中等专业学校计算机应用专业教材系列

郭启全 主编

计算机专业英语

刘 雄 编著

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内容简介

本书是计算机专业英语教科书，书中选取了有关计算机基础、系统和应用三方面的英语短文。本书从三方面帮助学生提高阅读和使用计算机英语的能力：第一，本书用规范语言对语法和词汇进行了讲解，并在每章后面设置了相应的练习。第二，本书讲授了专业英语的阅读技巧，例如：理解句子的意思、找中心思想、构词法等。第三，本书给学生提供了最基本的计算机知识和计算机操作原理。本书所涉及的内容极其广泛：包括计算机软、硬件知识、操作系统、程序设计、软件工程、数据库、多媒体技术、网络技术以及办公自动化等内容。

本书是学习计算机专业英语的实用教材。建议用 60 学时讲授。也可作自学计算机英语或普及计算机知识用书。

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《计算机应用专业教材》序

随着计算机技术的迅速发展和普及应用，许多中等专业学校、技工学校和职业高中为了培养出适合社会需要的专门人材，设置了计算机应用专业。

计算机应用专业以培养计算机软件应用，计算机硬件及常用办公设备的应用、故障检测与维修的专业人材为目标。要求学生除了掌握必要的理论基础知识外，主要掌握计算机应用基础，电工及电子技术，办公自动化方面的软件，程序设计语言，计算机辅助设计与绘图，三维动画的制作，微机及其他常用办公设备（如打印机、复印机、传真机）的应用、故障检测与维修，计算机专业英语，多媒体技术，网络技术，数据库等专业知识。

计算机应用专业注重培养学生使用、保养与维修办公自动化设备的能力，注重培养学生熟练使用有关的计算机软件的能力。该专业的培养目标具有鲜明的特点，适应社会对人材的需求。由于毕业生主要面向厂矿、企事业基层单位，因此能较快地解决基层单位计算机应用专业人材缺乏的问题。

计算机应用专业招收应届初中毕业生，学制三年。学生在校期间按照教学计划要学习以下5种类别的总计27门课程，并通过一定学时的实践教学，使学生既有扎实的理论基础，又有较强的动手能力。教学计划中突出了实践性教学，突出了课程设置的实用性。

教学计划中开设的课程如下：

1. 公共课

包括：数学、物理、语文、建设有中国特色社会主义理论与实践、道德与法律、英语、体育。

2. 专业基础课

包括：计算机专业英语、电工基础、计算机类电子电路基础学、计算机应用基础、中文 Windows 3.2/95、工程制图。

3. 专业课

包括：数据库原理与应用、数据结构、QBASIC 语言程序设计、C 语言程序设计、磁盘工具软件精选。

4. 实践教学

包括：微机的故障检测与维修、打印机（复印机、传真机）的故障检测与维修、微机操作训练。

5. 选修课

包括：三维动画设计、多媒体实用技术、计算机网络技术、计算机辅助设计与绘图。

在参与完成了计算机应用专业教学计划之后，有关部门委托我组织编写一套适合于该专业特点的系列教材。实用的教材是完成专业教学计划的保障。由于该专业设立的时间较短，市面上还没有与之配套的适合于这个办学层次的教材。在电子工业出版社的大力支持和帮助下，经过出版社领导、编辑们与作者的共同努力，使这套教材得以及时出版。

本套教材的作者均具有较丰富的教学经验和科研能力，其中有的同志编著过多本计算机应用方面的书籍，他们处于教学和科研的第一线，深知如何去编好这套教材。

本套教材结合了作者的教学、科研经验，适用性强，语言精练，通俗易懂。书中带有实用的

习题、实验题目、操作指导等。本套教材面向中专、技校、职高的广大学生，面向计算机的初、中级应用人员。由于水平所限，书中不足之处，望专家、读者指正。

郭启全

现代科技与两大工具
——代 前 言

进入二十世纪九十年代，信息技术飞速发展。四大科技前沿中尤以计算机技术的发展最为扣人心弦，如果我们还停留在“桃花村”的梦想中，就很难进入“地球村”五彩缤纷的世界里。

