BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

The undergraduate curriculum in mechanical engineering (ME) is very broad and flexible. The curriculum comprises a ME core of fundamental concepts, plus a design/professional-practice stem, plus 15 credit hours of free electives. The program prepares students to be problem solvers and to contribute to a wide range of industries and businesses, or to go on for further study in graduate school. There is a strong emphasis in the ME program on design, creativity, and hands-on learning. Due to the wide range of career choices open to MEs, the program incorporates courses in electronics, materials science, computer programming, and manufacturing. The large number of free elective hours allows students to pursue minors and certificates throughout the Institute, or to specialize in areas within ME. The flexibility also helps students to pursue a variety of special programs including co-op, internships, study abroad, and undergraduate research.

Program Educational Objectives

The faculty of the Woodruff School strives to continuously improve our undergraduate programs in mechanical engineering. The educational objectives reflect the needs, and have been reviewed by, among others, the Advisory Board of the Woodruff School, the faculty, and the students.

- Our graduates will be recognized leaders in ME-related fields or other career paths, including industry, academe, government, and non-governmental organizations.
- Our graduates will be global collaborators, leading and participating in culturally diverse teams, who fearlessly discover and apply new knowledge and engineering practices that have a world-wide impact.
- Our graduates will be adaptive learners who continue to grow professionally by obtaining professional registration or certification, or by earning post-graduate degrees.
- Our graduates will be entrepreneurially minded innovators who have a positive economic and social impact on their communities, the nation, and society as a whole.

The Woodruff School of Mechanical Engineering has established concentration areas in sub-fields of Mechanical Engineering. Concentrations are optional for the students; they are not required. The Concentrations are each fifteen hours of classes, and will satisfy the Design Elective, the ME Elective and nine hours of Free Electives. The current Concentrations are:

- General (http://www.catalog.gatech.edu/programs/mechanical-engineering-general-bs)
- Automotive (http://www.catalog.gatech.edu/programs/mechanical-engineering-automotive-bs)
- Automation and Robotic System (http://www.catalog.gatech.edu/programs/mechanical-engineering-automation-robotic-systems-bs)
- Design (http://www.catalog.gatech.edu/programs/mechanical-engineering-design-bs)
- Manufacturing (http://www.catalog.gatech.edu/programs/mechanical-engineering-manufacturing-bs)
- Micro- and Nano-Engineering (http://www.catalog.gatech.edu/programs/mechanical-engineering-micro-nano-engineering-bs)
- Nuclear Engineering (http://www.catalog.gatech.edu/programs/mechanical-engineering-nuclear-engineering-bs)

International Plan

Mechanical Engineering majors may choose to participate in the Georgia Tech International Plan. Students who complete the requirements of the International Plan have the degree designation noted on their transcripts and on their diploma. The International Plan has specific requirements which must be completed including:

1. a minimum of 26 weeks abroad in educational, research, or work internships,
2. a language requirement,
3. courses specifically designated for global economics, international affairs, and global competency, and
4. a capstone project, typically one which is based on the student’s ME capstone design experience.

Complete requirements may be found at http://oie.gatech.edu/content/international-plan.

Cooperative Plan

Since 1912, Georgia Tech has offered an Undergraduate Cooperative Program to those students who wish to combine career-related experience with classroom studies. Students alternate between industrial assignments and classroom studies until they complete three semesters of work. Co-op students with mechanical engineering majors complete the same coursework on campus that is completed by non-co-op students. Most co-op students begin the program as sophomores or juniors and are classified as full-time students regardless of whether they are attending classes on campus or are full-time at an employer’s location. Co-op employment opportunities exist across the USA, and even in foreign countries. Depending on the chosen country, proficiency in a foreign language is usually necessary. Mechanical engineering students have worked in countries such as Germany, China, and Japan.

Students who participate in the co-op program have the opportunity to develop career interests, become more confident in their career choices, and develop human relation skills through their work experience. Graduates of the program receive a bachelor’s degree with a Cooperative Plan Designation. For more information about the Cooperative Program, go to www.coop.gatech.edu (http://www.coop.gatech.edu).

For more information about all of the programs in the Center for Career Discovery and Development, visit www.careerdisccovery.gatech.edu (http://careerdisccovery.gatech.edu).

The BS/MS Program

The Woodruff School offers a BS/MS program for those students who demonstrate an interest in and ability for additional education beyond the BS degree. Woodruff School students with a GPA of 3.5 or higher are eligible to apply for the program after completion of 30 semester credit hours at Georgia Tech, but before the completion of seventy-five semester credit hours, including transfer and advanced placement credits. Students who have more than 75 credit hours will be considered for the program on a case-by-case basis.

Participants in the BS/MS Program in the Woodruff School can obtain a master’s degree in mechanical engineering, nuclear engineering, medical
physics, or in Georgia Tech’s interdisciplinary bioengineering graduate program. There are two options to consider:

**Non-Thesis Option**
The Non-Thesis Option is completed by taking 10 classes according to the MS degree requirements. In many cases, two courses can be counted towards both a student’s BS and MS degrees, thereby streamlining the process. With proper planning, most MS non-thesis degrees could be completed in one year.

**Thesis Option**
The Thesis Option involves working with a faculty member on a project in a wide range of research topics being investigated by Woodruff School faculty members. This will give you hands-on experience in working with a faculty mentor; the opportunity to work in a laboratory or a research environment; and the chance to perform theoretical and experimental work. These events will foster your career interests and expand your selection of possible employers. In some cases, a student will receive a graduate research assistantship, which includes a stipend and a tuition waiver. The time to graduation depends on your thesis project, your advisor, and your work ethic.

During the first year of your graduate studies, you will be encouraged to continue for the PhD In many cases, you might be working on an interesting topic of study as part of your master’s degree research that could provide the basis for doctoral research.

BS/MS Information (https://www.me.gatech.edu/undergraduate/bsms)