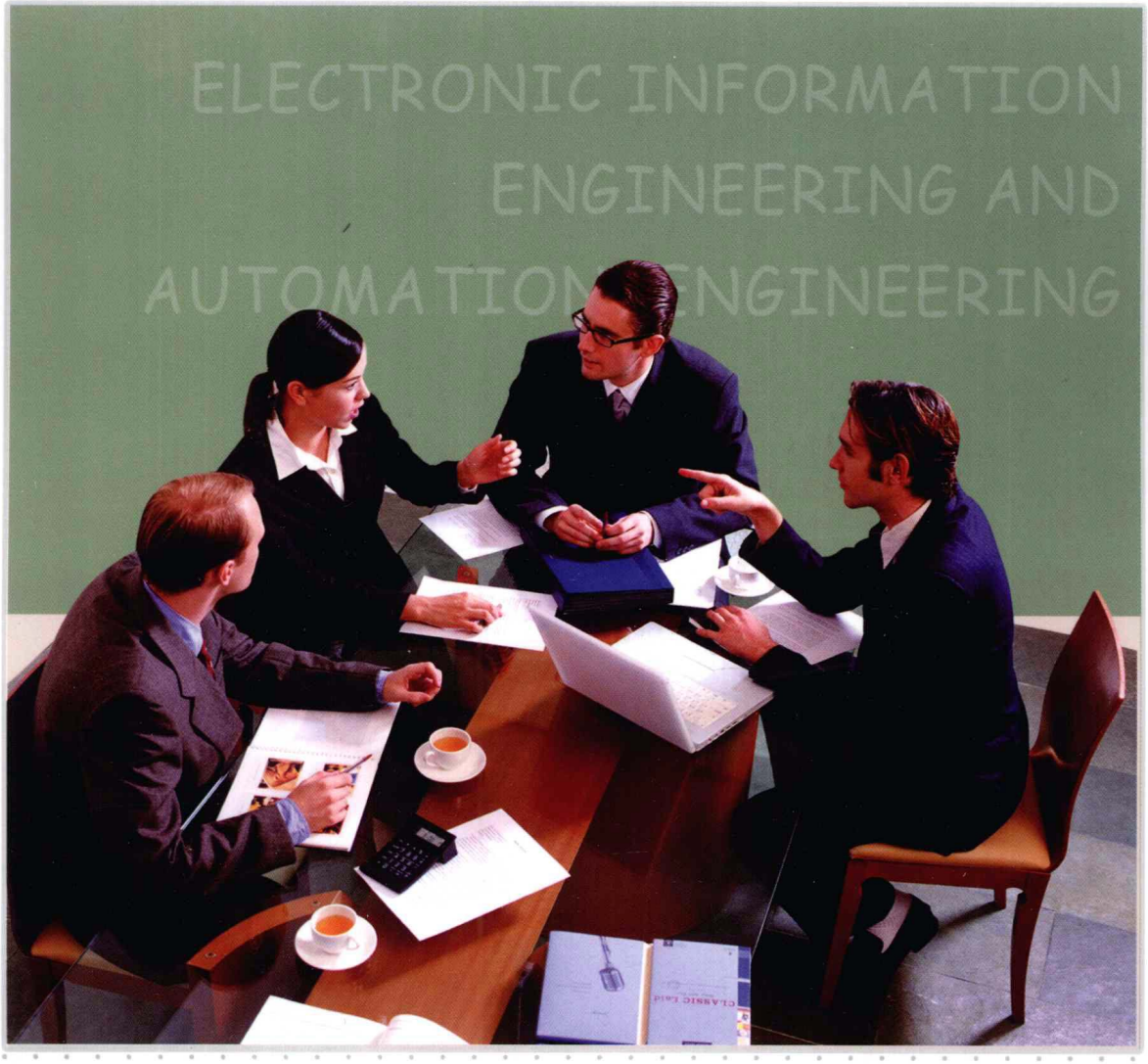
新世纪应用型高等教育
行业英语类课程规划教材

新世纪

PRACTICAL ENGLISH

实用英语（电子信息工程与自动化类）

