

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

Contact the Computer Science and Information Systems 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).

- 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

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
CSCI 130 Linux Fundamentals	3
CSNT 140 Linux Administration	3
CSNT 141 Linux Networking and Security	3
CSNT 180 Wireless Networking	3
CSNT 181 Hacker Prevention/Security	3
CSNT 280 Computer Forensics Fundamentals	3
TOTAL	25

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. Students will be prepared to take specific industry certification exams related to Microsoft, CompTia, and Security.

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 122 Windows Systems Administration	3
CSNT 124 Implementing a Microsoft Desktop Application Environment	3
CSNT 180 Wireless Networking	3
CSNT 181 Hacker Prevention/Security	3
CSNT 280 Computer Forensics Fundamentals	3
TOTAL UNITS	28

COURSE OFFERINGS

CSNT 110 Hardware and O.S. Fundamentals (4)
3½ hours lecture - 1½ hours laboratory

Transfer acceptability: CSU

Provides the knowledge and skills necessary to build a foundation in computer hardware and operating systems. Includes P.C. hardware and operating system fundamentals; installation, configuration and upgrading; diagnosing and troubleshooting; preventative maintenance; motherboards, processors, and memory; printers; and basic networking including network operating systems. Maps to CompTia A+ Industry Exam.

CSNT 111 Networking Fundamentals (3)
2 hours lecture - 3 hours laboratory

Transfer acceptability: CSU

Provides the knowledge and skills necessary to build a solid foundation in computer networking. Includes networking fundamentals, the OSI model, subnetting, features and functions of networking components, and the skills needed to install, configure, and troubleshoot basic networking hardware peripherals and protocols.

CSNT 120 Windows Client and Microsoft Office Deployment (3)
2½ hours lecture - 2 hours laboratory

Prerequisite: A minimum grade of 'C' in CSNT 110 and 111

Transfer acceptability: CSU

Provides the knowledge and skills necessary to install and configure Microsoft Windows Client (current version) on stand-alone computers and on client computers that are part of a network. Provides the knowledge and skills to deploy Microsoft Office.

CSNT 121 Windows Server (3)
2½ hours lecture - 2 hours laboratory

Prerequisite: A minimum grade of 'C' in CSNT 111

Transfer acceptability: CSU

Provides the knowledge and skills necessary to install, configure, and administer a Microsoft Windows Server (current version) in a Network. Typical network services and applications include file and print, database, messaging, proxy server or firewall, dial-in server, desktop management, and Web hosting.

CSNT 122 Windows Systems Administration (3)
2 hours lecture - 3 hours laboratory

Prerequisite: A minimum grade of 'C' in CSNT 111. Completion of, or concurrent enrollment in CSNT 110

Transfer acceptability: CSU

Provides the knowledge and skills required to build, maintain, troubleshoot, and support server hardware and software technologies. Students will identify environmental issues; understand and comply with disaster recovery and physical/software security procedures; become familiar with industry terminology and concepts; understand server roles/specializations and interaction within the overall computing environment.

CSNT 124 Implementing a Microsoft Desktop Application Environment (3)

2 hours lecture - 3 hours laboratory

Prerequisite: A minimum grade of 'C' in CSNT 121. Completion of, or concurrent enrollment in CSNT 121

Transfer acceptability: CSU

Provides the knowledge and skills necessary to design and prepare the desktop application environment. Design and implement a presentation virtualization environment, design and implement an application virtualization environment, deploy and manage the application environment, and design business continuity for the desktop and application environment.

CSNT 140 Linux Administration (3)
2 hours lecture - 3 hours laboratory

Prerequisite: A minimum grade of 'C' in CSCI 130

Transfer acceptability: CSU

For users of Linux (or UNIX) who want to start building skills in systems administration to a level where they can attach and configure a workstation on an existing network.