展望二十一世纪，知识经济正悄悄地向我们走来。二十一世纪的合格“村民”应当是由计算机和外语两条腿支撑一个富于创新的大脑。学习计算机离不开外语，许多编程语言接近于英语，说明书、操作手册用英语写成，用户界面多为英文界面，认同了“拿来主义”的中国如何实现拿来主义呢？答案是普及和提高整体的外语水平。

本书从计算机和外语的结合点切入，参照教学大纲的要求编写。作为中等专业学校教材，充分考虑使用者外语基础的差别，同时兼顾自学的需要，选文由浅入深，并在每课后面附有大量习题。同时附于课后的还有阅读技巧，针对科技英语的特点和科技英语阅读中可能遇到的语法现象，帮助读者总结归纳了十二个阅读技巧，这些阅读技巧不仅会有助于阅读理解，而且对科技英语写作也会有益。

本书由北京理工大学陈万林老师审定，在编写过程中得到诸多同仁的指导和帮助，在此表示谢意。

鉴于编者水平有限，错误在所难免，敬请读者不吝赐教，谢谢！

刘 雄

1998 年 11 月

COMPUTER ENGLISH

Chapter 1 Introduction

1.1 What's a Computer

A computer is a machine with an intricate network of electronic circuits that operate switches or magnetize tiny metal cores. The switches, like the cores, are capable of being in one of two possible states, that is, on or off, magnetized or demagnetized. The machine of capable of storing and manipulating numbers, letters, and characters. The basic idea of a computer is that we can make the machine do what we want by inputting signals that turn certain switches on and turn others off, or magnetize or do not magnetize the cores.

The basic job of computers is the processing of information. For this reason, computers can be defined as devices which accept information in the form of instructions called a program and characters called data, perform mathematical and/or logical operations on the information, and then supply results of these operations. The program, or part of it, which tells the computers what to do and the data, which provide the information needed to solve the problem, are kept inside the computer in a place called memory.

Computers are thought to have many remarkable powers. However, most computers, whether large or small have three basic capabilities. First, computers have circuits for performing arithmetic operations, such as: addition, subtraction, division, multiplication and exponentiation. Second, computers have a means of communicating with the user. After all, if we could not feed information in and get results back, these machines would not be of much use. However, certain computers (commonly minicomputers and microcomputers) are used to control directly things such as robots, aircraft navigation systems, medical instructions, etc. Some of the most common methods of inputting information are to use punched cards, magnetic tape, disks, and terminals. The computer's input device (which might be a card reader, a tape drive or disk drive, depending on the medium used in inputting information) reads the information into the computer.

For outputting information, two common devices used are a printer which prints the new information on paper, or a CRT display screen which shows the results on a TV-like screen.

Third, computers have circuits which can make decisions. The kinds of decisions which computer circuits can make are not of the type: "Who would win a war between two countries?" or "Who is the richest person in the world?" Unfortunately, the computer can only decide three things, namely: Is one number less than another? Are two numbers equal? And, Is one number greater than another?

A computer can solve a series of problems and make hundreds, even thousands, of logical decisions without becoming tired or bored. It can find the solution to a problem in a fraction of the time it takes a human being to do the job. A computer can replace people in dull, routine tasks, but it has no originality; it works according to the instructions given to it and cannot exercise any value judgments. There are times when a computer seems to operate like a mechanical 'brain', but its achievements are limited by the minds of human beings. A computer cannot do anything unless a person tells it what to do and gives it the appropriate information; but because electric pulses can move at the speed of light, a computer can carry out vast numbers of arithmetic-logical operations almost instantaneously. A person can do everything a computer can do, but in many cases that person would be dead long before the job was finished.

Exercises

1. Main idea

Which statement best expresses the main idea of the text? Why did you eliminate the other choices?

(1) Computers have changed the way in which many kinds of jobs are done.
(2) Instructions and data must be given to the computer to act on.
(3) Computers are machines capable of processing and outputting data.
(4) Without computers, many tasks would take much longer to do.

2. Understanding the passage

Decide whether the following statements are true or false by referring to the information in the text. Then make the necessary changes so that the false statements become true.

