General computer Concept

Module

TRAINER'S CATALOG

Introduction

Computers have touched every part of our lives: the way we work, the way we learn, the way we live, even the way we play to the extent they are used for almost every task imaginable.. It almost is impossible to go through a single day without encountering a computer, a device dependent on a computer. .

Many people now believe that knowing how to use a computer, is one of the basic skills needed to succeed in the workplace and this have enhanced growth of computers usage in various human activities.. Given the widespread use of computers, computer literacy - a knowledge and understanding of computers and computer uses - has become an essential ingredient in the recipe for success in today's world.

After completing this course, you will be able to:

- Define terms associated with computer usage and application.
- Use the operating system to perform operations on files such as copy, rename, delete. etc
- Use word processing software to create documents such as letters, memoranda, resumes, and research reports.
- Use presentation graphics software to create a presentation or slide show.
- Use spreadsheet software to solve problems in areas such as manipulating budgets and financial plans.
- Use specialized software like Autocad.
- Understand computer-based communications including LANs, the Internet, and information services.
- Discuss the use of computer in various areas of human endeavor.

The training programmed is divided into three modules:

1. General Computer Concept
2. Office Applications
3. program specialized software

The **General computer concept** module includes the following lessons:

Lesson 1: An Introduction to Computer Technology

Lesson 2: Computing Environments

Lesson 3: fundamentals of operating system

Lesson 4: fundamentals of Windows XP

Lesson5: Keyboard operation and basic typing Skills

METHOD OF STUDY AND ASSESSMENT

- This module of Five lessons should take about 48 hours to complete. We should plan to spend about:
  - 6 hours on Lesson 1
  - 6 hours on Lesson 2
  - 9 hours on Lesson 3
  - 9 hours on Lesson 4.
  - 18 hours on Lesson 5.

This includes time spent on lectures, practical activities and considering the study questions.

At the end of each lesson the student are required to be evaluated. Throughout each lesson, activities should be included to help the student think about the information provided..

Course requirements.

Students must successfully complete the five lessons and a final module exam to be able to proceed with the training and receive credit for the course. The lessons are short and intended to make sure that the students have a basic idea of how to get around and manipulate the computer. It is important for each student to have access to both the hardware and software that are needed for the various lessons.

Lesson 1

An Introduction to Computer Technology

This lesson presents a broad survey of concepts and terminology related to computers. The idea of computer literacy is introduced. You discover what a computer is and what it does. You learn about the components of a computer, the power of computers, Categories of computers are identified,

Reading and understanding the material in this chapter should help you better understand these topics as they are presented in more detail in the following lessons .After completing this module, the student will be able to:

- Understand the concepts of computers
- Explain the importance of computer literacy
- Define the term computer
- know the four basic components of the computer and their functions
- know the function of a storage devices

Define the term computer

A **computer** is an electronic machine, operating under the control of instructions stored in its own memory, that can accept data, manipulate the data according to specified rules, produce results, and store the results for future use. Computers process data to create information. **Data** is a collection of raw unprocessed facts, figures, and symbols. **Information** is data that is organized, meaningful, and useful. To process data into information, a computer uses hardware and software. **Hardware** is the electric, electronic, and mechanical equipment that makes up a computer. **Software** is the series of instructions that tells the hardware how to perform tasks

Explain the importance of computer literacy

Computers have touched every part of our lives: the way we work, the way we learn, the way we live, even the way we play. It almost is impossible to go through a single day without encountering a computer, a device dependent on a computer, information produced by a computer, or a word that was introduced or whose meaning has changed with the advent of computers. Because of the significance of computers in today's world, it is important to be computer literate. Being **computer literate** means you have knowledge and understanding of computers and their uses.

Components of the Computer and Their Use

A computer consists of five primary hardware components: input devices, the central processing unit (CPU), memory, output devices, and storage devices. These components work together with software to perform calculations, organize data, and communicate with other computers, in order to accomplish these tasks the computer performs the following four general operations:

- Input
- Storage
- Processing
- Output.

Operation of Input devices
The input devices allows you to enter data into the computer. The primary devices used are the keyboard and mouse.

Keyboard - The keyboard looks like the typewriter. A numeric keypad is located to the right of the keyboard. Numeric keys have the same placement as a 10-key calculator, which allow the operator to enter data rapidly.

