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教育部师范教育司组织编写
中学教师进修高等师范本科(专升起点)教材

计算机专业英语

苗兰芳 编



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内容提要

本书是教育部师范教育司组织编写的中学教师进修高等师范本科(专科起点)课程教材。书中通过计算机基础内容的英语文章,介绍了计算机的许多专业知识以及常见的语法现象、阅读难点和专业词汇等。

全书共有 10 章,内容有个人计算机系统,处理机单元,输入输出设备,辅助存储器,操作系统,应用软件,软件工具,办公自动化,计算机网络和多媒体技术。每章中包含课文、词汇、关键词、课文注释、练习题、阅读材料,最后还附有练习答案和课文参考译文。内容处理上尽量考虑了成人教育的特点和教育方式,适合用来自学。本书可用于约为 60 课时的课堂教学。

本书可以作为中学教师进修本科(专科起点)计算机专业英语教材,也可供具有大专水平的计算机技术人员自学参考使用。

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前 言

计算机技术是当前发展最迅速的学科之一,它的大量最新研究成果是用英语发表的,因此英语就成为人们了解和吸取先进的研究成果、跟踪本学科研究前沿的重要工具。本教材旨在帮助具备大专毕业水平的读者提高其阅读计算机专业英语文献的水平,培养其以英语为工具直接获取国外计算机技术进展的能力,增强其对信息社会的适应性和竞争力。本教材以计算机科学基础类文章为主,涉及计算机系统和组成、输入输出设备和软件系统等。所选材料含有较丰富的计算机专业词汇和科技英语语法结构。因考虑到计算机专业专升本的学生英语基础普遍较差,其中不少是成人教育专科毕业生,而且部分不是计算机专业的,计算机基础也不好,所以对分布式、人工智能等内容就没有涉及,同时加强了注解和词汇表。本教材也适合其他对计算机专业英语有兴趣的各类人员使用。

全书共有 10 章,内容有个人计算机系统,处理机单元,输入输出设备,辅助存储器,操作系统,应用软件,软件工具,办公自动化,计算机网络和多媒体技术。每章中包含课文、词汇、关键词、课文注释、练习题、阅读材料,最后还附有练习答案和课文参考译文。内容处理上尽量考虑到成人教育学生的特点和教育方式,适合用来自学。

成人教育教学课时较少,本书可用于约为 60 课时的课堂教学,若课时不足可酌情删减。

本教材由浙江师范大学计算机科学与工程学院苗兰芳老师编写,由华东师范大学计算机系徐国定老师审稿。由于时间仓促,水平所限,错误之处在所难免,望广大读者批评指正。

编 者

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Chapter 1

Text: Personal Computer System

Combining the word personal and computer may give you the impression that personal computers are less sophisticated than their larger mainframe and minicomputer relatives. [1] This is a misconception. Advances in technology have almost eliminated the gap that was formerly inherent in size. Personal computer systems are highly evolved descendants of earlier and larger computer systems.

In fact, all the computer concepts apply to personal computer systems. A good way to understand these abstract concepts is to apply them to the hardware and software components of a personal computer system. [2]

1.1 Personal Computer Hardware

The basic hardware components of a personal computer system consist of the keyboard, display, system unit, disk drives and printer. These components perform similar functions in computers of all types and sizes. Familiarizing yourself with what they are and what they do will help you make the connection between computer concepts and tangible hardware components. [3]

1.1.1 Keyboards

A keyboard is a device that converts keystrokes into special codes that can be electronically manipulated by the computer. [4] It is one input part of the system, and it allows you to enter commands, data, or programs into the computer. The keyboard may contain 70 to 105 keys. A personal computer keyboard includes a typewriter layout and a set of keys marked with arrows that control the movement of cursor on display screen. Some keyboards include a numeric keypad for number-intensive data entry and calculations as well as a set of function keys. These are general-purpose keys that, depending on the application, can be set to perform dif-

ferent functions.

Keyboards are not the only way to communicate with a computer. A variety of alternatives to keyboard-only input exist, including light pens, touch screens, and mice. A mouse is a device used to position the cursor on a display screen in lieu of cursor control keys. A mouse also has buttons for selecting options. The primary advantage to these alternative input devices is the ease with which you can move a cursor around on the screen and execute commands . [5]

1.1.2 Displays

A display, often called a monitor, is one of the output parts of the system. A display is a device that is used to display numbers, letters, some special characters, and graphic information.

The display is typically a CRT (cathode ray tube), the same type of tube that is found in a television set. CRTs can be found with green-phosphor, amber-phosphor, black-on-white displays, or color. Color monitors are common, but more expensive than single-color or monochrome monitors. Also, flat screens, such as LCDs (liquid crystal displays) are commonly used in portable computers.

