

BUTTE COLLEGE

COURSE OUTLINE

I. CATALOG DESCRIPTION

CSCI 49 - PCs and Peripherals/A+

4 Unit(s)

Prerequisite(s): NONE

Recommended Prep: Reading Level IV; English Level IV; Math Level III

Transfer Status: CSU

42.5 hours Lecture

76.5 hours Lab

This is an introductory course in computer hardware, operating systems and connectivity. The course prepares students to take the CompTIA A+ exams. The focus of this course is to develop an understanding of personal computing devices, including terminology, safety, assembly, operating system installation, configuration, optimization, security, and industry best practices.

II. OBJECTIVES

Upon successful completion of this course, the student will be able to:

- A. Define terminology, concepts, and functions of end-user Information Technology (IT) systems.
- B. Identify, describe, install, upgrade and configure system components including: System board, power supply, Central Processing Unit (CPU), Random Access Memory (RAM), secondary storage devices, Graphics Processing Unit (GPU) according to established industry procedure.
- C. Install, configure, upgrade, and maintain desktop operating systems and mobile devices following established industry procedures.
- D. Analyze, diagnose, and repair system hardware and software malfunctions to successful resolution.
- E. Compare the functions and configure the Basic Input/Output System (BIOS) and Unified Extensible Firmware Interface (UEFI).
- F. Implement a variety of preventative maintenance practices for securing and optimizing end-user systems.
- G. Identify network models, hardware, protocols, diagnostic procedures, and tools for managing and troubleshooting connectivity.
- H. Identify a variety of notebooks, portable and peripheral devices, and describe the repair strategies specific to each.
- I. Summarize the basics of client side virtualization and cloud concepts.
- J. Formulate and implement a backup policy to ensure data recovery.
- K. Demonstrate ethical, professional behavior and communications skills including listening, tact/discretion, and cultural awareness when communicating with customers and colleagues.
- L. Given a scenario, perform installation, configuration and troubleshooting of print and imaging devices.
- M. Identify common features and functionality of Mac OS X, Linux and mobile operating system platforms.
- N. Identify common security threats and vulnerabilities and deploy best practices within a given scenario.

III. COURSE CONTENT

A. Unit Titles/Suggested Time Schedule

Lecture

<u>Topics</u>	<u>Hours</u>
1. First Look at Computer Parts and Tools	2.00
2. Working Inside Desktop Computers and Laptops	2.00

3. All About Motherboards	2.00
4. Supporting Processors and Upgrading Memory	2.00
5. Supporting the Power System and Troubleshooting Computers	2.00
6. Supporting Hard Drives and Other Storage Devices	2.00
7. Survey of Windows Features and Support Tools	2.00
8. Installing Windows	2.00
9. Supporting I/O Devices	2.00
10. Maintaining Windows	2.00
11. Optimizing Windows	2.00
12. Supporting Customers, Securing and Troubleshooting Windows	2.50
13. Troubleshooting Windows Startup	2.00
14. Connecting to and Setting up a Network	2.00
15. Supporting Network Hardware	2.00
16. Supporting Mobile Operating Systems	3.00
17. Windows Resources on a Network	2.00
18. Security Strategies	2.50
19. Supporting Printers and Customizing a System	2.00
20. Virtualization, Linux, and Mac OS X	2.50
Total Hours	42.50

Lab

<u>Topics</u>	<u>Hours</u>
1. First Look at Computer Parts and Tools	4.00
2. Working Inside Desktop Computers and Laptops	3.00
3. All About Motherboards	4.00
4. Supporting Processors and Upgrading Memory	4.00
5. Supporting the Power System and Troubleshooting Computers	4.00
6. Supporting Hard Drives and Other Storage Devices	4.00
7. Survey of Windows Features and Support Tools	4.50
8. Installing Windows	6.00
9. Supporting I/O Devices	3.00
10. Maintaining Windows	3.00
11. Optimizing Windows	3.00
12. Supporting Customers and Troubleshooting Windows	4.00
13. Troubleshooting Windows Startup	4.00
14. Connecting to and Setting up a Network	4.00
15. Supporting Network Hardware	4.00
16. Supporting Mobile Operating Systems	4.00
17. Windows Resources on a Network	4.00
18. Security Strategies	3.00
19. Supporting Printers and Customizing a System	3.00
20. Virtualization, Linux, and Mac OS X	4.00
Total Hours	76.50

IV. METHODS OF INSTRUCTION

- A. Lecture
- B. Homework: Students are required to complete two hours of outside-of-class homework for each hour of lecture
- C. Demonstrations
- D. Multimedia Presentations
- E. Laboratory Experiments
- F. Lab Activities

V. METHODS OF EVALUATION

- A. Exams/Tests
- B. Homework
- C. Lab Projects
- D. Practical Evaluations
- E. Essays and research papers

VI. EXAMPLES OF ASSIGNMENTS

- A. Reading Assignments
 - 1. Read the procedure for installing an operating system on a new hard drive. Create a checklist form of the requirements for that installation. Include all of the configuration information. Be prepared to demonstrate the procedure and required steps in class on your lab computer.
 - 2. Read the knowledge base (KB) article on upgrading to windows 10. Be prepared to explain in class the ramifications of that upgrade
- B. Writing Assignments
 - 1. Complete a one page report on the wireless access points (WAP) lab. In your report, be sure to address security issues associated with WAPs, including the types of encryption available.
 - 2. Given a hypothetical office scenario, create a 5 page business proposal to purchase, implement and install the office infrastructure best suited to the business. It should include: a cover letter, detailed equipment list, custom built PCs, software, monitors, network hardware infrastructure, and topology (map), security, backup plan and a detailed invoice.
- C. Out-of-Class Assignments
 - 1. Visit a local retailer of IT products. Survey the types and variety of devices being sold, and speak with a salesperson. Pay particular attention to the level of knowledge of the salesperson you speak with. Be prepared to present what you learn in class.
 - 2. Research the various types of IT careers available locally. Find out what the average pay scale is and what additional skills or education/certifications are required to advance in that career. Be prepared to present your findings to the class.

VII. RECOMMENDED MATERIALS OF INSTRUCTION

Textbooks:

- A. Andrews, J. A+ Guide to IT Technical Support. 9th Edition. Cengage, 2017.

Materials Other Than Textbooks:

- A. Portable storage device

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