

CERTIFICATE/ASSOCIATE OF ARTS DEGREE PROGRAM

Computers and Information Technology (IT) continue to grow in their importance in our daily lives as well as in business, government and education. Some examples of Computer and Information Technology used extensively today include office and business computing, internet and e-commerce, social media and advertising, mobile applications and much more. As the demand and need for a wide range of IT solutions and products continues to grow so is the need for trained and skilled people who develop, implement and maintain these IT solutions. Some of these skilled occupations include everything from help desk personnel to computer and network

technicians, programmers, web developers, computer graphics experts and many other specialized IT experts.

Crafton Hills College's CIS programs can be an excellent starting point to gain the necessary knowledge and certifications to launch a career in an exciting and growing IT industry. Additionally students can utilize an associate's degree as a basis to obtaining a bachelor's degree which further expands employment and earnings potential. To help individuals realize these goals Crafton Hills College offers multiple certificate programs and associate degrees in computer information systems and computer science.

JOB OUTLOOK:

Computer and IT occupations for individuals with community college level education are projected through 2018 to grow faster than the average for all occupations in California. As an individual expands their experience, education and certifications the demand for their talents increases.

In California employment in computer systems design and related services is expected to increase by 43 percent through 2018, driven by growing demand for sophisticated computer network and mobile technologies. Computer and information technology occupations are projected to grow by 21 percent through 2018. Demand for workers in these occupations will be driven by the continuing need for businesses, government agencies, and other organizations to adopt and utilize the latest technologies. Workers in these occupations will be needed to develop software, increase cyber-security, and update existing network infrastructure.

New growth areas usually arise from the development of new technologies. The expanding integration of Internet technologies by businesses, for example, has resulted in a rising demand for a variety of skilled professionals who can develop and support Internet, Intranet, and Web applications.

The growth of electronic commerce means more establishments use the Internet to conduct business on line. This translates into a need for information technology professionals who can help organizations use technology to communicate with employees, clients, and consumers. Adaptation of new technologies is also a driving force to reduce business costs and thus increase profitability. Growth in these areas is also expected to fuel demand for specialists knowledgeable about network, data, and communications security.

WORKING CONDITIONS:

Individuals working in the computer industry may work in offices, laboratories, or telecommute. They usually work about 40 hours a week-the same as many other professionals or office workers. However, evening or weekend work may be necessary to meet deadlines or solve specific problems. Given the technology available

today, telecommuting is common for computer professionals. As networks expand, more work, including technical support, can be done from remote locations using modems, laptops, electronic mail, and the Internet. It is possible for technical personnel, such as computer support specialists, to connect to a customer's computer remotely to identify and fix problems.

EARNINGS:

Earnings will vary depending on the industry, education and experience. Individuals with certifications and or associate degrees can anticipate obtaining employment in support occupations.

Selected 2011 California Occupation Wage Information

Computer Support Specialists	\$41,000 – 69,000
Desktop Publishers	\$34,000 – 56,000
Computer Repairers	\$29,000 – 51,000

It is not unusual for experienced individuals to work in more advanced positions. Obtaining a bachelor's degree is also helpful in moving into advanced IT occupations.

Database Administrators	\$59,000 – 112,000
Network and Computer Systems Administrators	\$63,000 – 99,000
Information Security Analysts, Web Developers and Computer Network Architects	\$65,000 – 111,000
Multi-media Artists and Animators	\$53,000 – 93,000

Source: First Quarter 2011 Occupational Employment and Wage Data, State of CA EDD.

EMPLOYMENT:

Workers in computer information fields are employed in virtually every sector of the economy, a large number being in the computer systems design and related services industry. Virtually every organization requires some form of IT expertise to function. Smaller organizations normally outsource their IT requirements to service providers and may use cloud computing and other solutions to simplify their IT requirements. Larger organizations normally have their own IT departments and may even utilize customized software systems.

Computer and data processing firms provide nearly every service related to commercial computer use on a contract basis. Services include customized computer programming services and applications and systems software design; the design, development, and production of prepackaged computer software; systems integration, networking, and reengineering services; data processing and preparation services; information retrieval services including on-line databases and Internet services; on-site computer facilities management; the development and management of databases; and a variety of specialized consulting services.

