

Software Engineering

About the Major

Software engineers create programs that make the digital world possible. They design the “guts” behind social media programs and webpages, as well as the programs that make your computer and smartphone function. Using engineering computer science principles, software engineers approach projects in a systematic way—researching, analyzing, designing, testing, and repeating the process until coming up with a final product that meets predetermined objectives. Using engineering, computer science, and mathematics skills, students in the BSSE program will be prepared to write, test, edit, and debug programs.

Marketable Skills and Abilities this Major Develops

- Problem solving and analysis
 - Understand operating system’s configuration and implementation
 - Complete responsibilities using a “big picture” approach
 - Ability to work with multiple computer languages
 - Strong team collaboration and communication skills
 - Explore creative outlets in new designs
 - Understand how to apply object-oriented design guidelines
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Relevant Fields

- Computer Programming
- Project Management
- Full-stack Engineering
- Data Science
- Web and Applications Development
- Software Development
- Cybersecurity
- Database Administration

Occupational Title/Careers with

Bachelor’s Degree

- Systems Analyst
- Software Architect
- Video Game Developer
- Software Test Engineer
- Chief Technology Officer
- Network Engineer
- Information Systems Manager

Sample Coursework

- Computer Science
 - Web Programming
 - Data Structures
 - Calculus 1 & 2
 - Computer Networks
 - Database Systems
 - Software Testing
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Career Opportunities and Job Outlook

In an age where nearly every industry uses software technology to achieve rapid growth, software engineers enjoy exceptionally strong employment prospects. The Bureau of Labor Statistics (BLS) projects a faster-than-average 22% job growth rate for software developers, analysts, and testers from 2019-29.

Salary Estimates

According to the BLS, Software Engineers made a median salary of \$110,140 in 2020. The best-paid 25 percent made \$140,470 that year, while the lowest-paid 25 percent made \$84,020.

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

Advanced Degrees

- Computer Science
- Cybersecurity
- Computer Network Architecture
- Artificial Intelligence
- Machine Learning
- Business Information Systems
- Human Computer Interaction

Professional Associations

- [Institution of Engineering and Technology](#)
- [Association for Computing Machinery](#)
- [Institute of Electrical and Electronics Engineers](#)
- [The League of Professional System Administrators](#)
- [Python Software Foundation](#)
- [National Workforce Center for Emerging Technologies](#)
- [National Center for Women and Information Technology](#)