

# Engineering at Anoka-Ramsey Community College

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## Introduction

Engineering is one of the largest professions in the world. Engineers are highly respected, and their accomplishments are seen in everyday life.

## Major Fields of Engineering

- **Aerospace Engineering**
  - Aerospace engineers help design: commercial and military aircraft, space shuttles, missiles, etc.
  - Aerospace engineers may work at: NASA, Boeing, Airbus, Lockheed Martin, etc.
  - Professional Organization: American Institute of Aeronautics and Astronautics (AIAA)
- **Biomedical Engineering**
  - Biomedical engineers help design: pacemakers, defibrillators, artificial organs and valves, surgical equipment, etc.
  - Biomedical engineers may work at: Medtronic, Boston Scientific, St. Jude Medical, etc.
  - Professional Organization: Biomedical Engineering Society (BMES)
- **Chemical/Materials Engineering**
  - Chemical/Materials engineers help design: chemical processes, pharmaceuticals, polymers, coatings, filtration, composite materials, etc.
  - Chemical/Materials engineers may work at: 3M, DuPont, Cargill, ExxonMobil, Astra Pharmaceuticals, etc.
  - Professional Organization: American Institute of Chemical Engineers (AIChE)
- **Civil/Environmental Engineering**
  - Civil/Environmental engineers help design: buildings, bridges, tunnels, highways, water treatment facilities, etc.
  - Civil/Environmental engineers may work at: Minnesota Department of Transportation, Advanced Engineering and Environmental Services, Barr Engineering, etc.
  - Professional Organization: American Society of Civil Engineers (ASCE)
- **Computer/Electrical Engineering**
  - Computer/Electrical engineers help design: computer hardware, cell phones, robotics, radar and navigational systems, electric motors, generators, etc.
  - Computer/Electrical engineers may work at: Apple, Microsoft, Intel, AMD, Motorola, General Electric, Connexus Energy, Xcel Energy, Tesla Motor Company, Honeywell, Medtronic, etc.
  - Professional Organization: Institute for Electrical and Electronics Engineers (IEEE)
- **Mechanical/Industrial Engineering**
  - Mechanical/Industrial engineers help design: internal combustion engines, hydraulics, energy systems, turbines, heat pumps, manufacturing processes, etc.
  - Mechanical/Industrial engineers may work at: Ford, Honda, Honeywell, Medtronic, Caterpillar, UPS, etc.
  - Professional Organization: American Society of Mechanical Engineers (ASME)

## Why Engineering?

- Rewarding career where a new day represents a new challenge
- The products you design improve or save lives
- Solid job market with good salaries

## ***Characteristics of an Engineer***

- Solid math and science background
- Technical problem solving skills
- Good communication skills

## **The ARCC Engineering Program**

### ***Transfer***

The first half of a Bachelor's degree in engineering can be completed at Anoka-Ramsey Community College. Coursework transfers to baccalaureate engineering programs at universities such as the University of Minnesota – Twin Cities, University of Minnesota – Duluth, St. Cloud State University, Minnesota State University – Mankato, and Winona State University. The engineering degree programs offered by each university in Minnesota can be found below.

- **University of Minnesota – Twin Cities:** Aerospace Engineering and Mechanics, Biomedical Engineering, Bioproducts and Biosystems Engineering, Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Geoengineering, Industrial and Systems Engineering, Materials Science and Engineering, and Mechanical Engineering
- **University of Minnesota – Duluth:** Chemical Engineering, Civil Engineering, Electrical Engineering, Industrial Engineering, and Mechanical Engineering
- **St. Cloud State University:** Computer Engineering, Electrical Engineering, Manufacturing Engineering, and Mechanical Engineering
- **Minnesota State University – Mankato:** Civil Engineering, Computer Engineering, General Engineering, Electrical Engineering, and Mechanical Engineering
- **University of St. Thomas:** Electrical Engineering and Mechanical Engineering
- **Winona State University:** Composite Materials Engineering

For more information on how Anoka-Ramsey engineering, math, science, and computer science courses transfer to baccalaureate engineering degree programs, go to: [http://webs.anokaramsey.edu/engineering/transfer\\_program.htm](http://webs.anokaramsey.edu/engineering/transfer_program.htm)

### ***Smaller Class Sizes***

Class sizes at Anoka-Ramsey Community College are typically much smaller than at four-year universities, which allows for more student-instructor interaction and a sound learning environment.

### ***Engineering Courses at Anoka-Ramsey***

- Introduction to Engineering
- Linear Circuits
- Dynamics
- Engineering Graphics
- Thermodynamics
- Mechanics of Materials
- Digital Logic
- Statics

### ***Physics and Chemistry Courses at Anoka-Ramsey***

- College Physics I and II
- Principles of Chemistry I and II
- Organic Chemistry I and II

### ***Mathematics and Computer Science Courses at Anoka-Ramsey***

- Calculus I and II
- Differential Equations
- Fundamentals of Computer Science I and II
- Multivariable Calculus
- Discrete Mathematics
- Linear Algebra

## **For more information about engineering, contact:**

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