新世纪应用型高等教育教材编审委员会组编
主编 熊 英



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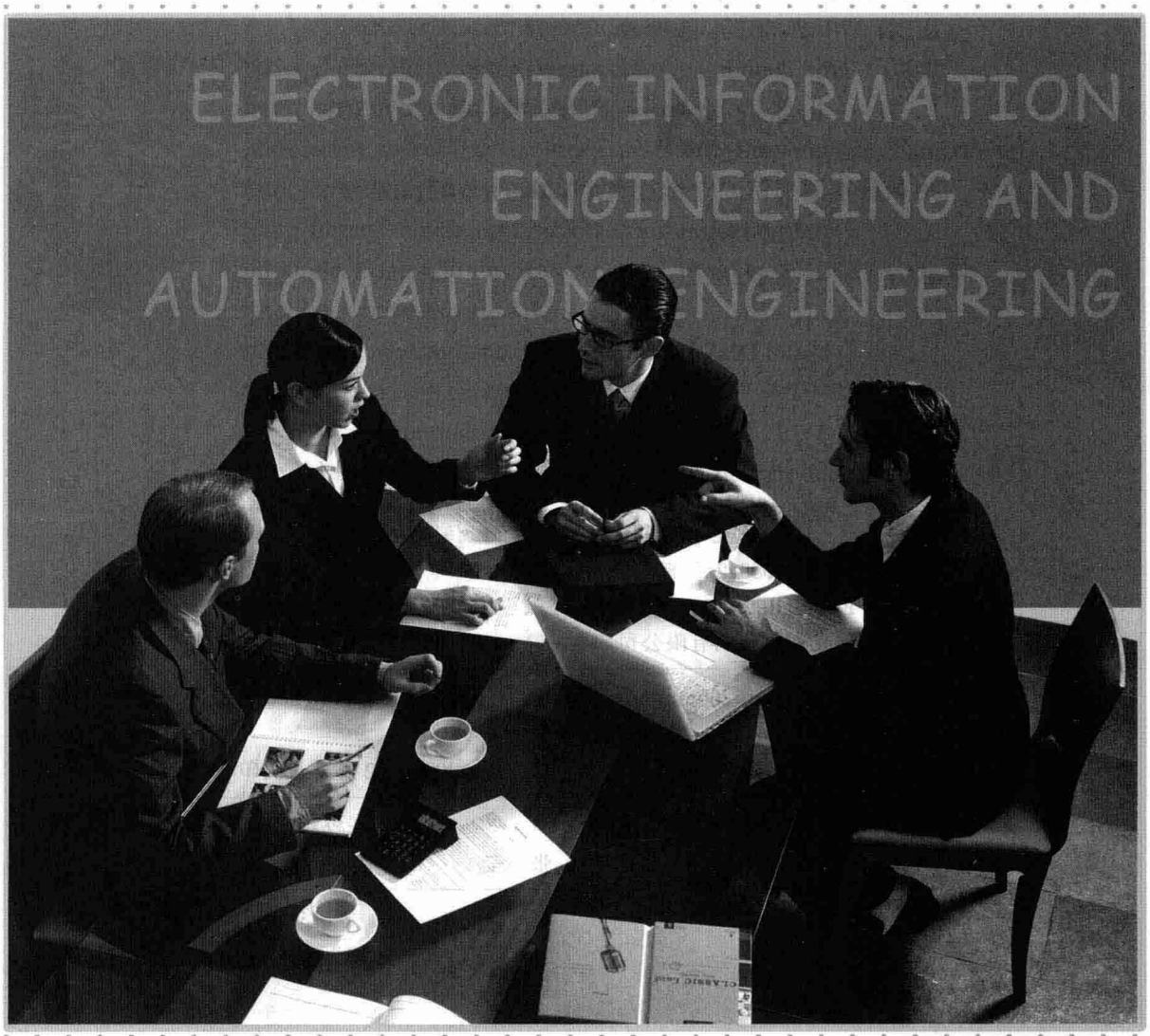

