

Aerospace Engineering Program

Aerospace Engineering Department

College of Engineering and Technology

OLD DOMINION UNIVERSITY

Opportunities for Employment and Graduate Study

Today **Aerospace Engineering** involves the solution of complex multidisciplinary problems associated with aerospace vehicles and systems, high-speed trains, advanced energy-efficient car designs, spacecraft systems, and many other problems in addition to the traditional areas of aeronautics and astronautics.

The **Aerospace Engineering Department** provides an advanced, high-tech engineering program at ODU. The Department offer the **Aerospace Option to Mechanical Engineering seniors** as well as challenging **Master's** and **Doctoral** programs in **Aerospace Engineering** (aerodynamics, structures, structural dynamics, guidance and controls). Our programs encompass theoretical formulations, computational simulations and experimental verification. Our programs emphasize modern yet fundamental issues of mechanics, applied mathematics, and computational science to provide graduates with tools and incentives for life-long learning so important to today's changing technology.

Our graduates are professionals with advanced technical degrees that work in places like Avionics Specialist, Inc., Siemens, General Dynamics - Electric Boat Division, Newport News Shipbuilding, NASA Langley, Dynamic Engineering, Inc., Modern Machine Company, Adtranz, Inc., at various universities in the United States and overseas.

Points of Interest

Our research involves primarily aerospace applications such as unsteady aeroelastic analysis of the tail buffet problem of the F/A 18, aerodynamic design sensitivity analysis methods development, computational aeroacoustics, Boeing 757 flight control system simulations, HSCT flight control systems, operation of the Langley Full-Scale Wind Tunnel, laminar flow control techniques for commercial transports, helicopter rotor dynamics and aeroelastic design, damage tolerance and residual strength prediction methods for fuselage structures, high-temperature random vibration simulations for structural-acoustics problems, X-33 flutter suppression problem, flutter suppression using smart structures concepts, high-altitude atmospheric science aircraft, and magnetic suspension research.

Requirements for Admission

The undergraduate Aerospace Option is open to all Mechanical Engineering students. Admission to the graduate program includes University requirements, an earned engineering degree (in some cases, mathematics and physics majors are also considered), typically a GPA above 3.0 (out of 4.0), a GRE total of at least 1800, and a TOEFL score of 550 if the native language is not English.

The Faculty

The Department has 11 full-time faculty members, including four University Eminent Scholars, as well as many visiting research faculty and post-doctoral research associates. The Department offers approximately 14 courses each semester many of which are televised to remote sites.

The faculty is currently engaged in teaching and research in at least the following areas: high-speed flows; computational fluid dynamics (CFD); aerodynamic design optimization; unsteady flows; vortex flows; mixing and reacting flows; turbulence modeling; experimental fluid mechanics; flow stability, transition, and control; structural dynamics; finite element analysis (FEA); space structures; computational aeroacoustics (CAA); structural acoustics and sonic fatigue; composite structures; smart structures; computational structural mechanics (CSM); controls; flight vehicle dynamics and controls; robotics; structural optimization; vibrations; magnetic suspensions; and a variety of multidisciplinary areas.

Scholarships/Assistantships

Our research partners include NASA Langley Research Center, other NASA Centers, the Air Force Office of Scientific Research, the National Science Foundation, and several aerospace and high-technology companies. Annually we generate over \$1 million of external research support, and we invest approximately 40% of that amount in graduate student assistantships. **All full-time students usually receive a research assistantship and a partial or full tuition waivers.** Undergraduate students are often hired to support specific research thrusts such as the Langley Full-Scale Wind Tunnel.

For More Information

For more information, contact Prof. Osama Kandil (757) 683-3720 as Department Chairman or Prof. Norman Knight (757) 683-4265 for graduate program information, Prof. Colin Britcher (757) 683-4916 for the experimental methods program, or Prof. Brett Newman (757) 683-5860 for the Aerospace Option as an ME undergraduate.