

# Computer Engineering

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## About the Major

Computer engineering allows you to learn to apply mathematical and scientific principles to the development, design, and evaluation of computer hardware and software systems and related equipment and processes. A strong foundation in basic computer engineering subjects, physics, and mathematics is required, as well as specific courses related to computers, electronics, applied physics, and software development. A bachelor's degree in Computer Engineering prepares the graduate for developing and using technologies, as well as being able to design, produce, and manage data elaboration systems in a wide range of applications related to computer systems, networks, and software.

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## Marketable Skills and Abilities this Major Develops

- Analytical and critical thinking skills
  - Understand operating system's configuration and implementation
  - Use binary language to transform large amounts of data, power, current, and user input into system tasks
  - Ensure digital signals are sent and received accurately
  - Understand how to evaluate and set priorities
  - Knowledge of electrical engineering, networking, and coding
  - Adaptation to fast paced, multidisciplinary and international environments
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## Relevant Fields

- Coding
- Computer Programming
- Software Development
- Electrical Engineering
- Computer Science
- Cybersecurity/Cryptography
- Robotics
- Artificial Intelligence

## Occupational Titles/Careers with Bachelor's Degree

- Firmware engineer
- Product designers
- Software engineer
- Systems engineers
- Test engineers
- Computer Systems Analyst
- Web Development

## Sample Coursework

- Calculus 1, 2, & 3
  - Computing
  - Physics
  - Electrical Engineering
  - Electromagnetics
  - Project Design
  - Electronic Circuit
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## Career Opportunities and Job Outlook

Employment of computer hardware engineers is projected to grow 5% from 2016 to 2026, which is about as fast as the average for all occupations. An ongoing increase in devices with embedded computer chips, such as medical devices, household appliances, and automobiles, may lead to job growth. An increase in demand for software will drive growth of 11% to 30% for engineers who work in applications, systems, or software development.

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## Salary Estimates

The average salary for an entry level Computer Engineer is \$69,365. An experienced Computer Engineer makes about \$116,199 per year.

(This section is intended for informational purposes, not prediction of actual salary.)

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## Advanced Degrees

- Data Science and Engineering
- Business Analytics
- Software Technology
- Cybersecurity
- Software Engineering
- Machine Learning
- Computer Network Architecture

## Professional Associations

- [Institution of Engineering and Technology](#)
- [Association for Computing Machinery](#)
- [Data Management International](#)
- [Institute of Electrical and Electronics Engineers](#)
- [The League of Professional System Administrators](#)
- [National Center for Women and Information Technology](#)
- [National Workforce Center for Emerging Technologies](#)
- [Society of Hispanic Professional Engineers](#)