CSCI 220 C Programming (4)
3½ hours lecture - 1½ hours laboratory
Transfer acceptability: *CSU; UC*
An introduction to the C programming language emphasizing top-down design and principles of structured programming. Includes hands-on laboratory experience reinforcing the lecture material. Language syntax is covered, together with operators, standard control structures, functions, input/output, arrays, strings, file manipulation, preprocessor, pointers, structures and dynamic variables.

CSCI 222 C++ and Object Oriented Programming (4)
3½ hours lecture - 1½ hours laboratory
Prerequisite: *A minimum grade of 'C' in CSCI 110 or CSCI 220*
Transfer acceptability: *CSU; UC*
Detailed study of the C++ programming language and its support for data abstraction and object-oriented programming. Presents an introduction to the fundamental elements of object-oriented programming including encapsulation, classes, inheritance, polymorphism, templates, and exceptions.

CSCI 230 Java GUI Programming (3)
2 hours lecture- 3 hours laboratory
Prerequisite: *A minimum grade of 'C' in CSCI 210*
Transfer acceptability: *CSU*
Graphical User Interface programming using Java. Emphasizing event-driven programming and the code to create GUI components such as buttons, text area, scrollable views. Includes hands-on laboratory experience reinforcing the lecture material.

CSCI 232 Java Mobile Programming (3)
2 hours lecture - 3 hours laboratory
Prerequisite: *A minimum grade of 'C' in CSCI 230*
Transfer acceptability: *CSU*
Focus on Java programming for mobile devices, using Java's principles of objects, classes, encapsulation, inheritance, and simple graphical user interfaces suitable for various mobile technologies. Use the principles of modularity, data abstraction, abstract data types as they apply to programs developed using the Java Mobile Environment's packages. Focus on the definition, implementation, and applications of simple Java programs using this environment. Includes hands-on laboratory experience reinforcing the lecture materials.

CSCI 240 Windows API Programming (4)
3½ hours lecture - 1½ hours laboratory
Prerequisite: *A minimum grade of 'C' in CSCI 220*
Transfer acceptability: *CSU*
An introduction to the fundamental concepts of Windows programming which will enable students to develop Windows applications using a graphical user interface. Includes a detailed study of the Windows Application Programming Interface.

CSCI 260 Video Game Programming I (4)
3½ hours lecture - 1½ hours laboratory
Prerequisite: *A minimum grade of 'C' in CSCI 222*
Transfer acceptability: *CSU*
Introduction to the programming of video games. Course will explore 3D game development with Microsoft's DirectX 9.0. Students learn how to create a 3D game from scratch. They learn the basics of designing and using a 3D engine. Includes hands-on laboratory experience reinforcing the lecture, text, and course materials.

CSCI 261 Video Game Programming II (4)
3½ hours lecture - 1½ hours laboratory
Prerequisite: *A minimum grade of 'C' in CSCI 260*
Transfer acceptability: *CSU*
Builds on basic 3D game programming skills acquired during Video Game Programming I. Focuses on sound, input, networking and methods such as artificial intelligence to drive these games. Includes hands-on laboratory experience reinforcing the lecture, text and course materials.

CSCI 270 Mac OS Cocoa Programming (3)
2½ hours lecture - 1½ hours laboratory
Prerequisite: *A minimum grade of 'C' in CSCI 110 or CSCI 220*
Transfer acceptability: *CSU*
Introduction to programming using Objective-C language, Apple's X-Code and Interface Builder for creating applications targeting the Macintosh platform with event-driven structures that support the development of graphical user interfaces. Includes hands-on laboratory experience reinforcing the lecture material.

CSCI 271 OpenGL for Mac OS (3)
2½ hours lecture - 1½ hours laboratory
Prerequisite: *A minimum grade of 'C' in CSCI 270*
Transfer acceptability: *CSU*
Macintosh OS X Cocoa Software Development Environment. The OpenGL frameworks are geared primarily toward game development or applications that require high frame rates. OpenGL is a C-based interface used to create 2D and 3D content on Macintosh desktop computers. iPhone OS supports OpenGL drawing through the OpenGL ES framework, which provides support for both the OpenGL ES 2.0 and OpenGL ES v1.1 specifications. OpenGL ES is designed specifically for use on embedded hardware systems and differs in many ways from desktop versions of OpenGL.

