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中等专业学校
电子信息类 规划教材

中专电子技术

电子技术专业英语

贾 杰 金 郁 编

电子科技大学出版社

UESTC PUBLISHING HOUSE

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内容提要

本教材系按电子工业部的《1996—2000年全国电子信息类专业教材编审出版规划》，由全国中专电子技术专业教学指导委员会编审、推荐出版。本教材旨在使学生通过较短时间的学习能较大幅度地提高阅读电子技术英语资料的能力。全书共有课文22篇，阅读课文30篇，题材广泛，内容丰富，专业性和实用性强。可作为电子技术方面的中专英语教材，也可作为电子技术大专教学参考书和从事相关专业工程技术人员的自学用书。

声　明

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金　郁　编

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前　言

本教材系按电子工业部的《1996—2000年全国电子信息类专业教材编审出版规划》，由全国中专电子技术专业教学指导委员会编审、推荐出版。本教材由辽宁电子工业学校贾杰、金郁编写，主审祝惠芳，责任编委金文华。

本教材的参考学时数为90学时，编写的宗旨是突出实用性，使学生通过较短时间的学习能较大幅度地提高阅读科技英语资料的能力。本教材的特点是：1. 词汇量大。学完全部课文后不用查字典可阅读一般电子类书籍和杂志。2. 阅读量大。全书有22篇课文和30篇阅读课文。全郁文章都选自国内外近年出版的原文教科书和科普读物，题材广泛，内容丰富，专业性和实用性很强。3. 习题量大。练习中主要安排了阅读理解练习，句子排序练习，就课文内容回答问题、填空和英汉互译。在语法上考虑到学生在公共英语中已学过基本语法，本教材前半部分侧重于复习语法的基本知识并加入了科技英语例句，后半部分侧重于对一些语法现象进行归纳、小结，并介绍科技英语翻译的一些方法和技巧。

本教材建议根据不同专业选讲18课。前10课每课讲4学时，后8课每课讲6学时。阅读课文可做为自学内容。

本教材由金郁编写1～11课，贾杰编写12～22课。参加审阅工作的还有张福强、卜令国、金文华、何丽英同志，都为本书提出许多宝贵意见，在此表示诚挚的感谢。由于编者水平有限，书中难免还存在一些缺点和错误，殷切希望广大读者批评指正。

编　者

1998年12月

出 版 说 明

为做好全国电子信息类专业“九五”教材的规划和出版工作，根据国家教委《关于“九五”期间普通高等教育教材建设与改革的意见》和《普通高等教育“九五”国家级重点教材立项、管理办法》，我们组织各有关高等学校、中等专业学校、出版社，各专业教学指导委员会，在总结前四轮规划教材编审、出版工作的基础上，根据当代电子信息科学技术的发展和面向21世纪教学内容和课程体系改革的要求，编制了《1996～2000年全国电子信息类专业教材编审出版规划》。

本轮规划教材是由个人申报，经各学校、出版社推荐，由各专业教学指导委员会评选，并由我部教材办协商各专指委、出版社后，审核确定的。本轮规划教材的编制，注意了将教学改革力度较大、有创新精神、特色风格的教材和质量较高、教学适用性较好、需要修订的教材以及教学急需，尚无正式教材的选题优先列入规划。在重点规划本科、专科和中专教材的同时，选择了一批对学科发展具有重要意义，反映学科前沿的选修课、研究生课教材列入规划，以适应高层次专门人才培养的需要。

限于我们的水平和经验，这批教材的编审、出版工作还可能存在不少缺点和不足，希望使用教材的学校、教师、同学和广大读者积极提出批评和建议，以不断提高教材的编写、出版质量，共同为电子信息类专业教材建设服务。

电子工业部教材办公室

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Lesson 1

●Text Switches and Fuses
●Grammar 名词 冠词
●Word Study Late Lately Latest Last
●Reading Material Energy

Text Switches and Fuses

An electric switch is often on a wall near the door of a room. Two wires lead to the lamp in the room. The switch is fixed in one of them. The switch can cause a break in this wire, and then the light goes. The switch can also join the two parts of the wire again, then we get a light.

