University of Southern California
VITERBI SCHOOL OF ENGINEERING

Ph.D. in Mechanical Engineering
Program Learning Objectives

The purpose of the PhD program in Mechanical Engineering is to prepare students to execute original, high-level research in the discipline specific to the student's area of emphasis, especially experimental and computational fluid mechanics, turbulence, animal aero- and hydrodynamics, combustion, shock wave behavior, metal plasticity, nano-materials, micro-robotics, dynamical systems, dynamics and control, collaborative engineering, and design theory. Graduates might be employed at leading research universities, or in any research-centric arena.

The doctoral degree program in aerospace engineering is designed to satisfy the following learning objectives:

1. provide breadth of knowledge to further an awareness of the interdisciplinary nature of mechanical engineering;
2. provide depth of knowledge in a particular field of study;
3. further develop the ability to formulate problems, to synthesize and integrate information, to work collaboratively, and to communicate effectively;
4. educate students in methods of advanced analysis and the use of tools appropriate to an increasingly complex field;
5. develop an awareness of the dynamic and evolving nature of the field, including current controversies, novel approaches, and significant critiques;
6. develop the skills pertinent to the research process, including the students' ability to work independently and to publish the results of their research;
7. promote a sense of scholarship, leadership, and service among our graduates; and
8. prepare students for successful careers regardless of the path they follow.