**Curriculum in Software Engineering**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Freshman** | | | | | |
| **Fall** | | | **Hours** | **Spring** | **Hours** |
| [ENGL 1100](http://bulletin.auburn.edu/search/?P=ENGL%201100) English Composition I | | | 3 | [ENGL 1120](http://bulletin.auburn.edu/search/?P=ENGL%201120) English Composition II | 3 |
| World History or Technology & Civilization1 | | | 3 | [MATH 1620](http://bulletin.auburn.edu/search/?P=MATH%201620) Calculus II | 4 |
| [MATH 1610](http://bulletin.auburn.edu/search/?P=MATH%201610) Calculus I | | | 4 | [PHYS 1610](http://bulletin.auburn.edu/search/?P=PHYS%201610) Engineering Physics II | 4 |
| [PHYS 1600](http://bulletin.auburn.edu/search/?P=PHYS%201600) Engineering Physics I | | | 4 | [**COMP 1210**](http://bulletin.auburn.edu/search/?P=COMP%201210)**Fundamentals of Computing I** | **3** |
| [ENGR 1110](http://bulletin.auburn.edu/search/?P=ENGR%201110) Introduction to Engineering | | | 2 |  | |
| [ENGR 1100](http://bulletin.auburn.edu/search/?P=ENGR%201100) Engineering Orientation | | | 0 |  | |
|  | | | **16** |  | **14** |
| **Sophomore** | | | | | |
| **Fall** | | | **Hours** | **Spring** | **Hours** |
| Core Social Science1 | | | 3 | Core Social Science1 | 3 |
| Core Literature1 | | | 3 | [MATH 2660](http://bulletin.auburn.edu/search/?P=MATH%202660) Topics in Linear Algebra | 3 |
| Core Fine Arts | | | 3 | [ELEC 2200](http://bulletin.auburn.edu/search/?P=ELEC%202200) Digital Logic Circuits | 3 |
| [MATH 2630](http://bulletin.auburn.edu/search/?P=MATH%202630) Calculus III | | | 4 | [**COMP 2710**](http://bulletin.auburn.edu/search/?P=COMP%202710)**Software Construction** | **3** |
| [**COMP 2210**](http://bulletin.auburn.edu/search/?P=COMP%202210)**Fundamentals of Computing II** | | | **4** | [**COMP 3240**](http://bulletin.auburn.edu/search/?P=COMP%203240)**Discrete Structures** | **3** |
|  | | | **17** |  | **15** |
| **Junior** | | | | | |
| **Fall** | | | **Hours** | **Spring** | **Hours** |
| [ENGR 2100](http://bulletin.auburn.edu/search/?P=ENGR%202100) Fundamentals of Engineering Mechanics (or ROTC) | | | 3 | [PHIL 1020](http://bulletin.auburn.edu/search/?P=PHIL%201020) Introduction to Ethics***or***[1040](http://bulletin.auburn.edu/search/?P=PHIL%201040) Business Ethics | 3 |
| [MATH 2650](http://bulletin.auburn.edu/search/?P=MATH%202650) Linear Differential Equations | | | 3 | [STAT 3600](http://bulletin.auburn.edu/search/?P=STAT%203600) Probability and Statistics I | 3 |
| [**COMP 3220**](http://bulletin.auburn.edu/search/?P=COMP%203220)**Principles of Programming Languages** | | | **3** | Humanities / Social Science Elective3 | 3 |
| [**COMP 3270**](http://bulletin.auburn.edu/search/?P=COMP%203270)**Introduction to Algorithms** | | | **3** | [**COMP 3500**](http://bulletin.auburn.edu/search/?P=COMP%203500)**Introduction to Operating Systems** | **3** |
| [**COMP 3350**](http://bulletin.auburn.edu/search/?P=COMP%203350)**Computer Organization and Assembly Language Programming** | | | **3** | [**COMP 3700**](http://bulletin.auburn.edu/search/?P=COMP%203700)**Software Modeling and Design** | **3** |
|  | | | **15** |  | **15** |
| **Senior** | | | | | |
| **Fall** | | | **Hours** | **Spring** | **Hours** |
| [**COMP 4300**](http://bulletin.auburn.edu/search/?P=COMP%204300)**Computer Architecture** | | | **3** | [**COMP 4710**](http://bulletin.auburn.edu/search/?P=COMP%204710)**Senior Design Project** | **3** |
| [**COMP 4320**](http://bulletin.auburn.edu/search/?P=COMP%204320)**Introduction to Computer Networks** | | | **3** | [**COMP 4730**](http://bulletin.auburn.edu/search/?P=COMP%204730)**Computer Ethics** | **1** |
| [**COMP 5700**](http://bulletin.auburn.edu/search/?P=COMP%205700)**Software Process** | | | **3** | [**COMP 5710**](http://bulletin.auburn.edu/search/?P=COMP%205710)**Software Quality Assurance** | **3** |
| **COMP Elective2** | | | **6** | **COMP Elective2** | **3** |
|  | | | | Free Elective (or ROTC) | 3 |
|  | | | | [UNIV 4AA0](http://bulletin.auburn.edu/search/?P=UNIV%204AA0) University Graduation | 0 |
|  | | | **15** |  | **13** |
| **Total Hours: 120** | | | | | |
| 1 | Students must complete a sequence in either Literature or History.  Because of the discipline specific requirements for the Humanities courses, it is recommended that a History sequence be completed in the Social Sciences courses. | | | |
| 2 | Courses for COMP Elective credit must be chosen in accordance with CSSE department policies and approved course listings.  Students must consult with the CSSE Academic Advisor when selecting these courses. | | | |
| 3 | The Humanities / Social Science Elective must be chosen from the set of courses designated as Humanities or Social Sciences in the Auburn University Core Curriculum. | | | |