Switch can control many different things. Small switches control lamps and radio sets because these do not take a large current, larger switches control electric fires. Other switches can control electric motors.

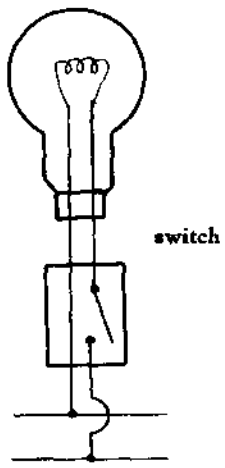
Good switches move quickly. They have to stop the current suddenly. If they move slowly, an electric spark appears. It jumps across the space between the two ends of the wire. This is unsafe and it heats the switch. Very big switches are sometimes placed in oil. Sparks do not easily jump through oil, and so the oil makes the switch safer.

A large current makes a wire hot. If the wire is very thin, even a small current makes it hot. This happens in an electric lamp.

The electric wires in a house are covered with some kind of insulation. No current can flow through the insulation, so the current can never flow straight from one wire to the other, but the insulation on old wires is often broken, then the copper of the two wires can touch. A large current may flow, and if this happens, the wires will get very hot. Then the house may catch fire.

Fuses can stop this trouble. A fuse is only a thin wire which is easily melted. It is fixed in a fuse-holder. The fuse-holder is made of some material which cannot burn. A large current makes the fuse hot and then it melts away. We say that the fuse "blows".

The wire is broken and no current can flow. So the house does not catch fire, but all the lights and electric fires go out because there is no current.



When a fuse blows, something is wrong. We must find the fault first. Perhaps two wires are touching. We must cover them with new insulation of some kind. Then we must find the blown fuse and repair it. We put a new piece of fuse-wire in the holder. (Sometimes we can find the right fuse-holder because it is rather warm, but the others are cold.) If we do not repair the fault first, the new fuse will blow immediately.

Some men get angry when a fuse blow. So they put a thick copper wire in the fuse-holder! Of course this does not easily melt; if the current rises suddenly, nothing stops it. The thick wire easily carries it. Then the wires of the house may get very hot and the house may catch fire. Some of the people in it may not be able to escape. They may lose their lives. So it is always best to use proper fuse-wire. This will keep everyone and everything in the house safe.

New Words

fix [fiks] vt. 使固定,装配
break [breik] vt. 折断,打破,切断
join [dʒɔin] vt. 连接,结合
control [kən'troul] vt. 控制,管理,支配
suddenly ['sʌdnli] a. 突然的,迅速的
spark [spɑ:k] n. 火花
appear [ə'piə] vi. 出现,显露,出版
jump [dʒʌmp] vi. 跳,跳起,跃变,突变
hot [hɔt] a. 热的
thin [θin] a. 薄的,细的
cover ['kʌvə] vt. 覆盖,遮盖
insulation [insju'leiʃən] n. 绝缘,绝热
copper ['kɔpə] n. 铜
trouble ['trʌbl] n. 麻烦,困难
fuse [fju:z] n. 保险丝
melt [melt] vt. 使融化,使熔化,使溶解
fuse-holder 保险盒

burn [bə:n] vt. 燃烧，点着
blow [bləu] vi. 吹，(保险丝)烧断
wrong [rɔŋ] a. 错误的
fault [fɔ:lt] n. 故障，事故，损坏
immediately [i'mi:diətli] ad. 立即的，瞬时的
thick [θik] a. 粗的，厚的
rise [raiz] vi. 站立，升起，上升
carry ['kæri] vt. 搬运，传送，携带
escape [is'keip] vi. 逃脱，避免