Mouse - The mouse is a device that allows you to control the movement of the insertion point on the screen. The operator places the palm of the hand over the mouse and moves it across a mouse pad, which provides traction for the rolling ball inside the device. Movement of the ball determines the location of the I beam on the computer screen. When the operator clicks the mouse the I beam becomes an insertion point which indicates the area you are working on the screen. You can also click the mouse and activate icons or drag to move objects and select text. There are other input devices, such as touch screen, joystick, modem, scanner, and voice recognition systems.

Processing operation
The central processing unit or (CPU) is the "brain" of your computer. It contains the electronic circuits that cause the computer to follow instructions from ROM (read only memory) or from a program in RAM (random access memory). By following these instructions information is processed. The CPU contains three parts.

1. *Arithmetic Logic Unit* - ALU is where the "intelligence" of the computer is located. It carry all arithmetic and logic operations for example adding two numbers. Also The ALU makes decisions by determining if a number is greater, less, or equal to the other number. The Processing speed is measured in nanoseconds, which is a billionth of a second.(Mhz)

2. *Memory* - Two types of memory contained on a chip are RAM (Random Access Memory) or ROM (Read Only Memory). ROM memory has been installed on your computer by the manufacturer and can not be altered. ROM is the memory that determines all the basic functions of the operation of your machine, such as startup, shut down, and placing a character on the screen. RAM is temporary memory, which displays the information you are working on. RAM remembers what you see on your screen while you are working. Usually computer RAM comes in module like SIMM, DIMM etc.

3. *Control Unit* - This is the part of the cpu , which control all other component of the unit so that information are processed in the right manner and in proper places in the computer.

Operation of Output devices
Output devices such as a monitor or printer make information you input available for you to view or use.

A monitor's front is called a screen with a cathode ray tube (CRT) attached to the screen. Portable computers use a (LCD) liquid crystal display. Today's super video graphics array (SVGA) monitors display 256 sharp and clear colors. The quality of a monitor's display depends largely on three factors:

- resolution - the number of pixels displayed
- dot pitch - the distance between pixels
- refresh rate - the speed with which images are redrawn on the screen

Printers used with computers fall into two categories, impact or nonimpact. Impact printers, such as dot matrix print by contact against a ribbon making imprint on paper. Inkjet printers print images by not touching the paper. Ink jet printers spray ink onto the page while a laser printer works like a copying machine.

Storage
Auxiliary storage devices, also called secondary storage devices, are used to store instructions and data when they are not being used in memory. These devices include floppy disks, flash drives ,hard disks, CD-ROM, and DVD-

ROM. When selecting a storage device it is important to know that each device holds different amounts of information.

Floppy Disks - A floppy disk is a circular piece of oxide-coated plastic that stores data as magnetic spots. Personal computers most commonly use floppy disks that are 3 inches in diameter.

Hard Drive - Much like a floppy, the hard disk located inside the computer case is made of a stack of rotating disks, called platters. Data is recorded on a series of tracks that have been divided into sectors. Most computers have one hard drive, located inside the computer case. If a computer has one hard drive, it is called drive C. If a computer has additional hard drives, they are called drives D, E, and so on. A hard drive stores your programs. When you buy a new program, you must install the program files to your hard drive before you can use the program. A hard drive stores your data files such as documents spreadsheets, and graphics.

CD-ROM Storage - Since each CD-ROM can store millions of bytes of data., they are today's answer to make you computer feel like a machine twice its size. Because of its external storage, you can use your machine to access an encyclopedia, games, graphics, and a variety of sources that use large amounts of memory.

All information on computers are stored in **file** The size of a file is measured in **bytes**. A **byte** is **approximately** one character (letter 'a', number '1', symbol '?' etc....).

A byte is made up of **8 bits**. A bit is simply a binary digit

- 1 Kilobyte (KB) ≈ 1 thousand bytes
- 1 Megabyte (MB) ≈ 1 million bytes
- 1 Gigabyte (GB) ≈ 1 billion bytes
- 1 Terabyte (TB) ≈ 1 trillion bytes
- 1 Petabyte (PB) ≈ 1 quadrillion bytes

Differentiate between CD-ROMs, CD-RWs, and DVD-ROMs

A **CD-ROM**, or **compact disc read-only memory**, is a compact disc that uses the same laser technology as audio CDs. For a computer to read items stored on a CD-ROM, you insert the disc into a **CD-ROM drive** or **CD-ROM player**. When viewing animation or video, the speed of a CD-ROM drive, or **data transfer rate**, is important. A higher the data transfer rate, results in smoother playback of images and sounds.

