信息技术科技英语

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内 容 简 介

本书是用中英文混合编写的，书中内容涉及信息技术基础知识及信息技术应用等各个方面，其中包括信息技术软硬件基础及主要应用。

书中每一节后都列出了在课文中出现的生词和词组，每一章后对较难理解的句子进行了注释，还给出一些练习题和阅读材料，对信息技术科技英语的特点、阅读方法和技巧进行了简要介绍。书后还附有英语常用前缀后缀、常用专业词汇和常用专业缩略语，供读者学习参考。

本书适合作为高职高专院校信息技术类如计算机应用、计算机网络、计算机软件、计算机信息管理、电子商务、计算机科学技术等专业的学生的英语教材也可供广大相关专业人员学习专业英语参考。

《新世纪高职高专实用规划教材》序

编写目的

目前，随着教育改革的不断深入，高等职业教育发展迅速，进入到一个新的历史阶段。学校规模之大，数量之众，专业设置之广，办学条件之好和招生人数之多，都大大超过了历史上任何一个时期。然而，作为高职院校核心建设项目之一的教材建设，却远远滞后于高等职业教育发展的步伐，以至于许多高职院校的学生缺乏适用的教材，这势必影响高职院校的教育质量，也不利于高职教育的进一步发展。

目前，高职教材建设面临着新的契机和挑战：

(1) 高等职业教育发展迅猛，相应教材在编写、出版等环节需要在保证质量的前提下加快步伐，跟上节奏。

(2) 新型人才的需求，对教材提出了更高的要求，即教材要充分体现科学性、先进性和实用性。

(3) 高职高专教育自身的特点是强调学生的实践能力和动手能力，教材的取材和内容设置必须满足不断发展的教学需求，突出理论和实践的紧密结合。

有鉴于此，清华大学出版社在相关主管部门的大力支持下，组织部分高等职业技术学院的优秀教师以及相关行业的工程师，推出了一系列切合当前教育改革需要的高质量的面向就业的职业技术实用型教材。

系列教材

本系列教材主要涵盖以下领域：

- 计算机基础及其应用
- 计算机网络
- 计算机图形图像处理与多媒体
- 电子商务
- 计算机编程
- 电子电工
- 机械
- 数控技术及模具设计
- 土木建筑
- 经济与管理

● 金融与保险

另外，系列教材还包括大学英语、大学语文、高等数学、大学物理、大学生心理健康等基础教材。所有教材都有相关的配套用书，如实训教材、辅导教材、习题集等。

教材特点

为了完善高等职业技术教育的教材体系，全面提高学生的动手能力、实践能力和职业技术素质，特意聘请有实践经验的高级工程师参与系列教材的编写，采用了一线工程技术人员与在校教师联合编写的模式，使课堂教学与实际操作紧密结合。本系列丛书的特点如下：

(1) 打破以往教科书的编写套路，在兼顾基础知识的同时，强调实用性和可操作性。

(2) 突出概念和应用，相关课程配有上机指导及习题，帮助读者对所学内容进行总结和提高。

(3) 设计了"注意"、"提示"、"技巧"等带有醒目标记的特色段落，使读者更容易得到有益的提示与应用技巧。

(4) 增加了全新的、实用的内容和知识点，并采取由浅入深、循序渐进、层次清楚、步骤详尽的写作方式，突出实践技能和动手能力。

读者定位

本系列教材针对职业教育，主要面向高职高专院校，同时也适用于同等学历的职业教育和继续教育。本丛书以三年制高职为主，同时也适用于两年制高职。

本系列教材的编写和出版是高职教育办学体制和运作机制改革的产物，在后期的推广使用过程中将紧紧跟随职业技术教育发展的步伐，不断吸取新型办学模式、课程改革的思路和方法，为促进职业培训和继续教育的社会需求奉献我们的力量。

我们希望，通过本系列教材的编写和推广应用，不仅有利于提高职业技术教育的整体水平，而且有助于加快改进职业技术教育的办学模式、课程体系和教学培训方法，形成具有特色的职业技术教育的新体系。

