Facts
Department of Computer Sciences

Degrees Awarded

Bachelor’s and Master’s of Science in Computer Science
Bachelor’s and Master’s of Science in Software Engineering
Doctor of Philosophy in Computer Science

Quality of Matriculating Students

<table>
<thead>
<tr>
<th></th>
<th>SAT</th>
<th>ACT</th>
<th>High School</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Math</td>
<td>Verbal</td>
<td>Total</td>
</tr>
<tr>
<td>Average</td>
<td>625.6</td>
<td>584.2</td>
<td>1209.8</td>
</tr>
<tr>
<td>Median</td>
<td>625</td>
<td>580</td>
<td>1210</td>
</tr>
</tbody>
</table>

Undergraduate Core

Programming: Java, C++, Assembly, Data Structures
Software Engineering
Systems: Computer Organization, Operating Systems
Mathematics: Discrete Mathematics, Calculus, Probability and Statistics
Software Design Projects Communication and Teamwork

Pro Track Co-op Program

Interleave academic and work experiences and still graduate in as few as four years.

Fast Track Master’s Program for Honors Students

Earn both a Bachelor’s and Master’s degree in as few as five years.

Student Achievement

The Department’s ACM programming teams have reached the finals of the International Collegiate Programming Contest 5 times in recent years.

The “1, 2, 3, 4” Senior Design Team received honorable mention in the US competition of Microsoft’s Imagine Cup for their project to develop
a language-independent, motion-directed game for children learning to count.

**Student-to-Faculty Ratio & Class Sizes**

<table>
<thead>
<tr>
<th></th>
<th>Faculty</th>
<th>Undergraduate</th>
<th>Graduate</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>14</td>
<td>111 CS 59 SE</td>
<td>67 CS 25 SE 24 PhD</td>
<td>286</td>
</tr>
<tr>
<td>Ratio</td>
<td>7.9</td>
<td>4.2</td>
<td>1.8 4.8 1.7</td>
<td>20.4</td>
</tr>
<tr>
<td>Average Class Size</td>
<td>14.0</td>
<td></td>
<td>8.1</td>
<td>11.2</td>
</tr>
<tr>
<td>Maximum Class Size</td>
<td>43</td>
<td></td>
<td>28</td>
<td></td>
</tr>
</tbody>
</table>

**Research**

*Harris Institute for Assured Information*

*Center for Software Testing Education*

*Center for Computation & Intelligence*

  - Computer Vision and Bio-Inspired Computing Laboratory
  - Lab for Learning Research
  - Temporal Multidimensional Reasoning

*Software Evolution Lab*

**Accreditation and Professional Memberships**

The Bachelor of Science Program in Computer Science is accredited by the Computing Accreditation Commission (CAC). The Bachelor of Science Program in Software Engineering is accredited by the Engineering Accreditation Commission (EAC). Both are Commissions of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone: (410) 347-7700.

The Florida Tech Chapter of the Association for Computing Machinery helps build a network of computing professionals. High achieving students are recognized by nomination to membership in Upsilon Pi Epsilon, the International Honors Society for the Computing and Information Disciplines. The Department of Computer Sciences is a member of the Computing Research Association.
Where Our Graduates Continue Learning

Where Our Students Work
Network With Us

Check out our Facebook group, where you can connect with current members and alumni of the Computer Sciences Department.

Visit our YouTube account that hosts department videos, including student senior project videos.

Meet the Faculty

- William Allen — Computer Networks
- Annie Becker — Computer Information Systems
- Pat Bond — Software Design and Architecture
- Phil Bernhard — Database Systems
- Phil Chan — Machine Learning and Data Mining
- Richard Ford — Information Assurance and Malicious Code
- Keith Gallagher — Program Slicing, Program Comprehension and Evolution
- Cem Kaner — Software Testing
- Gerald Marin — Computer Networks and Security
- Ronaldo Menezes — Self-Organization and Complex Networks
- Debasis Mitra — Knowledge Management in Science and Engineering
- Richard Newman — Professional Issues in Computing
- Eraldo Ribeiro — Computer Vision, Graphics, and Imaging
- Marius Silaghi — Cryptology and Secure-Multiparty Computations
- Ryan Stansifer — Programming Languages and Compilers
- Scott Tilley — Software Evolution

Florida Institute of Technology
College of Engineering
Department of Computer Sciences

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Computing Careers

Abstract
Florida Tech confers the Bachelor of Science degree in several computing disciplines: Computer Science, Software Engineering, Computer Engineering, Computer Information Systems, and Information Systems. The Computer Information Systems is only offered on-line.