The AU Bulletin lists the University Core Curriculum requirements for students in the College of Engineering.

Courses in bold-face are those used to calculate in-major GPA.

Software engineering is a fast-growing occupation with a high salary potential. From computer operating systems to video games, many of the products we rely upon today are supported by software. Software engineers specialize in either computer software applications or computer software systems. They analyze users’ needs and then design, test, and develop software by applying the theories and principles of computer science and mathematical analysis. Computers and information technology play a prominent role in our daily lives and in the business world, so there is a constant need to develop new software.

## Software Engineer Education Degree Requirements

Depending on the employer, software engineer education degree requirements range from an associate’s degree to a master’s degree. An associate’s degree might be sufficient for some entry-level positions, but a bachelor’s degree is required for most software engineering jobs, while more complex jobs might require a master’s degree. Employers place a high value on relevant experience, so it is recommended that you participate in internships while pursuing your degree.

Aspiring software engineers usually major in computer science, computer information systems, software engineering or mathematics. Some students take programming and software engineering classes to supplement a degree in another field, such as accounting, business or finance. You can also pursue relevant certifications offered by software vendors and training institutions.

Software engineers must have strong problem-solving and communication skills and an aptitude for math and science. They should also possess good programming capability; an in-depth knowledge of programming languages, like C++, C#, and Java; an attention to detail; and an ability to handle multiple tasks at once.

## Becoming a Software Engineer: Career Outlook

Software engineers are involved in all aspects of software creation, from writing code to debugging programs to overseeing the launch of new software. They often start out writing code but eventually advance to senior positions, working as software architects or project managers. In a software engineer career, it’s essential to keep up with the latest advancements, because technology is constantly evolving. Having strong interpersonal and management skills is also crucial since software engineers often collaborate with marketing, manufacturing, and design professionals in creating new software.

Job opportunities for software engineers are expected to grow much faster than the average for all occupations. According to the [Bureau of Labor Statistics](http://www.bls.gov/ooh/Computer-and-Information-Technology/Software-developers.htm), the overall employment of computer software developers is expected to increase by 30% percent from 2010 to 2020. The demand for software engineers is increasing because of the Internet’s expansion and the growing complexity of data-processing systems used in business, telecommunications, healthcare, and government. Some worry that offshore outsourcing may put a damper on employment growth for software engineers, but there will still likely be a need for skilled software developers domestically, because the job requires significant research, development, and innovation.

Software engineering sometimes involves long hours and tight deadlines, so it can be stressful. Software engineers work in comfortable settings, however, and telecommuting is becoming increasingly common. The salaries of software engineers vary depending on education, experience, and skill level. According to the Bureau of Labor Statistics, the median annual salary of [computer applications software developers](http://www.bls.gov/oes/current/oes151132.htm) was $89,280 in 2011, while [computer systems software developers](http://www.bls.gov/oes/current/oes151133.htm) earned $96,600.

Named one of the 50 Best Careers by [*US News and World Report*](http://money.usnews.com/money/careers/articles/2012/02/27/the-best-jobs-of-2012), software engineering is a fast-growing occupation with a promising future. Consider becoming a software engineer if you like computers and want to work in a well-compensated field with excellent career prospects.