

# AEROSPACE ENGINEERING - PH.D.

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

## About This Program

The Ph.D. 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

## 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
- Minimum 3.000 undergraduate or graduate 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 to waive) by earning one of the following:<sup>1</sup>
  - Minimum 79 TOEFL iBT score
  - Minimum 6.5 IELTS score
  - Minimum 58 PTE score
  - Minimum 110 DET score

<sup>1</sup> 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.

## Program Requirements

### Major Requirements

Code	Title	Credit Hours
<b>Major Requirements</b>		
ENGR 81091	GRADUATE SEMINAR (taken three times)	3
Courses approved by a graduate program representative <sup>1</sup>		0-30
Engineering-Focus Electives, choose from the following: <sup>2</sup>		18
ENGR 72410	ENGINEERING OPTIMIZATION	
ENGR 75270	HUMAN FACTORS ENGINEERING	
Aerodynamics		
ENGR 85501	ADVANCED FLUID MECHANICS	
ENGR 85502	COMPUTATIONAL FLUID DYNAMICS	
Astronautics		
ENGR 78001	ORBITAL MECHANICS	
ENGR 78002	SPACECRAFT ATTITUDE DYNAMICS, DETERMINATION AND CONTROL	
ENGR 88013	SPACECRAFT PROPULSION	
Dynamics and Control		
ENGR 75400	ADVANCED DYNAMICS	
ENGR 75401	VIBRATIONS	
ENGR 78005	LINEAR SYSTEM ANALYSIS AND CONTROL	
ENGR 78006	NONLINEAR SYSTEMS AND CONTROL	
ENGR 78007	DIGITAL CONTROL SYSTEMS	
ENGR 78008	INTRODUCTION TO ROBUST CONTROL	
ENGR 78101	AUTONOMOUS UNMANNED AERIAL SYSTEMS	
ENGR 88004	OPTIMAL CONTROL THEORY	
Structure and Materials		
ENGR 72111	STRENGTH OF MATERIALS FOR ENGINEERS	
ENGR 72363	MATERIALS SELECTION IN DESIGN AND APPLICATIONS	
ENGR 75901	INTRODUCTION TO FINITE ELEMENT METHOD AND APPLICATIONS	
Systems and Design		
ENGR 78003	SPACECRAFT DESIGN	

ENGR 78102 INTELLIGENT SENSING AND PLANNING OF  
UNMANNED AERIAL SYSTEMS

Additional graduate courses as approved by graduate program  
representative

#### Culminating Requirements

ENGR 85098	RESEARCH (taken for 9 credit hours total)	9
ENGR 85199	DISSERTATION I <sup>3</sup>	30
<b>Minimum Total Credit Hours for Post-Baccalaureate Students:</b>		<b>90</b>
<b>Minimum Total Credit Hours for Post-Master's Students:</b>		<b>60</b>

<sup>1</sup> Post-baccalaureate students may apply toward the 30 credit hours a maximum 15 credit hours of coursework outside the College of Aeronautics and Engineering and 9 credit hours of research (maximum 18 credit hours total of research toward the degree).

<sup>2</sup> While coursework outside of Engineering (ENGR) may be considered, a minimum 50 percent of the required credits must be designated ENGR doctoral-level courses (70000 or 80000 level). Not all ENGR courses outside of this list will be approved.

<sup>3</sup> Doctoral candidates, upon admission to candidacy, must register for ENGR 85199 for a total of 30 hours. It is expected that doctoral candidates will continuously register for ENGR 85199—and, thereafter, ENGR 85299—each semester until all requirements for the degree have been met. The doctoral candidate must successfully propose and defend their research dissertation in a public setting before the dissertation committee.

## Graduation Requirements

Minimum Major GPA	Minimum Overall GPA
-	3.000

## 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 clearly problems and solutions in aerospace engineering, both verbally and in writing.