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前　言

随着英语教学改革的实施，大学英语高年级教材的需求也在日益增长。为此，我们编写了新世纪应用型高等教育行业英语类课程规划教材——实用英语系列。本系列教材以满足本领域学生对于英语学习的需求为目的，力求以新的教材编写理念培养学生未来工作和学习所需的实用英语技能，在巩固与拓宽现有知识和技能的基础上，提高学生的英语应用能力。本系列教材应用面广、实用性强，符合教育部“大学英语教学改革工作”所确定的加强实用性英语教学，全面提高大学生英语应用能力的教学改革方向。

英语作为一门应用最广的语言，在我们的学习、生活和工作中扮演着十分重要的角色。而理工类专业的学生往往在通过大学英语四级考试后就中断了英语学习，即使继续学习，也往往不能和专业相联系，或在专业英语学习中忽视了口语的练习，从而仍然不能摆脱“哑巴”英语的困惑。

本书是为电子信息工程与自动化专业大学三年级的学生编写的专业英语教材。文章精心选材，在内容设置上，既体现专业方面的基本原理，又侧重其在现实生活中的应用，并力求使学生在阅读文章后能借鉴其内容，结合一定的情景进行英文交流表达。

全书分为 15 个单元，每个单元涵盖一个专业知识点，既与专业结合紧密，又可自成体系。每个单元围绕一个主题，由 Text A 和 Text B 两部分组成。其中 Text A 可用于课堂授课，配备了：1. 阅读理解问题，用来检验学生对文章的理解和掌握程度；2. 情景交际任务，用来让学生借用文章内容，结合不同的情景，自主用英文进行口语交际练习；3. 英汉互译练习，培养学生对专业语句的翻译能力。Text B 作为补充阅读材料，附有阅读理解问题，供学生自学。希望通过本书的学习，能够开阔学生的专业视野和提高学生的专业英语交际能力。

新世纪

本教材由大连理工大学城市学院熊英任主编，狄竞怡任副主编，王剑娜、关丽、刘美慧、杨扬、张超、姚姝、柳莉莉参与了编写。本书在编写过程中得到了孙承科、张明君、张辉、尉迟颢颐的鼎力相助，在此表示感谢。

为方便教师更好地开展立体化教学，本教材另配有教师用书（纸质和电子版两种，免费赠送）、课件、教学大纲、题库。教师用书可与大连理工大学出版社联系索取，其他配套的资料请登录 http://www.dutpgz.cn 下载。

教材中如存在纰漏之处，敬请各相关院校和读者在使用本教材的过程中给予关注，并将改进意见及时反馈给我们，以便在下次修订时完善。

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编　者

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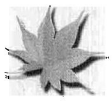
Unit 1

Electronics

Before considering electronic circuits and their uses, let us define electronics. The definition of electronics must be flexible enough to be realistic: The introduction of semiconductors forced a new definition. Let us put it this way: "Electronics is the science and technology based upon the movement of electrons in vacuums, in gases and in semiconductors." The definition given above effectively means that electronics is a technique making use of gas-filled and vacuum valves and semiconducting devices such as diodes and transistors. Most of these are "active" devices, capable of amplifying electric signals. The use of valves or transistors to amplify or more generally, to transform electric signals appears to describe fairly the field of electronics. Of course, electronics is an offspring of electricity, the fundamental science involving electrons. It must be considered a complementary, but not entirely different, domain. A circuit called electronic because it contains valves or transistors is nevertheless electric also because it involves current flow in wires, coils, capacitors and resistors.

