高职高专计算机专业“十一五”规划教材

计算机
专业英语
Jisuanji
Zhuanye Yingyu

主编　姚青山

西北大学出版社
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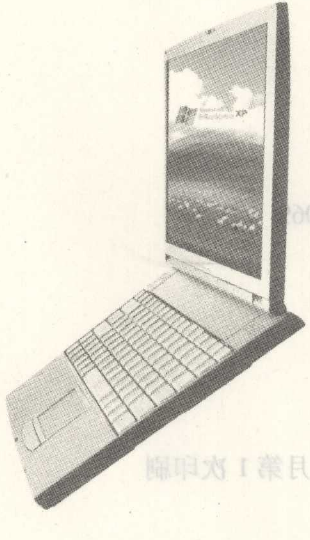

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出版说明

当前，我国正在走新型工业化道路，坚持以信息化带动工业化，以工业化促进信息化，加快发展现代服务业，全面建设小康社会。走新型工业化道路，既需要一大批拔尖创新人才，也需要数以千万计的专门人才和数以亿计的高素质劳动者。根据劳动力市场技能型人才短缺的状况，国家决定实施技能型紧缺人才培养培训工程，其中计算机人才的培养培训是其重要的组成部分。

为适应高职高专计算机教育发展的需要，促进教育教学改革和教材建设，满足经济和社会发展对计算机人才的需求，根据教育部等六部门印发的《关于实施职业院校制造业和现代服务业技能型紧缺人才培养培训工程的通知》精神，按照教育部《关于制定〈2004～2007年职业教育教材开发编写计划〉的通知》要求，在教育部有关部门的支持和指导下，经河南省教育厅批准，我们组织有关专家，对计算机高职高专教育的培养目标和模式、课程体系、教学内容、教学方法和手段、教学实践等方面，进行了广泛而深入的调研。

在充分调研的基础上，在教育部有关部门和河南省教育厅的大力支持下，我们组织有关专家召开了计算机高职高专教育教学研讨会、教学大纲审定会和主编人会议，确定了教材编写的指导思想、原则和要求，组织全省近40所院校的一线教师，汲取了最新的计算机高职高专教育教学经验和成果，编写了这套教材。本套教材充分体现了以就业为导向，以职业技能培养为根本的编写指导思想，突出了思想性、科学性、先进性、可读性和适用性的编写原则，较好地处理了“三基”（基本理论、基本知识、基本技能）关系，学历教育与职业认证、职业准入的关系。

这套教材虽经广泛调研与精心编撰，但一定还会存在这样或那样的不足，我们诚挚欢迎广大读者，尤其是选用该教材的教师和学生对其中的不足之处给予批评指正，以便我们在重印和修订时采纳有益的建议和意见，使之不断完善。

河南省高等学校计算机教育研究会
2007年8月

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前　言

无论是学习最新的计算机技术，还是使用最新的计算机软硬件产品，都离不开对计算机专业英语的熟练掌握。正是为了适应这种要求，不少院校纷纷将计算机专业英语作为计算机相关专业的必修课，甚至还作为一门实用的选修课推广到其他专业。

本书是按照最新《大学英语教学大纲》对专业英语的要求，为开设计算机专业英语课程而编写的面向应用的教材，共分为计算机基础知识（计算机系统，存储设备，操作系统与应用软件）、软件工程（软件生命周期，软件开发，计算机语言和编程，数据库与分布式系统）、网络与通信（电信与信息高速公路，计算机网络，传输介质，网络体系结构，因特网，ADSL 实用技术与安全技术）、IT 与我们的生活（IT 与计算机应用，电子商务与电子政务）等四大板块，每一板块包含若干典型的专题单元，每一单元包括三篇文章，围绕同一主题，每篇课文配有多种紧密结合知识难点或技术热点的习题。全书共 19 个单元，其特色表现为：

