Cerro Coso College

Course Outline of Record Report

10/12/2021

ITC142 : Information & Communication Technology Essentials

General Information

Author:	• Valerie Karnes • Hightower, Matthew • Harper, Christopher • Villicana, David
Course Code (CB01) :	ITC142
Course Title (CB02) :	Information & Communication Technology Essentials
Department:	Business Information Technolog
Proposal Start:	Spring 2019
TOP Code (CB03) :	(0702.00) Computer Information Systems
SAM Code (CB09) :	Clearly Occupational
Distance Education Approved:	Yes
Course Control Number (CB00) :	CCC000568438
Curriculum Committee Approval Date:	02/09/2018
Board of Trustees Approval Date:	05/03/2018
External Review Approval Date:	05/03/2018
Course Description:	This course provides an introduction to the computer hardware and software skills needed to help meet the growing demand for entry-level Information and Communications Technology (ICT) professionals. The fundamentals of computer hardware and software, as well as advanced concepts such as security, networking, and the responsibilities of an ICT professional, are introduced. This course prepares students for the CompTIA's A+ certification exam. Note: This course was formerly CSCI C142.
Submission Type:	New Course Materials As a result from program review, changing the course designation from CSCI to IT for clarification and assessment data and updating textbooks.
Author:	No value

Faculty Minimum Qualifications

Master Discipline Preferred:	• Computer Information Systems (Computer network installation, microcomputer technology, computer applications) • Computer Science
Alternate Master Discipline Preferred:	No value
Bachelors or Associates Discipline Preferred:	• Computer Information Systems (Computer network installation, microcomputer technology, computer applications) • Computer Science
Additional Bachelors or Associates Discipline Preferred:	• Computer Information Systems (Computer network installation, microcomputer technology, computer applications) • Computer Science

Course Development Options

Basic Skills Status (CB08)

Course is not a basic skills course.

☐ Allow Students to Gain Credit by Exam/Challenge

Rationale For Credit By Exam/Challenge

No value

Course Support Course Status (CB26)

No value

Course Special Class Status (CB13)

Course is not a special class.

Allowed Number of Retakes

0

Retake Policy Description

Type:|Non-Repeatable Credit

Grade Options

- Letter Grade Methods

Course Prior To College Level (CB21)

Not applicable.

☑ Allow Students To Audit Course

Associated Programs

☑ Course is part of a program (CB24)

Associated Program	Award Type	Active
Cyber Security Technology	A.S. Degree Major	Spring 2018
Cyber Security Technician	Certificate of Achievement	Spring 2018
Information Technology Plus	Certificate of Achievement	Spring 2018 to Summer 2019
CC Computer Information Systems-	Certificate of Achievement	Spring 2018 to Summer 2019
CC Computer Information Systems	A.S. Degree Major	Spring 2018 to Summer 2019
CC Information Technology	Certificate of Achievement	Summer 2019
CC Information Technology	A.S. Degree Major	Summer 2019
Linux Operating System	Certificate of Achievement	Fall 2020
Cloud Computing	Certificate of Achievement	Fall 2020 to Spring 2021

Transferability & Gen. Ed. Options

Course General Education Status (CB25)

No value

Transferability

Transferable to CSU only

Transferability Status

Approved

Units and Hours

Summary

Minimum Credit Units (CB07)	4
Maximum Credit Units (CB06)	4
Total Course In-Class (Contact) Hours	108
Total Course Out-of-Class Hours	108
Total Student Learning Hours	216
Faculty Load	0

Credit / Non-Credit Options

Course Credit Status (CB04)

Credit - Degree Applicable

Course Non Credit Category (CB22)

Credit Course.

Non-Credit Characteristic

No Value

Course Classification Status (CB11)

Credit Course.

Funding Agency Category (CB23)

Not Applicable.

☐ Cooperative Work Experience Education Status (CB10)

☐ Variable Credit Course

Weekly Student Hours

	In Class	Out of Classs
Lecture Hours	3	6
Laboratory Hours	3	0
Activity Hours	0	0

Course Student Hours

Course Duration (Weeks)	18
Hours per unit divisor	54
Course In-Class (Contact) Hours	
Lecture	54
Laboratory	54
Activity	0
Total	108
Course Out-of-Class Hours	
Lecture	108
Laboratory	0

Activity	0
Total	108

Time Commitment Notes for Students

No value

Faculty Load

Extra Duties: 0

Faculty Load: 0

Units and Hours - Weekly Specialty Hours

Activity Name	Type	In Class	Out of Class
No Value	No Value	No Value	No Value

Pre-requisites, Co-requisites, Anti-requisites and Advisories

Advisory

ITC101 - Introduction to Computer Information Systems

Students need to be able to install their own software and understand what memory is, how to zip and unzip files, how to save and find their files, and how to utilize a computer's operating system (Windows, Apple and Linux) and application software. This material is covered in IT C101/CSCI C101.

