CSCI 197 Topics in Computer Science (.5 - 4)
Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture and/or laboratory may be scheduled by the department. Refer to Class Schedule.
Transfer acceptability: *CSU; UC - Credit determined by UC upon review of course syllabus.*
Topics in Computer Science. See class schedule for specific topic offered. Course title will designate subject covered.

CSCI 210 Data Structures (4)
3½ hours lecture - 1½ hours laboratory
Prerequisite: *A minimum grade of 'C' in CSCI 114*
Transfer acceptability: *CSU; UC*
A systematic study of data structures, including arrays, stacks, recursion, queues, linear and non-linear linked lists, binary trees, hashing, comparative study of searching and sorting algorithms, graphs, Huffman codes, introductory analysis of algorithms, introduction to the complexity of algorithms including big "O" notation, time and space requirements, and object-oriented design of abstract data types. Focus on object-oriented programming and its principles of objects, classes, encapsulation, inheritance and its relationship to the Java programming language. Includes hands-on laboratory experience reinforcing the lecture material.

CSCI 212 Machine Organization and Assembly Language (4)
3½ hours lecture - 1½ hours laboratory
Prerequisite: *A minimum grade of 'C' in CSCI 114*
Transfer acceptability: *CSU; UC*
An introduction to Assembly Language programming. Language syntax is covered, together with a study of the instruction set mnemonics, segment, index, pointer, general purpose and flag registers. A variety of memory addressing techniques will be covered, as well as stack operations, particularly those associated with passing parameters to subroutine calls. Also includes I/O to screen, printer, and disk interfaces. Emphasis will be placed on interaction between the student's code and the operating system's supplied functions for I/O to peripheral devices. Use of editor and debugging tools will also be addressed.

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 114*
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 114*
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 235 Android Development (3)
2 hours lecture - 3 hours laboratory
Prerequisite: *A minimum grade of 'C' in CSCI 114*
Transfer acceptability: *CSU*
Applied Java programming to mobile Android phones utilizing the Android Software Development Kit (SDK). Assignments and programs will specifically address the basic aspects of developing applications using the Android SDK.

CSCI 260 Video Game Programming I (3)
2 hours lecture - 3 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 the current version of DirectX. Students learn how to create 3D games as well as 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 (3)
2 hours lecture - 3 hours laboratory
Prerequisite: *A minimum grade of 'C' in CSCI 222*
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 272 Objective-C for Mac and IOS (3)
2 hours lecture - 3 hours laboratory
Prerequisite: *A minimum grade of 'C' in CSCI 114*
Transfer acceptability: *CSU*
Prepares students for application development on the iOS platform.

CSCI 275 iOS Development (3)
2 hours lecture - 3 hours laboratory
Prerequisite: *A minimum grade of 'C' in CSCI 114*
Transfer acceptability: *CSU*
Focus on the Swift programming language and 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 Technology - Information Technology (CSIT)

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

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

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

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, and database design. See a counselor for additional university transfer requirements in this major.

A.S. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements

CSIT 105	Computer Concepts and Applications	3
CSIT 120	Computer Applications	3
CSWB 110	Web Site Development with HTML5/CSS3	3
CSWB 120	JavaScript	3
CSIT 150	Introduction to SQL	3
	or	
CSIT 160	Database Management Systems using Oracle	3
CSIT 180	C# Programming I	3
CSIT 280	C# Programming II	3
CSWB 150	PHP with MySQL	3
	or	
CSWB 210	Active Server Pages	3
CSWB 170	Java for Information Technology	3
	or	
CSIT 170	Visual Basic I	3

Electives (Select 1 course)

CSWB 130	Mobile Web Application Development	3
CSWB 140	Ruby on Rails Programming	3
CSWB 220	Advanced JavaScript	3
CSNT 111	Networking Fundamentals	3
CSIT 270	Visual Basic II	3
TOTAL UNITS		**30**

Information Technology A.A. Degree Major or Certificate of Achievement is also listed in Computer Science and Information Technology – Web Technology.

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*
C-ID ITIS 120
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 125 Computer Information Systems (3)
2 hours lecture - 3 hours laboratory
Recommended Preparation: *CSIT 105*
Transfer acceptability: *UC/CSU*
C-ID ITIS 120
Examination of information systems and their role in business. Focus on information systems, database management systems, networking, e-commerce, ethics and security, computer systems hardware and software components. Application of these concepts and methods through hands-on projects developing computer-based solutions to business problems.

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 145 Programming for Information Systems (3)
2 hours lecture - 3 hours laboratory
Recommended Preparation: *CSIT 105 or CSIT 125*
Transfer acceptability: *CSU*
C-ID ITIS 130
Fundamental concepts of application development. Students will learn the basic concepts of program design, data structures, programming, problem solving, programming logic, and fundamental design techniques for event-driven programs. Program development will incorporate the program development life cycle; gathering requirements, designing a solution, implementing a solution in a programming language, and testing the completed application.

CSIT 146 Systems Analysis and Design (3)
(Formerly CSIT 290)
2 hours lecture - 3 hours laboratory
Transfer acceptability: *CSU; UC*
Introduction to the planning, analysis, design and implementation of modern information systems. This course covers the concepts, skills, methodologies, techniques, tools, and perspectives essential for systems analysts to successfully develop information systems.

CSIT 148 C Programming using RobotC and Mindstorms (3)
2 hours lecture - 3 hours laboratory
Recommended Preparation: *CSIT 105*
Transfer acceptability: *CSU*
Introduction to Robotics and Robotic programming using RobotC and Lego Mindstorms. Focus will be fundamental problem solving skills, project management and planning, logic and design techniques while creating behavior-based, event driven robotic programs in the C programming language.

CSIT 150 Introduction to SQL (3)
2½ hours 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 Database Management Systems using Oracle (3)
2½ hours lecture - 1½ hours laboratory
Recommended Preparation: *CSIT 105 and CSIT 125*
Transfer acceptability: *CSU*
An introduction to relational database concepts including the design and creation of database structures using the Oracle Database Management System to store, retrieve, update and display data. Additionally, database management theories and ideas are covered using the Oracle Database Management System.

CSIT 170 Visual Basic I (4)
2 hours lecture - 3 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 Technology - Networking (CSNT)

See also CSIT - Computer Science
CSIT - Information Technology, and CSIT - 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. 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
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
CSNT 280	Computer Forensics Fundamentals	3
TOTAL UNITS		**28**

* Note: CSNT 160 is a prerequisite for CSNT 161

See Catalog addendum at http://www.palomar.edu/catalog