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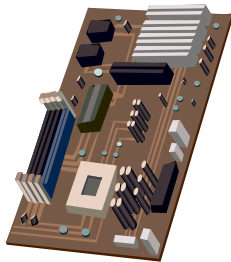
Computer Science, Computer Engineering, and other related fields are one of the hottest tickets in the job market. Being a computer scientist/engineer is a rewarding profession providing the opportunity to work at the leading edges of technology.

Graduates of the Computer Science program will be in a position to pursue a variety of careers that involve the design and development of algorithms, software, computer systems, programming languages, compilers, networks, and operating systems.

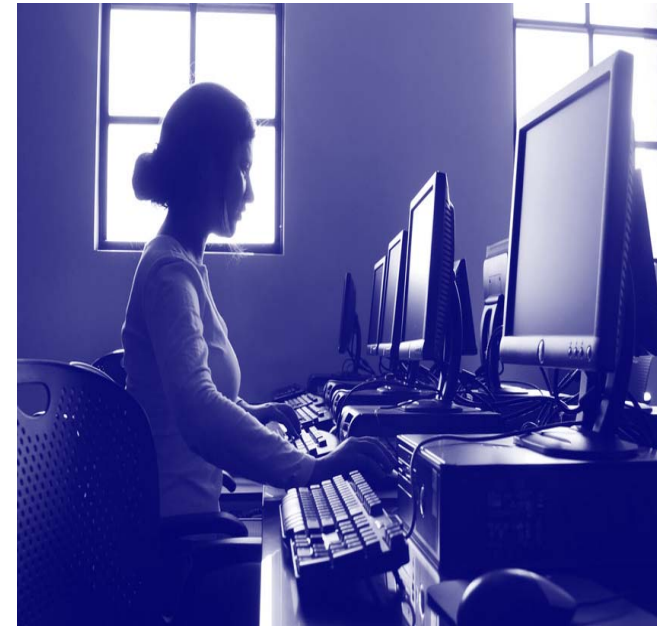
Computer scientists design and analyze algorithms to solve different and challenging real world problems from creation and management databases in grocery stores to information processing in space investigation programs, homeland security, defense and medicine.

They can be principal designers or involved in implementation, typically at companies that design, implement and sell information processing tools. They may find themselves in charge of large-scale deployments and/or customizations at the organizations that use them. Companies need graduates who can manage information systems infrastructure, design algorithms and software, design and manage computer networks. The demand for graduates in this field continues to grow.

Many students also go on to graduate school, continuing their studies, conducting research, and earning graduate degrees in Computer Science and Computer Engineering. The strong scientific preparation allows students to become involved in such areas as artificial and computational intelligence, pattern recognition, bioinformatics, computer security – whether in graduate school or industry.



Computer Science



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Building THE Place for You!

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Supporting Faculty

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Parag Lala, Ph.D.



Bachelor of Science Degree in Computer Science

A Bachelor of Science degree in Computer Science (BSCS) prepares students to excel in an increasingly complex technical world. CS majors study computers, their organization, and the software that runs them. They will study algorithms for solving different real-world problems, methods of algorithm design and analysis. CS majors learn programming languages, methods of software engineering, and the modern approaches to computer programming. They will study discrete mathematics, and other mathematical disciplines, which are essential for the algorithm design, modeling and solving a variety of real-world problems.

Specialization in Computer Science starts from the **Discrete Mathematics** class, which is the first special class taken by freshman students. In this class, students learn those mathematical fundamentals, which are very important for understanding algorithms, their design, computer organization, and computer programming. During their freshman year students also take **Engineering Computations using MATLAB**, where they learn MATLAB, which is the most popular software system for prototyping and experimental testing of different algorithms. Students also learn basic approaches to programming using high-level languages. This class opens a series of computer programming classes, which is continued by **C++ Programming** and **Data Structures** offered during the sophomore year, **Java Programming**, **Software Engineering** (the most typical approaches for solving a variety of typical programming problems are considered) and **Advanced Computer Programming** (object oriented programming concept is considered) offered during the junior and senior years. Students will learn general principles of programming languages in the **Programming Languages Design** class.

It is important that students take such classes as **Calculus I** and **Calculus II**, **Engineering Mathematics** to strengthen their mathematical background.

Organization of computers, and control over them are studied in the **Digital Logic**, **Computer Architecture**, and **Operating Systems** classes. Fundamentals of algorithms design and methods of the evaluation of their efficiency are considered in the **Algorithm Analysis** class. Methods of formal knowledge representation and manipulation and general approaches to pattern recognition are studied in the **Artificial Intelligence** class. In **Numerical Analysis for Engineers**, mathematical methods and algorithms for solving different problems are considered. In the **Computer Networks** class, students learn organization of computer networks. Methods of databases design and different applications of databases are considered in the **Databases Design and Applications** class.

During the senior year CS majors develop their skills working on team and individual projects in the **Capstone** and **Senior Project** classes, where they can apply their knowledge for solving different real-world problems.

CS majors may also select many elective classes based on their personal interests. These classes cover different modern and fundamental topics, such as **Neural Networks and Machine Learning**, **Distributed Computing**, **Image Processing and Machine Vision**, **Computer Security**, **Bioinformatics**, **Computer Games**, **Information Theory**, **Linear Algebra**, and other.

CS majors have also a unique opportunity to participate in research under supervision of faculty members. Recently one of the CS research projects on computational intelligence was awarded by the \$300,000 grant from the National Science Foundation. The research assistantships are available for the CS undergraduates.



The CS Department continuously works in close collaboration with other departments on the improvement of the CS curriculum including more classes, where students may learn important fundamentals and modern cutting edge technologies.