1.1.3 The System Unit

A system unit houses the processor and memory of a personal computer system. If you were to remove the cover of the system unit and look inside, you would see the parts that make up a system unit.

If you ignore for the moment all the wires and connections that link the various parts together, you will see the fundamental building blocks of all computer systems and subsystems—the integrated circuit chips . [6] Building an integrated circuit requires such components as transistors, resistors, diodes, and capacitors. All the functional hardware parts of the computer—input, processor, storage, and output—can be made from integrated circuits.

You cannot actually see the integrated circuit chips. They are housed in sealed rectangular blocks of black plastic to protect them. One of the most important of these chips is called central processing unit (CPU) or simply the processor. In a personal computer, the CPU is the microprocessor chip. It carries out the processing tasks by interpreting and executing the instructions in a program.

Working in close conjunction with the microprocessor is a form of storage called the computer's memory. It is where the programs, along with the data to be

input and the results to be output, are stored. [7] A computer's memory is actually a collection of chips that are functionally divided into two types—ROM (read-only memory) and RAM (random-access memory).

ROM (read-only memory) is permanent memory that the microprocessor can read information from, but whose contents can be neither erased nor written over—thus the name, read-only memory. ROM stores the instructions that startup the computer when the power is turned on, as well as some additional programs.

RAM (random-access memory) is temporary memory that is empty until the microprocessor needs to use it, that is, until it loads programs and data into it. RAM is often called read/write memory, meaning that the microprocessor can read its contents and write programs or data into it. Most RAM is temporary, losing its contents when the computer's power is turned off. For long-term storage of information or programs, disk drives are connected to the system.

1.1.4 Disk and Disk Drives

Disks have become the most widely used medium for the storage part of the system. A disk is a circular platter to which a recording surface has been applied. It is coated with the same material found on audio tape, and it can be erased and used over and over.

There are two types of magnetic disks: floppy disks and hard disks. Floppy disks are made from the sheets of flexible plastic; hard disks are made from rigid platters of aluminum. The device that plays the disk is called a disk drive. It contains the mechanical equipment needed to spin or rotate the disk and the read/write head needed to record and retrieve information to and from the disk. [8]

The most common hard disk drives are called Winchester drives, after the code name for the IBM project that developed them. In a Winchester drive, two or more disks, along with the read/write head and the spinning mechanism, are housed in a sealed container. A common size for Winchester drives is 5¼ inches. For several technical reasons, hard disks are capable of storing much more information than floppy disks.

1.1.5 Printers

Printers are one output part of a computer system. A printer is a device that produces hard-copy output from a computer system by transferring an image to paper. Printers come in a wide variety of shapes, styles, and prices. Most print in one

color (black), but technological break-throughs are making color printing a feasible alternative for graphics applications. The typical printer for a personal computer is a stand-alone device that is connected to the computer by a cable. It usually accepts continuous-form paper, but some printers will accept single sheets.

Your applications for a personal computer will determine the type of printer to use. One way to classify printers is by the methods used to form the printed images. Dot-matrix printers form characters with a pattern of dots. This method can include striking a ribbon with a hammer, spraying ink with a nozzle, or transferring the pattern with heat or a laser. The quality of the output from such printers ranges from a very rough, highly visible, grainy pattern of dots to an extremely fine, high-resolution pattern. The former is quite adequate for printing drafts of documents; the latter is more desirable for printing graphic images.

1.2 Personal Computer Software

Personal computer software comes in many different varieties, and the applications number in the thousands, so it is useful to know how individual programs are categorized. The broadest classifications of software are system software and application software.

System software includes operating systems and programming languages. Application software includes special-purpose programs and general-purpose programs.

Using a personal computer involves getting used to the conventions of the user interface and the operating system, and then developing an understanding of what a computer can do by becoming familiar with some of the application software for personal computers.

1.2.1 Operating System

An operating system is a set of programs or modules that manages the overall operation of the computer system. Its primary purpose is to support application programs.

Although in theory all operating systems perform very similar functions. In practice there are many different operating systems. One reason is that different personal computers are built around different CPUs, or microprocessors, each with its own unique characteristics. Another reason is the subjective nature of user-interface design.

DOS is one of the operating system. DOS was the original standard. It is still used, runs thousands of applications, and requires inexpensive hardware.

DOS stands for Disk Operating System. Its original developer, Microsoft corporation, sells it under the name MS DOS. (The “MS”, of course, stands for Microsoft.) It was the original standard operating system for all micro-computers advertising themselves as “IBM-compatible” or “DOS-based”, such as Compag. Whatever machine it is used with, it is usually referred to simply as DOS.

