Course Acronym:	CIS
Course Number:	40
Descriptive Title:	Personal Computer Support and Networking
Division:	Business
Department:	Computer Information Systems
Course Disciplines:	Computer Information Systems
Catalog Description:	In this course, students will become familiar with managing and supporting personal computers and basic networking within an organization. The class will emphasize networks and devices such as tablets, routers, office servers, personal computers, and systems software management. Topics will include network fundamentals, personal computer concepts, computer devices, hardware management, applications and operating system software installation, maintenance and troubleshooting, small network configuration, wireless LAN (Local Area Network), and ethical concerns within the information systems environment. This course helps to prepare students for CompTIA CORE certification exams (IT Fundamentals, A+, Network+, Security+).
Prerequisite:	
Co-requisite:	
Recommended Preparation:	Computer Information Systems 13 or equivalent experience
Enrollment Limitation:	
Hours Lecture (per week):	2
Hours Laboratory (per week):	3
Outside Study Hours:	4
Total Course Hours:	90
Course Units:	3
Grading Method:	Letter Grade only
Credit Status:	Credit, degree applicable
Transfer CSU:	Yes
Effective Date:	Prior to July 1992
Transfer UC:	Yes
Effective Date:	Fall 1995

General Education: ECC	
Term:	
Other:	
CSU GE:	
Term:	
Other:	
IGETC:	
Term:	
Other:	
Student Learning Outcomes:	**SLO #1 Networking** Identify network security and ethical considerations such as privacy, hacking and piracy. **SLO #2 PC Boot Problems** Students will be able to solve a PC boot problem, given a set of circumstances that occur once the power button is pressed. Using a BIOS software troubleshooting flowchart, they will be able to determine which BIOS process is causing the failure. **SLO #3 Installation** Students will be able to install a windows operating system. They will install the operating system, service packs, video and audio drivers, and configure the hardware resources.
Course Objectives:	1. Examine the basic operational concepts of networked devices such as tablets, routers, switches, access points, printers, and personal computers. 2. Demonstrate an understanding of operating systems terminology, functions, and components as they apply to personal computers and networking devices. 3. Analyze how applications software interacts with the operating system and computer system. 4. Analyze various components of network equipment and end devices to assess how these components function together. Components include routers, switches, network interface cards, cabling and media, memory, disk drives, input and output devices, printers, and external storage. 5. Compare and contrast the current operating systems available on personal computers. 6. Install and configure software such as utility programs used for diagnostic evaluation. 7. Demonstrate the ability to evaluate computer, operating systems, and applications software in relation to installing and configuring software on small networks. 8. Demonstrate the ability to use software tools to troubleshoot and resolve problems. 9. Evaluate the requirements necessary to manage an organization's network and end devices. 10. Examine the professional and ethical responsibilities facing the IT enabled organization including privacy, security and disaster recovery.

Major Topics:	**I. Computer Systems (6 hours, lecture)** A. Computer terminology B. The history of microcomputers C. Basic operational concepts D. Operating systems terminology and technologies E. Software interaction with the operating system and the hardware **II. Computer Components and Startup (6 hours, lecture)** A. Devices and software B. The boot process and DOS mode C. The motherboard D. Disk drives E. I/O devices F. Printers G. Network Interfaces Connectivity **III. Networking Concepts (6 hours, lecture)** A. Network Types B. Components and Interfaces C. Connectivity D. Topologies E. Operating Systems F. Telecommunications **IV. Networking Fundamentals (6 hours, lecture)** A. Routers and Switches B. IP Addressing C. LAN Configuration D. Wireless Devices **V. Operational Management and Architectural Considerations (3 hours, lecture)**