便教与学。教师可根据学生知识情况和课时状况，选择讲授的文章；并根据学生的理解、掌握情况，布置作业。课文均配有参考译文，有直观的插图或示意图，以增加文章的直观性与趣味性，使读者能更好地理解原文和提高学习兴趣，与附录 1 中的缩略语表和附录 2 中的部分习题参考答案一起，可协助学生进行自学。

把握基础。课文 A 为精读材料，包含专题基础知识，一般为该主题的概述，要求学生能正确理解和熟练掌握其内容，课后配有填空、英汉短语互译、判断、句译和段译等五种题型；多种习题帮助学生主动理解、应用课文知识，特别是涉及应用和较难理解的内容。

侧重应用。课文 B 和课文 C 为泛读材料，就该主题的某一具体方面或具体的应用实例展开讨论，要求学生能掌握中心大意，抓住主要事实或掌握应用方法，同时考虑到其内容的“新”与“深”特点，课后均仅配填空与英汉短语互译两种题型。书中三分之一的专题单元介绍网络知识，突显其作为 IT 应用核心的地位。

追求最新。课文 B 和课文 C 包含该专题的应用热点或最新发展，侧重介绍知识或技术的应用方法；即使在课文 A 中，介绍的理论知识也尽可能结合了实际应用。在选材的过程中，精心挑选了因特网、电子商务、电子政务、计算机安全等方面的精彩内容，同时在所有选材上着重体现一个“新”字。例如，Windows Vista，Linux，Java，ATM，黑客防范等。

本书可作为应用型本科、高职高专、中等专业院校计算机相关专业的计算机专业英语教材，也可作为工程技术人员的参考用书。本书适合于具有一定计算机和网络基础知识

的读者使用。

本书第1、12、15单元由姚青山编写，段明义、张春霞共同编写了第8单元和附录1，张春霞还编写了第14、16单元，并为第3、4、5、7、9、10单元习题编写了参考答案，王博编写了第2、11单元，张艺博编写了第3单元，张亚利编写了第4单元，张一帆编写了第5单元，曹晓丽编写了第6、17单元，王永编写了第7单元，付晓豹编写了第9单元，王方编写了第10单元，胡爱娜编写了第13单元，齐爱朋编写了第18、19单元。在编写过程中，Part Ⅰ由张春霞组稿，Part Ⅱ由王博组稿，Part Ⅲ由曹晓丽组稿，Part Ⅳ由姚青山组稿，姚青山统稿。在编写过程中，徐文婕、王红丽、李康映也承担了大量的工作。河南省高等学校计算机教育研究会和西北大学出版社给予了大量的指导和帮助，在此表示感谢。

由于计算机领域的发展日新月异，许多新术语尚无确定的规范译法，尽管编者在多个方面都做了大量工作，但由于经验有限和时间仓促，书中难免有不尽如人意之处，恳请广大读者不吝赐教。另外，本书为教师赠送课件，需要者请向 yqs0371@yahoo.com.cn 索取。

编者

2007年5月

Contents

Part Ⅰ Computer Basis ······ 1
Unit 1 Computer System ······ 1
Section A Overview of Computer System ······ 1
Section B The I/O Devices of PCs ······ 6
Section C Multimedia Computer System ······ 10
参考译文 ······ 14
Unit 2 Storage Devices ······ 20
Section A Overview of Memory Products ······ 20
Section B Disk ······ 23
Section C CD and DVD ······ 25
参考译文 ······ 28
Unit 3 Operating System ······ 31
Section A Overview of Operating System ······ 31
Section B Windows Vista ······ 35
Section C What is Linux ······ 38
参考译文 ······ 41
Unit 4 Application Software ······ 47
Section A Application Software ······ 47
Section B MS Office and Office Automation ······ 50
Section C Others ······ 53
参考译文 ······ 56
Part Ⅱ Software Engineering ······ 60
Unit 5 Software Life Cycle ······ 60
Section A Software Life Cycle ······ 60
Section B Distinguishing Software and Program ······ 64
Section C Distinguishing Software from Hardware ······ 65
参考译文 ······ 67
Unit 6 Software Development ······ 70
Section A Software Development ······ 70
Section B Waterfall Model and Structured Programming Philosophy ······ 73
Section C Geyser Model and Object-Oriented Developing Method ······ 75
参考译文 ······ 78