CSCI 272 Objective-C Programming for Mac (3)
2½ hours lecture - 1½ hours laboratory
Prerequisite: *A minimum grade of 'C' in CSCI 220*
Transfer acceptability: *CSU*
Prepares students for application development on the iOS platform.

CSCI 275 iOS Development (3)
2½ hours lecture - 1½ hours laboratory
Prerequisite: *A minimum grade of 'C' in CSCI 172*
Transfer acceptability: *CSU*
Focus on the tools and APIs required to build applications for the iOS platform. Includes user interface designs for iOS mobile devices and unique user interactions using multitouch technologies.

CSCI 295 Directed Study in Computer Science (1, 2, 3)
3, 6, or 9 hours laboratory
Prerequisite: *Approval of project or research by department chairperson/director*
Transfer acceptability: *CSU; UC – Credit determined by UC upon review of course syllabus*
Designed for the student who has demonstrated a proficiency in computer science subjects and the initiative to work independently on a particular sustained project which does not fit into the context of regularly scheduled classes.

Computer Science and Information Systems - Information Technology (CSIT)

See also CSIS - Computer Science
CSIS - Networking, and CSIS - Web Technology

Contact the Computer Science and Information Systems Department for further information.
(760) 744-1150, ext. 2387
Office: MD-275
http://www.palomar.edu/csis

Associate in Science Degrees -

AS Degree requirements are listed in Section 6 (green pages).
• Information Technology

Certificates of Achievement -

Certificate of Achievement requirements are listed in Section 6 (green pages).
• Information Technology

Certificates of Proficiency -

Certificate of Proficiency requirements are listed in Section 6 (green pages).
• Visual Basic

PROGRAMS OF STUDY

Information Technology

This program prepares students for employment in information systems applications development in business and industry. The focus is on developing skills in programming languages, Internet, spreadsheets, databases, presentation graphics, word processing, in systems analysis and design, project management, and database design. See a counselor for additional university transfer requirements in this major.

A.S. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements		Units
CSIT 105	Computer Concepts and Applications	3
CSIT 120	Computer Applications	3
CSIT 150	Introduction to SQL	3
	or	
CSIT 160	Introduction to Oracle	3
CSIT 170	Visual Basic I	4
CSNT 110	Hardware and O.S. Fundamentals	4
CSNT 111	Networking Fundamentals	3
CSWB 110	Web Site Development with XHTML	3
Group 1 (Select 2 courses)		
CSIT 121	Advanced Computer Applications	3
CSIT 180	C# Programming I	3
CSIT 270	Visual Basic II	4
CSCI 130	Linux Fundamentals	3
CSDB 120	SQL Database Design	3
	or	
CSDB 150	Oracle Database Design	3
CSWB 130	Mobile Web Application Development	3
CSWB 150	PHP with MySQL	3
CSWB 170	Java for Information Systems	2.5
Group 2 (Select 1 course)		
CSWB 210	Active Server Pages	3
CSIT 280	C# Programming II	3
CSWB 120	JavaScript	3
TOTAL UNITS		**31.5 - 33**

Visual Basic

This certificate is designed for individuals interested in acquiring the advanced programming skills necessary to design and implement Visual Basic programs.

CERTIFICATE OF PROFICIENCY

Program Requirements		Units
CSIT 170	Visual Basic I	4
CSIT 270	Visual Basic II	4
CSWB 210	Active Server Pages	3
TOTAL UNITS		**11**

COURSE OFFERINGS

CSIT 105 Computer Concepts and Applications (3)
2 hours lecture - 3 hours laboratory
Transfer acceptability: *CSU; UC – no credit if taken after CSCI 108 or 110*
The study of computer concepts and basic proficiency in modern application software. Computer concepts will focus on basic terminology; computer literacy; information literacy; hardware; software; information systems; state-of-the-art technology; structured design techniques, overview of the computer industry; ethics and current issues including virus protection and prevention. Hands-on introduction to Windows operating system and application software including basic proficiency of the Internet; browsers and e-mail. The Microsoft Office Suite will be taught using Word, Excel, Access and PowerPoint.