教材编委会

前　言

　　信息技术科技英语是以高职高专信息技术类专业培养目标为依据，针对高职高专学生的特点，学习并掌握信息技术的常用英语知识，包括常见的英语语法、句型、常用词组、常用缩略语，更重要的是学会如何应用，同时学会信息技术英语的阅读方法，掌握一定数量的信息技术专业的英语词汇，并能与实际相结合。

　　本书各章节内容，有的以英语文章的形式介绍相关内容，有的以列表的形式对相关内容或词汇进行解释，力求使学生比较全面地掌握信息技术专业英语。为方便理解和强化记忆，配有疑难注释、练习题和参考译文。附录中编写常用词汇表和常用缩略语等。

　　本书主要用于高职高专信息技术类专业英语教材，如计算机应用、计算机网络、计算机软件、计算机信息管理、电子商务、计算机科学技术等专业。也可供广大相关专业人员学习专业英语参考。

　　本书由程显林主编，董春波、罗艳秋、远进参加编写，全书共有 10 章课文和阅读材料，另有英语常用前缀后缀、常用专业词汇和常用专业缩略语。其中董春波编写第 3 章、第 5 章和第 6 章，罗艳秋编写第 7 章、第 8 章和第 10 章，远进编写第 2 章和第 4 章，其余由程显林编写。

　　由于作者水平有限，书中难免有不当之处，敬请读者批评指正。

目 录

CHAPTER ONE   INTRODUCTION TO COMPUTERS

Text A:What Is a Computer

A computer is an electronic device that can automatically conduct accurate and fast data manipulation under the control of stored program instructions[1]. It accepts, stores, and processes data and produces output results through output devices like screen and printers.

Information in the form of data and programs is known as software, and the electronic and mechanical parts that make up a computer system are called hardware. A standard computer system consists of three main sections: the central processing unit (CPU), the main memory and the peripherals.

Perhaps the most influential component is the central processing unit. Its function is to execute program instructions and coordinate the activities of all the computer. The main memory holds the instructions and data which are currently being processed by the CPU. The peripherals are the physical units attached to the computer. They include storage devices and input/output devices.

Storage devices (floppy, hard or optical disks) provide a permanent storage of both data and programs. Disk drives are used to handle one or more floppy disks. Input devices enable data to go into the computer's memory. The most common input devices are the mouse and the keyboard. Output devices enable us to extract the finished product from the system. For example, the computer shows the output on the monitor or prints the results onto paper by means of a printer.

On the rear panel of the computer there are several ports into which we can plug a wide range of peripherals-modems, fax machines, optical drives and scanners. These are the main physical units of a computer system, generally known as the configuration.

Computer technology is the combination of electronic technology and calculating technology. Now, it has been developed into a new stage that features the merging of computer and communication, leading to the wonderful Internet world[2]. The computer nowadays possesses rather powers of logical judgment, automatic control and memory capacity. As a result, it can, to some extent, take the place of labors at some occupational posts.

NEW WORDS AND EXPRESSIONS

electronic [ilek'trɔnik] adj. 电子的
automatically [ɔ:tə'mætikli] adv. 自动地，机械地
software ['sɔftwɛə] n. 软件

mechanical [mi'kænikl] adj. 机械的

hardware ['hɑːdwɛə] n. 硬件

peripheral [pə'rifərəl] n. 外围设备　adj. 外围的

execute ['eksikjuːt] vt. 执行

coordinate [kəu'ɔːdinit] n. 坐标　adj. 同等的

hold [həuld] v. 支持，保持

unit ['juːnit] n. 单元

floppy ['flɔpi] n. 软盘

handle ['hændl] vt. 处理，操作

mouse [maus] n. 鼠标

keyboard ['kiːbɔːd] n. 键盘

monitor ['mɔnitə] n. 监视器

printer ['printə] n. 打印机

panel ['pænl] n. 面板

port [pɔːt] n. 端口

modem ['məudəm] n. 调制解调器

fax [fæks] n. 传真

scanner ['skænə] n. 扫描仪

configuration [kən,figju'reiʃən] n. 配置

feature ['fiːtʃə] n. 特点，特色，特征

merge [məːdʒ] v. 合并，结合

possess [pə'zes] vt. 占有，拥有

occupational [,ɔkju'peiʃənəl] adj. 占有的，职业的

PHRASES AND EXPRESSIONS

under the control　在……控制之下

main memory　主存储器

storage device　存储设备

optical disk　光盘

input device　输入设备

output device　输出设备

memory capacity　存储容量

to some extent　在某种程度上

Text B: Computer in Progress

Having made clear what is a computer system, we'll see the development of computer.

