

Mechanical Engineering — MS, PhD

Degree Programs

- Mechanical Engineering — MS (http://bulletin.auburn.edu/thegraduateschool/graduatedegreesoffered/mechanicalengineeringmsmmephd_major/mechanicalengir_ms/)
- Mechanical Engineering — PhD (http://bulletin.auburn.edu/thegraduateschool/graduatedegreesoffered/mechanicalengineeringmsmmephd_major/mechanicalengir_phd/)

The Mechanical Engineering Department offers graduate programs of instruction and research leading to the degrees of master of science (thesis and non-thesis options), and doctor of philosophy. Educational and research facilities are available to support graduate study in solid mechanics, experimental mechanics, electronic packaging and reliability, fracture and failure mechanics, robotics, vibrations, controls, dynamical systems, engineering design, additive manufacturing, friction-lubrication-wear, computer-aided design, fluid dynamics, transportation systems, conventional and renewable energy systems, thermal/fluid sciences, HVAC systems and nanotechnology applications. The applicant must hold a bachelor's degree or its equivalent from an institution of recognized standing. If the applicant's undergraduate degree is not closely related to mechanical engineering, an individualized plan of study will be developed to impart the critical skills inherent in the bachelor's mechanical engineering program. This typically includes completing a prescribed number of core undergraduate mechanical engineering courses in addition to the graduate requirements. All applicants must submit Graduate Record Examination scores for the General Test and will be evaluated on an individual basis by the Mechanical Engineering Graduate Committee.

MS (Non-Thesis Option): This degree is intended for those applicants who expect to enter the engineering profession at an advanced level or those who are employed and seeking professional development. Requirements for the degree consist of completing 30 credit hours of 6000-7000 level courses. A minimum of 21 credit hours of graded course work should be in mechanical engineering. Substitution of courses from other engineering/science disciplines is permitted with prior approval when appropriate courses are unavailable in mechanical engineering. A committee of three faculty members including a major professor will supervise the plan of study of each student. There is no faculty supervised project requirement.

MS (Thesis Option): This degree is intended for those applicants who expect to enter the engineering profession at an advanced level with some creative research experience. The MS applicant must have a baccalaureate or its equivalent in an engineering or scientific discipline from an institute of recognized standing. The degree requires 30 credit hours of 6000-7000 level courses including 6 credit hours of MECH 7990 and 9 credits of graduate engineering/science technical elective courses. A minimum of 15 credit hours of graded course work should be in mechanical engineering courses. Substitution of courses from other engineering/science disciplines is permitted with prior approval when appropriate courses are unavailable in mechanical engineering. All candidates must pass an oral defense of their written thesis including a comprehensive examination covering the major courses. A committee of at least three faculty members including the major professor will take part in evaluating the thesis.

Doctor of Philosophy (PhD): This degree provides for advanced coursework and emphasizes original, creative research. A dissertation embodying the results of this research represents a major portion of the requirements for this degree. The PhD program will consist of a minimum of 60 credit hours, including dissertation, beyond the BS degree. PhD students will select their major courses from those at the 7000-8000-level unless there are special requirements for more basic courses. A minimum of 21 credit hours of graded course work should be in mechanical engineering courses. This amount could include up to 4 credit hours of MECH 7990 or equivalent. Substitution of courses from other engineering/science disciplines is permitted when appropriate courses are unavailable in mechanical engineering. The PhD also requires a coordinated minor of at least 9 credit hours of graded coursework in a closely related field such as mathematics, physics, chemistry, or other engineering disciplines. A minimum of 10 credit hours of MECH 8990 Research & Dissertation is also required. There is no language requirement for the PhD.

The General Doctoral Examination (Preliminary Examination) must be taken by those seeking a PhD. This examination, administered by the major professor in coordination with members of a committee of at least four faculty (including the major professor) consists of two parts: (1) a written Qualifying Examination based upon knowledge acquired from coursework, taken four semesters from the date of entry, and (2) an oral examination which includes questions on knowledge acquired from coursework as well as a presentation and defense by the student of his/her proposed dissertation research. All PhD candidates must also pass a Final Examination consisting of an oral defense of their written dissertation. A maximum of two attempts each is allowed for passing the General Doctoral Examination and the Final Examination.