CSIT 120 Computer Applications (3)
2 hours lecture - 3 hours laboratory
Transfer acceptability: *CSU*
Hands-on experience with microcomputers and microcomputer applications featuring the use of Windows, word processing, spreadsheet, database, and presentation graphics software. The Microsoft Office Suite will be taught using Word, Excel, Access and PowerPoint.

CSIT 121 Advanced Computer Applications (3)
2 hours lecture - 3 hours laboratory
Prerequisite: *A minimum grade of 'C' in CSIT 120*
Transfer acceptability: *CSU*
Hands-on experience with advanced microcomputer applications featuring the use of word processing, spreadsheet, database and presentation graphics software. The Microsoft Office Suite will be taught using Word, Excel, Access and PowerPoint.

CSIT 130 Windows 7 (1.5)
1 hour lecture - 1½ hours laboratory
Transfer acceptability: *CSU*
Overview of Windows 7 operating system. Explore the resources provided by the Windows 7 operating system; manage files, documents and folders; run programs and gadgets; explore communication and scheduling; explore the Internet; set up printers; customize Windows 7; maintain security; and manage Windows 7.

CSIT 135 Access (3)
2 hour lecture - 3 hours laboratory
Transfer acceptability: *CSU*
Intended for individuals seeking the fundamental and advanced skills of Microsoft Access database software. Helps prepare individuals who are seeking to become a Microsoft Access Proficient Specialist and Microsoft Access Expert Specialist.

CSIT 140 Online Social Networks (1.5)
1 hour lecture - 1½ hours laboratory
Focuses on the utilization of social networks to connect with colleagues, customers, family, and friends as well as the dangers and benefits of online social networking. Additional focus on building professional communication channels with Facebook and Twitter utilizing third-party tools. Other social networking forms, such as online gaming and alternate lives in virtual worlds will be explored.

CSIT 150 Introduction to SQL (3)
2½ hour lecture - 1½ hours laboratory
Transfer acceptability: *CSU*
Intended for individuals who want to learn how to search for and manipulate data in a database, create tables and indexes, handle security, control transaction processing, and learn the basics of how to design a database.

CSIT 160 Introduction to Oracle (3)
2½ hours lecture - 1½ hours laboratory
Transfer acceptability: *CSU*
An introduction to relational database concepts including the design and creation of database structures to store, retrieve, update and display data.

CSIT 170 Visual Basic I (4)
3½ hours lecture - 1½ hours laboratory
Transfer acceptability: *CSU*
Design, create, test and run computer applications using Visual Basic. Emphasis is on learning the fundamentals of the Visual Basic interface and how to solve problems using structured design logic and the sequence, decision and repetition procedural language control structure. Selected additional features of the Visual Basic interface and procedural language are included to provide a foundation for the study of more advanced courses.

CSIT 180 C# Programming I (3)
2½ hours lecture - 1½ hours laboratory
Transfer acceptability: *CSU; UC*
Provides the knowledge and skills necessary to use the C# programming language in the .NET Framework. Build Windows applications and server-side programs; access data with ADO.NET; use C# with Web Forms and .NET CLR.

CSIT 270 Visual Basic II (4)
3½ hours lecture - 1½ hours laboratory
Prerequisite: *A minimum grade of 'C' in CSIT 170*
Transfer acceptability: *CSU*
An intermediate-level programming language which provides for building special purpose Windows applications using the Graphical User Interface of Windows. Includes extensive practice using programming logic control structures in designing algorithms and a wide array of Visual Basic objects in implementing the three-step approach to building Windows applications in Visual Basic.

CSIT 280 C# Programming II (3)
2½ hours lecture - 1½ hours laboratory
Prerequisite: *A minimum grade of 'C' in CSIT 180*
Transfer acceptability: *CSU; UC*
Provides intermediate-level knowledge and skills necessary to use the C# programming language. Topics include language syntax, data types, operators, exception handling, casting, string handling, data structures, collection classes and delegates. Programming of windows-based applications is presented along with object-oriented programming that includes classes, methods, polymorphism and inheritance. Event-driven programming is discussed along with the C# development and execution environment.