TEXT A



Television—The Modern Wonder of Electronics

Television, or TV, the modern wonder of electronics, brings the world into your own home in sight and sound. The name television comes from the Greek word tale, meaning "far", and the Latin word "videre", meaning "to see". Thus, television means "seeing far". Sometimes television is referred to as video, from a Latin word meaning "I see". In Great Britain, the popular word for television is "telly".

Television works in much the same way as radio. In radio, sound is changed into electromagnetic (invisible light) waves which are sent through the air. In TV, both sound and light are changed into electromagnetic waves. Experiments leading to modern television took place more than a hundred years ago. By the 1920s, inventors and researchers had turned the early theories into working models. Yet it took another thirty years for TV to become an industry.

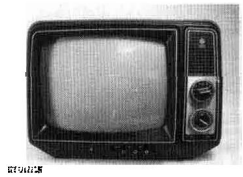
As an industry, TV provides jobs for hundreds of thousands who make TV sets and broadcasting equipment. It also provides work for actors, technicians, and others who put on programs. As an art, television brings the theater and other cultural events into the home. Its influence on the life of average Americans is incalculable: it can influence their thoughts, their likes and dislikes, their speech, and even their dress. It can also add to their store of knowledge. Through advertising, television helps businessmen and manufacturers sell their products to millions of persons. Television has brought political campaigns closer to the voters than in former days. Educational TV stations offer teaching in various subjects ranging from home nursing to art appreciation. Many large schools and universities have "closed-circuit" television equipment that will telecast lectures and demonstrations to hundreds of students in different classrooms; and the lecture can be put on video tape to be kept for later use. Some hospitals use TV to allow medical students to get close-up views of operations.

In 1946, after World War II, TV began to burst upon the American scene with a speed unforeseen even by the most optimistic leaders of the industry. The novelty of seeing TV pictures in the home caught the public's fancy and began a revolution in the world of entertainment. By 1950, television had grown into a major part of show business. Many film and stage stars began to perform on TV as television audiences increased. Stations that once telecast for only a few hours a day sometimes telecast around the clock in the 1960s.

With the development of programming also came the introduction of television in full color. By the middle of 1960s, the national networks were broadcasting most of their programs in color. The obvious appeal of television, whether in color or black-and-white, can be documented by the increasing number of TV sets in homes around the country. By the mid-1960s, 90 percent of the households in the United States had at least one TV set, and 12

percent had two or more sets. TV had become a part of the daily life of the adults and children of America.

Flat panel TVs are very popular now, because they may be only a few inches thick, they take up less room than boxy TVs, and some can be hung on the wall. The picture is sharper and more colorful, especially when showing digital images. However, they also have some shortcomings. Widescreen models display regular TV programs and some DVDs in a narrow format—meaning you will see black bars down the sides of the screens unless you stretch the image. Plasma screens are also prone to "burn in": over time, stationary images, like logos or news ticker boxes, can create permanent shadows.



In America, a lot depend on the features and brands. In general, a 20-inch LCD TV starts at about $750, while a 37-inch plasma set starts at $2,200. Sets with an HDTV tuner built in typically cost a few hundred dollars more. But large-screen plasma models cost less than their LCD equivalents. But if you want a smaller set, LCDs are your only choice. Look for prices to drop 10% to 30% if you are not in a hurry to buy one, as competition heats up. And overall prices should fall further as more computer firms enter it.

The programs that people watch are not only local and national ones. Since the launching of the first communications satellite, more and more programs are televised "live" from all over the world. Television viewers in San Francisco[1] were able to watch the 1964 Olympic Games in Tokyo[2] by means of a communications satellite named Syncom. The Olympic Games in Mexico City[3] and in Munich, Germany, were also telecast live, as were parts of the historic visit of President Nixon to the People's Republic of China. And live telecasts now come from outer space: In 1969, the first astronauts to land on the moon televised their historic "moon walk" to viewers on the earth. Since then, astronauts have regularly sent telecasts to the earth.