There have been several upgrades since MS DOS was introduced. The 1981 original was labeled version 1.0. Since then there have been numerous newer versions, including 6.0, 6.1, and 6.2. An important characteristic of the more recent or newer version is that they are “backward compatible”. That is, you can still run application programs with them that you could run on the older versions. [9] The newer versions feature pull-down menus. With pull-down menus, you use your mouse-directed insertion point or cursor to unfold (“pull-down”) a menu from the top of your display screen.

1.2.2 Application Software

Almost any kind of application that you would need is already available. It is called application software-programs that are already written and tested and that may be purchased off the shelf in retail computer stores or through mail-order outlets. [10] This packaged software falls into two categories: special purpose and general purpose.

Special-purpose programs. Dedicated to performing tasks such as payroll, accounting, bookkeeping, education, entertainment, or statistical analysis, the programs contain built-in problem-solving feature specially designed for those particular tasks.

General-purpose programs. Adaptable to a wide variety of tasks, such as word processing, spreadsheet calculating, record keeping, graphics, or communications.

Word processing, electronic spreadsheets, database management, and personal information management are general-purpose applications. That is, they are designed to be used by many people to the most common kinds of tasks. Some well-known software publishers are Microsoft, Lotus, and Corel. They are continually improving and revising their application software to better meet the changing needs of users. When a package first appears, it is assigned the number 1.0. As changes are made to the application software, the number changes. The number before the

period refers to the version, and the number after the period refers to the release. Changes in a version number indicate major changes; changes in releases refer to minor changes.

Most application software have common features. The following are the most important features.

Menus present commands available for selection.

Shortcut keys are special-purpose keys for frequently used commands.

Toolbars present graphic objects for commands.

Help presents explanations of various commands.

Dialog boxes are used to specify additional command options.

Insertion Point shows where data can be entered.

Scroll bars are used to display additional information.

Edit can change entered information.

Cut, copy and paste can delete, move, or copy information.

Undo can restore work prior to last command.

Save and print can save work in a file and print a copy on paper.

Reading Guide

New Words

sophisticate v.	使复杂
mainframe n.	大型机
minicomputer n.	小型机
relative a.	有关的, 相对的, 成比例的
eliminate v.	消除
inherent a.	固有的
evolve v.	使发展
descendant a.	下行的, 祖传的
tangible a.	有形的
keystroke n.	击键
manipulate v.	操作
intensive a.	集中的
phosphor n.	磷光粉
amber n.	琥珀色

monochrome a.	单色的
crystal n.	晶体, 水晶
resistor n.	电阻
diode n.	二极管
portable a.	可携带的, 轻便的
plastic n.	塑料
seal v.	密封
interpret v.	解释, 说明
execute v.	执行
flexible a.	灵活的, 柔软的, 易弯曲的
component n.	部件, 构件
rigid a.	坚硬的
aluminum n.	铝
nozzle n.	喷嘴
ribbon n.	色带
grainy a.	颗粒状的
unique a.	惟一的
upgrade n., a.	上升(的)
v., ad.	使升级
version n.	版本
chip n.	芯片, 集成电路块
compatible a.	兼容的
mouse n.	鼠标
feature n.	特征
v.	以…为特征
consist of	由…组成
stand-alone	独立的
come in	具有
cathode ray tube	阴极射线管
spreadsheet	电子报表
problem-solving	问题求解
special-purpose	专用的
hard-copy	硬拷贝
familiarize sb. with sth.	使某人掌握(熟悉)某事
in lieu of	作为…取代

dedicate to
adaptable to

致力于
可适用于

Key Words

Computer: A machine that processes data into information under control of a stored program.

计算机:一种在一个存储程序控制下将数据处理成信息的机器。

Data: Raw, unstructured, unprocessed facts.

数据:原始的,未经组织的,没有处理过的事实。

Hardware:Physical equipment, Contrast with software.

硬件:物理设备,与软件相对应。

Information:The meaning a human being assigns to data. Processed data.

信息:人类赋予数据的意义。处理过的数据。

Input: Transferring data from an external device into a computer's main memory.

输入:将数据从外设传送到计算机主存的过程。

Memory:The computer component in which instructions and data are stored.

存储器:存储指令和数据的计算机部件。

Output: The act of transferring data or information from the computer's main memory to an external device.

输出:将数据从计算机主存传送到外设的动作。

Processor:The component of a computer that selects and executes instructions.

处理器:选择并执行指令的计算机部件。

Program:A series of instructions that guides a computer through some process.

程序:一系列引导计算机执行某些过程的指令。

Software:Programs. Contrast with hardware.

软件:程序。与硬件相对应。

Chip:A tiny square of silicon that holds thousands of integrated electronic circuits.

