

Science Engineering

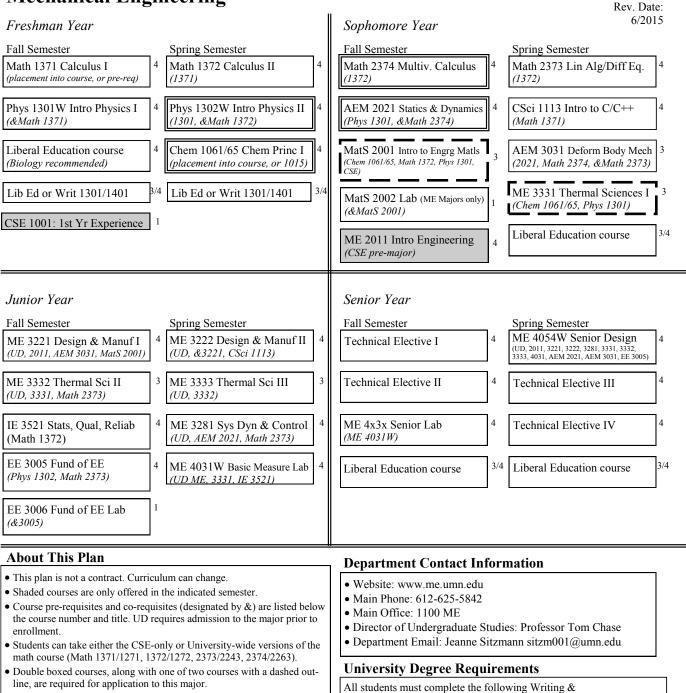
University of Minnesota

CSE Academic Advising & Career Center

College of Science and Engineering 105 Lind Hall • 207 Church Street SE

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Mechanical Engineering



- Biol/Lab must be taken A-F to fulfill Natural Science requirement.
- Chemical Principles lab (1065) must be taken concurrently with the lecture (1061).
- Liberal Education and Writing requirements with an (*) will be fulfilled by taking courses required for this major at UM-TC.

Applying to your Major

Students who have completed the required courses for admission to this major and have a 3.2 UM-TC technical GPA at the end of the fall semester will be guaranteed admission. All other students who have completed the required courses will be considered for admission on a space-available basis. Admission following the spring semester is only based on space availability. The major application database is available at z.umn.edu/ csemajorapp.

All students must complete the following Writing & Liberal Education requirements, as noted on their APAS report. See link for full Core & Theme names: z.umn.edu/liberaleducation

	writing Requirements:	Liberal Education	
	University Writing: Writ 1301/1401 or equivalent Writing Intensive (WI): Two: 1xxx or 2xxx level ** One: 3/4/5xxx level (<u>in major</u>)* One: 3/4/5xxx level (<u>any dept.</u>)*	CORES: Bio Phy* His SocS Ltr AH Mth*	THEMES: <u>4 of 5:</u> Civ DSJ Env GP TS
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Total Credits Needed for Degree: 125

What can I do with a major in mechanical engineering?

Mechanical engineers design and develop power-producing machines, such as internal combustion engines, steam and gas turbines, and jet and rocket engines. They use computers to form preliminary designs for systems or devices, perform calculations that will predict the behavior of the design, and collect and analyze performance data. Mechanical engineers also design and develop power-using machines, such as refrigeration and air-conditioning equipment, robots, machine tools, material handling systems, and industrial production equipment. Mechanical engineers design tools needed by other engineers to do their work. They combine practical and technical skills with analytical and intellectual pursuits. In addition, mechanical engineers may work in production operations in manufacturing, agriculture, maintenance, or technical sales and many are administrators or managers. Mechanical engineering is one of the broadest engineering disciplines. Mechanics, energy, heat, mathematics, engineering sciences, design, and manufacturing are the foundation of mechanical engineering.

Mechanical engineers can specialize in applied mechanics, design engineering, heat transfer, power plant engineering, nanofabrication, pressure vessels and piping, plant maintenance, biomedical engineering, construction, and underwater technology.

Employers (sample listing)

3M Applied Materials Eaton Corporation Medtronic, Inc. Oak River Technology Brady Corporation IBM Cargill Datacard Group

Industries (sample listing)

Manufacturing Measurement systems Automotive Petroleum Heating and cooling Parker Hannifin Donaldson Company Ecolab Graco Inc. Rockwell Automation Boston Scientific Accenture Cummins Inc. ExxonMobil

Government agencies Packaging Technical sales Alternative energy Pumps and fluid systems Telecommunications Honeywell Ingersoll Rand Beckman Coulter DuPont Flint Hills Resources Micron Technology General Electric General Dynamics Polar Semiconductor Inc.

Biomedical Computer technologies Environmental Consulting Research and development

Positions (sample listing)

Design Engineer: Develops mechanical automation designs from customer specifications, conducts design reviews with customers, uses analytical tools to assist in the design process, and interfaces with suppliers.

Energy Engineer: Works with architects, engineers, contractors, and stakeholders to provide sustainable design services to the commercial building sector by identifying opportunities for energy savings and reduction.

Drilling Engineer: Plans and designs oil and gas wells in support of a drilling organization with an emphasis on safety, cost, and efficiency improvement.

Quality Engineer: Supports development and ensures compliance with a company's quality management system (QMS) in accordance with industry standards, and provides technical support to product engineering, marketing, and manufacturing.

*Some positions may require an advanced degree.

Career Center cse.umn.edu/career

Salary Information *z.umn.edu/csesalary*

More Information on Undergraduate Majors cse.umn.edu/majors