

COMPUTER TECHNOLOGY

College of Natural and Behavioral and Sciences
Department of Computer Science

Program Description

Computer Technology forms the technological infrastructure of modern commerce. It's the driving force of every industry and permeates everyday life. The ability to combine the power of computing with the management of multimedia information is arguable the key to obtaining ascendancy in any field.

Computer Technology is an ever-evolving, expanding field. The proposed Computer Technology Program will provide students with the background, knowledge and skills they'll need to adapt to the dynamic nature of the marketplace. Program faculty will consist of traditional academics as well as industry professionals in order to provide curricular content that is on the cutting edge of industry trends.

The BACT degree provides a high-quality degree program in computer technology that will prepare students for lifelong learning as they pursue professional careers in computer technology and leadership roles in the society in which they serve. It provides our students with a strong foundational base, state-of-the-art techniques, methodologies, and tools to specify, design, and develop technology-based solutions to complex system problems. This program prepares our students to communicate well, both orally and in writing, on moral and ethical development, in the knowledge of the liberal arts, and commitment to services to others. CT provides opportunities for students to contribute to the body of knowledge that serves the profession, by engaging in activities that support their interests and are in agreement with the goals and objectives of the College, and the university.

Features

The University's location in the South Bay area of greater Los Angeles provides direct access to many major government contractors, manufacturers, and international centers of commerce and finance. This provides excellent opportunities for work-study and early job placement.

Our highly qualified full-time faculty are supplemented by talented and dedicated part-time faculty drawn from local firms and schools. Good teaching and easy on-campus access to professional quality computing systems enhance a degree program with a solid core curriculum and a broad range of electives.

All courses are offered alternatively day and evening so that students may complete their programs by enrolling at either time exclusively.

Graduation with Honors

An undergraduate student may be a candidate for graduation with Honors in Computer Technology provided he or she meets the following criteria:

1. A minimum of 36 units in residence at CSU Dominguez Hills at least 24 of which taken in Computer Technology major;
2. A minimum GPA of 3.5 in all upper-division courses in the Computer Technology major completed in residence at CSUDH.

Students who achieve Honors in Computer Technology will have the information recorded on their transcripts and diplomas.

Academic Advisement

Faculty guidance in the development of career goals and program planning to achieve those goals is available to all majors.

Preparation

Students entering the computer technology program should have completed high school mathematics through trigonometry. Remediation is available but will delay the student's progress towards a Computer Technology Degree.

This is a program that places a premium on the student's initiative and effort.

Student Organizations

Contact the departmental office for membership information, or visit the websites:

Association for Computing Machinery (ACM) ACM@csudh.edu
Institute of Electrical and Electronics Engineers (IEEE) IEEE@csudh.edu
Cyber Security CyberSec@csudh.edu
Computing Alliance of Hispanic-Serving Institutions (CAHSI) CAHSI@csudh.edu

Career Possibilities

Bachelor of Arts in Computer Technology is a comprehensive program that will consist of the following tracks: General Track, Homeland Security, and Professional. This program is intended to provide students with the technology-based skills set required immediately after degree completion to enter the workforce within the following areas related to computer technology: Manufacturing, Repair, troubleshooting, Lab technician, Public Service, Government Agencies, Consultants, Software Version Control, Domain Expert Technician, and other computer/software technology-related fields. Feedback from our Industry Advisory Board members indicates the need for professionals with a balance of practical and theoretical knowledge that extends beyond conventional information technology curricula.