The first computer-like machine, named ENIAC, or said Electronic Numerical Integrator and Computer, was produced in 1946, initially for military use under the host by the American army. ENIAC was a giant, weighing over 30 tons and containing over 18,000 vacuum tubes, it was capable of performing thousands of operations per second. Yet, this computer ushered in the Computer Age. It was an unprecedented machine capable of doing work involving human mental process, for example, simple logic inference, basic arithmetic calculations and data processing. Particularly, its structure known as stored program concept proved to be universally accepted for digital computers built for performing actually all types of computations.

Since the day ENIAC was produced, computer technology has evolved rapidly, undergoing 5 generations mainly based on the different electronic components adopted.

The First Generation of Computer: 1946-1959

The first generation of computers was characterized by the most prominent feature of the ENIAC-vacuum tubes, hundreds of vacuum rubes made up the main memory. Due to the primary lack of the vacuum tubes, say it was bulky and produced a lot of heat and did not operate very fast, the computers that time had the features of high cost and huge bulk with low memory capacity, low execution speed[3]. In addition, most input and output media were paper cards, magnetic drums and magnetic tapes, Users couldn't access information directly, and they could run only one program at a time. Through the 1950s, new advancements were continuously made both in hardware and software, such as the binary arithmetic, random access, and concept of stored programs. Machine language in binary system was the only programming language at this stage, although the idea of programming language translation and high-level languages still occurred a bit later. For example, the FORTRAN programming language was made in 1957, which developed into the first widely use high-level languages.

The Second Generation of Computer: 1959-1964

During this period, the computer scientists fortunately found a kind of new material, the transistor, which is smaller and less expensive, to replace the bulky and costly vacuum tubes in computers, resulted in great decrease in the size and cost of computers, with operation speed increased greatly. At the same time, magnetic cores made of magnetic materials were commonly used as the main memory. Not only were the special-purpose expensive mainframes produced this time, but also the minicomputers became available in the 1960s. Software was still under its early development, and assembly language played a more and more important role instead of the machine language. At the same time, computer began to be used in other fields, like data processing, besides the original applications in military and scientific research, calculations. More and more businesses and organizations were coming to use computers for data processing

needs.

The Third Generation of Computer: 1964-1970

An important event in the history of computer development should be stated here, that is the announcement of their system 360 lines of computers by the IBM on April 7, 1964. The System/360 ushered us into a new age of the computer development, the third generation of computers, which was characterized by the technical development of integrated circuits. An integrated circuit is a piece of silicon (chip) that consists of numerous transistors, and this caused the revolutionary evolution in hardware.

Another important mark of this generation is the solution to the compatibility problems to the previous computers. All models were compatible so that programs written for one model could be used in others.

Software development gained a breakthrough during the third computer generation. Although simple operating system had already been developed even in the first generation of computers, many of the functions of modern operating system appeared in the third generation, or we can say it[4] more vividly that the first and second generations of computers were the birth and childhood of operating system, the third generation was the time it grown up and began to mature[5]. Advanced programming languages and interactive operating systems began to be used in computer systems. Minicomputers began to be widely used in the 1970s. The third generation computers work so quickly that they provide the capability to run more than one program concurrently (multiprogramming), furthermore, it could support virtual memory and time sharing operation.

The Fourth Generation of Computers: 1971 till now

Since the day when transistors took the place of vacuum tubes as the basic electronic components of computers, the evolution of computers has been the continuous research in the highly efficient use of transistors. Integrated circuit was the first step, however in the fourth generation of computers, scientists found way to put more and more transistors on a tiny silicon chip. First there was large-scale integration (LSI), with hundred thousands of transistors per chip, then came the very large scale integration[6] (VLSI), with thousands and hundreds of thousands of transistors. At the same time, integrated semiconductor storage was used as main memory instead of the previous magnetic cores. This time, the operating speed can reach millions or hundreds of millions times per second.

