Graduate Programs in Aerospace Engineering

The Department of Aerospace Engineering offers programs leading to Master of Science (MS) and Doctor of Philosophy (PhD) degrees. Faculty research provides valuable educational opportunities for graduate students. Current research topics include acoustics, aeroelasticity, aerothermodynamics, aircraft dynamic loads, aircraft flight dynamics, aircraft icing, airfoil design and rotor aerodynamics, artificial neural networks, composite materials, computational fluid dynamics, computational solid mechanics, continuum damage and fracture mechanics, damage tolerance, design, experimental aerodynamics, finite element analysis, flight dynamics and control, flight mechanics, hypersonics, intelligent control, laser velocimetry, solid mechanics, structural dynamics, and theoretical and applied aerodynamics.

The department’s research and instructional facilities are among the finest in the nation. They include: an astronautics lab; four wind tunnels; a water tunnel; a flight simulation lab; a structural testing lab; a small-aircraft prototype lab; a propulsion lab; and a controls lab. Graduate students have opportunities to use the equipment in all laboratories for their research projects. Students also may use the research facilities in the university’s National Institute for Aviation Research, including a composite materials lab and a crash dynamics lab. Computer facilities for students include mainframe terminals, high performance workstations, and various personal computers.

The department’s programs are enhanced by Wichita’s aviation heritage and the presence of major aerospace companies in the city, including Airbus, Bombardier Aerospace, Spirit AeroSystems, and Textron Aviation (Beechcraft and Cessna).

Graduate coursework is scheduled so that engineers employed in the local industry may conveniently pursue graduate degrees.

Master of Science
Courses of study leading to the MS degree are available with specialization in (1) aerodynamics and fluid mechanics; (2) structures and solid mechanics; (3) flight dynamics and control; and (4) multidisciplinary analysis and design. In the Master of Science program, students choose one of three options: (1) 24 hours of graduate course work plus 6 hours of thesis, (2) 33 hours of course work plus an exam over the core courses, or (3) 30 hours of course work plus 3 hours of directed project.

Doctor of Philosophy
Courses of study leading to the Doctor of Philosophy (PhD) degree are available with specializations in the same fields as listed for the MS degree. The doctor of philosophy program requires a minimum of 60 credit hours of course work, including those of the Master of Science degree, plus a minimum of 24 credit hours of dissertation.

Faculty Experience
Faculty members have received local, regional and national recognition for excellence in teaching, excellence in research, significant contributions to teaching and student development, and leadership in the advancement of teaching. The faculty members have a wide breadth of expertise spanning all areas of aerospace engineering.

MS AE Admission Requirements
For admission to the MSAE program, applicants must have completed the equivalent of an undergraduate degree in aerospace engineering or a closely related field. Students with deficiency in certain areas will be required to take additional courses. For full-standing admission, a minimum GPA of 3.0 on a 4.0 scale is required for domestic applicants over the last 60 hours (or two years) of undergraduate work.

Official scores from the General Test of the Graduate Record Examination (GRE) are recommended, but not required.

PhD AE Admission Requirements
Admission to the PhD AE program requires the completion of a master’s degree in engineering or physical sciences with a graduate grade point average (GPA) of at least 3.25 on a 4.00 scale. Students with deficiency in certain areas will be required to take additional courses.
Official scores from the General Test of the Graduate Record Examination (GRE) are recommended, but not required. Evidence of the ability to carry out independent research and present it in written English is highly desirable.

Assistantships
Assistantships are awarded to select students. Almost all full-time graduate students receive some form of assistantship.

Faculty

Brandon T. Buerge, Engineering Educator; PhD, Washington University in Saint Louis, 2008. Experimental aerodynamics, lighter-than-air systems design and analysis, and engineering pedagogy.

Animesh Chakravarthy, Assistant Professor; PhD, Massachusetts Institute of Technology, 2007. Flight dynamics and control.

Atri Dutta, Assistant Professor; PhD, Georgia Institute of Technology, 2009. Space dynamics, spacecraft control, and optimization.

Klaus A. Hoffmann, Gordon Distinguished Professor and PhD Graduate Coordinator; PhD, University of Texas at Austin, 1983. Computational fluid dynamics, bio-fluid mechanics, aerothermodynamics, and hypersonics.

Suresh Keshavanarayana, Associate Professor; PhD, Wichita State University, 2001. Solid mechanics, structures, and composites.

Linda K. Kliment, Associate Professor; PhD, Wichita State University, 2009. Experimental and applied aerodynamics, and flight loads.

L. Scott Miller, Professor and Chair; PhD, Texas A & M University, 1988. Experimental aerodynamics, velocimetry, airfoil and aircraft design and rotor aerodynamics.

Roy Y. Myose, Professor; PhD, University of Southern California, 1991. Aerodynamics, propulsion, astronautics, and engineering pedagogy.

Michael Papadakis, Professor; PhD, Wichita State University, 1986. Computational, experimental and theoretical aerodynamics, and airframe icing.


Kamran Rokhsaz, Professor and Masters Graduate Coordinator; PhD, Missouri University of Science and Technology, 1988. Applied aerodynamics, flight dynamics, and flight loads.

Elizabeth Rollins, Engineering Educator, PhD, Texas A&M University, 2013. Flight dynamics and control.

Nicholas A. Smith, Assistant Professor; PhD, Purdue University, 2015; Composites, manufacturing and simulation.

Bhisham N. Sharma, Assistant Professor; PhD, Purdue University, 2013. Structural Dynamics and Acoustics, Smart Materials and Structures, Acoustic Metamaterials, and Experimental Mechanics.

James E. Steck, Professor; PhD, Missouri University of Science and Technology, 1989. Intelligent control, artificial neural networks, flight dynamics and control, and quantum computing.

John S. Tomblin, Vice President for Research and Technology Transfer, Executive Director, National Institute of Aviation Research, and Bloomfield Distinguished Professor; PhD, University of West Virginia, 1994. Solid mechanics, structures, and composites.

C. Charles Yang, Professor; PhD, Louisiana State University 1993. Solid mechanics, composites, and finite element analysis.

Anthony J. Vizzini, Provost and Senior Vice President; PhD, PE, Massachusetts Institute of Technology, 1986. Crashworthiness and composites.

For More Information
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