A. Hardware Inventory

B. Operating System Configurations

C. Application Software Configurations and Installation Parameters

VI. Personal and Mobile Computer Operating Systems (3 hours, lecture)

A. Windows

B. Macintosh

C. Unix

D. Linux

E. IOS

F. Android

VII. Ethics, Privacy and Security Concerns (6 hours, lecture)

A. Ethical responsibilities

B. Software piracy

C. Enterprise Security measures

D. Identity theft protection

E Privacy issues

F. Professionalism

G. Network Security

VIII. Computer Components and Configurations (6 hours, lab)

A Network Interfaces

B Memory

C. Processors

D. Storage

IX. Operating System Installations (9 hours, lab)

A. Windows OS installation

B. Virtual machines installation

C. Linux OS installation

D. OS repair and re-installation

E. OS Updates

X. Software Installation, Configuration, and Troubleshooting (6 hours, lab)

A. Software installation

B. Driver installation and configuration

C. Troubleshooting

XI. Operating System Maintenance (6 hours, lab)

A. Windows registry H key groups for virus examination

B. Backup disk image creation

C. Files, folders, and hard drives management

D. Image to external drive protection

E. Backup image restoration

XII. Security and Networking Essentials (6 hours, lab)

A. Network and internet connection configuration

B. User accounts and permissions configuration

C. Networking utilities examination

D. Firewall configuration

XIII. Small LAN Configuration (6 hours, lab)

A. PC NIC configuration

B. Switch configuration

C. Router configuration

D. Wireless LAN configuration

XIV. Troubleshooting and Optimization Strategies (6 hours, lab)

A. Task Manager evaluation

B. Event Viewer management

C. Computer management console launching

	D. Performance and Reliability monitor E. Process monitoring evaluation **XV. Ethics, Privacy and Security (9 hours, lab)** A. Ethics and Business interests B. Software licenses C. Identity theft protection techniques D. Privacy issues and solutions E. Network Security measures
Total Lecture Hours:	36
Total Laboratory Hours:	54
Total Hours:	90
Primary Method of Evaluation:	2) Problem solving demonstrations (computational or non-computational)
Typical Assignment Using Primary Method of Evaluation:	After reviewing the chapter on how hardware and software work together, complete the following project. Run the Microsoft Windows System Information utility. Browse through the different levels of information in System Information window and prepare a one-to-two page report addressing the following questions: • What OS and OS version are you using? • What is your CPU speed? • What is your BIOS manufacturer and version? • How much RAM is installed on your video card? • Explain how you got this information. • What is the name of the driver file that manages your parallel port? Your serial port? • What is the link speed of your networking interface? Where can you find this information? • What is the WiFi network your computer is conneted to (if any)? Where can you find this information?
Critical Thinking Assignment 1:	Troubleshoot and Repair Windows Objective: The goal of this assignment is to learn to troubleshoot Windows by repairing a sabotaged system. The following steps would be performed and documented in a one to two page report: • Boot the system and verify that a problem exists. • Describe the problem as a user would describe it to you if you were working at a help desk. • Prepare a one-to-two page report that describes your first guess as to the source of the problem.

	• List all of the steps you took in the troubleshooting process. • Explain how you finally solved the problem and returned the system to good working order.
Critical Thinking Assignment 2:	Diagnose Network Connectivity: The goal of this assignment is to help you identify network problems between end devices. The office you are supporting has one main networked printer. The staff have been printing to this printer daily with no problems for the past 3 months. One of your users says he can no longer print to the main printer. Troubleshoot and diagnose the printing problem: Using the Windows / DOS command prompt, type "ipconfig/all" and write down the following settings: IPv4 address IPv6 address MAC address Network Card type and manufacturer Default Gateway Go to your PC's printer settings and get the properties of the default printer. Document the IP address of the printer. Perform a "ping" command to the printer IP address. Record the results of the reply. Next, go to the printer device itself and get the network configuration settings. Document the network configuration page. In a one to two page written report, describe the differences you found between the two device settings. What do you see as being the issue? Write down the steps for how you would proceed to correct the problem. Submit your analysis and findings in a 1-2 page report.
Other Evaluation Methods:	Class Performance, Laboratory Reports, Objective Exam, Quizzes
Instructional Methods:	Demonstration, Discussion, Lecture, Multimedia presentations, Other (specify)
If other:	
Work Outside of Class:	Answer questions, Problem solving activity, Required reading, Skill practice, Study, Written work (such as essay/composition/report/analysis/research)
If Other:	
Up-To-Date Representative Textbooks:	Cisco Networking Academy, IT Essentials Companion Guide v7, Cisco Press, 2020.
Alternative Textbooks:	Docter and Buhagiar, CompTIA A+ Complete Study Guide: Core 1 Exam 220-1101 and Core 2 Exam 220-1102, 5th ed. Sybex, 2022.
Required Supplementary Readings:	
Other Required Materials:	One flash memory stick
Requisite:	
Category:	
Requisite course(s): List both prerequisites and corequisites in this box.	
Requisite and Matching skill(s):Bold the requisite skill. List the corresponding	

course objective under each skill(s).	
Requisite Skill:	
Requisite Skill and Matching Skill(s): Bold the requisite skill(s). If applicable	
Requisite course:	Computer Information Systems 13
Requisite and Matching skill(s):Bold the requisite skill. List the corresponding course objective under each skill(s).	**Computer literacy** **User-level working knowledge of computer technology including its hardware and operating system.** CIS 13 - Solve common business problems using appropriate information technology applications and systems. CIS 13 - Solve common business problems using appropriate information technology applications and systems.
Requisite Skill:	equivalent experience
Requisite Skill and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s). If applicable	Successful completion of this course requires that the student have a basic knowledge of computer literacy and a user-level knowledge of computer systems including the operating system, device components and various business software.
Enrollment Limitations and Category:	
Enrollment Limitations Impact:	
Course Created by:	Richard Kapperman
Date:	04/01/1989
Original Board Approval Date:	
Last Reviewed and/or Revised by:	K. Lu
Date:	10/10/2018
Last Board Approval Date:	12/19/2022