CSIT 295 Directed Study in Information Technology (1, 2, 3)
3, 6, or 9 hours laboratory
Prerequisite: *Approval of project or research by department chairperson/director*
Transfer acceptability: *CSU; UC - Credit determined by UC upon review of course syllabus.*
Designed for the student who has demonstrated a proficiency in Information Technology subjects and the initiative to work independently on a particular sustained project which does not fit into the context of regularly scheduled classes.

Computer Science and Information Systems - Networking (CSNT)

See also CSIS - Computer Science
CSIS - Information Technology, and CSIS - Web Technology

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Associate in Science Degrees -

AS Degree requirements are listed in Section 6 (green pages).
- Computer Network Administration with Emphasis: Cisco
- Computer Network Administration with Emphasis: Microsoft
- Computer Network Administration with Emphasis: Linux

Certificates of Achievement -

Certificate of Achievement requirements are listed in Section 6 (green pages).
- Computer Network Administration with Emphasis: Cisco
- Computer Network Administration with Emphasis: Microsoft
- Computer Network Administration with Emphasis: Linux

PROGRAMS OF STUDY

Computer Network Administration with Emphasis: Cisco

This program prepares the student for employment in the field of Computer Networking. The focus is on developing skills in a combination of the fundamental and basic network technologies produced by Cisco, Linux and Microsoft. Specific learning outcomes include developing team dynamics in the following skills: Network Media Installation, LAN and WAN Design, Network Management, Fundamentals of Networking Devices, Client Hardware Repair, Network Operating Systems Installation and Configuration, Networking Device Operating Systems, Installation and Configuration, Client Operating Systems Installation and Configuration, Network Security, Remote Access, Routing Principles and Configuration, and Maintaining a Corporate Network.

A.S. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements		Units
CSNT 110	Hardware and O.S. Fundamentals	4
CSNT 111	Networking Fundamentals	3
CSNT 160	Cisco Networking Fundamentals	3
CSNT 161*	Cisco Router Configuration	3
CSCI 108	Survey of Computer Science	4
CSNT 260	Cisco Advanced Routing and Switching	3
CSNT 261	Cisco Wide Area Network Design and Support	3
CSNT 180	Wireless Networking	3
CSNT 181	Hacker Prevention/Security	3
TOTAL UNITS		**29**

* Note: CSNT 160 is a prerequisite for CSNT 161

Computer Network Administration with Emphasis: Linux

This program prepares the student for employment in the field of Computer Networking with an emphasis on the Linux Operating System. The focus is on developing skills in a combination of the network technologies produced by Linux/Unix. Specific learning outcomes include developing team dynamics in the following skills: Linux Operating System, Linux Administration and Security, Linux Scripting, Network Media Installation, LAN and WAN Design, Network Management, Fundamentals of Networking Devices, Client Hardware Repair, Network Operating Systems Installation and Configuration, Networking Device Operating Systems, Installation and Configuration, Client Operating Systems Installation and Configuration, Network Security, Remote Access, Routing Principles and Configuration, and Maintaining a Corporate Network. Linux will be the primary operating system learned.

A.S. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements		Units
CSNT 110	Hardware and O.S. Fundamentals	4
CSNT 111	Networking Fundamentals	3
CSNT 120	Windows Client and Microsoft Office Deployment	3
CSNT 121	Windows Server	3
CSNT 140	Linux Administration	3
CSNT 141	Linux Networking and Security	3
CSCI 108	Survey of Computer Science	4
CSCI 130	Linux Fundamentals	3
CSCI 132	Linux Shell Scripting	3
TOTAL		**29**

Computer Network Administration with Emphasis: Microsoft

This program prepares the student for employment in the field of Computer Networking. The focus is on developing skills in a combination of the network technologies produced by Microsoft. Specific learning outcomes include developing team dynamics in the following skills: Network Media Installation, LAN and WAN Design, Network Management, Fundamentals of Networking Devices, Client Hardware Repair, Network Operating Systems Installation and Configuration, Networking Device Operating Systems, Installation and Configuration, Client Operating Systems Installation and Configuration, Network Security, Remote Access, Active Directory, Network Infrastructure, Exchange Server, Routing Principles and Configuration, and Maintaining a Corporate Network.