Most standard CDs are **single-session** because manufacturers **record** (write) all items to the disc at one time. Variations of standard CD-ROMs, such as PhotoCD, CD-R (compact disc-recordable), and CD-RW (compact disc-rewritable), are **multisession**, which means additional data, instructions, and information can be written at a later time. A **PhotoCD** is a compact disc that contains digital photographic images. A **CD-R (compact disc-recordable)** is a multisession compact disc onto which you can record your own items. A **CD-RW (compact disc-rewritable)** is an erasable disc you can write on multiple times.

A **DVD-ROM (digital video disc-ROM)** is an extremely high-capacity compact disc capable of storing from 4.7 GB to 17 GB. In order to read a DVD-ROM, you must have a **DVD-ROM drive**. You also can obtain recordable and rewritable versions of DVD. A **DVD-R (DVD-recordable)** allows you to write on it once and read (play) it many times. With the new rewritable DVD, called a **DVD+RW**, you can erase and record on the disc multiple times.

Explain the difference between a serial, a parallel, and a USB port

A cable often attaches external devices to the system unit. A **port** is the interface, or point of attachment, to the system unit. Ports have different types of **connectors**, which are used to join a cable to a device. **Male connectors**

have one or more exposed pins, while **female connectors** have matching holes to accept the pins. Most computers have three types of ports: serial, parallel, and USB. A **serial port** is a type of interface that connects a device to the system unit by transmitting data only one bit at a time. Serial ports usually connect devices that do not require fast data transmission rates, such as a mouse, keyboard, or modem. A **parallel port** is an interface that connects devices by transferring more than one bit at a time. Many printers connect to the system unit using a parallel port. A **universal serial bus (USB)** port can connect up to 127 different peripheral devices with a single connector type, greatly simplifying the process of attaching devices to a personal computer

Define and differentiate Computer Softwares

Computer productivity is determined by programs which are step by step instructions telling the computer how to process data. Software can be divided into two groups, system and application.

System software - The operation of your computer is controlled by system software. As you boot the computer, the system software is stored in the computer's memory which instructs the computer to load, store, and execute an application.

Examples of system software are Windows 2003 and Windows XP which use a graphical user interface (GUI) that provides visual clues (icons) to help the user. DOS, another disk operating system, is text based and not user friendly.

Professional programmers write a variety of application software to satisfy needs of the public who wants to perform specific tasks on their computers. The basic types of application software are word processing, database, spreadsheet, desktop publishing, and communication.

Word Processing - Word processing is the most commonly used software in schools, home, and business. A key advantage of word processing software is that users can make changes such as spelling, margins, additions, deletions, and movement of text. A beginning computer student should learn word processing, as it is the basis of most software. Once you have learned how a word processor functions, you will be able to learn other software quicker.

Database Software - Database software allows us to store and manipulate large quantities of data using the computer. For example, a database can sort the names, addresses, grades and activities for all of the students in a school. It would be possible to add or delete data and produce printed reports using the database.

Spreadsheet Software - Spreadsheets store numeric data that can be used in calculations. A spreadsheet is used to store a teachers grades and then calculate student averages. The primary advantage of a computerized spreadsheet is its ability to redo the calculations should the data it stores be changed. Calculations can be made automatically as formulas have been preset into the spreadsheet.

Desktop Publishing - Desktop publishing applications allow the user to create newspapers, newsletters, brochures, and similar types of publications. It is similar to word processing except it allows the user to use text, graphics, pictures, lines, shapes, patterns, and borders. Desktop publishing requires more skill and computer knowledge of design and layout.

There are numerous other applications available. There are software programs that can be used by musicians to produce musical scores and play them on a synthesizer, programs that assist an architect in designing a building, programs that produce the special effects that you see in movies, and programs that allow e-mail or electronic mail. Every line of work you can think of has had applications developed, which can ease or enhance its effectiveness and consistency.

Specification of computers

Computers are specified based on factors like size, speed, processing capabilities,store capacity, technology of the processor, compatibility.

Practical Learning: identification of computer parts.

The instructor should identify practically the part of computer system.

Ask the students to identify each part.

Lesson test

Lesson 2:

Computer Networks

This lesson examines two computer environments: networks (such as Intranets), and the Internet. It introduces key concepts related to how networks and the Internet works.

This lesson is intended to introduce you to key concepts and provide an overview of networks and the Internet work.

Explain the purpose of a network

A **network** is a collection of computers and devices connected together via communications devices, such as a modem, and communications media, such as cables, telephone lines, cellular radio, and satellites. Networks allow users to share **resources**, such as hardware devices, software devices, data, and information.