Phrases and Expressions

Electric switch 电开关
lead to 导致，通向
catch fire 着火
melt away 熔化掉
burn out 烧断，烧坏

Grammar 名词 冠词

名 词

1. 名词的句法作用

名词在句子中除了不能担当谓语外，可以用作句子的其他一切成分。
a. 作主语，位于动词前。
Telephone has become part of our daily necessity.
电话已成为我们日常生活的必要部分。
b. 作宾语，位于动词之后。
Light produce a chemical change.
c. 作介词的宾语，位于介词之后。
The sun is the source of energy.
太阳是能量的源泉。
d. 作表语，在联系动词之后。
Under the ordinary conditions, water becomes steam at 100℃.
e. 作定语，在它修饰的名词之前。
The field concept is more valuble in studying nonstatic phinomena.
电场的概念对于研究非静电现象更有价值。

f. 作状语，修饰动词在动词之后，修饰副词在副词之前。

Sound travels about 1,100 feet per second.

声速约为每秒一千一百英尺。

Light travels many times faster than sound.

光速比音速快许多倍。

2. **修饰名词数量的词**

a. 修饰可数名词

few, a few, not many, several, a great number of, number of

The water contains a few minerals

水含有少量矿物质。

b. 修饰不可数名词

little, a little, not much, a large amount of, large amounts of, a great deal of.

This water contains not much salt.

这种水含盐不多。

c. 既可以修饰可数名词也可以修饰不可数名词

a lot of, plenty of, enough, some

There is plenty of oil in that area.

那个地区有大量的油。

3. **不可数名词**

表示无定形物质的物质名词和表示动作状态，品质等抽象概念的名词是不可数名词，没有复数，常用 a piece of, a sheet of, a set of 来表示数量的概念。

a piece of paper　一张纸

a sheet of steel　一张薄钢板

a bottle of ink　一瓶墨水

a grain of sand　一粒砂

冠　词

1. **不定冠词 a (an) 的用法**

a. 不定冠词 a 用在辅音前，an 用在元音前，这里所指辅音和元音指发音而不是字母。

例如：a useful tool

an up-to-data instrument

b. 具体指“一种”、“一阵”等含义时，带不定冠词。

steel is a metal.

钢是一种金属。

Electronics is a science that is concerned with the study and application of phenomena

of electrons.

电子学是一门研究和应用电子现象的学科。

c. 在科技文章中下定义时，a (an)＋名词单数代表某一类人或物。

A person who flies an aircraft is called a pilot.

驾驶飞机的人称为飞行员。

2. **定冠词的用法**

a. 定冠词用在特指名词之前。

The boy in the corner is my friend.

在墙角的那个男孩是我的朋友。

The laboratory is the most modern building in the college.

这所实验室是该校最新的建筑物。

b. 世界上独一无二的东西的名词前要用 the

the moon, the sum, the earth

c. 表示方向部位的名词前加 the

the north, the east, the west

The sun rises in the east and sets in the west.

太阳升起在东方而落下在西方。

d. 多于一个单词的国名前要加 the

the United States　　美国

the Peoples Republic of China　　中华人民共和国

Word Study

1. late　　可做形容词和副词用，表示“晚”，“迟”。

He is never late for work.　　他工作从不迟到。

He often works late into the night.　　他常工作到深夜。

2. lately　　是副词，表示“最近”，“不久前”。

He came lately.　　他不久前来的。

I have been busy lately.　　我近来很忙。

3. latest　　表示“最近的”，“最新的”。

This is the latest fashion.　　这是最新样式。

Please be here tomorrow at the latest.　　请最晚明天来这里。

4. last　　表示“最后的”，“上次”，指顺序先后。

Their last attempt was successful.　　他们最后的尝试成功了。

Exercise

Ⅰ. Comprehension

Complete the following statements with a, b or c, score mark for each correct answer.

1. _____ is often on a wall near the door of a room.

a. An electric switch b. The electric wires c. Both a and b.

