Curriculum Overview

[FRESHMAN–SOPHOMORE]

The first two years build the basic science and mathematics skills needed for the practice of mechanical engineering: chemistry; two semesters of physics; math through differential equations; mechanics and dynamics of rigid bodies; and mechanics of deformable bodies. Mechanical engineering courses start in the sophomore year.

[JUNIOR]

The third year develops the engineering sciences and provides the basic knowledge in areas such as fluid mechanics and heat transfer, computers and instrumentation, materials, and manufacturing processes, machines and mechanisms and computer-aided design (CAD). Hands-on laboratories build practical skills from the classroom instruction.

[SENIOR]

With the background acquired in the junior year, students are equipped to study design theory and methods and to engage in a capstone design experience. For the rest of the senior year, technical elective courses are available, both inside and outside the MAE department.

Specializations

Nine separate specializations are available, which students may pursue by choosing from technical electives. Some of these are:

- Dynamic Systems and Control
- Design and Manufacturing
- CAD/CAE and Engineering Computation
- Energy and Applied Thermodynamics
- Bioengineering

Did You Know?

Mechanical engineering is one of the broadest engineering disciplines. A student who completes a mechanical engineering degree can successfully compete in design, development, manufacturing, and testing in a variety of industries. Our graduates have also been successful in continuing their studies at graduate programs at UB and in other highly competitive engineering programs across the country.
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