



EXCELLENCE IN INSTRUCTION

Engagement between the faculty and students is a central thrust of our aerospace and ocean engineering graduate program. Our faculty brings diverse and extensive research experience with aerospace industry, NASA and various federal government agencies including Department of Defense, National Science Foundation and Department of Energy. The faculty bring cutting edge knowledge in research, and flight-testing. Developing fields, such as unmanned aerial systems, global positioning system (GPS), and cyberphysical security, enhance your classroom and lab experience.

AOE is home to a number of unique facilities, including Stability, Open-Jet, Boundary-Layer, Low Speed, Transonic, Supersonic, and Hypersonic Wind Tunnels; the Advanced Propulsion and Power Laboratory (APPL), Space@VT building, and the Kentland Experimental Aerial Systems Laboratory (KEAS).

DESIGNED FOR STUDENT SUCCESS

Graduates of the Kevin T. Crofton Department of Aerospace and Ocean Engineering have been highly successful after graduation. Many seek and obtain research and development positions with industry or government agencies, while others pursue academic positions at colleges and universities. The

department's strong academic reputation and the outstanding professional performance of our alumni ensure that aerospace and ocean engineering graduates remain in very high demand.



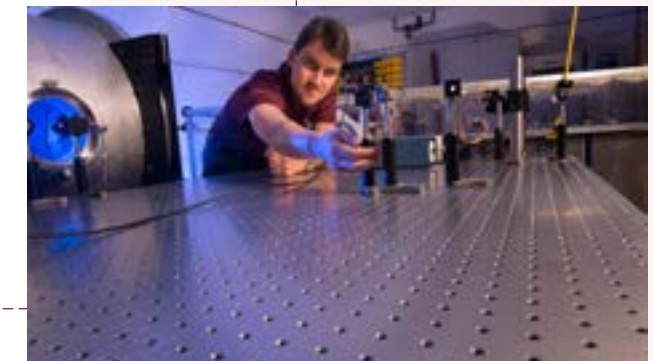
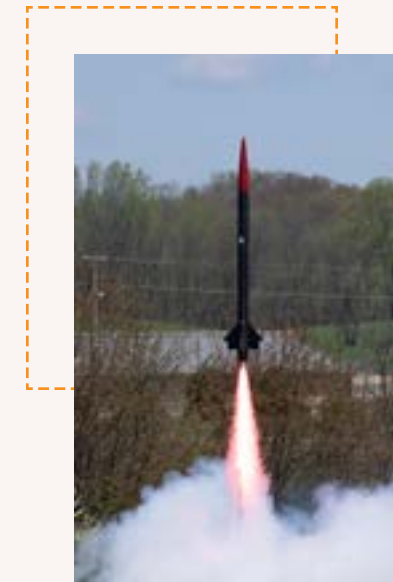
ADMISSION REQUIREMENTS

- A bachelor's degree, typically in engineering, science, mathematics, or closely related field from an accredited institution.
- Applicants should provide evidence that shows genuine promise of success in graduate study of a good academic record. A 3.0 GPA or better on a 4.0 scale is generally required.
- Full admission to the Virginia Tech Graduate School (www.graduateschool.vt.edu).

APPLICATION DOCUMENTS

- Official transcripts sent to the Graduate School.
- Statement of Interest and Curriculum Vitae, which can be attached to the online graduate application (<https://applyto.graduateschool.vt.edu/pages/login.php>).
- Three Letters of Recommendation.
- GRE General Test (Waived for applicants with significant work experience. Email gradadvise-g@vt.edu to see if you qualify).
- Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) (Scores for international applicants).
- Immigration Information Form for international applicants.

