IT Essentials I: PC Hardware and Software (CPMT 1305)

Credit: 3 semester credit hours (2 hours lecture, 4 hours lab)

Prerequisite/Co-requisite: None

Course Description
Provides comprehensive overview of computer hardware software and an introduction to advanced concepts.

Required Textbook and Materials
1. *IT Essentials PC Hardware and Software Companion Guide, Third edition* by David Anfinson and Ken Quamme.

    a. ISBN: 978-1-58713-199-8

2. *IT Essentials PC Hardware and Software Labs and Study Guide, Third edition* by Patrick Regan, Cisco Press, 2008

    a. ISBN: 978-1-58713-198-1

3. A package of #882 Scantrons and #2 pencils.

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

1. Describe the internal components of a computer. (Scans C1, C5, C6, C7, C8, C9, C18, C19, C20, F1, F2, F5, F7, F9, F11, F12, F13, F14, F16)

2. Assemble a computer system. (Scans C1, C5, C6, C7, C8, C9, C18, C19, C20, F1, F2, F5, F7, F9, F11, F12, F13,F14, F16)

3. Install an operating system. (Scans C1, C5, C6, C7, C8, C9, C18, C19, C20, F1, F2, F5, F7, F9, F11, F12, F13, F14, F16)

4. Troubleshoot using system tools and diagnostic software. (Scans C1, C5, C6, C7, C8, C9, C18, C19, C20, F1, F2, F5, F7, F9, F11, F12, F13, F14, F16)

SCANS Skills and Competencies
Beginning in the late 1980's, the U.S. Department of Labor **S**ecretary's **C**ommission on **A**chieving **N**ecessary **S**kills (SCANS) conducted extensive research and interviews with business owners, union leaders, supervisors, and laborers in a wide variety of work settings to determine what knowledge workers needed in order to perform well on a job. In 1991 the Commission announced its findings in *What Work Requires in Schools.* In its research, the Commission determined that "workplace know-how" consists of two elements: foundation skills and workplace competencies.

Course Outline

A. Introduction to the Personal Computer
   1. Explain IT Industry Certifications
   2. Describe a Computer System
   3. Identify the Names, Purposes, and Characteristics of Cases and Power Supplies
   4. Identify the Names, Purposes, and Characteristics of Internal Components
   5. Identify the Names, Purposes, and Characteristics of Ports and Cables
   6. Identify the Names, Purposes, and Characteristics of Input Devices
   7. Identify the Names, Purposes, and Characteristics of Output Devices
   8. Explain System Resources and Their Purposes

B. Safe Lab Procedures and Tool Use
   1. Identify Safe Working Conditions and Procedures
   2. Identify Tools and Software Used With Personal Computer Components and Know Their Purpose
   3. Implement Proper Tool Use

C. Computer Assembly – Step by Step
   1. Open the Case
   2. Install the Power Supply
   3. Attach the Components to the Motherboard and Install the Motherboard
   4. Install Internal Drives
   5. Install Drives in External Bays
   6. Install Adapter Cards
   7. Connect All Internal Cables
   8. Reattach the Side Panels and Connect External Cables to the Computer
   9. Boot the Computer for the First Time

D. Basics of Preventative Maintenance and Troubleshooting
   1. Explain the Purpose of Preventative Maintenance
   2. Identify The Steps of the Troubleshooting Process

E. Fundamental Operating Systems
   1. Explain the Purpose of an Operating System
   2. Describe and Compare Operating Systems to Include Purpose, Limitations, and Compatibilities
   3. Determine Operating System Based on Customer Needs
   4. Install an Operating System
   5. Navigate a GUI (Windows)
   6. Identify and Apply Common Preventative Maintenance Techniques for Operating Systems
   7. Troubleshoot Operating Systems

F. Fundamental Laptops and Portable Devices
   1. Describe Laptops and Other Portable Devices
   2. Identify and Describe the Components of a Laptop
   3. Compare and Contrast Desktop and Laptop Components
   4. Explain How to Configure Laptops
   5. Compare the Different Mobile Phone Standards
   6. Indentify Common Preventive Maintenance Techniques for Laptops and Portable devices
   7. Describe How to Troubleshoot Laptops and Portable Devices

G. Fundamentals of Printers and Scanners
   1. Describe the Types of Printers Currently Available
   2. Describe the Installation and Configuration Process for Printers
   3. Describe the Types of Scanners Currently Available
   4. Describe the Installation and Configuration Process for Scanners
   5. Identify and Apply Common Preventative Maintenance Techniques for Printers and Scanners
   6. Troubleshoot Printers and Scanners

H. Fundamental Networks
   1. Explain the Principles of Networking
   2. Describe Types of Networks
   3. Describe Basic Networking Concepts and Technologies

4. Describe the Physical Components of a Network
5. Describe LAN Topologies and Architectures
6. Identify Standards Organizations
7. Identify Ethernet Standards
8. Explain the OSI and TCP/IP Data Models
9. Describe How to Configure a NIC and a Modem
10. Indentify the Names, Purposes, and Characteristics of Other Technologies Used to Establish Connectivity
11. Identify and Apply Common Preventative Maintenance Techniques used for Networks
12. Troubleshoot a Network

I. Fundamental Security
1. Explain Why Security is Important
2. Describe Security Threats
3. Identify Security Procedures
4. Identify Common Preventative Maintenance Techniques for Security
5. Troubleshoot Security

J. Communication Skills
1. Explain the Relationship Between Communication and Troubleshooting
2. Describe Good Communication Skills and Professional Behavior
3. Explain Ethics and Legal Aspects of Working with Computer Technology