Entrance Skills

Entrance Skills	Description
No value	No value

Limitations on Enrollment

Limitations on Enrollment	Description
No value	No value

Specifications

Methods of Instruction

Methods of Instruction	Written work
Rationale	No value
Methods of Instruction	Skills Development and Performance
Rationale	No value
Methods of Instruction	Problem Solving
Rationale	No value
Methods of Instruction	Project-based learning
Rationale	No value
Methods of Instruction	Presentations (by students)
Rationale	No value
Methods of Instruction	Outside reading
Rationale	No value
Methods of Instruction	Peer-to-peer instruction
Rationale	No value
Methods of Instruction	Lecture
Rationale	No value
Methods of Instruction	Laboratory
Rationale	No value
Methods of Instruction	Instruction through examination or quizzing

Rationale	No value

Methods of Instruction	Job Shadowing
Rationale	No value

Methods of Instruction	Group Work
Rationale	No value

Methods of Instruction	In-class writing
Rationale	No value

Methods of Instruction	Discussion
Rationale	No value

Methods of Instruction	Demonstration
Rationale	No value

Assignments

A. Chapter reading (Example: Reading the assigned chapters from the textbook based on the topics for the week).
B. Weekly step-by-step assignments (Example Research and evaluate using Windows System Tools to set up preferences, settings, performance monitoring, applications, remote services, updates, system protection and virtual memory.).
C. Weekly application simulations assignments (Example: Use LabSim to configure remote desktop services on a network computer.)

Methods of Evaluation	Rationale
Final Exam	Comprehensive Exam: A comprehensive exam in a proctored environment will evaluate a students preparedness for the A+ exam. Example: Multiple choice and essay question exam covering all concepts of the course.
Participation	Discussions: Students will participate in discussions to critically explore concepts and compare elements of the text. Example: Discuss how a technician may react when they are faced with upgrading the entire business to a new software version.
Participation	Hands on labs: Activities will reinforce the practical application of theories presented in the text. Labs will also provide insight and training into real world tasks for IT Technicians. Example: Install Windows 7 Operating System on a local personal computer (PC).
Tests	Objective Exams: Objective exams will evaluate the students comprehension of text material and prepare them for the A+ certification exam environment. Example: Multiple choice and essay question exam covering computer software installation, updates and settings.

Equipment

No Value

Textbooks

Author	Title	Publisher	Date	ISBN
Schmidt, Cheryl A.	Complete CompTIA A= Guide to IT Hardware and Software	Pearson	2016	

Other Instructional Materials

Description	Software: Cengage Learning. LabSim PC Pro A+, 220-901 ed. -A+ lab simulation software Cengage Learning. LabSim Pro A+, 220-902 ed. -A+ simulation lab software
Author	
Citation	Information & Communication Technology Essentials

Materials Fee

No

Learning Outcomes and Objectives

Course Objectives

Assemble components based on customer requirements.

Install, configure and maintain devices, PCs and software for end users.

Understand the basics of networking and security/forensics.

Properly and safely diagnose, resolve and document common hardware and software issues while applying troubleshooting skills.

Provide appropriate customer support.

Understand the basics of virtualization, desktop imaging, and deployment.

CSLOs

Design personal computer systems based on different levels of computing requirements. Expected SLO Performance: 70.0

Business Information Technolog Program Outcomes	Apply support strategies in client computing and user support, including the ability to configure, install, diagnose, and support hardware and software issues.

Demonstrate how to install, configure and maintain personal computers, peripherals, and software. Expected SLO Performance: 70.0

Business Information Technolog Cyber Security Technology A.A. Degree for Transfer	1. Configure, install, diagnose, and support hardware and software issues. Assessment:This will be assessed by projects and scored with rubrics in course CSCI C142.
Business Information Technolog Program Outcomes	Apply support strategies in client computing and user support, including the ability to configure, install, diagnose, and support hardware and software issues.