(1) A computer can store or handle any data even if it has not received information to do so.
(2) All computers accept and process information in the form of instructions and characters.
(3) The information necessary for solving problems is found in the memory of computer.
(4) Not all computers can perform arithmetic operations, make decisions, and communicate in some way with the user.
(5) Computers can still be useful machines even if they cannot communicate with the user.
(6) There are many different devices used for feeding information into a computer.
(7) There are not as many different types of devices used for giving results as there are for accepting information.
(8) Computers can make any type of decision they are asked to.
(9) Computers can work endlessly without having to stop to rest unless there is a breakdown.

3. Locating information

Find the passages in the text where the following ideas are expressed. Give line references as in the example below.

(1) Computers accept information, perform mathematical and/or logical operations then supply new information.
(2) All computers have three basic capabilities.

(3) A computer is a machine that can be made to operate by receiving signals.

(4) A computer cannot work without being told what to do.

(5) A computer can make three types of decisions.

(6) The fundamental job of a computer is processing information.

(7) A computer can do the work of hundreds of people in a very short time.

(8) The memory of a computer is used for storing information.

4. Understanding words

Refer back to the text and find synonyms (i.e. words with a similar meaning) for the following words.

(1) complex (L.1) *intricate*

(2) fundamental (L.7) _____

(3) a way (L.18) _____

(4) uninterested (L.29) _____

(5) accomplishments (L.32) _____

Refer back to the text and find antonyms (i.e. words with an opposite meaning) for the following words.

(6) large (L.2) *tiny*

(7) receiving (L.5) _____

(8) reject (L.8) _____

(9) unusual (L.20) _____

(10) small (L.35) _____

5. Content review

Try to think of a definition for each of these items before checking then in the Glossary. Then complete the following statements with the appropriate words. (Some words can be used more than once.) Make sure you use the correct form, i.e. singular or plural.

core	device	data	program
circuit	terminal	switch	CRT display

(1) Every computer has circuits for performing arithmetic operations, operating ..... or magnetized ..... .

(2) A ..... with a screen is normally referred to as a ..... unit.

(3) A computer is a ..... that processes information in the form of ..... and ..... and can store this information in a ..... .

(4) Card readers, tape drives, or disk drives are different ..... for inputting information.

单词和词组

1. intricate *a*.复杂的,错综的
2. network *n*.网络
3. magnetize *vt*.使磁化
4. core *n*.磁芯

5. demagnetize *vt*.使退磁
6. store *vt*.存储
7. manipulate *vt*.处理,操纵
8. character *n*.字符
9. process *vt*.处理,加工
10. device *n*.设备,装置
11. instruction *n*.指令
12. program *n*.程序
13. operation *n*.操作,运算
14. memory *n*.存储器
15. exponentiation *n*.指数
16. robot *n*.机器人
17. aircraft navigation system 飞机导航系统
18. medical instrument 医疗器械
19. punched card 穿孔卡片
20. magnetic tape 磁带
21. disk *n*.磁盘
22. terminal *n*.终端
23. input device 输入设备
24. card reader 卡片阅读机
25. tape drive 磁带机
26. disk drive 磁盘机
27. medium *n*.存储介质
28. printer *n*.打印机
29. CRT display screen 阴极射线管显示器
30. originality *n*.创造力,独创性
31. electric pulse 电脉冲
32. instantaneously *adv*.瞬间

阅读技巧(构词法-后缀)

阅读中时常会遇到一些单词,如果了解了英语词汇构成的一般方法,就有可能猜出这些单词的词意。

词缀法:前缀 +(词根)+ 后缀

一个英文单词通常可以分为三部分:前缀、词根、后缀。例如:"pre-" 的意思是"在…之前","prefix"是置于词根前面的前缀;"de-" 意思是"减轻"或"相反","demagnetize"的意思是"去磁,退磁"。后缀"-er"的意思是"干…的人","programmer"是"编程序的人,程序员"。前缀和后缀都称为词缀。

前缀通常改变词意,例如:"un-"就是将词义变为否定,"unable" 的意思是"不能的"。而后缀则会改变词类,例如:在形容词"quick"的后面加上"-ly"就变为副词"quickly"。