PHYSICAL DEMANDS:

Workers that spend long periods of time in front of a computer terminal typing at a keyboard are susceptible to eyestrain, back discomfort, and hand wrist problems, such as carpal tunnel syndrome. Also, workers who install and repair hardware and networking media require a certain amount of physical strength and dexterity to lift and manipulate the equipment.

EDUCATION AND TRAINING:

Due to the wide range of skills required, there are many ways workers enter computer-related occupations. While there is no universally accepted way to prepare for a job as a computer professional, most employers place a premium on some formal college education. A bachelor’s degree is a prerequisite for many jobs; however, some jobs may require only a 2-year degree or certificate. Relevant work experience is also very important. Students in Computer Information Systems (CIS) classes at CHC gain experience with hands-on training that uses up-to-date computer hardware and software that are used in today’s work place.

CAREER LADDER: With additional education, training and experience an individual may advance into any number of computer-related occupations and careers. Upward mobility may include management.

Information sources: U.S. Department of Labor, Bureau of Labor Statistics. California Employment Development Department

ASSOCIATE IN SCIENCE IN COMPUTER SCIENCE FOR TRANSFER A.S. Degree

The Associate in Science-Transfer (AS-T) degree in Computer Science at Crafton Hills College is designed to meet the needs of students transferring to a California State University who intend to major in computer science or a related field of study.

REQUIRED COURSES:	Units
CSCI110 Introduction to Computer Science I	4
CSCI120 Introduction to Computer Science II	4
CSCI200 Discrete Structures	4
OR	
MATH200 Discrete Structures	4
CSCI240 Computer Organization and Assembly Language Programming	4
MATH250 Single Variable Calculus I	4
MATH251 Single Variable Calculus II	4
PHYSIC250 College Physics I	4
PHYSIC251 College Physics II	4
Total Units	32

Lower division requirements for students interested in transferring to a four-year institution in this field may differ from associate degree requirements. Prospective transfer students should complete the general education and lower division requirements of the school to which they will be transferring. See a counselor for details. Information is also available at www.assist.org.

ASSOCIATE OF SCIENCE DEGREE COMPUTER INFORMATION SYSTEMS A.S. Degree

REQUIRED COURSES:	Units
CIS101 Introduction to Computer and Information Technology	3
OR	
BUSAD230 Using Computers for Business	3
CIS104 Object Oriented Programming with Visual Basic	3
OR	
CIS113 Java and J++ Programming	3
OR	
CIS114 C++ Programming I	3
OR	
CSCI110 Introduction to Computer Science I	4
CIS111 Web Page Programming and Design	3
CIS130 Hardware and Information Technology	3
CIS140 Networking for Home and Small Businesses (Cisco CCNA 1)	3.75

Students must select one area of emphasis from the following three options:

EMPHASIS IN PROGRAMMING	Units
Students must complete at least twelve additional units from the following:	
CIS104 Object Oriented Programming with Visual Basic	3
CIS113 Java and J++ Programming	3
CIS114 C++ Programming I	3
OR	
CSCI110 Introduction to Computer Science I	4
CIS116 C++ Programming II	3
OR	
CSCI120 Introduction to Computer Science II	4
CIS117 Scripting	3

EMPHASIS IN WEBMASTER	Units
Students must complete at least twelve additional units from the following:	
CIS117 Scripting	3
CIS161 Website Design and Programming Using Dreamweaver	3
CIS162 Introduction to Flash	3
CIS163 Introduction to PhotoShop	3
CIS180 Computer Graphics with Adobe Illustrator	1-3
CIS211 Cascading Style Sheet (CSS) Web Design	3

EMPHASIS IN COMPUTER ASSISTED GRAPHIC DESIGN	Units
Students must complete at least twelve additional units from the following:	
ART120 Foundations of Two-Dimensional Design	3
OR	
ART124 Drawing I	3
CIS163 Introduction to PhotoShop	3

CIS165 Introduction to 3D Modeling and Animation	3
CIS166 Advanced 3D Modeling and Animation	3
CIS180 Computer Graphics with Adobe Illustrator	1-3
CIS182 Desktop Publishing with Adobe InDesign	1-3
CIS184 Photoshop and Digital Photography	3
Total Units	27.75-28.75

Lower division requirements for students interested in transferring to a four-year institution in this field may differ from associate degree requirements. Prospective transfer students should complete the general education and lower division requirements of the school to which they will be transferring. See a counselor for details. Information is also available at www.assist.org.

