



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 not only to form preliminary designs for systems or devices, but also to perform calculations that will predict the behavior of the design and to 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, while valuing work that requires research and a high level of creativity. In addition, mechanical engineers may work in production operations in manufacturing or agriculture, maintenance, or technical sales. Many mechanical engineers are administrators or managers. Mechanical engineering is one of the broadest engineering disciplines. Mechanics, energy and heat, mathematics, engineering sciences, design, and manufacturing form 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.

INDUSTRIES

- Alternative energy
- Automotive
- Biomedical
- Computer technologies
- Consulting
- Environmental
- Government agencies
- Heating and cooling
- Manufacturing
- Measurement systems
- Packaging
- Petroleum
- Pumps and fluid systems
- Research and development
- Technical sales
- Telecommunication

EMPLOYERS

- 3M
- Abbott
- Andersen Corporation
- Boston Scientific
- Daikin Applied
- Emerson
- Flint Hills Resources
- Ford Motor Company
- Graco
- Honeywell
- Hormel Foods Corporation
- Ingersoll Rand/Trane
- Medtronic
- National Instruments
- PaR Systems
- Parker Hannifin
- Perbix/Tesla Motors
- RFA Engineering
- Rockwell Automation
- Smiths Medical

TECHNICAL SKILLS

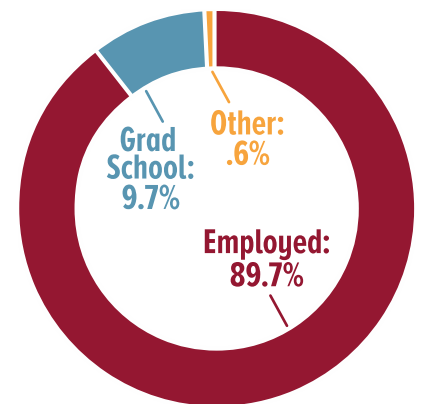
- Arduino
- ChemDraw
- Creo Parametric (ProE)
- Excel
- LoggerPro
- Mathematica
- MATLAB
- Operation/Field Skills
- SolidWorks

CSE Career Outcomes

Average Starting Salary:

\$64,815*

Post-graduation Outcomes:*





POSSIBLE POSITIONS

- **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.
- **Development engineer:** Applies research findings to develop new or improved products or manufacturing processes.
- **Manufacturing engineer:** Plans the tooling, construction, and assembly of the product as dictated by the design specifications.
- **Mechanical engineer:** Designs power-producing machines, such as electric generators, internal combustion engines, and steam and gas turbines, as well as power-using machines.
- **Project engineer:** Schedule preparation, pre-planning and resource forecasting for engineering and other technical activities relating to the project.
- **Quality engineer:** Supports development and ensures compliance with the company's quality management system (QMS) in accordance with industry standards and provides technical support to product engineering, marketing, manufacturing, etc.
- **Research and development engineer (R&D):** Researches structure, processing, properties and performance of materials for the development and use of applications in various fields.
- **Sales engineer:** Contacts customers and makes sales presentations to demonstrate how products or services can fulfill their particular needs.

***Some of these positions may require an advanced degree.*

GET INVOLVED

- | | | |
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| • Active Energy Club | • Science and Engineering Student Board | • Society of Automotive Engineers – Gopher Motorsports |
| • American Society of Heating, Refrigeration, and Air Conditioning Engineers | • She is ME | • Society of Hispanic Professional Engineers |
| • American Society of Mechanical Engineers | • Society for Mining, Metallurgy, and Exploration | • Society of Women Engineers |
| • National Society of Black Engineers | • Society of Asian Scientists and Engineers | • Solar Vehicle Project |
| | | • UMN Clean Snowmobile Team |

RESOURCES

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|--|---|--|
| • American Council of Engineering Companies-MN chapter: acecmn.org | • MechanicalEngineering.com: mechanicalengineer.com | • Society of Automotive Engineers: sae.org |
| • Department of Mechanical Engineering: me.umn.edu | • Minnesota Society of Professional Engineers: mnspe.org | • Society of Manufacturing Engineers: sme.org |
| • Institute of Transportation Engineers: ite.org | • National Association of Power Engineers: powerengineers.com | • Society of Women Engineers: swe.org |
| | • National Society of Professional Engineers: nspe.org | |

See the Major Binders available in the CSE Career Center's Resource Center for more information about this major and career.

**Salary and Career Outcomes gathered from the 2016-2017 CSE Graduation Survey*

Post-graduation outcomes reflect the percentage of students who were employed full-time in their field or were enrolled in a graduate program.

For detailed starting salary information see the CSE Career Center website.