现在让我们看看一些后缀和它们的一般意义。

名词后缀		
后　缀	意　义	例　词
-ance	状态(性能)	Performance
-ence	动作、性质	Independence
-er,-or	…人、…物	programmer, operator, compiler, accumulator
-(a)tion	动作	execution
-ist,-yst	…人	analyst, typist
-ness	在…条件下	cleanliness
-ion	行为/状态	conversion
-ing	动作的过程	multiplexing
-ment	状态、行为	measurement
-ity	状态、特性	electricity
-ian	从属	electrician
-ism	条件/状态	magnetism
-dom	领域/条件	freedom

（续表）

名词后缀		
后　缀	意　义	例　词
-ship	条件/状态	relationship, partnership, friendship
-ary		binary

动词后缀		
后　缀	意　义	例　词
-ize	作出(某种举动)	computerize
-ate		automate, activate, calculate
-fy		simplify
-en		harden, widen

副词后缀		
后　缀	意　义	例　词
-ly	以…方式	electronically, logically
		comparably, helpfully

形容词后缀		
后　缀	意　义	例　词
-al	具有…特征	computational, logical
-ar		circular
-ic		magnetic, automatic
-ical		electrical
-able	能够	comparable
-ible		divisible
-ous	具有…的	dangerous
ious	充满…的	religious
-ful	以…为特征的	helpful
-less	无,没有	careless
-ish	略带…色的	yellowish
-ed	…的	computed, punched
-ive	的具有…性质的	interactive
-ing	做…	programming, coding
		processing, multiplexing

课文注释

1. 在计算机英语中，时常要说明计算机某一部分或某一专业名词的特征。这时，使用关系代词“that，which”或关系副词“when”，引出一个从句来说明所修饰名词的特征。例如：A computer is a machine with an intricate network of electronic circuits that operate switches or magnetize tiny metal cores. 关系代词“that”引导的从句用来修饰“circuits”，如果省略了定语从句，就不清楚句中所提到的电路是起什么作用的。这种关系从句属于限定性定语从句，不用逗号隔开。本课中类似的限定性定语从句还有：

   a. For this reason, computers can be defined as devices which accept information in the form of instructions called a program…

   b. For outputting information, two common devices used are a printer which prints the new information on paper, or a CRT display screen which shows the results on a TV-like screen.

2. The basic idea of a computer is that we can make the machine do what we want by inputting signals that turn certain switches on and turn others off, or that magnetize or do not magnetize the cores. 句子虽然很长，但分析起来较简单。主语是“The basic idea of a computer”，“that we can make the machine do what we want by inputting signals that turn certain switches on and turn others off, or that magnetize or do not magnetize the cores.”是由“that”引导的从句，在句子中作表语，它本身带有一个宾语从句：“what we want by inputting signals that turn certain switches on and turn others off, or that magnetize or do not magnetize the cores ”，这个宾语从句又有两个并列的定语 “that turn certain switches on and turn others off” 和 “that magnetize or do not magnetize the cores”，修饰名词“signals”。

3. 许多名词、动词和形容词与特定的介词连用。本课中这样的例子有：

   a. Second, computers have a means of communicating with the user.

   b. …but its achievements are limited by the minds of human beings.

   c. The machine is capable of storing and manipulating numbers, letters, and characters.

   遇到这种情况，必须学会每个表达式。另外，介词的后面可以跟名词或者动名词。

4. After all, if we could not feed information in and get results back, these machines would not be of much use. 句中的“after all”作“毕竟”讲。这句话可译作“如果我们不能输入信息和取出结果，那么，这种计算机不会有多大用处”。从句“if we could not feed information in and get results back”，表示与现时相反的假设，事实上，我们是能够将信息输入计算机并得到输出结果的。语法上称这种用法为虚拟语气。此时，从句谓语用过去式(can 用 could)，主句谓语用“should”或“would”。在本课中，使用虚拟语气的句子还有：“…but in many cases that person would be dead long before the job was finished”(但在很多情况下，工作尚未完成之前，人就早已去世了)。在这句中，“would”表示按照某种判断“应会有…”之义，翻译时可灵活些。类似的句子还有：“Who would win a war between two countries?”(两国交战谁会取胜?)

