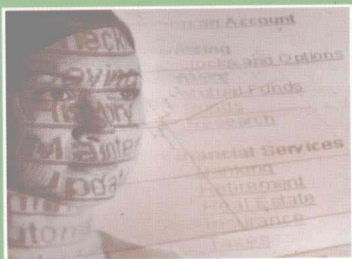
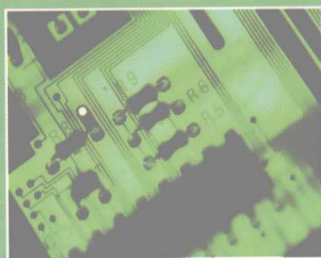


IT管理服务 (IMS) 人才培养系列教材

 江苏欧普高校软件人才培训管理中心指定教材

编 著 李 娟 李志勇

IMS计算机专业英语



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当今世界,科技的日新月异,使得信息技术无论在何时何处皆变得不可或缺,尤其在企业面临多变而竞争激烈环境时,对于信息技术的应用已成为企业战略规划中极其重要的部分。信息技术的应用也已超越昔日支持企业活动的角色,进而成为企业创造长期稳定竞争优势的利器。美国前总统克林顿曾公开宣称:“今后的时代,控制世界的力量不是军事力量,而是以信息能力走在世界前列的国家”。因此,工业发达国家不惜重金,正在培育、招揽信息技术人才、发展信息产业、建造信息高速公路,使各国争夺信息技术领域主导地位的竞争日趋激烈。

国家兴盛,人才为本;人才培养,教育为本。随着我国信息化进程的迅速推进,社会对于信息化人才的培养也不断提出新的要求。当今中国对信息化人才需求的热点是什么?企业对信息化人才需求有何变化?IT教育机构应如何应对?……这些问题关系到国内信息技术人才培养工作的开展,直接影响到今后我国信息产业的振兴问题。管理学大师彼德·德鲁克教授提出“人力资源”一词距今已经半个世纪,经过这几十年的发展,人力资源作为经济社会发展的重要而稀缺的资源这一理念已经得到了普遍的认同。而作为人力资源中更为稀缺的“IT人力资源”的管理和开发才刚刚起步,需要我们通过不断的实践和探索,借鉴和吸收国外的先进思想和理念,加以总结和研究。

事实上,近几年,随着信息技术应用越来越广泛,陆续出现了许多与信息相关的工作机会,如系统程序设计师、应用程序设计师、软件工程师、系统工程师、项目经理、信息部门主管、顾问、硬件工程师、测试工程师等,我们皆视之为IT工作人员。对这些岗位的分析,我们不难发现,虽然IT工作人员和其他行业人员一样有“管理”和“技术”两种职业岗位的选择,但是信息技术的变迁速度远超过其他行业,同时信息技术对各行业的渗透性,要求IT岗位的工作人员除了要专精于本身的信息技术之外,尚需专精于其所提供服务的特定领域的知识。这种“跨领域”专业知识的要求,和IT技术变迁快速的特质已成为IT工作人员固有的工作特质。这些工作特质一方面说明IT人力资源的开发和培养有其特殊性,另一方

面也说明 IT 人力资源的开发和培养的方向应更侧重于 IT 复合型人才的培养。目前,各国实践经验都已说明了这一点。任何以战略性思维思考 IT 系统作用的企业都极其需要这种复合型人才,而当企业内的联系不通畅的时候,这种需求尤其强烈。我们应该能够想象出 IT 和整个企业融为一体发挥作用会产生什么景象,而 IT 复合型人才会让其变为现实。

“IT 管理服务(IMS)人才培养系列教材”是我所看到的国内第一套面向 IT 复合型人才的 IT 职业培养教材。所谓 IT 管理服务(IMS)人才就是指那些具有一定企业意识和 IT 管理经验,能够提供企业运作支持性服务人才的总称,在国外,它也是 IT 复合型人才的一种代称。IT 管理服务人才一方面可以服务于企业日益复杂且要求苛刻的 IT 应用系统,帮助企业维持稳定的 IT 运作环境;另一方面,可以从商业策略、商业流程和商业应用角度,通过 IT 技术帮助企业实现价值最大化,实现 IT 投资效率最大化,降低企业 IT 工作费用和复杂度,使企业运作更高效、更顺畅。

