# Aerospace Engineering
# Master of Science Degree Online

## How Do Online Courses Compare?

Online learning offers a unique opportunity to work at your own pace and fit your life. You should expect to do as much work as you would in a face-to-face course, and you may have to do more reading, writing, and independent research. In general, you are expected to be self-motivated and to work hard.

Courses are generally offered in an asynchronous fashion (downloadable materials and prerecorded lectures) to offer the highest level of flexibility for the working student's schedule; however some courses may also be available in a synchronous mode.

Engagement between the faculty and students is a central thrust of the program. Each week typically features a one-hour "real time" meeting of the class to interact with the professor. During these sessions, the professor will present interactive material, answer questions on the lecture material, and review homework assignments.

The Virginia Tech College of Engineering's Distance Learning office is focused on student success and provides a source of support for online students.

**"The online M.S. degree in Aerospace Engineering is offered in a convenient, flexible format that accomodated my working full-time and starting a family. The material and expectations were equally as challenging as a face-to-face course, and the staff and faculty were supportive and prompt at answering questions which made the online experience very rewarding. The degree has been a valuable investment in my future that would not have been available to me in a traditional face-to-face format. Even in a virtual environment, the staff and faculty truly made me feel like a Hokie."**

**—Vanessa Aubuchon, M.S.**

## Admissions Requirements

- A bachelor's degree, typically in engineering, mathematics, or physics 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).
- Test of English as a Foreign Language (TOEFL) Scores for international applicants.
- Immigration Information Form for international applicants.


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Master of Science Degree in Aerospace Engineering

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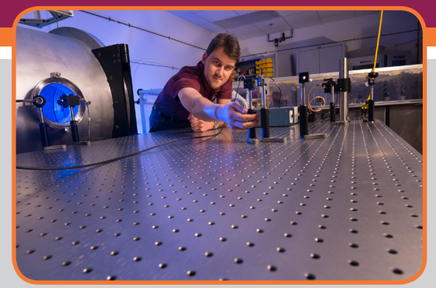
## Complete Your Degree Online, Affording Maximum Flexibility



Expand your knowledge and advance your career by earning your Master's degree in Aerospace Engineering from Virginia Tech. We are engaging in progressive research and offering innovative courses today, to better compete in the changing landscape of tomorrow.

- The Kevin T. Crofton Department of Aerospace and Ocean Engineering is ranked as one of the Top 15 aerospace engineering graduate schools by U.S. News and World Report.
- Engage in an exciting and challenging curriculum. While we offer courses on a wide range of traditional aerospace subjects, we are also exploring 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.
- Design your course load to fit your individual needs, and work at your own pace.
- Collaborate with students all over the world, which brings a dynamic exchange to the virtual classroom.
- Excellent support for online students from the Virginia Tech College of Engineering's Distance Learning office.

## Are You Ready to Take the Next Step?

Our online M.S. degree is offered in a convenient, flexible format for students who are working full-time. This program is 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.
- Individuals seeking to apply mathematics, physics, or associated scientific principles to the design, development, and operation of aerospace systems.

## Program Highlights

Students must complete 30 graduate credit hours, including four core courses, which are offered on a two-year rotation, with one each in the Fall and Spring semesters:

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

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

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 Online Courses in the Fall Semester

- AOE 5104: Advanced Aero and Hydrodynamics
- AOE 5204: Vehicle Dynamics and Control
- AOE 5434G: Advanced Introduction to Computational Fluid Dynamics
- AOE 5774: Nonlinear Systems Theory

## Typical Online Courses in the Spring Semester

- AOE 4404: Applied Numerical Methods
- AOE 5034: Mechanical and Structural Vibrations
- AOE 5054: Elasticity 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

## 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*

**Graduate Study Policies and Procedures Manual**
**http://www.aoe.vt.edu/programs/graduate/grad-advising.html**

**For more information, visit our website at www.aoe.vt.edu**

**Accreditation**
**Southern Association of Colleges and Schools (SACS) Commission on Colleges**