Identify the different types of networks.

Most business computers are networked, either by a local area network (LAN) in a limited geographic area or by a wide area network (WAN) in a large geographical area.

Discuss the uses of the Internet and the World Wide Web

The world's largest network is the **Internet**, which is a worldwide collection of networks that links together millions of businesses, government agencies, educational institutions, and individuals. Users connect to the Internet to send messages, access information, shop for goods and services, meet or converse with other users, and access sources of entertainment and leisure. Most users connect to the Internet through an Internet service provider (ISP) or an online service provider (OSP). The World Wide Web is a popular segment of the Internet that contains billions of documents called Web pages. These documents can contain text, graphics, sound, video, and built-in connections, or links, to other Web pages stored on computers throughout the world.

Describe the categories of computers and their uses

The six major categories of computers are personal computers, handheld computers, Internet appliances, mid-range servers, mainframes, and supercomputers. These categories are based on differences in size, speed, processing capabilities, and price. A **personal computer** can perform all of its input, processing, output, and storage activities by itself. Personal computers include desktop computers and notebook computers. A **desktop computer** is designed so the system unit, input devices, output devices, and any other devices fit entirely on or under a desk or table. Variations of desktop computers include **tower models** (computers with tall and narrow system units that can sit vertically on the floor), **all-in-one computers** (less expensive computers that combine the monitor and system unit into a single device), and **workstations** (more expensive and powerful computers designed for work that requires intense calculation and graphics capabilities).

A **notebook computer** is a portable personal computer small enough fit on your lap. Notebook and desktop computers are used at home or in the office to perform application software-related tasks or to access the Internet. A **handheld computer** is a small computer that fits in your hand. Handheld computers can perform specific, industry-related functions, or can be general-purpose.

A **PDA** (**personal digital assistant**) is a handheld computer that provides personal organizer functions, such as a calendar, appointment book, and notepad. An **Internet appliance** is a computer with limited functionality whose main purpose is to connect to the Internet from home. A **mid-range server** is more powerful and larger than a workstation computer. Users typically access a mid-range server through a personal computer or a **terminal**, which is a device with a monitor and a keyboard that usually has no stand-alone processing power.

A **mainframe** is a large, expensive, very powerful computer that can handle hundreds or thousands of connected users simultaneously. A **supercomputer** is the fastest, most powerful, and most expensive category of computer.

Discuss how the Internet works

The **Internet** is a worldwide collection of **networks** that links millions of businesses, government offices, educational institutions, and individuals. Data is transferred over the Internet using **servers**, which are computers that manage network resources and provide centralized storage areas, and **clients**, which are computers that can access the contents of the storage areas. The data travels over communications lines. Each computer or device on a communications line has a numeric address called an **IP** (Internet protocol) **address**, the text version of which is called a **domain name**. Every time you specify a domain name, a **DNS** (**domain name system**) **server** translates the domain name into its associated IP address, so data can route to the correct computer.

Understand ways to access the Internet

You can access the Internet through an Internet service provider, an online service provider, or a wireless service provider. An **Internet service provider** (**ISP**) provides temporary Internet connections to individuals and companies. An **online service provider** (**OSP**) also supplies Internet access, in addition to a variety of special content and services. A **wireless service provider** (**WSP**) provides wireless Internet access to users with wireless modems or Web-enabled handheld computers or devices.

Identify a URL

The most widely used service on the Internet is the World Wide Web. The **World Wide Web** (**WWW** or **Web**) consists of a worldwide collection of electronic documents called **Web pages**. A **browser** is a software program used to access and view Web pages. Each Web page has a unique address, called a **URL** (**Uniform Resource Locator**), that tells a browser where to locate the Web page. A URL consists of a protocol, domain name, and sometimes the path to a specific Web page or location on a Web page. Most URLs begin with **http**://, which stands for **hypertext transfer protocol**, the communications standard that enables pages to transfer on the Web.

Search for information on the Web

A **search engine** is a software program you can use to find Web sites, Web pages, and Internet files. To find a Web page or pages, you enter a relevant word or phrase, called **search text** or **keywords**, in the search engine's text box. Many search engines then use a program called a **spider** to read pages on Web sites and create a list of pages that contain the keywords. Any Web page that is listed as the result of the search is called a **hit**. Each hit is a link that can be clicked to display the associated Web site or Web page.

Practical Learning:.

The instructor should identify practically the different networks around the computer lab.

Lesson test