

COLLEGE BASIC PROFESSIONAL ENGLISH
Of Machinery Electricity

大学专业基础英语
(机电分册)

罗英豪 陈志刚 朱肖一 主编

中南工业大学教材科
一九九四年三月

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序

为适应国家发展的需要,为迎接人才市场的竞争,学校决定要进一步提高大学生的外语水平。如何提高,有什么措施?有三条:一曰“加粗一条线”,即大学四年必须年年学外语、用外语、四年不断线,这一条线要加粗。基础外语两年,要进一步提高教学水平,提高课堂效率,改进教学效果;通过四年水平考试以后,三、四年级的学生还须继续学好“专业外语”,最后一学期则应该结合毕业论文与设计查阅和利用外文文献,边用边学,边巩固边提高;第二条措施叫“把好两道关”,第一关即基础外语四级水平考试关,不通过这一关不能学习后续的外语课,不通过这一关拿不到毕业证;第二关,是专业外语关,专业外语也要在毕业前进行校内统考,这一关过不了的也不能算是合格的大学生。学专业外语就是为了更快更好更有针对性地掌握和运用外语工具,真正做到有的放矢,学以致用。第三条措施是搞好“三结合”:即外语课、专业基础与专业课以及创造学用外语的环境和气氛,三方面紧密结合。我们坚持提倡有条件的专业课或专业基础课尽量使用部份或全部的外文教材,尽量全部或部份地用外语讲授。

目前,在执行这三条措施中急待改革和加强的是“专业外语”课的教学。各专业都有各自的做法和经验,但总结交流不够,从学校乃至全国范围来说,对本课程的设置缺乏明确具体的要求和有效的办法,在教学内容上,对这种特殊用途的外语的意念表达,结构特点,惯用文体以及专业词汇等方面都缺乏明确具体的设计目标,因而影响了教学效果和效率。

这套专业英语教材就是适应改革与加强的要求,聘请了外语教授、留学回国又有专业英语教学经验的有关专家们共同合作,经过较长时

间的研讨和准备,并经过试用与修订,才正式出版的,我们希望全体任课教师与学习者共同参与这项改革与探索,通过大家的共同努力,使我校学生的整体外语水平有一个较大的提高。

副校长、教授:梅 焯

一九九四年一月二十八日

Unit One

Before Reading

1. Look up the following words in your dictionary:
infrastructure, analog, multiplex, LAN, WAN ,
asynchronous, peer, adapter, legitimacy, time-slicing
2. Read the passage and underline the following information in the text:
 - (1). How many separate information infrastructures does our world have?
 - (2). What does ATM mean?
 - (3). How does ATM overcome the delay problems?
 - (4). What's the difference between a peer network and a client/server network?
 - (5). Why can't peer-to-peer networks perform the high-volume, high-transaction work?

Text

The Future of Networks

Thanks to history, our world has three separate information infrastructures: telephones for voice, televisions for video, and computer networks for data. These separate voice, video, and data infrastructures are all moving from analog to digital for transmission, multiplexing, and switching.

The telephone infrastructure has been digital internally for a long time. So far, a few external digital service offerings, like T1 (1.544Mb per second [Mbps]), have caught on, but only among higher end corporate customers for private voice and wide area computer networking, much of it among LANs. Right

now, however, the telephone companies are attempting to deploy lower end digital services through Integrated Services Digital Network (ISDN).

The television infrastructure has evolved from wireless to cable and is on its way to adopting fiber-optic media, but broadcast remains for the most part an analog technology.

The newest information infrastructure, for carrying data among computers, first took off with the development of packet-switching technology in the 1970s. Packet switching was used to transmit data up to 50Kb per second to connect mainframes and minicomputers over wide area networks around the world. Multimegabit shared-media LAN technology in the 1980s adopted packet switching to connect workstations and personal computers within buildings.

So, if your're thinking it's about time for the telephone, television and computer networking infrastructures to be unified under a single digital technology, you have a head start in understanding ATM, the grand unifier.

Asynchronous Transfer Mode (ATM) is a digital multiplexing and switching technology developed and standardized by the world's telephone companies to integrate the transmission of voice, and data communications.