芯片:一块能容纳数千个集成电路的方形硅片。

Circuit board: A flat surface on which chips are linked by electronic paths embedded in the surface. Examples include processor boards, memory boards, and interface boards.

电路板:表面嵌入一些电子线路的平面板,这些电子线路联接了板上的芯片。例如,处理器板、主存板和接口板。

Note to the text:

- [1] Combining the word personal and computer 动名词短语作主语, that 引导定语从句修饰 impression。
- [2] to understand these abstract concepts 不定式短语修饰 way, is 后的 to 引导的不定式短语作表语, them 指前句的 all the computer concepts。
- [3] Familiarizing yourself with... 动名词短语作主语, what they are and what they do 作 with 的宾语, 其中 they 指前面的 components。make the connection 为省去 to 的不定式短语作 help you 的宾补。
- [4] 第一个 that 引导的定语从句修饰 device, 第二个 that 引导的定语从句修饰 special codes。
- [5] is 表语为 the ease, 此处 ease 为名词, with ease = easily, with which 开头的定语从句修饰 ease。
- [6] if 引导状语从句, 其中 that link the various parts together 定语从句修饰 wires and connections, 破折号后的 the integrated circuit chips 是对 fundamental building blocks 的进一步解释。
- [7] It 指前句中的 storage or memory, where 引导表语从句, 在表语从句中主谓之间有一介词短语插入语作主语的补充说明。
- [8] 宾语为 mechanical equipment and the read/write head, and 前后各有一个过去分词短语所修饰。
- [9] 定语从句 that you could run on ... versions 修饰 application program with them 中的 them, 指前面的 newer versions DOS。
- [10] 句中 application software-programs 由用 and 连接的两个定语从句所修饰, retail computer store 意为计算机零售商店。

Exercise

I. Multiple-choice:

- 1. The basic hardware components of a personal computer system consist of the _____.
 - a. keyboard and display
 - b. system unit
 - c. disk-drive and printer
 - d. all of above
- 2. A keyboard is a device that converts _____ into _____ that can be electronically manipulated by the computer.
 - a. data/information
 - b. keystrokes/special codes

- c. special codes/keystrokes
- d. information/data
3. A personal computer keyboard includes _____.
 - a. a typewriter layout and a set of arrow keys
 - b. a numeric keypad
 - c. a set of function keys
 - d. all of above
4. A display is a device that is used to display _____.
 - a. numbers, letters
 - b. special characters
 - c. graphic information
 - d. all of above
5. A system unit houses _____ of a personal computer system.
 - a. the processor
 - b. the memory
 - c. the processor and memory
 - d. the processor, memory and monitor
6. The fundamental building blocks of all computer systems and subsystems is _____.
 - a. the integrated circuit chips
 - b. transistors
 - c. transistors, resistors, diodes and capacitors
 - d. a and c
7. System software includes _____ and _____.
 - a. operating system and application software
 - b. operating system and programming language
 - c. special-purpose programs and application software
 - d. OS and special-purpose programs
8. Information flows from a computer into a peripheral device as _____.
 - a. output
 - b. memory
 - c. a program
 - d. input
9. Programs are known collectively as _____.
 - a. secondary storage
 - b. software
 - c. stored programs
 - d. hardware
10. The method with which dot-matrix printers form characters can include: _____.
 - a. striking a ribbon with a hammer
 - b. spraying ink with a nozzle
 - c. transferring the pattern with heat or laser
 - d. all of above
11. Which is not common feature of most application software?
 - a. menus
 - b. toolbars
 - c. insertion point
 - d. alignment
12. DOS can be used with _____ machine.
 - a. IBM-compatible
 - b. the machine that was made before 1981

c. PDP-11

d. VAX

II . True or False:

1. All the functional hardware parts of the computer can be made from integrated circuits.
2. Most RAM is temporary, losing its contents when the computer's power is turned off.
3. The primary purpose of OS is to support application programs.
4. Data are input into the computer only by keyboard.
5. The physical components of a computer are collectively called hardware.
6. Keyboards are the only way to communicate with a computer.
7. The programs, along with the data to be input and results to output, are stored in computer's memory.
8. ROM is read-only memory.
9. Printers are not the only output device of computer system.
10. Personal computers are sophisticated than larger mainframe and minicomputer relatives.

III . Match the following terms to the appropriate definition:

1. computer
2. data
3. information
4. input
5. output
6. processor
7. program
- a. Raw, unstructured, unprocessed facts.
- b. The meaning a human being assigns to data.
- c. A machine that processes data into information under control of a stored program.
- d. A series of instructions that guides a computer through some process.
- e. The act of transferring data or information from the computer's main memory to an external device.
- f. The act of transferring data from an external device into a computer's main memory.
- g. The component of a computer that selects and executes instructions.