

COMPUTER SCIENCE

Bachelor of Science in Computer Science (BSCS)



NATURE OF THE WORK

The widespread and increasing use of computers and information technology has generated a need for highly trained, innovative workers with extensive theoretical expertise. These workers, called *computer scientists*, are the designers, creators, and inventors of new technology. By creating new technology, or finding alternative uses for existing resources, they solve complex business, scientific, and general computing problems. Some computer scientists work on multidisciplinary projects, collaborating with electrical engineers, mechanical engineers, and other specialists.

Computer scientists conduct research on a wide array of topics. Examples include computer hardware architecture, virtual reality, and robotics. Scientists who research hardware architecture discover new ways for computers to process and transmit information. They design computer chips and processors, using new materials and techniques to make them work faster and give them more computing power. When working with virtual reality, scientists use technology to create life-like situations. For example, scientists may invent video games that make users feel like they are actually in the game. Computer scientists working with robotics try to create machines that can perform tasks on their own—without people controlling them. Robots perform many tasks, such as sweeping floors in peoples' homes, assembling cars on factory production lines, and "auto-piloting" airplanes.

(compiled from U.S. Dept. of Labor Occupational Outlook Handbook 2010-2011)

USF DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING EXPERTISE

Artificial Intelligence	Computer Vision
Knowledge Discovery	Image Analysis
Computer Graphics	Pattern Recognition
Geometric Modeling	Networks

The University of South Florida Bachelor of Science degree programs in Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Industrial Engineering and Mechanical Engineering are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. The Bachelor of Science in Computer Science program at the University of South Florida is accredited by the Computing Accreditation Commission of the Accreditation Board for Engineering and Technology. ABET 111 Market Place, Suite 1050, Baltimore, MD 21202-4012 telephone: (410) 347-7700.

> EDUCATION REQUIREMENTS > JOB OUTLOOK > SALARY

- A bachelor's degree in computer science is required for most entry-level jobs, but some research positions may require a graduate degree.
- Continuing education is critical for engineers in order to keep up with improvements in technology.
- Overall job opportunities for engineers are expected to be good.
- Average starting salary - \$63,017 (*NACE spring 2011*)

REAL WORLD OPPORTUNITIES

Co-ops and Internships – These programs offer students numerous opportunities to engage with the broader-based engineering, technology and science community.

Engineering EXPO – This student-run event exposes school children to science and engineering principles in a two-day, on campus event.

Research Experiences for Undergraduates – The program gives undergraduate students an opportunity to participate. Students work as Research Assistants with professors and graduate students on a variety of exciting and interdisciplinary research projects.

Scholarships – More than 100 scholarships are awarded to USF engineering students totaling more than \$150,000 to provide financial support and recognizing their exceptional efforts.

STUDENT ORGANIZATIONS

[Association for Computing Machinery](#)
[IEEE Computing Society](#)
[Upsilon Pi Epsilon](#)

[Engineers Without Borders](#)
[Engineers for Sustainable World](#)
[Student Chapter of the Florida Engineering Society](#)
[National Society of Black Engineers](#)
[Society of Hispanic Engineers](#)
[Society of Women Engineers](#)
[Tau Beta Pi The Engineering Honor Society](#)
[Theta Tau](#)



For more information
<http://outreachrequest.eng.usf.edu>
www.eng.usf.edu

UNIVERSITY OF SOUTH FLORIDA COLLEGE OF ENGINEERING

2011-12 CURRICULUM

BACHELOR OF SCIENCE IN COMPUTER SCIENCE 120 hours

Admission to the Department of Computer Science and Engineering

All students must complete the equivalent of USF Composition I & II, Engineering Calculus I & II and calculus-based General Physics I & II (with labs) with a 3.00 overall grade point average in these courses (best attempt) and a minimum grade of "C" in each course to be admitted to the CS&E department. Continuation in the major requires successful completion of CDA 3103 and COP 3514 with a minimum grade of "B" based on best attempts.

The schedule that follows indicates how a diligent student who can devote full time to coursework can satisfy requirements in four academic years. Students without a solid foundation or those who cannot devote full time to academics should plan a slower pace. The following sequence is intended to facilitate registration planning and is subject to change based upon course availability. The sequence may also vary based upon individual considerations. Registration assistance will be provided by academic advisors.

FALL SEMESTER - YEAR 1

ENC 1101 Composition I	3
MAC 2281 Engineering Calculus I	4
Natural Science Elective	3
FKL Social & Behavioral Science Elective.....	3
Foundations of Engineering	1
Total	14

SPRING SEMESTER - YEAR 1

ENC 1102 Composition II	3
MAC 2282 Engineering Calculus II	4
PHY 2048 General Physics I	3
PHY 2048L General Physics I Lab	1
COP 2510 Programming Concepts	3
Total	14

FALL SEMESTER - YEAR 2

MAC 2283 Engineering Calculus III	4
PHY 2049 General Physics II	3
PHY 2049L General Physics II Lab	1
COP 3514 Program Design	3
FKL Social & Behavioral Sciences Elective	3
Total	14

SPRING SEMESTER - YEAR 2

CDA 3103 Computer Organization	3
COT 3100 Intro Discrete Structures.....	3
COP 3331 Object Oriented Design	3
FKL Humanities Elective.....	3
Total	12

SUMMER SEMESTER

COP 4530 Data Structures	3
CDA 3201 Computer Logic Design.....	3
CDA 3201L Computer Logic Design Lab	1
EGN 4450 Linear Systems.....	2
Total	9

With the exception of the courses referred to in the admissions statement above, C- is the minimum acceptable grade in each math, science and engineering course. A minimum GPA of 2.0 in the following categories must be maintained at all times: Overall, USF, Math/Science, Engineering Courses and Specialization Courses.

Gordon Rule (6A) is fully met through the mathematics courses above, ENC1101, ENC1102, ENC3246 and CIS4250 or by completing an AA degree at a Florida Community College.

Exit Requirements: The Capstone Design (CD) and Writing Intensive (WI) exit requirements are met through ENC3246 and CIS4250.

Course sequence: Courses in bold are critical path courses. These courses should be taken in the recommended sequence as early as possible in preparation for your major. General education courses (humanities, social and behavioral science, fine arts and "HCDGC") may be taken in any order.

FALL SEMESTER - YEAR 3

CDA 4205 Computer Architecture	3
COT 4400 Analysis of Algorithms.....	3
EGN 3443 Probability & Statistics for Engineers.....	3
CSE Software Elective.....	3
Natural Science Elective	3
Total	15

SPRING SEMESTER - YEAR 3

COP 4600 Operating Systems	3
CSE Theory Elective.....	3
CSE Software Elective.....	3
CSE Elective	3
ENC 3246 Communication for Engineers (WI)	3
Total	15

FALL SEMESTER - YEAR 4

FKL Fine Arts Elective.....	3
FKL Human/Diversity & Global Elective.....	3
FKL Humanities Elective.....	3
CSE Elective	3
CSE Elective	3
Total	15

SPRING SEMESTER - YEAR 4

CIS 4250 Ethical Issues and Prof. Conduct (WI,CD).....	3
CSE Elective	3
CSE Elective	3
Upper Level FKL Humanities, Social Science or FKL Fine Arts Elective	3
Total	12