Unit 7 Computer Language and Programming …… 82
Section A Programming Languages …… 82
Section B Visual C + + and MFC Basis …… 85
Section C The Java Language …… 89
参考译文 …… 92
Unit 8 Database …… 96
Section A Enter The World of Relational Databases …… 96
Section B Database Objects of SQL Server …… 100
Section C Delphi Database Architecture …… 103
参考译文 …… 106
Unit 9 Distributed Systems …… 111
Section A Distributed Computer Systems …… 111
Section B Client/Server …… 115
Section C Browser/Server …… 118
参考译文 …… 121
Part Ⅲ Networks and Communications …… 126
Unit 10 Telecommunications and Information Superhighway …… 126
Section A Telecommunications and Computer …… 126
Section B Internet and Information Superhighway …… 130
Section C ATM and Its Advantages …… 133
参考译文 …… 136
Unit 11 Computer Networks …… 140
Section A Overview of Computer Networks …… 140
Section B LAN Design …… 143
Section C WLAN …… 145
参考译文 …… 147
Unit 12 Transmitting Media …… 150
Section A Transmitting Media …… 150
Section B Twisted Pair …… 154
Section C Fiber …… 156
参考译文 …… 159
Unit 13 Network Infrastructure …… 162
Section A Network Topologies …… 162
Section B The Basis of OSI Reference Model and TCP/IP Model …… 165
Section C Network-Layered Protocols …… 167
参考译文 …… 170
Unit 14 Internet …… 173
Section A How Does the Internet Work …… 173

Section B What's Web Page ······ 177
Section C What's E-mail ······ 180
参考译文 ······ 183
Unit 15 Practical ADSL Techniques ······ 188
Section A Internet ADSL Connection of A Computer ······ 188
Section B The Optimization of Internet ADSL Connection ······ 193
Section C The Techniques of Internet ADSL Connection Sharing ······ 196
参考译文 ······ 200
Unit 16 Security Technologies ······ 204
Section A Computer Security ······ 204
Section B Computer Virus ······ 208
Section C Hacker ······ 211
参考译文 ······ 215
Part Ⅳ IT and Our Life ······ 220
Unit 17 IT and Computer Application ······ 220
Section A Information Revolution ······ 220
Section B Geographic Information System ······ 223
Section C Management Information Systems ······ 226
参考译文 ······ 230
Unit 18 E-Commerce ······ 234
Section A Electronic Commerce Introduction ······ 234
Section B The Evolution of E-Commerce ······ 237
Section C Setting Goals for Your Online Business ······ 240
参考译文 ······ 243
Unit 19 E-Government ······ 247
Section A E-Government ······ 247
Section B The Architecture of E-Government Networks ······ 250
Section C SGAP Technology ······ 253
参考译文 ······ 257
Appendix Ⅰ Abbreviations ······ 261
Appendix Ⅱ The Reference Answers for Exercises ······ 277

Part Ⅰ *Computer Basis*

Unit 1 Computer System

Section A Overview of Computer System

A computer is a device that accepts input, processes data, stores data, and produces output. Inchoate computers could only process numerical data, while subsequent multimedia computers can process more than one medium such as sound, video, animation, and interactivity to the information presented. On the other hand, computers are either analog or digital according to the mode of processing data, while nowadays computers are almost digital. Every computer system comprises two subsystems: hardware system and software system. Today computers have been brought into many applications.

Ⅰ. The Evolution of Computers

Modern electronic computers didn't appear until the 1940s. Now, let's get a clear picture of the development of computers.

1. First-generation Computers(1946—1959)

It was in 1946 that the first computer of the world turned out in America, which was named ENIAC. Though it was very huge, without high performance, it makes basis for the development of computers. First-generation computers were characterized by the fact that operating instructions were made-to-order for the specific task for which the computer was to be used. Each computer had a different binary-coded program called a machine language that told it how to operate.

