

Educational Objectives for the AE Program

The mission of the Aerospace Engineering Program is: To educate and promote learning and discovery in aerospace engineering and to prepare students for a career of technical excellence, professional growth, and eventual leadership in a complex and competitive technological environment.

The educational objectives of the aerospace engineering faculty and program are to provide students completing the program with the following:

- An understanding of the physical sciences and the mathematical tools necessary to describe and apply these scientific principles.
- An understanding of the engineering sciences central to the aerospace engineering profession, namely, thermal systems and the mechanics of solids and fluids at a level that ensures successful professional practice and a capacity and instinct for life-long learning whether through self-study or formal graduate studies.
- An understanding of the applications of the aerospace engineering sciences to the multidisciplinary trade-offs inherent in creative design.
- An understanding of the societal context and ethical responsibilities of the aerospace engineering profession.
- An understanding of the dynamics and responsibilities of working on teams and an ability to communicate technical ideas within teams, to the greater profession, and a non-technical society at large.
- An opportunity for all students of aerospace engineering to pursue, through curricular flexibility and with quality faculty advising, other (technical or general education) academic interests available from the broad offerings of a multi-disciplinary university to complement the aerospace engineering technical objectives.

Educational Outcomes for the AE Program

In addition to successfully completing the requirements for the AE program, graduates from this program must also achieve the following educational outcomes:

- A. An ability to apply knowledge of mathematics, science and engineering
- B. An ability to design and conduct experiments, as well as to analyze and interpret data
- C. An ability to design a system, component, or process to meet desired needs, including the integration of multiple aeronautical topics
- D. An ability to function on multi-disciplinary teams
- E. An ability to identify, formulate, and solve engineering problems
- F. An understanding of professional and ethical responsibility
- G. An ability to communicate effectively
- H. The broad education necessary to understand the impact of engineering solutions in a global and societal context
- I. A recognition of the need for, and an ability to engage in life-long learning
- J. A knowledge of contemporary issues
- K. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
- L. A knowledge of aerodynamics, aerospace materials, structures, propulsion, flight mechanics, and stability and control. In addition a knowledge of orbital mechanics, spacecraft structures and rocket propulsion