2. The switch can cause _____ in this wire, and then the light.

a. join, goes out b. a break, goes out c. a break, trun on

3. Because there is a large current, we use

a. small switches. b. big switches. b. larger switches.

4. If switches move slowly

a. an electric spark appears. b. the house may catch fire. c. it will burn.

5. Very big switches are sometimes placed in oil, because

a. the oil does not easily cause sparks.

b. the big switches are too hot.

c. sparks do not easily jump through oil.

6. _____ is used to cover the electric wires.

a. conductor b. Semi-conductor c. Insulation

7. _____ is made of some material which can not burn.

a. fuses b. Fuse-holder

c. The insulation which cover the electric wires.

8. "blows" means (in the text)

a. hard stroke.

b. the fuse burn away. c. heavy hit.

9. We must

a. repair the fuse before find the fault.

b. find the fault before repair the fuse.

c. find the fault and repair the fuse at the same time.

10. If you put a thick copper wire in the fuse-holder.

a. it will easily melt. b. the house may catch fire.

c. people in the house will lose their lives.

Ⅱ. Put one of the given words in each space

switch, controls, spark, insulation, fuse

a. Peter opened the switch too slowly, and a _____ appeared.

b. All the lights have gone out! Do we have any _____ wire?

c. The _____ on this old wire is in a terrible condition.

d. There was one _____ for the light at the bottom of the stairs, but there was another at the top.

e. This big switch _____ the electric motors.

Ⅲ. Notice:

Very big switches are placed in oil

This means: We place very big switches in oil.

Write these sentences again. Begin each of them with we they or some word like those given at the end:

a. The switch will be fixed on the wall. (We shall...)

b. The thin wire is heated. (A large current...)

c. The fault was soon found. (They...)

d. Many lives were lost. (Many people...)

Ⅳ. Fill in the blanks with the suitable articles.

1. Mineral oil is _____ very useful fuel.

2. Water is _____ liquid but steel is _____ solid.

3. _____ thin wire has _____ higher resistance in it.

4 _____ third of _____ elements make up most of the substances around us.

5. The number of vibration _____ second is called the frequency.

6. If our task is to cross _____ river, we can not cross it without _____ bridge or _____ boat.

7. There is _____ new computer in _____ laboratory.

8. _____ resistance in a wire is reversely proportional to its cross section.

9. Japan is _____ largest ship-bulding nation in the world.

10. In ancient time, people believed that _____ earth was _____ center of _____ universe.

Ⅴ. Fill the blanks with late, lately, last, and latest

1. The aeroplane arived _____ because of bad weather.

2. I haven't heard from him _____.

3. It is never too _____ to mend.

4. He has made great progress _____.

5. It often rains _____ in spring.

6. The engine is our _____ improvement.

7. He has been ill for the _____ three weeks.

8. He was the first one to come to the office and the _____ to leave.

Reading Material Energy

When a body is doing work, we say that it has energy. Very often a body possessing energy does not do any work at all, it only has the latent ability. So, energy of a body is nothing more than the ability to do work. You can not do anything without it.

There are different forms of energy, They can all be changed from one form into another and used to do work in one way or another. When we use energy, we only change its form. It is never destroyed. The amount of energy remains constant at all time. Or to say, whenever a given amount of energy in one form is used, there is always an equal amount of energy in some other form in its place. This important phenomenon is known as the law of conservation of energy. The discovery of this law has greatly pushed physics forward.

We have seen many cases of energy transformation. Here is an example. An airplane engine produces thrust when it transforms the chemical energy of the fuel into the kinetic energy of the combustion products. In this case, fuel combustion first transforms the chemical energy into heat. Then the moving combustion products go on transforming the heat energy into kinetic energy, producing thrust. To conclude, we may say that energy exists only in a few forms, but examples of its transformation are too numerous to list.