Undergraduate Programs

Bachelor

- Computer Technology, Bachelor of Arts (<https://catalog.csudh.edu/academics/computer-technology/computer-technology-ba/>)

Minor

- Computer Technology, Minor (<https://catalog.csudh.edu/academics/computer-technology/computer-technology-minor/>)

Certificate

- Computer Technology, Certificate (<https://catalog.csudh.edu/academics/computer-technology/computer-technology-certificate/>)

Faculty

Mohsen Beheshti, Department Chair
Benyamin Ahmadnia, Amlan Chatterjee, Jianchao (Jack) Han, Brad Hollister, Sahar Hooshmand, Allireza Izaddoost, Ali Jalooli, Sanaz Rahimi Moosavi, Marsa Rayani, Bin Tang, Liudong Zuo

Emeriti Faculty

William B. Jones, Kazimierz Kowalski, Marek Suchenek

Staff

Angelica Tan, Administrative Assistant

Ken Leyba, IT Consultant

Location

Department Office: NSM A132

Department Phone: (310) 243-3398

<http://csc.csudh.edu>

Courses

CTC 195. Special Topics. (1-3 Units)

Topics in computer technology not covered by current course offerings. May be used for elective credit in departmental programs. Subject to approval.

Offered As needed

CTC 218. Digital Logic Design. (3 Units)

Provides students with a basic understanding of digital device and circuit fundamentals. The students should be able to analyze and design both combinational and sequential circuits after completing this course.

Offered Fall, Spring

CTC 228. Introduction to Operating Systems and Networks. (4 Units)

Course acquaints students with basic networking concepts such as TCP/IP, local/wide area networking as well as emerging industry topics such as Radio Frequency Identification (RFID), Global Information Systems (GIS), Networked Attached Storage (NAS), and WiMAX.

Offered Fall, Spring

CTC 295. Special Topics. (1-3 Units)

Topics in computer technology not covered by current course offerings. May be used for elective credit in departmental programs. Subject to approval.

Offered As needed

CTC 305. Introduction to Game and Mobile Programming. (3 Units)

This course teaches students through lectures, discussions, demonstrations, and classroom labs. Students learn the knowledge, skills, and abilities necessary to create games in the C# programming language using the Microsoft XNA framework and Silver light.

Offered Fall

CTC 310. Software Project Management. (3 Units)

Course will focus on the critical aspects of project management, including software project management concepts and case studies, and discuss software project management roadmap, and especially address linear, incremental, iterative, adaptive and extreme effective software project management from the perspectives of project scoping, planning, launching, monitoring, controlling and closing phases.

Offered Fall, Spring

CTC 316. Operating Systems and Networks Support. (3 Units)

Course provides an introduction to OS and networking support. Topics include user engineering, risk management, mission assurance, software process management, enterprise management tools and processes, disaster recovery, business continuity and information life cycle management.

Offered Fall, Spring

CTC 328. Computer Forensics and Investigation. (4 Units)

Course presents methods to properly conduct a computer forensics investigation, beginning with a discussion of ethics while mapping to the objectives of the International Association of Computer Investigative Specialists (IACIS) certification.

Offered Fall, Spring

CTC 362. Communication Systems Security. (3 Units)

Course provides the foundation for understanding the key issues associated with protecting information assets, determining the levels of protection and response to security incidents, and designing a consistent, reasonable information security system, with appropriate intrusion detection and reporting features.

Offered Fall, Spring

CTC 385. Introduction to Programming. (3 Units)

Introduces computing practice first, and then the concept of programming using block-based and visual (drag-and-drop) programming language such as Scratch. Students will also be exposed to pseudocode and algorithm design.

Offered Fall, Spring, Summer

CTC 386. Computational Thinking and Programming. (3 Units)

Prerequisite: CTC 385 is required. Restricted to majors. Introduces computational thinking and problem-solving frameworks first, and then uses Python to teach programming concepts and problem-solving skills. Ethics in computing is also discussed.

Offered Fall, Spring, Summer

CTC 387. Computer Networks, Communication Devices and Methods. (4 Units)

Prerequisites: CTC 386 is required. Restricted to majors. Introduces computer system, network and communication devices first, and then introduces how to identify hardware and software failures, and use tools to perform diagnosis. Social and legal issues in computing, and pedagogy in computer science are also discussed.

Offered Fall, Spring, Summer

CTC 389. Data Structures and Software Design. (3 Units)

Prerequisite: CTC 387 is required. Restricted to majors. Introduces different data structures and algorithm design principles first, followed by different software design models. Advanced Python programming techniques are also discussed.

