COLLEGE OF Science & Engineering
UNIVERSITY OF MINNESOTA

CSE Academic Advising & Career Center
College of Science and Engineering
105 Lind Hall • 207 Church Street SE
Minneapolis, MN 55455
612-624-2890 • csestudent@umn.edu
cse.umn.edu

Mechanical Engineering

Rev. Date: 6/2015

Freshman Year

Fall Semester		Spring Semester	
Math 1371 Calculus I *(placement into course, or pre-req)*	4	Math 1372 Calculus II *(1371)*	4
Phys 1301W Intro Physics I *(&Math 1371)*	4	Phys 1302W Intro Physics II *(1301, &Math 1372)*	4
Liberal Education course *(Biology recommended)*	4	Chem 1061/65 Chem Princ I *(placement into course, or 1015)*	4
Lib Ed or Writ 1301/1401	3/4	Lib Ed or Writ 1301/1401	3/4
CSE 1001: 1st Yr Experience	1		

Sophomore Year

Fall Semester		Spring Semester	
Math 2374 Multiv. Calculus *(1372)*	4	Math 2373 Lin Alg/Diff Eq. *(1372)*	4
AEM 2021 Statics & Dynamics *(Phys 1301, &Math 2374)*	4	CSci 1113 Intro to C/C++ *(Math 1371)*	4
MatS 2001 Intro to Engrg Matls *(Chem 1061/65, Math 1372, Phys 1301, CSE)*	3	AEM 3031 Deform Body Mech *(2021, Math 2374, &Math 2373)*	3
MatS 2002 Lab (ME Majors only) *(&MatS 2001)*	1	ME 3331 Thermal Sciences I *(Chem 1061/65, Phys 1301)*	3
ME 2011 Intro Engineering *(CSE pre-major)*	4	Liberal Education course	3/4

Junior Year

Fall Semester		Spring Semester	
ME 3221 Design & Manuf I *(UD, 2011, AEM 3031, MatS 2001)*	4	ME 3222 Design & Manuf II *(UD, &3221, CSci 1113)*	4
ME 3332 Thermal Sci II *(UD, 3331, Math 2373)*	3	ME 3333 Thermal Sci III *(UD, 3332)*	3
IE 3521 Stats, Qual, Reliab (Math 1372)	4	ME 3281 Sys Dyn & Control *(UD, AEM 2021, Math 2373)*	4
EE 3005 Fund of EE *(Phys 1302, Math 2373)*	4	ME 4031W Basic Measure Lab *(UD ME, 3331, IE 3521)*	4
EE 3006 Fund of EE Lab *(&3005)*	1		

Senior Year

Fall Semester		Spring Semester	
Technical Elective I	4	ME 4054W Senior Design (UD, 2011, 3221, 3222, 3281, 3331, 3332, 3333, 4031, AEM 2021, AEM 3031, EE 3005)	4
Technical Elective II	4	Technical Elective III	4
ME 4x3x Senior Lab *(ME 4031W)*	4	Technical Elective IV	4
Liberal Education course	3/4	Liberal Education course	3/4

About This Plan

- This plan is not a contract. Curriculum can change.
- Shaded courses are only offered in the indicated semester.
- Course pre-requisites and co-requisites (designated by &) are listed below the course number and title. UD requires admission to the major prior to enrollment.
- Students can take either the CSE-only or University-wide versions of the math course (Math 1371/1271, 1372/1272, 2373/2243, 2374/2263).
- Double boxed courses, along with one of two courses with a dashed outline, are required for application to this major.
- 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.

Department Contact Information

- Website: www.me.umn.edu
- Main Phone: 612-625-5842
- Main Office: 1100 ME
- Director of Undergraduate Studies: Professor Tom Chase
- Department Email: Jeanne Sitzmann sitzm001@umn.edu

University Degree Requirements

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:

University Writing:
Writ 1301/1401 or equivalent

Writing Intensive (WI):
Two: 1xxx or 2xxx level **
One: 3/4/5xxx level (in major)*
One: 3/4/5xxx level (any dept.)*

Liberal Education

CORES:	THEMES:
Bio	***4 of 5:***
Phy*	Civ
His	DSJ
SocS	Env
Ltr	GP
AH	TS
Mth*	

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
Parker Hannifin
Donaldson Company
Ecolab
Graco Inc.
Rockwell Automation
Boston Scientific
Accenture
Cummins Inc.
ExxonMobil
Honeywell
Ingersoll Rand
Beckman Coulter
DuPont
Flint Hills Resources
Micron Technology
General Electric
General Dynamics
Polar Semiconductor Inc.

Industries *(sample listing)*

Manufacturing
Measurement systems
Automotive
Petroleum
Heating and cooling
Government agencies
Packaging
Technical sales
Alternative energy
Pumps and fluid systems
Telecommunications
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