这套教材借鉴了许多国际 IT 管理服务人才培养方面的先进理念、教学方法、教学内容,并进行深入细致的本土化创新和应用后的 IT 职业培养教材。既具有重要的理论价值,又具有较高的可读性和实践指导意义,能进一步推动我国 IT 人力资源管理与开发理论和实践向更深层次发展,为培养高素质的 IT 管理服务人才,提升企业竞争力,起到抛砖引玉的作用。同时,我相信,该教材经过教学实践的反复凝练,定会成为具有代表性的 IT 职业培训方面的精品教材,为江苏软件产业优先发展、加速发展和集聚发展做出贡献。

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赵曙明 博士

2007 年 2 月 8 日于南京市江宁区湖滨世纪花园

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Chapter One

An Overview of a Computer

Learning Objectives

After learning this chapter, you should be able to:

1. describe a computer;
2. get to know a computer, including its functions and components;
3. give a description of how a computer works.

Text

Discuss in groups.

Talk with your partners about what a computer is, its functions and components, and the advantages and disadvantages.

Summarize your group's points, taking the model sentences as example^①:

1. Generally speaking, a computer is electronic and machinery equipment, which has many uses, such as accepting information. (manipulating, storing, representing)

2. Computers have circuits which can make decisions. Therefore, they can solve a series of problems and make hundreds, even thousands of logical decisions without becoming tired or bored, but they have no originality.

What is a Computer?

What is a computer? Generally speaking, a computer is electronic and machinery equipment, which has many uses, such as accepting, manipulating, storing and representing information^②. It can replace people in dull, time-consuming and routine tasks.

Inside the computer, there is a complicated network of electronic circuits that control switches or levels. They both have two possible

① take ... as example:
以……为例。taking:
分词作伴随状语。
全句意思为:参照例句
(表述方式),总结小组
观点。

②总的来说,计算机是
一种用途非常广泛,能
够接收、加工、储存和
传递信息的电子机械
设备。which引导非限
制性定语从句,修饰
equipment。

states, for the switches are on or off and the levels are high or low. That is the reason why binary is widely used to represent information in computer.

①adv. [拉]及其他, 等等

②在(受)……控制下, 在……支配下

Computers can store and process not only letters, numbers and characters, but also sounds, images, and information of other forms. Though they cannot make suggestions for people, they can do calculating, communicating, word-processing, information call, etc. ① Under the control of ② the programs, computers even can do some great things, such as logic inference, aiding decision and aiding design, theory proving, etc.

The reason why computers can work in a rather high speed is very simple: it is an electronic machine. For example, as soon as you turn on the switch, the light gets light at the same time. How fast the speed of the current is! Computers do all what they can do instantaneously.

③在(某台)计算机中的程序被执行之前, 它们必须转换成一系列简单的指令, 然后计算机中的电子线路就能识别并直接执行它们。

Computers are powerful. They can solve problems for people by carrying out instructions given to them. A sequence of instructions describing how to perform a certain task is called program. Before the programs in a computer can be executed, they must be converted into a limited set of simple instructions. And then the electronic circuits of each computer can recognize and directly execute them ③.

Computers have circuits which can make decisions. Therefore, they can solve a series of problems and make hundreds, even thousands of logical decisions without becoming tired or bored, but they have no originality.

There are times when a computer seems to operate like a mechanical "brain", but its achievements are limited by the minds of human beings. It is a useful tool for people.

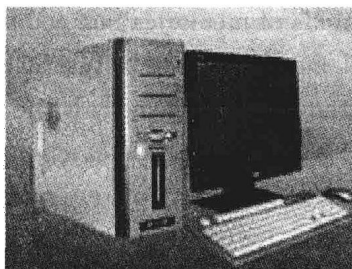
Answer the following questions according to the text.