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2. Second-generation Computers(1959—1964)

It was the stored program and programming language that gave computers the flexibility to be finally cost effective and productive for business use. More sophisticated high - level languages such as COBOL and FORTRAN replaced cryptic binary machine code with words, sentences, and mathematical formulas, making it much easier to program a computer. New types of careers (programmer, analyst, and computer system expert) and the entire software industry began with second generation computers.

3. Third-generation Computers(1964—1971)

Though transistors were clearly an improvement over the vacuum tune, they still generated a great deal of heat, which damaged the computer's sensitive internal parts. Quartz Rock eliminated this problem. Jack Kilby, an engineer with Texas Instruments, developed the integrated circuit (IC) in 1958. The IC combined three electronic components onto a small silicon chip, called a semiconductor. As a result, computers became ever smaller as more components were squeezed onto the chip. Another third-generation development included the use of an operating system that allowed machines to run many different programs at once with a central program that monitored and coordinated the memory of the computer.

4. Fourth-generation Computers(1971—Present)

After the integrated circuits appeared, the only place to go was down-in size, that is to say, large scale integration (LSI) could fit hundreds of components onto one chip. By the 1980's, very large scale integration(VLSI) squeezes hundreds of thousands of components onto a chip. Ultra-large scale integration(ULSI) increased that number into the millions. In a word, integration helped diminish the size and price of computers. It also increased their power, efficiency and reliability. Now one microprocessor could be manufactured and then programmed to meet any demand.

5. Fifth-generation Computers(Present and Future)

Defining the fifth generation of computers is somewhat difficult because the field is in its infancy. Many advances in the science of computer design and technology are coming together to enable the creation of fifth - generation computers. Two such engineering advances are parallel processing, which replaces von Neumann's single central processing unit design with a system harnessing the power of many CPUs to work as one. Another advance is superconductor technology, which allows the flow of electricity with little or no resistance, greatly improving the speed of information flow.

Ⅱ. The Components of A Computer System

Hereinafter comes introducing the components of a typical computer system as an example.

1. Hardware System

The hardware system of a computer includes five parts: the central processing unit(CPU), memory, storage hardware, input hardware, and output hardware.

The part of the computer that runs the program is known as the processor or central processing unit(CPU). In a microcomputer, the CPU is on a single electronic component, the microprocessor chip. The CPU itself includes two parts: the control unit and the arithmetic-logic unit. In a microcomputer, these are both on the microprocessor chip.

Memory: Memory is also known as primary storage, internal storage, it temporarily holds data, program instructions and information. One of the most important facts to know about memory is that all of its content is held only temporarily. In other words, it is stored only as long as the computer is being turned on.

Storage hardware: The purpose of storage hardware is to provide a means of storing computer instructions and data in a relatively permanent form, that is to say, the data is not lost when the power is turned off and easy to retrieve when needed to process. There are four kinds of storage hardware: floppy disks, hard disks, optical disc and magnetic tape.

Input hardware: Input devices take the data and programs that people can read or understand and convert them to a form the computer can process, which is the machine-readable electronic signal of 0s or 1s. Input hardware contains keyboard entry and direct entry.

Output hardware: Output devices display the data from CPU or memory. There are varieties of output devices such as monitors and printers.

2. Software System

The software is defined as a set of computer programs and their documents. Programs are the instructions that tell the computer how to process data into the form people want. There are two kinds of software: system software and application software.

System software is a collection of programs that enables application software to run on a computer system's hardware devices, it is a background software and includes programs that help the computer manage its own internal resources. System software consists of four kinds of programs: bootstrap loader, diagnostic routines, basic input-output system and operating system. Of them, the operating system is always what we are most concerned with, which helps us manage computer resources. Now most popular operating systems include Windows, OS/2, Macintosh, Linux and Unix.

Application software is a specialized program that enables the user to accomplish specific tasks. For example, the official use WPS Office to promote the efficiency of their office work.