Analyze the basics of networking and security/forensics. Expected SLO Performance: 70.0

Explain how to properly and safely diagnose, resolve, and document common hardware and software issues and apply troubleshooting skills. Expected SLO Performance: 70.0

ISLOs Core ISLOs	Students who are completing a program will be able to access, evaluate, and effectively use information.
Business Information Technolog Information Technology Plus Certificate of Achievement	3. Design, analyze, and support computer networks.
	1. Interpret and use technical information in communications to solve common business programs using Information Technology systems and applications.

Describe how to provide appropriate customer support for different types of support requests. Expected SLO Performance: 70.0

ISLOs Core ISLOs	Students who are completing a program will be able to communicate ideas, perspectives, and values clearly and persuasively while listening to others openly
Business Information Technolog Information Technology Plus Certificate of Achievement	2. Apply support strategies in client computing and user support, including the ability to configure, install, diagnose, and support hardware and software issues.

Compare and contrast the differences between virtualization, desktop imaging, and deployment. Expected SLO Performance: 70.0

Outline

Course Outline

1. PC hardware
    a. Cases and Form Factors
    b. Power supplies
    c. Motherboards and Buses
    d. Processors
    e. Memory
    i. Basic Input/Output System (BIOS)
    f. Expansion Cards
    g. Video
    h. Audio
    i. Cooling
    j. Peripheral Devices
    i. Serial, Parallel, and PS/2

- ii. Universal Serial Bus (USB)
- iii. Institute of Electrical and Electronics Engineers (IEEE) 1394 (Firewire)
- k. Display Devices
- l. Device Installation

2. Storage
   - a. Storage Devices
     - i. Floppy Drives
     - ii. Parallel Advanced Technology Attachment (ATA) Integrated Development Environment (IDE)
     - iii. Serial Advanced Technology Attachment (ATA)
     - iv. Small Computer System Interface (SCSI)
     - v. Optical Media
     - vi. Redundant Array of Independent Disks (RAID)
   - b. File System
   - c. Adding Storage
   - d. Disk Optimization
3. Networking
   - a. Networking Overview
     - i. Network Hardware
     - ii. Networking Media
   - b. Ethernet
   - c. Network Addressing
     - i. Internet Protocol (IP) Configuration
     - ii. Internet Protocol (IP) version 6
   - d. Protocols
     - i. 802.11 Wireless
     - ii. Network Utilities
   - e. HomeGroup
   - f. Infrared and Bluetooth
   - g. Internet Connectivity
   - h. Small Office/Home Office (SOHO) Configuration
4. Printers
   - a. Printer Configuration
   - b. Network Printing
   - c. Printing Management
   - d. Printer Maintenance
5. Operational procedures
   - a. Protection and Safety
   - b. Professionalism
   - c. Personal Computer (PC) Tools
   - d. Personal Computer (PC) Troubleshooting
   - e. Personal Computer (PC) Maintenance
6. Operating systems
   - a. System implementation
   - b. Component Selection
   - c. Windows Installation
   - d. Virtualization
7. Security
   - a. Best Practices
   - b. Basic Input/Output System (BIOS) Security
   - c. Physical Security
   - d. Social Engineering
   - e. Malware Protection
   - f. Authentication
   - g. Encryption
   - h. Network Security
   - i. Firewalls
   - j. Proxy Servers
8. Mobile devices
   - a. Notebook Computers

b. Notebook Components
c. Notebook Power Management
d. Mobile Devices

9. Windows System Management
    a. Windows System Tools
    b. Preferences and Settings
    c. Performance Monitoring
    d. Remote Services
    e. Applications
    f. Updates
    g. System Protection
    h. Virtual Memory
10. System Implementation
    a. Component Selection
    b. Windows Pre-installation
    c. Windows Installation
    d. Post Installation
    e. Virtualization
11. File Management
    a. File Locations
    b. Managing Files
    c. New Technology File System (NTFS) Permissions
    d. Shared Folders
    e. Offline Files
12. Troubleshooting
    a. Device Troubleshooting
    b. Motherboard, Random Access Memory (RAM), and Central Processing Unit (CPU) Troubleshooting
    c. Storage Troubleshooting
    d. Video Troubleshooting
    e. Notebook Troubleshooting
    f. Printer Troubleshooting
    g. Network Troubleshooting
    h. Security Troubleshooting
    i. Operating System Troubleshooting
    j. Windows Recovery
    k. System Errors