CSNT 141 Linux Networking and Security (3)
 2 hours lecture - 3 hours laboratory
Prerequisite: A minimum grade of 'C' in CSNT 140
Transfer acceptability: CSU
 A hands on introduction to important administration activities required to manage a Linux network configuration. Course will cover topics configuring TCP/IP, DNS, PPP, send mail, Apache Web Server and the firewall.

CSNT 160 Cisco Networking Fundamentals (3)
 2½ hours lecture - 2 hours laboratory
Prerequisite: A minimum grade of 'C' in CSNT 110
Recommended preparation: CSNT 111
Transfer acceptability: CSU
 Emphasis on the OSI model and industry standards. Includes network topologies, IP addressing, subnet masks, basic network design and cable installation. This 70 hour course of instruction prepares the student for Cisco certification examination.

CSNT 161 Cisco Router Configuration (3)
 2½ hours lecture - 2 hours laboratory
Prerequisite: A minimum grade of 'C' in CSNT 160
Transfer acceptability: CSU
 Development of knowledge and skills to install, configure, customize, maintain and troubleshoot Cisco routers and components. This 70-hour course of instruction prepares the student for Cisco certification examination.

CSNT 180 Wireless Networking (3)
 2½ hours lecture - 2 hours laboratory
Prerequisite: A minimum grade of 'C' in CSNT 110, and CSNT 111 or CSNT 160
Transfer acceptability: CSU
 Provides a hands-on guide to planning, designing, installing and configuring wireless LANs that prepares students for the Certified Wireless Network Administrator (CWNA) certification. In-depth coverage of wireless networks with extensive step-by-step coverage of IEEE 802.11 b/a/g/pre-n implementation, design, security, and troubleshooting. Material is reinforced with hands-on projects at the end of each chapter from two of the principal wireless LAN vendors, Cisco and Linksys.

CSNT 181 Hacker Prevention/Security (3)
 2½ hours lecture - 2 hours laboratory
Prerequisite: A minimum grade of 'C' in CSNT 110, and CSNT 111 or CSNT 160
Transfer acceptability: CSU
 In-depth analysis and hands-on experience in PC and network security concepts specific to Microsoft, Unix-based and Cisco systems. Various topics including hacker prevention and intrusion detection, firewall installation and configuration, wireless network security, disaster recovery, access control lists, identification of malicious code, cryptography and forensics. Team dynamics in a lab environment, planning, installing, and configuring various network security elements regarding hardware, software, and media. Understand and demonstrate proper planning and implementation of a secure network, document and offer training to end- users, executives, and human resources on the proper maintenance of a secure network.

CSNT 260 Cisco Advanced Routing and Switching (3)
 2½ hours lecture - 2 hours laboratory
Prerequisite: A minimum grade of 'C' in CSNT 161
Transfer acceptability: CSU
 Development of knowledge and skills to configure advanced routing protocols, Local Area Networks (LANs), and LAN switching. Design and management of advanced networks. This 70-hour course of instruction prepares the student for Cisco certification examination.

CSNT 261 Cisco Wide Area Network Design and Support (3)
 2½ hours lecture - 2 hours laboratory
Prerequisite: A minimum grade of 'C' in CSNT 260
Transfer acceptability: CSU
 Development of knowledge and skills to design and configure advanced Wide Area Network (WAN) projects using Cisco IOS command set. This 70-hour course of instruction prepares the student for Cisco certification examination.

CSNT 280 Computer Forensics Fundamentals (3)
 2 hours lecture - 3 hours laboratory
Transfer acceptability: CSU
 Introduces methods used 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. Topics covered include an overview of computer forensics as a profession; the computer investigation process; understanding operating systems boot processes and disk structures; data acquisition and analysis; technical writing; and a review of familiar computer forensics tools.

Computer Science and Information Technology - Web Technology (CSWB)

See also CSIT - Computer Science

CSIT - Information Technology, and CSIT - Networking

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Associate in Science Degrees -

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- 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).

- Web Developer with Emphasis in Java/Open Source
- Web Developer with Emphasis in Windows

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