K. Advanced Personal Computers
1. Give an Overview of Field, Remote, and Bench Technician Jobs
2. Explain Safe Lab Procedures and Tool Use
3. Describe Situations Requiring Replacement if Computer Components
4. Upgrade and Configure Personal Computer Components and Peripherals
5. Identify and Apply Common Preventative Maintenance Techniques for Personal Computer Components
6. Troubleshoot Computer Components and Peripherals

L. Advanced Operating Systems

1. Select the Appropriate Operating System Based on Customer Needs
2. Install, Configure, and Optimize an Operating System
3. Describe How to Upgrade Operating Systems
4. Describe Preventative Maintenance for Operating Systems
5. Troubleshoot Operating Systems

M. Advanced Laptops and Portable Devices
1. Describe Wireless Communication Methods for Laptops and Portable Devices
2. Describe Repairs for Laptops and Portable Devices
3. Select Laptop Components
4. Describe Preventative Maintenance Procedures for Laptops
5. Describe How to Troubleshoot a Laptop

N. Advanced Printers and Scanners
1. Describe Potential Safety Hazards and Safety Procedures Associated with Printers and Scanners
2. Install and Configure a Local Printer and Scanner
3. Describe How to Share a Printer and A Scanner on a Network
4. Upgrade and Configure Printers and Scanners
5. Describe Printer and Scanner Preventative Maintenance Techniques
6. Troubleshoot Printers and Scanners

O. Advanced Networks
1. Identify Potential Safety Hazards and Implement Proper Safety Procedures Related to Networks
2. Design a Network Based on the Customer's Needs
3. Determine the Components for the Customer's Network
4. Implement the Customer's Network
5. Upgrade the Customer's Network
6. Describe the installation, Configuration, and Management of a Simple Mail Server
7. Describe Preventative Maintenance Procedures for Networks

8. Troubleshoot the Network

P. Advanced Security
   1. Outline Security requirements Based on Customer Needs
   2. Select Security Components Based on Customer Needs

3. Implement a Customer's Security Policy
4. Perform Preventative Maintenance on Security
5. Troubleshoot Security

Grade Scale

90 – 100	A
80 – 89	B
70 – 79	C
60 – 69	D
0 – 59	F

Course Evaluation

Final grades will be calculated according to the following criteria:

1. Labs	30%
2. Study Guides	10%
3. Module Tests	30%
4. Final Exam	30%

Course Requirements

1. Demonstrate proficiency through hands-on labs as assigned.

2. Complete Module Study Guides as assigned.

Course Policies

1. No food, drinks, or use of tobacco products in class.

2. Beepers, telephones, headphones, and any other electronic devices must be turned off while in class.

3. Do not bring children to class.

4. No late assignments will be accepted.

5. Tests. Students will be allowed to take chapter exams twice. The exam will be activated the first time on the designated test day and must be taken at that time. Exams will then be activated for a period of one week for the second attempt. If you are absent on the designated test day you will have the second attempt time frame to make up this test. Tests will again be activated one week prior to the final exam. This will be your last chance to complete the tests. All tests that are not completed will receive a '0'.

6. Certification. If a student passes the certification test that is associated with this class, you will receive an "A" on the final exam and credit for 25% of your labs. If you have missed a previous test, you must still take the final exam to substitute for that grade.

7. Attendance Policy. Three absences are allowed. If a student is tardy to class or departs early three (3) times, it will be equal to one (1) absence. Each absence beyond three absences will result in a 2 point deduction from your final grade.

8. If you wish to drop a course, the student is responsible for initiating and completing the drop process. If you stop coming to class and fail to drop the course, you will earn an 'F' in the course.

9. Labs. Due dates will be announced by the instructor.

10. Tools. Return all tools and/or software to their designated place.

11. A grade of 'C' or better must be earned in this course for credit toward degree requirement.

12. Lab Grading. You must answer all questions in the assigned labs as well as review questions at the end of the lab. Lab questions are to be answered on the provided answer sheet and turned in on or before the due date. 5 points will be deducted for each question in the lab that is not answered and 7 points will be deducted for each review question that is not answered. If none of the questions are answered then the lab will receive a '0'. Labs that are not turned in will receive a '0'. Do not do the lab challenges or the troubleshooting labs.

13. Additional class policies as defined by the individual course instructor.

Disabilities Statement

The Americans with Disabilities Act of 1992 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things, these statutes require that all students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409) 880-1737 or visit the office in Student Services, Cecil Beeson Building.

Course Schedule

Week of	Topic	Reference
Week 1	Course introduction and policies	https://cisco.netacad.net
	Chapter 1: Introduction to Personal Computer	pp. 1-45
Week 2	Chapter 2: Safe Lab Procedures and Tool Use	pp. 47-74
Week 3	Chapter 3: Computer Assembly – Step by Step	pp. 75-98
Week 4	Chapter 4: Basics of Preventative	pp. 99-111

Week of	Topic	Reference
	Maintenance and Troubleshooting	
Week 5	Chapter5: Fundamental Operating Systems	pp. 112-169
Week 6	Chapter 6: Fundamental Laptops and Portable Devices	pp. 171-211
Week 7	Chapter 7: Fundamental Printers and Scanners	pp. 213-249
Week 8	Chapter 8: Fundamental Networks	pp. 251-312
Week 9	Chapter 9: Fundamental Security	pp. 313-340
Week 10	Chapter 10: Communication Skills	pp. 341-364
Week 11	Chapter 11: Advanced Personal Computers	pp. 365-404
Week 12	Chapter 12: Advanced Operatind Systems	pp. 404-437
Week 13	Chapter 13: Advanced Laptops and Protable Devices	pp. 439-466
Week 14	Chapter 14: Advanced Printers and Scanners	pp. 467-498
Week 15	Chapter 15: Advanced Networks	pp. 498-536
Week 16	Chapter 16: Advanced Security	pp. 537-563

Contact Information:

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