Computers are applied in such fields as science calculation, data processing, real-time control, adjuvant design and Artificial intelligence.

New Words and Expressions

medium *n.* （传播消息的）媒介；媒介物；介质

instruction *n.* 指令；命令

cryptic *adj.* 含义模糊的；隐藏的；秘密的；神秘的

sophisticated *adj.* 高度发展的，精密复杂的；老练的，练达的

formula	*n.* 公式;原则;方案
transistor	*n.* 晶体管
semiconductor	*n.* 半导体
squeeze	*vt.*, *vi.* (常与 out of 连用)压出,挤出;榨取;拥挤;紧捏
memory	*n.* 内存;存储器;记忆力
storage	*n.* 存储
optical	*adj.* 光的,光学的
magnetic	*adj.* 磁的;有磁性的,有磁力的
monitor	*n.* 显示器;监视器,监听及监视用的电视机
printer	*n.* 打印机

Phrases and Expressions

such as	例如,诸如
on the other hand	另一方面,换句话说
according to	参照,如…所示
turned out	出现
make basis for	为…打基础,奠定…的基础
be characterized by	以…为标志
begin with	以…开始;首先
as a result	因此;结果
in other words	换句话说
as long as	只要
turn on	打开;接通电源
a means of doing	做…的方法
a set of	一组,一套
run on	运行于…之上
electronic components	电子元件
silicon chip	硅片
bootstrap loader	引导装载程序
Artificial Intelligence	人工智能

Exercises

1. Fill in the blanks according to the text:

(1) Quartz Rock eliminated this problem. Jack Kilby developed the ________ in 1958. The IC combined three electronic components onto a small silicon chip, called a ________.

(2) The purpose of storage hardware is to provide a means of storing computer instructions and data in a ________ form, that is to say, the data is ________ lost when the power is ________ and easy to retrieve when needed for processing.

(3) There are two kinds of software: ________ and ________.

(4) Integration helped diminish the ________ and ________ of computers. It also increased their ________, ________ and ________.

(5) New types of careers (______, analyst, and computer systems expert) and the entire software industry began with second generation computers.

(6) The CPU itself has two parts: the __________ and the __________. In a *microcomputer, these are both on the microcomputer chip.*

2. Translate the following terms or phrases from English into Chinese and vice versa:

(1) large scale integration (LSI)

(2) arithmetic-logic unit

(3) system software

(4) high-level language

(5) basic input-output system

(6) 超大规模集成电路

(7) 应用软件

(8) 操作系统

(9) 超导体

(10) 微处理器

3. Decide whether each of the following statements is true or false according to the text:

(1) A computer is a device that accepts input, processes data, stores data, and produces output.

(2) Output devices modify the data from CPU or memory. There are varieties of output devices such as monitors and printers, etc.

(3) Memory still stores data as if the computer was turned off.

(4) There are four kinds of storage hardware: floppy disks, hard disks, optical disk, and magnetic tape.

(5) Ultra-large scale integration (ULSI) decreased that number into the millions.

(6) The part of the computer that runs the program is known as the memory.

4. Translate the following sentences into Chinese:

(1) First generation computers were characterized by the fact that operating instructions were made-to-order for the specific task for which the computer was to be used. Each computer had a different binary-coded program called a machine language that told it how to operate.

(2) Computer hardware has five parts: the central processing unit (CPU), memory, storage hardware, input hardware, and output hardware.

5. Translate the following paragraph into Chinese:

System software is a collection of programs that enables application software to run on a computer system's hardware devices, it is background software and includes programs that help the computer manage its own internal resources. System software consists of four kinds of programs: bootstrap loader, diagnostic routines, basic input-output system and operating system. Of them, the operating system is always what we are most concerned with, with helps manage computer resources. Most important operating systems are: Windows, OS/2, Macintosh, linux and Unix. Application software is a specialized programs that enables the user to accomplish specific tasks. For example, the official use WPS Office to promote the efficiency of their office work.