One of the most significant contributions of the fourth generation of computers is the microprocessor. As the technology developed, more and more transistors could be integrated on a silicon chip, it eventually became possible to put an entire computer processor, called a microprocessor, on a chip[7]. Consequently, microcomputers using microprocessors for personal user was produced, and this laid the foundation for computers to step into common family, which can be called another milestone in the progress of computer[8]. Without the microprocessor and the following microcomputers, there wouldn't have been the wonderful nowadays' development of Internet, which concurrently has activated the development of software. Operating systems were

gradually improved to be perfect, and newly advanced languages were designed. Varieties of application software were developed for different purposes, from work to amusement, even the blaming virus programs. Multimedia, office automation bulletin board, Internet computer games are the popular words at this age. Database software became widely used during this time.

The Fifth-Generation of Computers(now-future)

Some says the fifth generation of computers will have two basic characteristics, one is the use of parallel processing techniques, and another is the use of Artificial Intelligence. In the future, incredibly fast computer chips will be used, which makes the computers be able to carry out thousands of operations simultaneously. The computers will be based on logical inference. There will be extensive use of artificial intelligence. Such machines will be able to do such things as make decisions, draw conclusions, and understand everyday speech and voice recognition. In future computers, voice and data will probably be transmitted by built-in cellular radio. Computers will weigh less than a pound.