It looks as if the uses of television—in education, entertainment, and communication—appear to be endless. Certainly it is one of the major modern wonders of electronics in our changing world.

New Words and Expressions

electronics	n.	电子学
telly	n.	电视
electromagnetic	a.	电磁的
technician	n.	技术人员,专家
incalculable	a.	不可数的,无数的
telecast	v.	以电视广播
demonstration	n.	示范,实证
close-up	n.	特写镜头
optimistic	a.	乐观的,乐观主义的
novelty	n.	新鲜,新奇的事物
appeal	n.	呼吁,恳求
plasma	n.	等离子体
prone	a.	易于……的,有……倾向的
stationary	a.	不动的;稳定的
ticker	n.	自动收报机
tuner	n.	调谐器
equivalent	a.	相等的,等价的
astronaut	n.	宇航员

Notes

[1] San Francisco	旧金山,美国港口城市,美国加利福尼亚西部港市
[2] Tokyo	东京,日本首都
[3] Mexico City	墨西哥城,墨西哥首都

Exercises

Reading Comprehension

Answer the following questions according to the text.

1. From what language(s) is the word "television" derived according to the passage?

2. When did television become an industry?

3. In what aspects does television influence the life of Americans?

4. Did any leaders of the industry foresee the speed with which television began to burst upon Americans in 1946 after World War II?

5. What made it possible for programs to be televised "live" from all over the world?

Translation

Translate the following sentences into Chinese.

1. In TV, both sound and light are changed into electromagnetic waves.

2. By the 1920s, inventors and researchers had turned the early theories into working models. Yet it took another thirty years for TV to become an industry.

3. Flat panel TVs are very popular now, because they may be only a few inches thick, they take up less room than boxy TVs, and some can be hung on the wall.

4. Widescreen models display regular TV programs and some DVDs in a narrow format—meaning you will see black bars down the sides of the screens unless you stretch the image.

5. Since the launching of the first communications satellite, more and more programs are televised "live" from all over the world.

Translate the following sentences into English.

1. 通过使用一种或多种集成电路技术,完全有可能使 1 平方厘米内容纳 1 万个元件。

2. 单片电路是由含有二极管、晶体三极管和无源元件(大部分电感器除外)的一块半导体片做成的。

3. 电子学是研究在真空中、气体中及半导体中电子运动的科学和技术。

4. 电子学是从电学——有关电子的基本科学发展起来的。

5. 直到几年前,所有的电子电路还是由导线连接分立元件构成的。

Communicative Tasks

Make up a dialogue with your partner according to the following situation.

Situation 1: Talk to your friends about the contribution of TV to the society.

Situation 2: Suppose you are a guide in a museum in 2100. Introduce the history of TV to the students who come to visit.

Situation 3: You and your roommates discuss whether you need to buy a TV in your dormitory.

Situation 4: You and your roommates decide to buy a TV, talk about what kind of TV set you will buy.

TEXT B

Electricity and Electronics

The applications of electricity have grown to the point where most of us lead "electrified lives", surrounded by a variety of devices that use electric energy. Less visible, but probably more important, are the thousands of ways industry has put electric energy to work.

Volta[1] made his experimental cell in 1800, producing for the first time a steady electric current. During the nineteenth century, the development of practical applications of electrical energy advanced rapidly. The first major uses of electricity were in the field of communications—first for the telegraph and then for the telephone. They used not only electric current but also electromagnetic effects. Thomas Edison's[2] invention of the electric light bulb was perhaps the most momentous development of all.

It is quite remarkable that so much of this rapid development of electrical devices and the resulting industry took place during the nineteenth century, when the nature of electricity was not completely understood. We have already observed that for a long time, it was incorrectly believed that current flowed from positive to negative. It was not until 1897 that the British scientist Joseph Thomson[3] published a paper announcing his discovery of a subatomic particle, the electron. Up to that time it had been generally believed that the atom was an indivisible particle of matter.