Lesson 2

- ●Text Telephone
- ●Grammar 代词
- ●Word Study before, before long, long before
- ●Reading Material Electric Wire

Text Telephone

Today everyone knows what a telephone is and how to use it. But the word telephone has not always meant the same thing. Around 1780 people called a megaphone a telephone. Telephone was also the name used for a speaking tube, which was common for

more than a century in homes and on shipboard.

The megaphone and the speaking tube carried the voice for only a short distance. Modern telephones, however, can carry speech almost any distance by means of electric current. In the years between 1860 and 1900 many electric telephones were invented, but the best one was made in 1876. It set the pattern for the telephones we use today.

The idea of a telephone is simple. You talk into a transmitter, which changes the sounds of your voice into a varying electric current. This current goes through wires to the receiver, where it is changed back into sound.

The telphone transmitter contains a diaphragm, which is a thin, elastic sheet of metal. When you talk, the air waves of your voice make the diaphragm vibrate. The center of the diaphragm connects to a little box, or pod, holding grains of carbon. An electric current flows through the pod and the carbon grains. As the diaphragm vibrates back and forth, it moves the carbon grains closer to each other or farther apart. Pressed together, the carbon grains conduct electricity better and more current flows. Loosened, they are under less pressure and less current flows. Thus, the back-and-forth movements of the diaphragm are turned into a changing, or varying, electric current.

The changing electric current, carrying the pattern of your voice, travels through the telephone wire at such a speed that it could circle the earth more than seven times in one second. At the receiving end, the current goes through a small electromagnet. The stronger the current, the stronger the magnetic pull. The changing magnetic pull vibrates a diaphragm in the receiver, This vibrating diaphragm produces sound waves in the nearby air.

In this way the "hello" you say into the telephone becomes a changing electric current. After it goes through a long wire and passes through an electromagnet, the electric current says "hello" in your friend's ear. The telephone is a simple but wonderful invention.

New Words

telephone ['telifəun] n. 电话
megaphone ['megəfəun] n. 扩音器,喇叭筒
invent [in'vent] vt. 发明,创造
pattern ['pætən] n. 模型,模式,范围
transmitter [trænz'mitə] n. 发射机,发报机,送话机
vary ['vɛəri] vi. 变化

receiver [risi:və] n. 接收机
contain [kən'tein] vt. 含有,包括,容纳
diaphragm ['daiəfræm] n. 膜片,薄膜,振动膜
thin [θin] a. 薄的,细的,瘦的
elastic [i'læstik] a. 弹性的,灵活的
sheet [ʃi:t] n. 一片,一块,一层
metal ['metl] n. 金属
vibrate [vai'breit] v. 振动,震动,颤动
pod [pɔd] n. 空的容器
hold [hould] vt. 拿住,抓住,吸住,压住
grain [grein] n. 细粒,沙粒,谷物
carbon ['kɑ:bən] n. 碳
farther ['fɑ:ðə] a. 更远,较远
apart [ə'pɑ:t] ad. 相隔,相距,分开
press [pres] vt. 压缩,按压
conduct ['kɔndəkt] vt. 传导,传(热,电)等
loosen ['lu:sn] vt. 解开,松开 vi. 松开,松散
movement ['mu:vmənt] n. 运动,活动,动作
voice [vɔis] n. 声音
travel ['trævl] vi. 旅行,传播
circle ['sə:kl] n. 圆 vi. 环绕,旋转,绕过
electromagnet [i'lektrou-'mægnit] n. 电磁头,电磁铁
pull [pul] vt. 拉,吸引
nearby ['niəbai] a,ad. 附近的 prep. 在…的附近
wonderful ['wʌndəful] a. 奇妙的,极好的
invention [in'venʃən] n. 发明,创造
shipboard ['ʃipbɔ:d] n. 船,船(上)
modern ['mɔdən] a. 现代的,新式的

Phrases and Expression

by means of 借助于 通过
set the pattern for 为…树立了样板
back-and-forth 前后
The stronger the current, the stronger the magnetic pull
电流越强 磁拉力越大