KEVIN T. CROFTON DEPARTMENT OF AEROSPACE AND OCEAN ENGINEERING
460 OLD TURNER STREET · 215 RANDOLPH HALL
BLACKSBURG, VA 24061
PHONE: 540-231-6611 · www.aoe.vt.edu
EMAIL: GRADADVISE-G@VT.EDU



YOU ARE WHAT TOMORROW WILL NEED

Some of the greatest engineering achievements of the 20th century include airplanes, spacecraft, computers and of course, the internet. Complex issues such as sustainability, health and the security of the world are expected to be the top challenges for future generations. Aerospace engineers will play a vital role in reimagining the way education and technology can work together as a force for good in the world.

- The Kevin T. Crofton Department of Aerospace and Ocean Engineering is ranked as #14 for aerospace and ocean engineering schools by U.S. News and World Report.
- Engage in an exciting and challenging curriculum. While courses on a wide range of traditional aerospace engineering subjects are offered, you will also explore modern-day issues such as cyber-physical systems and distributed control, aero/hydroacoustics and ethics in autonomous systems.
- Learn from leading aerospace engineering faculty who bring real-world experience from the space and aviation industries.
- Our Masters students are heavily involved in hands-on research and often work in teams with other graduate students on a wide-range of topics, some focused in newly developing areas, and some multidisciplinary in nature.

GRADUATE PROGRAMS

The Kevin T. Crofton Department of Aerospace and Ocean Engineering offers Masters and Doctoral programs in aerospace engineering, a Masters in ocean engineering, and a certificate program in naval engineering. The department's unique blend of aerospace engineering and ocean engineering capitalizes on the commonalities in the design and analysis of vehicles and structures that travel in space, air and the oceans.

ARE YOU READY TO TAKE THE NEXT STEP?

Our Doctoral and Masters degree programs are ideal for:

- Aerospace engineering professionals wanting to advance in their career in the aerospace industry or in research and development.
- Anyone wanting to enhance their technical, analytical, critical thinking and research skills within the field of aerospace engineering.
- Students with a background in engineering, science, mathematics or physics wanting to move into an aerospace career.
- Individuals seeking to apply mathematics, physics or associated scientific principles to the design, development and operation of aerospace systems.

PROGRAM REQUIREMENTS

Students must complete 30 graduate credit hours, including four core courses, which are typically offered yearly in the Fall or Spring semesters :

- AOE 4404: Applied Numerical Methods (Spring)
- AOE 5024: Vehicle Structures (Fall)
- AOE 5104: Advanced Aero and Hydrodynamics (Fall)
- AOE 5204: Vehicle Dynamics and Control (Fall)

Up to 50% of the graded coursework on the Plan of Study may be transferred from a graduate program at another institution. A final comprehensive oral exam is required.

Masters students are required to complete one of two tracks, either a Master of Science Thesis, which focuses more on research, or a Master of Science Non-Thesis which is project based. Specific requirements for each track can be found in the Graduate Study Policies and Procedures Manual.

TYPICAL COURSES IN THE FALL SEMESTER

- AOE 5024: Vehicle Structures
- AOE 5104: Advanced Aero and Hydrodynamics
- AOE 5204: Vehicle Dynamics and Control
- AOE 5774: Nonlinear Systems Theory

TYPICAL COURSES IN THE SPRING SEMESTER

- AOE 4404: Applied Numerical Methods
- AOE 5034: Vehicle Structural Dynamics
- AOE 5054: Elastic Stability
- AOE 5064: Structural Optimization
- AOE 5114: High Speed Aerodynamics
- AOE 5144: Boundary Layer Theory and Heat Transfer
- AOE 5234: Orbital Mechanics
- AOE 6114: Transonic Aerodynamics
- AOE 6145: Computational Fluid Dynamics
- AOE 6444: Verification and Validation of Scientific Computing
- AOE 6744: Linear Control Theory

TYPICAL ONLINE COURSES IN THE SPRING SEMESTER

- AOE 5024: Vehicle Structures

VARIABLE CREDIT COURSES

- AOE 5904: Project and Report
- AOE 5974: Independent Study
- AOE 5984: Special Study
- AOE 5994: Research and Thesis

*Course titles are found in the Graduate Catalog at http://graduateschool.vt.edu/graduate_catalog