

College of Micronesia-FSM
P.O. Box 159
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Course Outline Cover Page

PC Hardware & Software

Course Title & Number

VEE 223

Department & Number

Course Description:

This course uses *Cisco Networking Academy Program HP IT Essential I: PC Hardware & Software* program. It provides IT fundamentals, an in-depth exposure to PC hardware/software, suggested best practice in PC maintenance, diagnostics, and repair. Emphasis is on PC assembly, installation of operating systems (Windows 98, NT, 2000, XP), system configurations, and troubleshooting techniques used on PC maintenance and repair. In addition, students will be introduced to the fundamentals of microprocessor, its basic architecture, and its physical/logical configuration of memory.

Prepared by: Cisco/Gardner Edgar

Campus: Pohnpei

	Hours per week	No. of weeks	Total Hours	Semester Hour
Lecture	3/6	16/8	48	3
Laboratory	3/6	16/8	48	1

Total Semester Credits: 4

Purpose of Course:

Degree Requirement	_____XX_____
Degree Elective	_____XX_____
Advanced Certificate	_____XX_____
Certificate	_____
Remedial	_____
Other (Workshop)	_____XX_____

Prerequisites: VEE135 Digital Electronics I

Curriculum Committee – Chairperson

Date Approved by Committee

COM-FSM, President

Date Approved by President

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

1. Build, configure, upgrade, and maintain a personal computer system.
2. Diagnose and resolve problems of a personal computer system.
3. Install and configure various computer peripheral devices.
4. Resolve network connectivity problems on a local area network using a systematic troubleshooting approach.
5. Install, configure, upgrade, and maintain Microsoft Windows operating systems.
6. Diagnose and resolve problems using Microsoft Windows system tools.
7. Utilize relevant workplace safety and environmental standards during computer maintenance.
8. Effectively utilize a customer-oriented approach to resolve user problems.
9. Provide computer hardware and software support based upon a set of standard and systematic diagnostic principles.
10. Describe basic microprocessor architecture, physical configuration of memory and the logical configuration of memory.

Outline of Content:

1. Information Technology Basic Week 1
 - a. Getting started in IT
 - b. Windows Desktop Environment
 - c. Basic Features of Windows
 - d. Overview of Software Applications
 - e. Math for a Digital Age
 - f. Safety

2. How Computers Work Week 2
 - a. Introduction to Microprocessor: Basic Architecture & Memory Configurations
 - b. System Overview
 - c. Boot Process
 - d. Hardware Components
 - e. Memory Components
 - f. Display Components
 - g. Connector Components
 - h. Storage Components
 - i. Network Components
 - j. System Resources
 - k. Portable Devices

3. Assembling a Computer Week 3 & 4
 - a. Overview of the assembly process and safety issues
 - b. Creating a computer inventory
 - c. The computer case and power supply
 - d. Preparing motherboard for installation
 - e. Installing the motherboard

- f. Installing the floppy drive, hard drive, CD-ROM, DVD
 - g. Video card installation
 - h. Final steps
 - i. Booting the system for the first time
4. Operating System Fundamentals Week 5
- a. The operating system
 - b. Disk operating system (DOS)
 - c. Memory management
5. Windows 9x Operating Systems Week 6
- a. The Windows 9x file structure and file management system
 - b. Windows management with control panel
 - c. System Tools
 - d. Preparing a hard drive for operating system installation
 - e. Installing Windows 9x
 - f. Troubleshooting the installation process
6. Windows NT/2000 Operating Systems Week 7
- a. Windows 9x contrasts
 - b. System tools
 - c. Overview of the installation process
 - d. Installing the Windows 2000 OS
 - e. Special installation
7. Windows XP Operating System Week 8
- a. Windows XP versions
 - b. Overview of the installation process
 - c. Installing the Windows XP OS
 - d. Special installations/instructions
 - e. Windows XP and Windows NT/2000/ME/9x contrasts
8. Multimedia Capabilities Week 9
- a. Introduction to Multimedia
 - b. Upgrading video with a video acceleration board
 - c. Adding audio capabilities with a sound card
 - d. Overview of CD-RW and DVD
 - e. Digitizing Video
9. Advanced Hardware Fundamentals for Servers Week 10
- a. Network Server Overview
 - b. Hardware-based Raid configuration
 - c. Configuring external peripherals
 - d. Adding hardware to a server
 - e. Upgrading server components
10. Network Fundamentals Week 11
- a. Introduction to PC networking
 - b. Types of Networks

- c. Adding a network interface card (NIC)
- d. Physical components of a network
- e. LAN architectures
- f. Networking protocols and the OSI model
- g. TCP/IP Utilities
- h. Connecting to the Internet

11. Printers and Printing Week 12
- a. Understanding printers and printing
 - b. Buying a printer
 - c. Connecting a printer
 - d. Sharing a printer
 - e. Managing a printer
 - f. Dealing with printer problems
12. Preventative Maintenance and Upgrading Week 13
- a. Preventative maintenance and the technician
 - b. Preventative maintenance and electrostatic discharge (ESD)
 - c. Preventative maintenance for computer peripherals
 - d. Preventative maintenance for computer software
13. Troubleshooting PC Hardware Week 14
- a. Troubleshooting basics
 - b. Troubleshooting the hardware box
 - c. Troubleshooting peripheral devices
14. Troubleshooting Software Week 15 & 16
- a. Role of end user
 - b. DOS troubleshooting issues
 - c. Common Windows operating system problems
 - d. Windows 9x troubleshooting problems
 - e. Using system tools and system editor to troubleshoot Windows 9x/2000/XP
 - f. Windows 9x/2000/XP registry problems
 - g. Windows NT/2000 troubleshooting problems
 - h. Troubleshooting Windows XP
 - i. Troubleshooting applications
 - j. Windows data backup and recovery
 - k. Windows-specific printer software problem troubleshooting
 - l. Windows-specific networking software connection troubleshooting
 - m. Windows 9x, NT, 2000, and XP help

Method of Instructions:

1. Cisco web-based course materials [<http://www.cisco.com/web/learning/netacad/index.html>]
2. Hands-on lecture
3. In-class lab with instructor's guidance and assistance
4. Demonstration

Required Course Materials:

1. Minimum student materials
 - a. Notebook
 - b. Student disk/CD

2. Minimum instructional facilities
 - a. Computers with access to a LAN
 - b. Hand tools
 - c. Operating system CDs with utility software
 - d. Classroom computer lab with ESD mat

Text and Reference:

- Cisco Networking Academy Program HP IT Essentials I: PC Hardware and Software Companion Guide, with supplemental CD-ROM (Cisco Press)
- Cisco Networking Academy Program HP IT Essentials I: PC Hardware and Software Lab Companion (Cisco Press)
- Cisco Networking Academy Program HP IT Essentials I: PC Hardware and Software Engineering Journal and Workbook (Cisco Press)

Attendance:

COM-FSM Attendance Policy will apply

Honesty:

COM-FSM Honesty Policy will apply