1. Give a brief description of what a computer is.
2. Why can computers work in a rather high speed?
3. What can computers do?

Learning and Doing

The Components of a Computer

1. Fill in the blanks with the words given below.



Boards	Cards	Data Bus	Power	Computer
Storage	Microchips	Data In and Out		Memory

_____ is a machine, whose function is to accept data and process them into information. Data are facts or observations, while information is the meaning we attribute to them. There are many, many kinds, from desktop models to notebooks to PDAs^①.

_____ (like motherboards) are the plastic boards that electronic circuits are put on to make most electronic machines. _____ are small boards that can be added to a system to add functions.

_____ are silicon wafers on which electrical circuits are etched using a photolithographic process. They are the brain of a computer.

The _____ is the pathway inside a computer along which information travels in the form of electronic signals.

There are two basic kinds of _____ in a computer, logical and physical. Logical memory is the way the system flows. You can draw it as a picture. Physical memory is the actual hardware.

_____ refers to putting digital data in a safe place for use later, often also called backup^②. Common data storage methods are on hard disks, floppy disks, CD ROMs, and digital tape.

The system that distributes the correct amount of electricity to the different parts of a computer is called the _____ system.

To communicate with the world outside, the computer system must have pathways for the information to travel in and out. Often called connectors or ports, these use standard software and transfer speed. — _____

2. Read the following statements carefully, and decide whether they are true (T) or false (F).

- 1) Computer is a machine, whose function is to accept data and process them into information.

①数据是事实或观测结果,而信息是我们赋予数据的意义。计算机有很多种类,从台式计算机到笔记本电脑再到个人数字助理。while:做转折连词,表示连接的句子与前面意思相对。PDAs: Personal Digital Assistants

②存储指的是把电子数据存放在安全位置以备后用,常常也被称为备份。refer to:指的是……to 为介词,后加动名词形式。

- 2) There are two basic kinds of memories in a computer, logical and physical. Logical memory is the actual hardware. You can draw it as a picture. Physical memory is the way the system flows.

How a Computer Works

1. Fill in the blanks with the words given in the box.

finally	physical	hardware	control	computer
---------	----------	----------	---------	----------

Let's use the system pictured in Figure 1 to illustrate how a typical computer works. A _____ is controlled by a stored program, thus, the first step in using the machine is to copy the program from diskette into memory. ^① Now, the processor can begin executing instructions. Input data from the keyboard are stored in memory. The processor manipulates the data, storing the results back into memory. _____, the results are output.

