

CODE: Course 4**TITLE****Computer Systems**

WES Introduction to Computer Use (COU21)

Length

20 Hours

Essential Skill

Computer Use

Prerequisites

None

Course Description

Computers and computer systems play an essential role in the workplace, and are increasingly part of our personal lives. As a result, it's important for everyone to be comfortable with computer terminology and to have a grasp of the basic components of computer systems and their functions.

The objective of this course is to have participants recognize the importance and pervasiveness of computers in the contemporary world, and to become familiar with the structure and function of the primary components of computer systems. Participants will acquire the information that will permit them to:

1. Describe the prevalence and role of computers in our lives.
2. Differentiate between the terms hardware, software and operating systems.
3. Identify the functions of each of the hardware components.
4. Describe the different ways that computer systems are used.

Skill Statement

Identify the names and functions of the hardware associated with computer systems.

Implementing Environment

Skill Component 1: Describe the prevalence and role of computers in our lives.

Performance Criteria

- 1.1 Understand the history and development of computers.
- 1.2 Understand the major application of computers, in business and personal life.
- 1.3 Provide specific examples of the role of computers in business and industry.
- 1.4 Describe the extent to which computers are present in our everyday lives (e.g., cars, music, information gathering, home heating and cooling, business, mobile phones, cameras).
- 1.5 Provide specific examples of how computers have changed our lives.
- 1.6 Understand that computers function without the need for us to know exactly how they do what they do.

Skill Component 2: Differentiate between the terms hardware, software and operating systems.

Performance Criteria

- 2.1 Define hardware.
- 2.2 Identify input devices hardware.
- 2.3 Identify output devices hardware.
- 2.4 Identify removable data storage devices hardware.
- 2.5 Identify data ports hardware.
- 2.6 Define software.
- 2.7 Demonstrate an understanding of operating systems.

Skill Component 3: Identify the functions of each of the hardware components.

Performance Criteria

- 3.1 Identify the functions of input devices.
- 3.2 Identify the functions of output devices.
- 3.3 Identify the functions of removable data storage devices.
- 3.4 Identify the functions of data ports.

Skill Component 4: Describe the different ways that computer systems are used.

Performance Criteria

- 4.1 Explain what the Internet is and how it works.
- 4.2 Describe what the Internet offers (email, etc.).
- 4.3 Provide examples of how computer systems store information.
- 4.4 Provide examples of how computer systems assist computation.

Course 4 Resources/Content:

Backgrounder: Computer Systems 4/5

Lesson Plan: Computer Hardware 4/9

Notes

*The courage to be is the
courage to accept oneself, in
spite of being unacceptable.*
Paul Tillich

Backgrounder Computer Systems

A computer is a machine that can take, store and manipulate, and present or display information. The first computers were constructed about 70 years ago, and were enormous, about the size of a large room, and needed a huge amount of power.

Less than 40 years ago, the idea that computers could be connected by telephone lines was developed by the military in the USA. This idea of connecting different computers over great distances led to what we now call the Internet.

The easiest way to understand the way computer systems work is to think in terms of two main topics: hardware and software.

Computer **hardware** is the parts that you can touch and hold. Computer **software** is the sets of instructions inside the hardware that let a computer do what you want it to do. Software comes in many forms, to do almost everything you could imagine. For examples, there are special types of software for working with words and text, working with images (pictures), working with how everything is laid out on a page or many pages, working with sound, working with email (electronic mail), and exploring websites. An **operating** system makes it possible for the hardware and specialized software to work together. Common operating systems are Microsoft Windows and Apple OS X.

Computer Systems

*If a little dreaming is
dangerous, the cure for it is
not to dream less but to dream
more, to dream all the time.* **Types of hardware:**
Marcel Proust

A. Input devices:

- 1) Keyboard: for entering text and numbers
- 2) Pointing devices for selecting/moving objects/items and making commands on the screen of the monitor:
 - i. Mouse
 - ii. Touchpad
 - iii. Touchscreen
 - iv. Trackball
 - v. Light pen
 - vi. Graphics tablet
 - vii. Joystick
- 3) Microphone: to input sound
- 4) Scanner: to make electronic copies of documents
- 5) Webcam: to send sound and images over the Internet

B. Output devices:

- 1) Monitor, showing what is happening in the computer, absolutely necessary:
 - i. CRT (Cathode Ray Tube)
 - ii. LCD (Liquid Crystal Display)
- 2) Speakers: to reproduce sound (music, voice, etc.)

Computer Systems

*Man can only become what he
is able to consciously imagine.*
Dane Rudhyar

- 3) Webcam: to receive and send sound and images over the Internet

- 4) Printer: to print information
 - i. Monochrome (black)
 - ii. Colour
 - iii. Laser
 - iv. Inkjet

C. Data storage:

- 1) Hard drive, internal and external
- 2) Floppy disk and floppy disk drive
- 3) CD/DVD disks
- 4) CD/DVD disk drives
- 5) Blu-ray disk
- 6) Blu-ray disk drive
- 7) USB (Universal Serial Bus) flash drive

D. Data ports: connections to other hardware; each is physically different

- 1) USB
- 2) Ethernet
- 3) Firewire

Computer Systems

Be happy.

*It's one way of being wise.
Colette*

E. Communication:

- 1) Modem: Internet connection through wires connected to computers
- 2) Wi-fi: wireless sending and receiving of signals using radio waves, just like cell phones, television and radio.

F. Components that are important but not visible and not accessible to users:

- 1) Motherboard
- 2) Power supply
- 3) Central processing unit
- 4) Video card
- 5) Sound card
- 6) Other hardware

The main types of computer systems:

- 1) **desktop systems** that have separate input and output devices and data storage;
- 2) **laptops or notebooks** (input devices, output devices and data storage are all-in-one);
- 3) **netbooks and tablets** like the iPad are like laptops but are smaller and lack internal CD/DVD drives; netbooks are compact and inexpensive devices that are very handy for accessing the Internet.

Laptops, netbooks and tablets are convenient to move or carry, and have rechargeable batteries so that they don't need to be plugged into an electrical outlet all the time.

Lesson Plan

Computer Hardware

*To conquer fear is the
beginning of wisdom.*
Bertrand Russell

Objective:

To provide participants with the basic terminology of the structure and functional components of computer systems.

Time:

Up to 20 hours.

Materials:

The document **Backgrounder: Computer Systems** contains a list of basic hardware components and brief descriptions of their functions as well as a short introduction to the topic of software.

Instructions:

1. Refer participants to the Backgrounder: Computer Systems document.
2. Review the contents of the document, particularly the descriptions of the types of hardware. It's likely that some participants will be familiar with many of the components and their functions. Using their knowledge and expertise, as well as your own, identify and describe as many hardware components as possible, using whatever computer systems and components are available (laptops or desktops).
3. Summarize the many different ways that computer systems are part of our lives: e.g., acquisition of information about any topic; communication with others through email; computing and working with numbers; writing stories and documents; keeping up with news and events locally and globally, acquiring and listening to music, and so on.

Notes

*Never confuse a single defeat
with a final defeat.*

F. Scott Fitzgerald