COMPUTER ASSISTED GRAPHIC DESIGN CERTIFICATE

The objective of this certificate is to provide students the knowledge and skills necessary for employment in entry-level positions in the field of Computer Assisted Graphic Design. The certificate indicates student knowledge of the software, theory, and abilities required to pursue a career in Computer Assisted Graphic Design.

Admission: Open to all students. Registration is limited to class size restrictions. Completion of the following 18.00 units qualifies the student for the Computer Assisted Graphic Design Certificate. Candidates must successfully complete the prescribed course work with a “C” or better.

REQUIRED COURSES:	UNITS
ART120 Foundations of Two-Dimensional Design	3
ART124 Drawing I	3
CIS163 Introduction to PhotoShop	3
CIS165 Introduction to 3D Modeling and Animation	3
CIS180 Computer Graphics with Adobe Illustrator	3
CIS182 Desktop Publishing with Adobe InDesign	3

RECOMMENDED COURSES	UNITS
CIS166 Advanced 3D Modeling and Animation	3
CIS184 Photoshop and Digital Photography	3
TOTAL UNITS	18.00

CISCO CERTIFIED NETWORK ASSOCIATE CERTIFICATE

The objective of this certificate is to provide students the knowledge and skills necessary to prepare for the Cisco Certified Network Associate (CCNA) Certification Examination. Satisfactory passing of the examination will lead to employment in entry-level positions in the small office and/or home office (SOHO) market. The CCNA Certificate indicates the ability to work in small businesses or organizations using networks that have fewer than 100 nodes. The certificate holder is able to install and configure Cisco switches and routers in multiprotocol internetworking using LAN and WAN interfaces, can provide Level 1 troubleshooting service, can improve network performance and security and can perform entry-level tasks in the planning, design, installation, operations, and troubleshooting of Ethernet and TCP/IP networks.

Completion of the following 15.00 units qualifies the student for the Cisco Certified Network Associate Certificate. Candidates must successfully complete the prescribed course work with a “C” or better.

REQUIRED COURSES:	UNITS
CIS 140 Networking for Home and Small Businesses (Cisco CCNA 1)	3.75
CIS 141 Working at a Small-To-Medium Business or ISP (Cisco CCNA 2)	3.75
CIS 142 Introducing Routing and Switching in the Enterprise (Cisco CCNA 3)	3.75
CIS 143 Designing and Supporting Computer Networks (CCNA 4)	3.75
TOTAL UNITS	15.00

COMPUTER INFORMATION SYSTEMS CERTIFICATE

The objective of this certificate is to provide students the knowledge and skills necessary to prepare for employment in entry-level positions in the field of Computer Information Systems. The certificate indicates that the student has acquired knowledge of the different aspects of information technology including programming, hardware, networking, databases, and web design.

Admission: Open to all students. Registration is limited to class size restrictions. Completion of the following 27.75-28.75 units qualifies the student for the Computer Information Systems Certificate. Candidates must successfully complete the prescribed course work with a “C” or better.