Section B The I/O Devices of PCs

PC is a brief call to Personal Computers, while the I/O devices of PCs mean the input devices/output devices of a computer. They bring the users ways to input and output data with some tools.

Ⅰ. The Input Devices of PCs

Computer systems use many devices for input purpose. The keyboard of a computer is an example of a direct input device. Additional direct input devices include the mouse, scanner, joystick, input pen, touch screen, and microphone. Regardless of the type of the device used, all are components for interpretation and communication between people and computer systems.

1. Keyboard

Most keyboards follow the standard QWERY layout of typewriter keyboards. Many have a separate numeric keyboard. Data is input to the computer through a keyboard that looks like a typewriter keyboard but has additional keys. In this method, the user typically reads from an original document called the source document. The user inputs data to that document by typing on the keyboard.

2. Mouse

A mouse is a device that you roll on a tabletop to move the cursor on the screen to make selections. For instance, you can move the mouse until its arrow rests over a word you've misspelled in a letter. Then, when you click a button, the word processor's cursor will jump to that word. This can be much quicker than tapping on the cursor keys to move the cursor, line by line, character by character.

3. Scanner

A scanner works like a photocopier. But instead of producing a duplicate of a sheet of paper, the scanner converts the image to text and stores it on disk. This has two very useful purposes. The first is to scan graphic images for inclusion in documents and for desktop publishing. The second is that software can "read" documents and converting the image into a text for input it into the computer.

Ⅱ. The Output Devices of PCs

The familiar output devices include monitors, printers, Voice-Output Devices.

1. Monitor

Monitors are also called display screen or video display terminals. Most monitors sitting on desks are built in the same way as television sets, these are called cathode-ray tubes. Another type of monitor is flat-panel display, including liquid-crystal display (LCD), electroluminescent

(EL)display and gas-plasma display. A LCD does not emit light of its own. Rather, it consists of crystal molecules. An electric field causes the molecules to line up in a way that alters their optical properties. Unfortunately, many LCDs are difficult to read in sunlight or other strong light. A gas-plasma display is the best type of flat screen. As a neon light bulb, the gas-plasma display uses the gas produced at the presence of an electric current.

2. Printer

There are four popular kinds of printers: dot-matrix, laser, ink-jet and thermal.

Dot-matrix printers can produce a page of text in less than 10 seconds and are highly reliable. They form characters or images using a series of small pins on a print head. The pins strike an inked ribbon and create an image on paper. Printers are available with print heads of 9, 18, or 24 pins. One disadvantage of this type of printer is noise.

The laser printer creates dotlike images on a drum, using a laser beam light source. The characters are treated with a magnetically charged inklike toner and then are transferred from drum to paper. A heat process is used to make the characters adhere. The laser printer produces images with excellent letter and graphics quality.

An ink-jet printer sprays small droplets of ink at high speed onto the surface of the paper. This process not only produces a letter-quality image but also permits printing to be done in a variety of colors.

A thermal printer uses heat elements to produce images on heat-sensitive paper. Color thermal printers are not so popular because of their cost and the requirement of specifically treated paper. They are a printer used by more prefessional users, which produces almost photographic-qualitied output. They are widely used in professional art and design work when very high quality color is essential.

3. Plotter

Plotters are special-purpose output devices for producing bar charts, maps, architectural drawings, and even three-dimensional illustrations. Plotters can produce high-quality multicolor documents and also documents that are larger in size than most printers can handle. There are four types of plotters: pen, ink-jet, electrostatic, and direct imaging.

4. Voice-Output Device

Voice-output devices make sounds that resemble human speech but actually are pre-recorded vocalized sounds. Voice output is used as a reinforcement tool for learning, such as to help students study a foreign language. It is used in many supermarkets at the checkout counter to confirm purchases. Of course, one of the most powerful capabilities is to assist the physically challenged.

Ⅲ. The Storage Devices of PCs

The Storage Devices of PCs act as both the roles of input devices and output devices. There are four kinds of storage devices: floppy disks, hard disks, optical disc and magnetic tape.

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