NEW WORDS AND EXPRESSIONS

initially [i'nɪʃəli] adv. 最初

military ['militəri] adj. 军事的，军用的

unprecedented [ʌn'presidəntid] adj. 空前的

mental ['mentl] adj. 精神的，智力的

undergo [ˌʌndə'gəu] vt. 经历，遭受，忍受

generation [ˌdʒenə'reiʃən] n. 发生，产生，一代

characterize ['kæriktəraiz] vt. 表现……的特色

prominent ['prɔminənt] adj. 显著的，卓越的，突出的

advancement [əd'vɑ:nsmənt] n. 前进，进步

bit [bit] n. 位，比特

fortunately ['fɔ:tʃənətli] adv. 幸运地

transistor [træn'zistə] n. 晶体管

removable [ri'mu:vəbl] adj. 可移动的

stack [stæk] n. 栈

spindle ['spindl] n. 轴，杆

usher ['ʌʃə] vt. 引导，展示

silicon ['silikən] n. 硅元素，硅

evolution [ˌi:və'lu:ʃən] n. 进展，发展，演变

compatibility [kəmˌpæti'biliti] n. 兼容性

breakthrough ['breik'θru:] n. 突破

vividly ['vividli] adv. 生动地，鲜明地

furthermore [fɜːðə'mɔː(r)] adv. 此外，而且

component [kəm'pəunənt] n. 成分，部件，组件

semiconductor ['semikən'dʌktə] n. 半导体

significant [sig'nifikənt] adj. 重要的

contribution [ˌkɔntri'bjuːʃən] n. 贡献

microprocessor [maikrəu'prəusesə(r)] n. 微处理器

consequently ['kɔnsikwəntli] adv. 因此

milestone ['mailstəun] n. 里程碑

amusement [ə'mjuːzmənt] n. 娱乐

multimedia ['mʌlti'miːdjə] n. 多媒体

multiprogramming n. 多道程序设计

parallel ['pærəlel] adj. 并行的

incredibly [in'kredəbli] adv. 难以置信地

simultaneously [siməl'teɪnɪəsly] adv. 同时地

terabyte n. 太字节，1000 GB(千兆)字节

transmit [trænz'mit] v. 传输

projector [prə'dʒektə] n. 放映机

communicate [kə'mjuːnikeit] v. 通信，交通

interface ['intə(ː)ˌfeis] n. 界面

PHRASES AND EXPRESSIONS

vacuum tube 真空管

in addition　此外

magnetic drum　磁鼓

magnetic tape　磁带

random access　随机存取

machine language　机器语言

magnetic cores　磁芯

magnetic disk pack　磁盘组

assembly language　汇编语言

virtual memory　虚拟内存

IC (integrated circuit)　集成电路

silicon chip　硅片

time sharing operation 分时操作

large-scale integration (SLI) 大规模集成

very large scale integration (VLSI) 超大规模集成

office automation 办公自动化

artificial intelligence 人工智能

logical inference 逻辑推论

voice recognition 声音识别

cellular radio 单元式(蜂窝式)无线电传输

Text C: CLASSIFICATIONS OF COMPUTER

GENERAL PURPOSE AND SPECIAL PURPOSE DIGITAL COMPUTERS

Digital computers are made for both special and general uses, as the name suggests, a special-purpose computer is one that's designed to perform only one specific task[9]. The program of instructions is wired into or permanently stored in such a machine. Although it lacks versatility, it does its single task quickly and efficiently. Special purpose processors designed just to solve complex navigational problems are installed aboard U. S. atomic submarines. Not too long ago, however, special-purpose computers were too expensive for most applications. Only a few might be needed by one organization, and the specialized model might not do anyone else any good. But today, customized microcomputers are produced in large quantities to perform task such as monitoring household appliance and controlling the fuel, ignition, and instrument systems in automobiles. Furthermore, rapid progress is now being made in developing the automated design tools that engineers can use to economically build small quantities of complex microcomputer chips for specialized purposes.

A general-purpose computer is one that can store different programs and can thus be used in countless applications. You've seen that by using different instructions such a machine can process a payroll one minute and a billing application the next. New programs can be written, and old programs can be changed or dropped. The versatility of a general-purpose system is limited only by human imagination. And so, unless otherwise noted, all our future discussion of "computers" will be about general-purpose digital systems.

MICRO, MINI, LARGE COMPUTER AND SUPER COMPUTER

Computers can be placed into four general classes: microcomputers, minicomputers, large computer and super computer. These classifications are usually based on three characteristics of computers: speed, main-storage capacity and word size. Speed is expressed by how many

millions of instructions can be executed per second, called MIPS. Main-storage capacity is the number of characters a computer's memory can hold. Word size is the number of bits in an addressable main storage location. The amount of main storage that can be addressed is partly determined by a computer's word size.

1. Microcomputer

Microcomputer is the most common and familiar type to us, also known as personal computer or PC for short. The development of the microcomputer began in 1971 with the introduction of the first computer processor based on micro-electronics. Since that time, there have been a number of improvements in the microcomputer, and the microcomputer has had a tremendous impact on the computer industry. It can be a desktop model or portable one. Microcomputers are widely used in offices, homes, schools, or companies. They can carry out lots of tasks, for example, we can deal with data, write reports, arrange files, communicate with others on network, do some calculations etc. Most microcomputers have either an 8-bit, 16-bit or even 64-bit word size, which is the term used to represent the processing ability of computer. Their main-storage capacities range from 1 MB to10 MB or even bigger. Most of the users can accept it for its low cost and convenience.

2. Minicomputer

Minicomputer, also called midrange computers, has a 16-bit to 64-bit word size, with a main-storage capacity ranges from 8 to 16 megabytes. It can support 2 about 50 users at the same time and works much faster than microcomputer. Some medium-sized companies or large departments of factories may use minicomputers to conduct accounting work or monitor a particular manufacture process.

3. Large computer

Large computer systems can execute 50 to 150 million instructions per second, commonly have a 64-or 128-bit word size, and have a main-storage capacity of up to 128 million characters (128 megabytes). Like other mainframes, these machines can be expanded to provide additional processing capability. If you go to the airline, a bank, a large insurance company, or a stock exchange, you may see a large computer system. Large computers offer faster processing speeds and greater storage capacity than minicomputer. They can support thousands of users, and their size can be either big or small.

4. Supercomputers

The most powerful mainframes are called super computers. They can execute hundreds of millions of instructions per second, have up to a 128-bit word size and may have a main-storage capacity of over 200 million characters. Super computers are not likely to be visited by general users. They are always housed in certain environment for special purpose, for example for military use or scientific research. Their processing speed may be thousands of times faster than any other types of computers. They are the giants of the computer world.