REQUIRED COURSES:	UNITS
CIS101 Introduction to Computer and Information Technology	3
OR	
BUSAD230 Using Computers for Business	3
CIS104 Object Oriented Programming with Visual Basic	3
OR	
CIS113 Java and J++ Programming	3
OR	
CIS114 C++ Programming I	3
OR	
CSCI110 Introduction to Computer Science I	4
CIS111 Web Page Programming and Design	3
CIS130 Hardware and Information Technology	3
CIS140 Networking for Home and Small Businesses (Cisco CCNA 1)	3.75

Students must complete at least twelve additional units from the following:

CIS 104 Object Oriented Programming with Visual Basic	3.00
CIS 113 Java and J++ Programming	3.00
CIS 114 C++ Programming I	3.00
OR	
CSCI110 Introduction to Computer Science I	4
CIS 116 C++ Programming II	3.00
OR	
CSCI120 Introduction to Computer Science II	4
CIS 141 Working at a Small-to-Medium Business or ISP (Cisco CCNA 2)	3.75
CIS 161 Website Design and Programming Using Dreamweaver	3.00
CIS 163 Introduction to PhotoShop	3.00
CIS 211 Cascading Style Sheet (CSS) Web Design	3.00
TOTAL UNITS	27.75-28.75

PROGRAMMING CERTIFICATE

The objective of this certificate is to provide students the knowledge and skills necessary for employment in entry-level positions in the field of programming or to continue to pursue a four-year degree in Computer Information Systems or Computer Science. The Programming Certificate indicates the student has acquired knowledge of various programming languages including basic language structures, syntax, debugging, and application development.

Completion of the following 15.00 – 17.00 units qualifies the student for the Programming Certificate. Candidates must successfully complete the prescribed course work with a “C” or better.

REQUIRED COURSES:	UNITS
CIS 104 Object Oriented Programming with Visual Basic	3.00
CIS 111 Web Page Programming and Design	3.00
CIS 113 Java and J++ Programming	3.00
CIS 114 C++ Programming I	3.00
OR	
CSCI110 Introduction to Computer Science I	4
CIS 116 C++ Programming II	3.00
OR	
CSCI120 Introduction to Computer Science II	4
RECOMMENDED COURSES:	
CIS 117 Scripting	3.00
TOTAL UNITS	15.00-17.00

WEB DESIGN CERTIFICATE

The objective of this certificate is to provide students the knowledge and skill necessary for employment in entry-level positions in the field of Web Design. The certificate indicates that the student has acquired knowledge of Web page design and development with an emphasis on graphic and visual elements and the Web-specific Adobe Creative Suite applications.

Admission: Open to all students. Registration is limited to class size restrictions. Completion of the following 15.0 units qualifies the student for the Web Design Certificate. Candidates must successfully complete the prescribed course work with a “C” or better.

REQUIRED COURSES:	UNITS
CIS 111 Web Page Programming and Design	3.00
CIS 161 Web Site Design and Programming Using Dreamweaver	3.00
CIS162 Introduction to Flash	3.00
CIS 163 Introduction to PhotoShop	3.00
CIS 211 Cascading Style Sheet (CSS) Web Design	3.00
RECOMMENDED COURSES:	
CIS180 Computer Graphics with Adobe Illustrator	1 - 3
TOTAL UNITS	15.00

ADMISSION TO CRAFTON HILLS COLLEGE

Admission to Crafton Hills College is open to those who meet any one of the following requirements: 1. Eighteen years of age or older and can benefit from instruction offered by the college or 2. A high school graduate or 3. Have a G.E.D. (General Education Development) Certificate or 4. Have a California High School Proficiency Certificate or 5. Out-of-state residents and citizens of other countries here on student visas may also attend Crafton Hills College, subject to regulations that can be obtained from the Admissions & Records Office. These students will be required to pay non-resident tuition fees. Current high school students may be admitted under special circumstances. Please see the current version of the Crafton Hills College Catalog for eligibility requirements.

Every new student participates in the assessment process. The assessment is designed to measure current skills and is used to determine appropriate placement in English and Math. For additional information you may contact the Assessment Center at (909) 389-3361 or e-mail testcenter@craftonhills.edu. After completing the assessment, it is recommended that students meet with a counselor to discuss appropriate course work in accordance with the student's goals.

Crafton Hills College is accredited by the Accrediting Commission for Community and Junior Colleges of the Western Association of Schools and Colleges, 10 Commercial Boulevard, Suite 204, Novato, CA 94949, (415) 506-0234, an institutional accrediting body recognized by the Council for Higher Education Accreditation and the U.S. Department of Education.