Offered Fall, Spring, Summer

CTC 395. Special Topics. (1-3 Units)

Advanced topics in computer technology not covered by current course offerings. May be used for elective credit in departmental programs. Subject to approval.

Offered As needed

CTC 399. IT Practicum. (3 Units)

The technology internship program allows students to gain hands on experience in a technology environment by spending one semester as an intern in the Information Technology Department at CSUDH. The Internship program provides students with the opportunity to gain technical experience related to their studies, and to prepare for future career opportunities. CR/NC grading

Offered Fall, Spring

CTC 405. Advanced Game Development. (3 Units)

Prerequisites: Prerequisites: CTC 305 or CSC 123 Students learn the advanced knowledge in game development including Skills, and the abilities necessary to create #D games on multiple platforms. The course includes lectures, discussions, demonstrations, and classroom labs.

Offered Spring

CTC 428. Operating Systems Security. (3 Units)

Prerequisites: CTC 316 is required. Course takes an in depth look at operating system security concepts and techniques. It examines theoretical concepts that make the world of security unique. Also, this course will adopt a practical hands-on approach when examining operating system security techniques.

Offered Fall, Spring

CTC 435. Fundamentals of Information Technology. (2 Units)

This course focuses on the introduction to Python programming language, handling data, database, operating systems, and network and security. Students are expected to gain significant theoretical knowledge of information technology, and know how to write Python programs.

Restricted to students in the major.

Offered Fall, Spring, Summer

CTC 436. Fundamentals of Networking and Hardware. (2 Units)

Prerequisite(s): CTC 435. This course focuses on the introduction of computer hardware systems, computer network, and wireless networking.

Students who enroll and complete this course are expected to gain significant theoretical knowledge and hands-on experience of computer hardware and networking. Restricted to students in the major. CR/NC grading.

Offered Fall, Spring, Summer

CTC 437. Fundamentals of Information Security. (2 Units)

Prerequisite(s): CTC 436. Introduces students to security, network monitoring and access control, malicious activity detection, cryptography and security function. Students who enroll and complete the course are expected to gain significant theoretical knowledge and hands-on experience of information security. Restricted to students in the major. CR/NC grading.

Offered Fall, Spring, Summer

CTC 452. Network Security and Hacking Prevention. (3 Units)

Prerequisite: CTC 228 or consent of instructor is required. Course takes an in depth look at network defense concepts and techniques. It examines theoretical concepts that make the world of networking unique. This course also adopts a practical hands-on approach when examining network defense techniques and strategies.

Offered Fall, Spring

CTC 454. Wireless Security & Forensics. (3 Units)

Examines fundamental topics in wireless technology in wireless technology, such as planning, designing, installing, securing, using tools, and forensics. Students will also examine the maintenance, security, and business applications for wireless Local Area Networks.

Offered Spring

CTC 456. Enterprise System Security. (3 Units)

Prerequisite: CTC 228 is required. Students learn to identify and fix enterprise level network vulnerabilities through the use of existing defense tools. Students also learn the essential skills and techniques needed to develop enterprise level network security skills to protect enterprise's information.

Offered Spring

CTC 458. Network Security Through Penetration Testing. (3 Units)

Prerequisite: CTC 228 is required. Students learn how to determine the feasibility of a particular set of attack vectors and identify higher-risk vulnerabilities. Students learn through performing penetration tests against the setup environment using existing tools, techniques, and programming languages.

Offered Fall

CTC 492. Senior Project. (3 Units)

Intensive study under guidance of a member of the Computer Science Department to complete a project from start to end. Students will study system design and total project planning and management. A formal written report and oral presentation will be required.

Offered Fall, Spring

CTC 495. Special Topics. (1-3 Units)

Advanced topics in computer technology not covered by current course offerings. May be used for elective credit in departmental programs.

Subject to approval.

Offered Fall, Spring

CTC 496. Internship in Computer Technology. (3 Units)

Offered As needed

CTC 497. Directed Studies. (3 Units)

Software Project Management (CTC 310)

Offered As needed