DOCTOR OF PHILOSOPHY IN THE FIELD OF MECHANICAL AND AEROSPACE ENGINEERING

Offered through the department of mechanical and aerospace engineering, the PhD program in mechanical and aerospace engineering prepares students for leadership careers in academia, industry and government. Students and faculty work together to explore solutions in areas such as robotics, traditional and additive manufacturing, tissue engineering, energy materials and harvesting, plasma-based systems, fluid dynamics and nanotechnology.

Students choose from the following areas of focus:

- Aerospace engineering
- Design of mechanical engineering systems
- Fluid mechanics, thermal sciences, and energy
- Industrial engineering
- Solid mechanics and materials science
- Structures and dynamics
- Robotics, mechatronics, and controls

REQUIREMENTS

The following requirements must be fulfilled:

The general requirements stated under School of Engineering, Doctoral Program Regulations (http://bulletin.gwu.edu/engineering-applied-science/#seasregulationstext)

Students with an MS degree must take a minimum of 30 credits, of which at least 12 credits are graduate course credits. Students with a BS degree must take a minimum of 54 credits, of which at least 36 credits are graduate course credits. In some cases, particularly when the student undertakes a doctoral program in a field other than that in which the earlier degree was earned, the program of study exceeds the minimum number of credits.

No specific courses are required; the student and advisor design the curriculum to meet the student’s needs and goals.

Other requirements

- Qualifying examinations: All Ph.D. students are required to take the Doctoral Qualifying Examination (DQE) held in the first two weeks of each semester. The goal of the exam is to determine the student’s aptitude and ability to do original and independent research at the doctoral level, to assess the student’s ability to review previous work from the literature, and to determine the student’s ability to understand and apply fundamental concepts in his/her technical area. A written proposal and an oral presentation of the chosen problem are required. All students should take the exam as early as possible after they complete at least 6 credits of core courses and 6 credits of electives, and maintain an average GPA of at least 3.4. The exam should typically be taken no later than the beginning of their 3rd semester.

- Seminar attendance: prior to graduation, doctoral students must complete the Department of Mechanical and Aerospace Engineering (MAE) seminar attendance requirement, whereby the student must attend at least 80 percent of the MAE seminars offered during any two semesters of the student’s enrollment. In order for a seminar to count toward the requirement, the student must be present for the duration of the seminar. To track attendance, the student must obtain a certification signature on the MAE Seminar Attendance Form from an MAE faculty member present at the seminar and submit the completed form to the MAE departmental office at the end of the semester. The student may attempt to fulfill this requirement in as many semesters as needed. This requirement is applicable to doctoral students who matriculate during the 2016-2017 academic year or later.

- Dissertation: During the research phase, each doctoral candidate will be required to give a dissertation research proposal presentation to the Dissertation Committee. The student’s research progress will be assessed by the committee and appropriate suggestions for continuing research directions will be solicited from the Committee. After consultation with the research advisor, the final Ph.D. defense can be scheduled, typically at least one year after the research proposal.

Student should contact the department for additional information and requirements.