①计算机是由存储器程序来控制的,因此使用机器的第一步,就是将程序从软盘复制到存储器中。

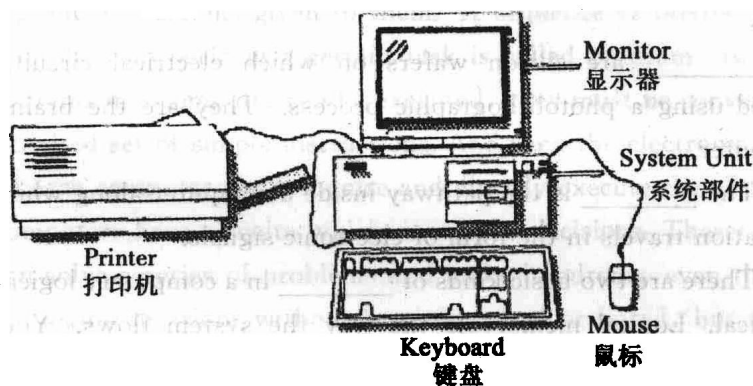


Fig. 1 The basic components of a typical computer system

图 1 典型计算机系统的基本部件

②存储器的内容是易于改变的,当一组数据被处理完时,程序可被重复(执行),(通过)读入及处理新的数据,(又会)产生新的输出。

③一个时间,它可以在工资发放程序的控制下,从劳务数据产生工资单。在下一个时间,它可以在账单程序控制下,从发票准备账单。

④随后,还是同样的部件集合体,在另外的程序控制下,可以读入统计数据,并产生条形图,或者感知操纵杆的运动,在显示屏上操纵想象的宇宙飞船的位置。

Memory's contents are easy to change. Thus, when one set of data has been processed, the program can be repeated, reading and processing new data, and generating new output. ^② When a program is finished, a new one can take its place in memory, allowing the computer to process completely different data. One minute, it can generate pay checks from labor data under the control of a payroll program. The next minute can prepare bills from invoices under the _____ of a billing program. ^③ Later, this same collection of components, controlled by yet another program, can read statistical data and produce a bar chart or sense the movements of a joystick and manipulate the position of an imaginary spaceship on a display screen. ^④

The _____ components of a computer—the processor, memory, input devices, and output devices—are its _____. You can see them, touch them, and feel them. Program and data are different, existing only as electronic pulses stored in memory.^① Software is a general term for programs.