Florida Tech also confers the Bachelor of Arts degree in Business Administration with a Computer Information Systems concentration, and the Associate of Science degree in Computer Information Systems. Both of these degrees are offered on-line.

The illustrations here can help compare and contrast the subjects studied in these degree programs and the career paths of people who earn these degree.
Computer Scientist

Boss — Computer Scientist Scenario 1

I have a problem.

Your problem has no solution.

Boss                  Computer Scientist

Boss — Computer Scientist Scenario 2

I have a problem.

This algorithm will solve your problem.

Boss                  Computer Scientist

Running it will take time, space, bandwidth, …

Boss                  Computer Scientist
Figure 1, a rendition from (Joint Task Force on Computing Curricula, 2005), illustrates the computer science problem space. To paraphrase from (Joint Task Force on Computing Curricula, 2005).

A computer scientist interest runs from hardware that runs software to organizations that use computing information. Computer scientists design and develop all types of software from systems infrastructure (operating systems, communications programs, etc.) to application technologies (web browsers, databases, search engines, etc.) Moving right, the computer science problem space narrows and then stops because computer scientists do not help people to select computing products, or tailor products to organizational needs, or learn to use such products.

Figure 1: The Computer Science Problem Space.
Software Engineer

**Boss — Software Engineer Scenario**

I have a solvable problem.

Are you sure that's your problem?

I can certify the design, construction, testing, and maintenance of the software.

Yes, it's the right problem.
Figure 2, a rendition from (Joint Task Force on Computing Curricula, 2005), illustrates the software engineering problem space. To paraphrase from (Joint Task Force on Computing Curricula, 2005).

Software engineering problems extend from theoretical software models to the daily practices needed to produce reliable, high-quality software on time and within budget. Software engineer design and develop a wide range of software from embedded, to systems-level, to high-level applications that are appropriate to a client organization.

Figure 2: The Software Engineering Problem Space.
I have a problem.

I can implement a solution in hardware to improve system performance.
Figure 3, a rendition from (Joint Task Force on Computing Curricula, 2005), illustrates the computer engineering problem space. To paraphrase from (Joint Task Force on Computing Curricula, 2005).

Computer engineering covers the range from theory and principles to the practical application of designing and implementing products using hardware and software. A computer engineer’s interests narrow as problems move away from hardware. A computer engineer cares about software only because they need it to develop integrated devices.
Computer and Information Systems Managers

**Boss — Computer and Information Systems Manager Scenario**

**I have a solution to our problem.**

**I can integrate the solution into our business processes.**

![Diagram](image)

**I can supervise running the system.**

![Diagram](image)
Figure 4, a rendition from (Joint Task Force on Computing Curricula, 2005), illustrates the computer and information system problem space. To paraphrase from (Joint Task Force on Computing Curricula, 2005).

Computer and information systems managers interests extending from theory and principles to application and development. Information systems managers have more interest in theory and principles of information systems and the organizations that they serve. They tend to work on problems on the left side of figure 4. Computer information systems managers are involved in system deployment and configuration and the training of users. The problems they solve are on the right side of figure 4. Computer and information systems managers can develop systems that utilize other software products, especially databases, to suit their organizations’ needs for information. Figure 4 does not illustrate core business knowledge that is essential for computer and information systems managers.
The previous figures are superimposed in figure 5. This somewhat confusing image shows relationships among undergraduate academic computing offered through Florida Tech.

Figure 5: Computing Disciplines and Their Problem Spaces.

- **Computer & Information Systems Manager**
- **Computer Engineer**
- **Computer Scientist**
- **Software Engineer**

**Career Opportunities**

The three graphs below are from Joel Adam (Adams, 2010). The STEM acronym, used in the captions, stands for science, technology, engineering, and mathematics. The first graph predicts that over the period 2008 – 2018, 70% of the STEM job opening will be in computing. The second graph provides a more detailed analysis of job opening across the STEM disciplines. The third graph predicts that there will be more graduates than job opening in all STEM disciplines, except for computing.

One conclusion that students might draw is that if they are not going to major in computing, it would wise to minor in the field.
Percentage Of New STEM Jobs By Area Through 2018

- Computing: 71%
- Software Engineering: 27%
- Computer Networking: 21%
- Computer Support: 7%
- Database Admin.: 2%
- Systems Analysis: 10%
- Other Computing: 3%
- CS/IS Research: 1%
- Life Sciences: 4%
- Traditional Engineering: 16%
- Physical Sciences: 7%


References