5. A computer can solve a series of problems and make hundreds, even thousands, of logical decisions without becoming tired or bored. 句中的“becoming” 是系动词，相当于“being”。

6. There are times when a computer seems to operate like a mechanical ‘brain’,… 句中的“There are times when” 意为“有时常会”。

参考译文:计算机是什么

计算机是一种具有复杂电路网络的机器,其电路可以控制开关或磁化微小的金属磁芯。开关与磁芯一样,能够处于两种可能的状态,即开或关;磁化或退磁。计算机能够存储和处理数字、字母和字符。用输入的信号将一些开关打开,将另一些开关关闭,将磁芯磁化或退磁,就能让计算机做我们想要做的事,这就是计算机的基本概念。

计算机的基本工作是处理信息。为此,计算机可以定义为接受信息的装置,信息是以指令和字符的形式出现的,其指令称为程序,字符则称为数据,该装置可以对信息进行算术和逻辑运算,然后提供运算结果。程序或部分程序的作用是指示计算机如何工作,数据是为解决问题而提供所需信息,两者都存储在计算机的存储器里。

人们认为计算机具有很多显著的功能。但是,大多数计算机,无论是大还是小,都具有三个基本的功能。第一,计算机装有进行加、减、乘、除及幂等各种算术运算功能的电路。第二,计算机具有与用户通信的功能。如果我们不能输入信息和取出结果,那么,这种机器不会有什么用处。某些计算机(一般是小型机和微型机)可直接控制一些设备,像机器人、民航导航系统和医疗器械等。最常用的输入信息的方法是采用穿孔卡片、磁带、磁盘和终端。计算机的输入装置(可能是读卡机、磁带机或磁盘机,视输入信息所采用的媒体而定)将信息输入计算机。

常用的两个信息输出装置是打印机和 CRT(阴极射线管)显示器。打印机将信息打印在纸上,CTR 显示器将结果显示在与电视屏幕相似的显示器上。

第三,计算机具有进行判断的电路。但这些电路不能对像"两国交战谁会取胜?"或"谁是世界上最富的人?"之类的事情做出判定。遗憾的是计算机只能判定三件事,即:一个数是否小于另一个数?两个数是否相等?一个数是否大于另一个数?

计算机能够解决一系列问题,做出成百上千个逻辑判断而不感到疲劳和厌烦。计算机能够在人类做这些工作所占用的时间内,只用极少的时间就找到答案。计算机能够代替人做那些单调的日常工作,但它没有创造力;计算机是根据给它的指令而工作,不能进行意义选择。计算机有时会像机械"脑"一样工作,但它的成就却受到人类大脑的极大限制。如果人不告诉计算机做什么,并输入适当的信息,计算机就不能做任何事情。由于电脉冲能以光的速度移动,计算机几乎在瞬间就可以处理大量的算术逻辑运算。人可以做计算机所能做的每件事,但在很多情况下,工作尚未完成之前,人就早已去世了。

1.2 History of Computers

Let us take a look at the history of the computers that we know today. The very first calculating device used was the ten fingers of a man's hands. This, in fact, is why today we still count in tens and multiples of tens. Then the abacus was invented, a bead frame in which the beads are moved from left to right. People went on using some form of abacus well into the 16th century, and it is still being used in some parts of the world because it can be understood without knowing how to read. During the 17th and 18th centuries many people tried to find easy ways of calculating. J. Napier, a Scotsman, devised a mechanical way of multiplying and dividing, which is how the modern slide rule works. Henry Breggs used Napier's ideas to produce logarithm tables which all mathematicians use today. Calculus, another branch of mathematics, was independently invented by both Sir Isaac Newton, an Englishman, and Leibnitz, a German mathematician.

The first real calculating machine appeared in 1820 as the result of several people's experiments. This type of machine, which saves a great deal of time and reduces the possibility of making mistakes, depends on a series of ten-toothed gear wheels. In 1830 Charles Babbage, an Englishman, designed a machine that was called "The Analytical Engine". This machine, which Babbage showed at the Paris Exhibition in 1855, was an attempt to cut out the human being altogether, except for providing the machine with the necessary facts about the problem to be solved. He never finished this work but many of his ideas were the basis for today's computers.