Thomson's discovery led to further experimentation into the structure of the atom. He may be considered the founder of the modern science of nuclear physics. Within the field of electricity, his work led to the creation of the science of electronics. There is so much confusion in current usage between the terms "electricity" and "electronic" that we should attempt to make some sort of distinction between them.

Electricity generally refers to the flow of free electrons through a conductor, in other words, to a current of electricity. The term includes the electric power supplied by generators and the distribution systems which transmit it to homes, offices, and factories.

Electronics, on the other hand, deals with the movement of free electrons in a vacuum or in semiconductors. When the term first came into use, it referred to the behavior of free electrons in vacuum tubes like those used to transmit or detect radio waves. Since then it had been extended to include the movement of electrons in gases, liquids, and solids which had not previously been considered to be conductors.

Electronic refinements, however, have greatly extended the uses and capabilities of some of the older electrical devices. The switching devices necessary for the direct dialing of telephone calls are the result of electronic engineering. The transistor, an invention which has revolutionized the science of electronics, was first developed for use in telephone equipment.

Regardless of the distinction made between the two fields, both must be understood by

today's electrical and electronic engineers. Even an engineer working on the design of the newest computer must have knowledge of circuits and electromagnetic effects. Electricity and electronics are really indivisible, each forming part of the other.

New Words and Expressions

electrified	a.	电气化的
cell	n.	电池
momentous	a.	重大的;重要的
positive	n.	[电]正极;阳极
negative	n.	[电]负极;阴极
subatomic	a.	亚原子的
generator	n.	发电机
distribution system		配电系统

Notes

[1]Volta	伏打 (1745—1827),意大利物理学家
[2] Thomas Edison	托马斯·爱迪生 (1847—1931), 美国发明家
[3] Joseph Thomson	约瑟夫·汤姆孙 (1856—1940), 英国物理学家

Exercises

Reading Comprehension

Choose the best answer according to the text.

1. By "... most of us lead 'electrified lives'," the author may mean _____.
   A. devices that use electric energy are widely used in our lives
   B. we are often electrified
   C. electricity has become something essential in our lives
   D. both A and C
2. According to the passage, who may be considered the founder of the modern science of nuclear physics?
   A. Thomas Edison. B. Volta.
   C. Joseph Thomson. D. All of the three.
3. Which of the following statements about electricity and electronics is NOT true?
   A. Electricity and electronics are indivisible, each forming part of the other.
   B. Electricity deals with the movement of free electrons in a vacuum, in a semiconductor or in conductor.
   C. There is some confusion in the current usage between the terms "electricity" and "electronics".
   D. The first major uses of electricity were in the field of communications.
4. Which of the following statements is correct?
   A. Electricity and electronics are not the same thing.
   B. Gases and liquids are not conductors.
   C. Current flows from positive to negative.
   D. Atoms are indivisible.
5. The passage is about _____.
   A. the applications of electricity
   B. Thomson's discovery of electron
   C. the development of man's knowledge of electricity
   D. the creation of electronics

Unit 2

Digital Camera

In the past twenty years, most of the major technological breakthroughs in consumer electronics have really been part of one larger breakthrough. When you get down to it, CDs, DVDs, HDTVs, MP3s and DVRs are all built around the same basic process: converting conventional analog information (represented by a fluctuating wave) into digital information (represented by ones and zeros, or bits). This fundamental shift in technology totally changed how we handled visual and audio information—it completely redefined what was possible. The digital camera is one of the most remarkable instances of this shift because it is so truly different from its predecessor. All digital cameras have a built-in computer and all of them record images electronically. As digital imaging technology has improved, digital cameras rapidly become more popular. Let's say you want to take a picture and e-mail it to a friend. To do this, you need the image to be represented in the language that computers recognize—bits and bytes. Digital computer makes it possible.