①程序及数据则不同，它们仅仅以存储在内存中的电脉冲的形式存在着。软件是各种程序的一个通用术语。

New Words and Expressions

function/'fʌŋkʃən/ *n.* 官能，功能，作用，[数]函数；*vi.* (器官等)活动，运行，行使职责

component/kəm'pəʊnənt/ *n.* 成分；*adj.* 组成的，构成的

advantage/əd'vɑ:ntɪdʒ/ *n.* 优势，有利条件，利益

disadvantage/dɪsəd'vɑ:ntɪdʒ/ *n.* 不利，不利条件，缺点，劣势

summarize/'sʌməraɪz/ *v.* 概述，总结，摘要而言

generally speaking *adv.* 一般而言

accept/ək'sept/ *vt.* 接受，认可，承担，承兑；*vi.* 同意，承认

manipulate/mə'nɪpjuleɪt/ *vt.* (熟练地)操作，操纵，利用，巧妙地处理

store/stɔ:,stə/ *vt.* 贮藏，贮备，存储；*n.* 商店，店铺，贮藏，贮备

represent/ˌrɪ:prɪ'zent/ *vt.* 表现，描绘，声称，象征

dull/dʌl/ *adj.* 无趣的，呆滞的，阴暗的，感觉或理解迟钝的

time-consuming *a.* 耗时的

routine/ru:ti:n/ *n.* 例行公事，常规，日常事务，程序

complicate/'kɒmplɪkeɪt/ *v.* (使)变复杂；*a.* 复杂的

circuit/'sɜ:kɪt/ *n.* 电路，一圈，周游，巡回

switch/swɪtʃ/ *n.* 开关，电闸，转换；*vt.* 转换，转变

binary/'baɪnəri/ *a.* 二进位的，二元的

process/prə'ses/ *n.* 过程，作用，方法，程序；*vt.* 加工，处理

calculate/'kælkjuleɪt/ *vt.* 计算，核算

under the control of 受……的控制，在……的控制下

current/'kʌrənt/ *a.* 当前的，通用的，流通的，现在的，最近的；*n.* 涌流，趋势，电流，水流，气流

instantaneously *adv.* 即刻，立即

powerful/'paʊəfʊl/ *a.* 强大的，有力的

carry out 完成，实现，贯彻，执行

instruction/in'strʌkʃən/ *n.* 指示，用法说明(书)，教育，指导，指令

sequence/'si:kwəns/ *n.* 次序，顺序，序列

execute/'eksɪkjʊt/ *vt.* 执行，实行，完成

convert into 转变，转换……

a series of 一系列……，一批……

originality/ˌɒrɪdʒɪ'nælɪti/ *n.* 创意，新奇，独创能力，原始

- achievement/ə'tʃi:vmənt/ *n.* 完成, 成就, 功业, 功绩
- observation/ˌəbzə:'veɪʃən/ *n.* 观察, 注意, 观测, 观察力
- attribute/ə'tribju(:)t/ *n.* 属性, 标志, 定语; *vt.* 把……归于, 认为
……属于
- wafer/'weɪfə/ *n.* 晶片, 圆片, 干胶片; *vt.* 用于胶片封
- etch/etʃ/ *v.* 蚀刻
- photolithographic/ˌfəʊtə,liθə'græfɪk/ *a.* 照相平版印刷(法)的, 光刻
法的
- pathway/'pɑ:θwei/ *n.* 路径, 途径
- logical/'lɒdʒɪkəl/ *a.* 合乎逻辑的, 合理的
- physical/'fɪzɪkəl/ *a.* 身体的, 物质的, 自然的, 物理学的
- refer to 查阅, 提到, 谈到, 打听
- distribute/dɪs'tribju(:)t/ *vt.* 分配, 散布, 分发
- typical/'tɪpɪkəl/ *a.* 典型的, 象征性的
- diskette/dɪs'ket/ *n.* 磁盘, [计]软磁盘
- processor/'prəusesə/ *n.* 信息处理机, 加工者, 处理者, [计]处理器
- generate/'dʒenə'reɪt/ *vt.* 产生, 发生, 导致
- payroll/'peɪrəʊl/ *n.* 工资表, 工资单, 发放的工资总额
- device/di'vaɪs/ *n.* 装置, 设计, 策略, 发明物, 设备

Reading Materials

Read the following texts quickly, trying to get the main ideas, and then give a summary in your own words.

Material 1: History of Computers

History of Computers

The first general-purpose electronic computer to operate successfully was the Electronic Numerical Integrator and Computer (ENIAC). Its construction was proposed in 1942 by John Mushily and J. Presser Eckert of the Moore School of Engineering, University of Pennsylvania. The work started on its development in June, 1943 and the computer was completed by late 1945. It occupied 1 500 ft² (140M²) of floor space, weighed over 30 tons, consisted of approximately 18 000 vacuum tubes, 70 000 resistors, 10 000 capacitors and 6 000 switches and consumed 150 KW of power. It was used to generate ballistic tables and weather forecasts. In principle it was pro-

grammable but this could only be done with considerable difficulty by rewiring parts of the machine^①.

With the development of the ENIAC, the computer became a useful scientific and business tool. The ENIAC could operate without human intervention, depending only upon stored instructions. This development marked the beginning of the modern computer era. Since then, many refinements in computers speed, size, and cost have been made. Many advancements in computer technology are divided into four time periods called generations.

1. First Generation of Computers

The first generation of computers lasted from 1951 to 1958. They were large, costly to buy, expensive to power, and often unreliable^②. Their internal operations were controlled through the use of vacuum tubes. These tubes were fairly large, and they generated so much heat that special air-conditioning had to be installed to handle it.

It was during this period that symbolic languages were developed^③. Symbolic languages use symbols made up of letters and numbers to stand for 0 and 1 soft machine language. For example, ADD may stand for addition. Computer instructions written in symbolic languages were easier for people to use than machine language but symbolic language had to be translated into machine code before the computer could follow the instructions. The machine codes were stored on the outer surface of magnetic drum.

2. Second Generation of Computers

The second generation of computers spanned the years from 1959 to 1964. It was during this time that the technology race really began.

The most notable change was that transistors replaced vacuum tubes. As a result, computers became much smaller, faster, and more reliable. They also became more efficient. Also at this time, magnetic cores replaced magnetic drums as storage media.

Next, the second generation of computers were given auxiliary storage, sometimes called external or secondary storage. Data was stored outside the computer on either magnetic tapes or magnetic disks. The use of auxiliary storage ended the limitation on how much data the computer could store and reduce these of punched cards. U-

①从原理上说,它是可编程的,但是做到这一点相当困难,因为要对机器的部件重新接线。

②他们体积大,价格昂贵,启动费力且常常不可靠。

③It is (was) ... that ... 强调句型。句意:正是在这个时期,符号语言得到了开发。