
| <b>Dynamics and Control</b>  |   |              |
| 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                      |              |
| <b>Structure and Materials</b>   |   |              |

|   |   |           |
|---|---|-----------|
| 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 55799  | AIRCRAFT DESIGN I   |           |
| ENGR 68003  | SPACECRAFT DESIGN   |           |
| ENGR 68102  | INTELLIGENT SENSING AND PLANNING OF UNMANNED AERIAL SYSTEMS |           |
| Additional courses as approved by advisor         |   |           |
| Engineering Electives, choose from the following: |   | 9         |
| ENGR 52111  | STRENGTH OF MATERIALS FOR ENGINEERS                         |           |
| ENGR 52363  | MATERIALS SELECTION IN DESIGN AND APPLICATIONS              |           |
| ENGR 52410  | ENGINEERING OPTIMIZATION                                    |           |
| ENGR 55799  | AIRCRAFT DESIGN I   |           |
| ENGR 55901  | INTRODUCTION TO FINITE ELEMENT METHOD AND APPLICATIONS      |           |
| ENGR 57200  | SYSTEMS ENGINEERING   |           |
| ENGR 58001  | ORBITAL MECHANICS   |           |
| ENGR 58002  | SPACECRAFT ATTITUDE DYNAMICS, DETERMINATION AND CONTROL     |           |
| ENGR 58004  | OPTIMAL CONTROL THEORY                                      |           |
| ENGR 61096  | INDIVIDUAL INVESTIGATION IN ENGINEERING                     |           |
| ENGR 68003  | SPACECRAFT DESIGN   |           |
| 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                          |           |
| ENGR 68102  | INTELLIGENT SENSING AND PLANNING OF UNMANNED AERIAL SYSTEMS |           |
| Additional courses as approved by advisor         |   |           |
| <i>Culminating Requirement</i>                    |   |           |
| Choose from the following:                        |   | 6         |
| ENGR 65199  | THESIS I <sup>1</sup>                                       |           |
| Courses from Major Electives                      |   |           |
| <b>Minimum Total Credit Hours:</b>                |   | <b>31</b> |

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.

<sup>1</sup> 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 completion of degree requirements. Credit hours earned in ENGR 65299 do not, under any circumstances, count toward 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.