Lab Outline

1. Identify, select, install and configure the following hardware components.
    a. Motherboard
    b. Central processing unit
    c. Expansion card
    d. Video card
    e. Expansion cards
    f. Sound card.
    g. . Setup a computer and install the folowing:
        a. Power supply
        b. Motherboard
        c. Hardware components
        d. Random Access Memory (RAM)
        e. Computer hard drives including magnetic and/or solid state drives
        f. Expansion cards into a computer chassis.
    h. 3. Connect peripheral devices.
        a. Connect a Keyboard, Video, and Mouse (KVM) switch
        b. Universal Serial Bus (USB) devices
        c. Firewire devices
        d. Storage devices
        e. Monitor(s)

i. 4. Setup network configuration for a computer system.
    a. Select and install a network adapter
    b. Configure Transmission Control Protocol/Internet Protocol (TCP/IP) settings
    c. Configure a wireless protocol
    d. Configure Internet connectivity
j. 5. Setup and configure a printer.
    a. Select a printer
    b. Install on a network
    c. Configure the printer settings
        I. Installing print drivers
        II. Establishing network printing settings and management.
k. Install a windows operating system on a new computer.
    a. Prepare the disks for installation (formatting)
    b. Create volumes
    c. Installing the operating system.
l. Setup and maintain Windows System Management.
    a. Setup managing users and groups
    b. Configuring remote services
    c. Managing applications
    d. Configuring windows updates
    e. Backing up a computer.
m. Implement and manage security best practices.
    a. Setting up security and passwords user settings
    b. Encrypting files
    c. Configuring the windows firewall
    d. Using a proxy server.
n. Demonstrate computer-troubleshooting skills.
    a. Troubleshoot system power
    b. Troubleshoot processor installation
    c. Troubleshoot memory
    d. Troubleshoot Parallel Advanced Technology Attachment (PATA) devices
    e. Troubleshoot network connectivity issues
    f. Troubleshoot managing device issues

Delivery Methods and Distance Education

Delivery Method: Please list all that apply -Face to face -Online (purely online no face-to-face contact) -Online with some required face-to-face meetings ("Hybrid") -Online course with on ground testing -iTV – Interactive video = Face to face course with significant required activities in a distance modality -Other

Face 2 Face
Online
Hybrid

Rigor Statement: Assignments and evaluations should be of the same rigor as those used in the on-ground course. If they are not the same as those noted in the COR on the Methods of Evaluation and out-of-class assignments pages, indicate what the differences are and why they are being used. For instance, if labs, field trips, or site visits are required in the face to face section of this course, how will these requirements be met with the same rigor in the Distance Education section?

All assignments in distance education courses (online, hybrid and iTV) of IT C142 are of the same rigor as those in the on-ground course, except that students in purely online sections will submit all of their assignments virtually. The use of industry-standard software and a simulation manual instructs students to complete a series of tasks and provides detailed documentation of their results to the instructor. The instructor reviews the student's results and provides feedback to the students on skill development and selection of the correct methods. The instructor can view student's step-by step actions to provide feedback and guide their learning. The instructor does provide detailed feedback to students to guide their learning. Instructor evaluation of student work in distance education courses is the same as in

the on-ground course, except that evaluation of student work in online is presented virtually. Instead of on-site lectures, hybrid and online courses use a variety of methods including, but not limited to videos, interactive simulations and written lecture notes.

Effective Student-Instructor Contact: Good practice requires both asynchronous and synchronous contact for effective contact. List the methods expected of all instructors teaching the course. -Learning Management System -Discussion Forums -Moodle Message -Other Contact -Chat/Instant Messaging -E-mail -Face-to-face meeting(s) -Newsgroup/Discussion Board -Proctored Exam -Telephone -iTV -Interactive Video -Other (specify)

chat
email
discussion

Software and Equipment: What additional software or hardware, if any, is required for this course purely because of its delivery mode? How is technical support to be provided?

LabSim PC Pro A+ simulation software

Accessibility: Section 508 of the Rehabilitation Act requires access to the Federal government's electronic and information technology. The law covers all types of electronic and information technology in the Federal sector and is not limited to assistive technologies used by people with disabilities. It applies to all Federal agencies when they develop, procure, maintain, or use such technology. Federal agencies must ensure that this technology is accessible to employees and the public to the extent it does not pose an "undue burden". I am using -iTV—Interactive Video only -Learning management system -Publisher course with learning management system interface.

itv
publisher

Class Size: Good practice is that section size should be no greater in distance ed modes than in regular face-to-face versions of the course. Will the recommended section size be lower than in on-ground sections? If so, explain why.

No Value