In 1930, the first analog computer was built by an American named Vannevar Bush. This device was used in World War II to help aim guns. Mark I, the name given to the first digital computer, was completed in 1944. The men responsible for this invention were Professor Howard Aiken and some people from IBM. This was the first machine that could figure out long lists of mathematical problems, all at a very fast rate. In 1946 two engineers at the University of Pennsyvania, J. Eckert and J. Mauchly, built the first digital computer using parts called vacuum tubes. They named their new invention ENIAC. Another important advancement in computers came in 1947, when John von Newmann developed the idea of keeping instructions for the computer inside the computer's memory.

The first generation of computer, which used vacuum tubes, came out in 1950. Univac I is an example of these computers which could perform thousands of calculations per second. In 1960, the second generation of computers was developed and these could perform work ten times faster than their predecessors. The reason for this extra speed was the use of transistors instead of vacuum tubes. Second-generation computers were smaller, faster and more dependable than first-generation computers. The third-generation computers appeared on the market in 1965. These computers could do a million calculations a second, which is 1000 times as many as first-generation computers. Unlike second-generation computers, these are controlled by tiny integrated circuits that are being developed have been greatly reduced in size. Fourth-generation computers have now arrived, and the integrated circuits that are being developed have

been greatly reduced in size.

This is due to micro miniaturization, which means that the circuits are much smaller than before; as many as 1000 tiny circuits now fit onto a single chip. A chip is a square or rectangular piece of silicon, usually from 1/10 to 1/4 inch, upon which several layers of an integrated in plastic, ceramic or metal. Fourth-generation computers are 50 times faster than third-generation computers and can complete approximately 1,000,000 instruction per second in 1985.

At the rate computer technology is growing, today's computers might be obsolete in a few years. It has been said that if transport technology had developed as rapidly as computer technology, a trip across the Atlantic Ocean today would take a few seconds.

Exercises

1. Main idea

Which statement best expresses the main idea of the text? Why did you eliminate the other choices?

(1) Computers, as we know them today, have gone through many changes.
(2) Today's computers probably won't be around for long.
(3) Computers have had a very short history.

2. Understanding the passage

Decide whether the following statements are true or false by referring to the information in the text. Then make the necessary changes so the false statements become true.

(1) The abacus and the fingers are two calculating devices still in use today.
(2) The slide rule was invented hundreds of years ago.
(3) During the early 1880s, many people worked on inventing a mechanical calculating machine.
(4) Charles Babbage, an Englishman, could well be called the father of computers.
(5) The first computer was invented and built in the USA.
(6) Instructions used by computers have always been kept inside the computer's memory.
(7) Using transistors instead of vacuum tubes did nothing to increase the speed at which calculations were done.
(8) As computers evolved, their size decreased and their dependability increased.
(9) Today's computers have more circuits than previous computers.
(10) Computer technology has developed to a point from which new developments in the field will take a long time to come.

3. Locating information

Find the passages in the text where the following ideas are expressed. Give the line references.

(1) During the same period in history, logarithm tables and calculus were developed.

(2) It wasn't until the 19th century that a calculating machine was invented which tried to reduce manpower.

(3) Integrated circuitry has further changed computers.

(4) People used their fingers to count.

(5) The computers of the future may be quite different from those in use today.

(6) Today's computer circuits can be put on a chip.

(7) Then an instrument with beads was invented for counting before a mechanical way for multiplying and dividing was devised.

(8) Transistors replaced vacuum tubes.

4. Understanding words

Refer back to the text and find synonyms (i.e. words with a similar meaning) for the following words.

(1) machine (L.1).....

(2) designed (L.6).....

(3) a lot (L.12).....

(4) errors (L.12).....

(5) solve (L.21).....

Now refer back to the text and find antonyms (i.e. words with an opposite meaning) for the following words.

(6) old (L.7).....

(7) a few (L.13).....

(8) to include (L.15).....

(9) contemporaries (L.29).....

(10) still in use (L.42).....

5. Content review

Use the information in the text to complete the following table.

TIME	EVENT
Primitive times	
17th and 18th centuries	
	Abacus invented
	Charles Babbage designed
1930	
	First use of in