The problem with packet switching for computer networking is that it works very well, but only if you are stuck in the ASCII-bound applications of the 1970s as is today's Internet. If you want to begin to mix interactive voice and video into your computer network transmissions, you are limited by what used to be packet switching's primary strength.

To efficiently transfer millions of bits per second, packets vary in length, tend to be long, and are routed one by one in

software. These qualities have advantages, especially over the circuit switching technologies they replaced, but they result in delays that make for poor voice and video communication, especially at billions of bits per second.

ATM overcomes these delay problems by using short, fixed-length packets called cells. End-to-end virtual circuit routes are computed prior to the transmissions, allowing data to be transmitted, multiplexed, and switched rapidly by the ATM hardware. Switching, transmission, and routing are currently implemented in software, which has inherent speed limitations.

ATM will allow you to mix voice, video, and data transmissions in the same information infrastructure. It is widely expected that ATM will serve as the grand unifier of the major information infrastructures (voice, video, and data) and the grand unifier of the major computer networking nodes (WAN, LAN, remote, and mobile).

There are plenty of peer-based network operating systems, but in general, all use the same hardware as client/server solutions: Ethernet or Token Ring adapter cards and coaxial or twisted-pair cabling. The difference is in the logical organization of network resources and the underlying operating systems.

In a peer network, every station can function as both a client and a server. A desktop PC, for example, might be running Lotus 1-2-3 for its local user while other users access files on its hard disk. At the same time computer might also act as a print server for other PCs in the area.

This is in marked contrast to a client/server network, where specific computers are dedicated to file, print, and communications functions and aren't used by individuals. In a peer-to

-peer solution, any machine on the network can act as a server for the same services and still be used as a client workstation.

As you might imagine, all this flexibility comes at a price: Peer-to-peer networks can't perform the high-volume, high-transaction work. That is because peer networks must use DOS as their operating system and compensate for its inherent weaknesses in file and memory management and its lack of multitasking. So you won't find anyone running SQL databases on peer networks.

That may change, however, as both the power and the legitimacy of peer networks grows. Many of the peer-based network operating systems now offer system enhancements such as time-slicing and memory management, further improving performance and reliability.

Peer networks excel at their capability to share files among users, unlike a client/server network, where users can't share files unless a network administrator has specifically established file access rights on a server.

Peer networks are typically inexpensive: 10 PCs can be connected for less than \$200 a node (plus cabling), much less than what you'd pay for a Microsoft Corp. LAN Manager or Novell Inc. NetWare solution. If you already have the network interface cards and cabling installed, adding a peer network is even cheaper; an upgrade to Windows for Workgroups for a Windows user costs less than \$100. In addition, many peer network operating systems include applications such as E-mail and group scheduling programs, making them an even better value.

It's significant that two of the most important recent networking entries, Windows for Workgroups and Windows NT, make heavy use of the peer-to-peer model. Peer-based networking can

provide a level of flexibility beyond traditional client/server networks or enhance those networks by bringing new power to users. As desktop computers grow more powerful, it only makes sense to share their horsepower in a way that can benefit every user.

Peer-to-peer LANs are great solutions for small and medium-sized companies, and even larger companies are finding that they have become an inseparable part of how they do their business. Looking ahead, it's easy to envision a day when today's alternative will be tomorrow's mainstay.

New words and phrases

- | | |
|------------------------|--------------|
| 1. infrastructure | n. 基础; 底层结构 |
| 2. multiplex | v. 多路复用 |
| 3. switch | v. 开关; 交换 |
| 4. a head start in ... | 在.....方面领先 |
| 5. LAN | n. 局域网; 局部网络 |
| 6. WAN | n. 广域网 |
| 7. peer | a. 对等的 |
| 8. client | n. 顾客; 客户机 |
| 9. come at a price | 付出代价换来的 |

Notes to the text

1. 课文中所有大写缩写符号均为计算机专业名词。如: LAN, ISDN, SQL.
2. It is widely expected that...
(人们都希望.....)
3. This is in marked contrast to a client/server network, where specific computers are dedicated to file, print, and communica-

tions functions and aren't used by individuals.

(这一点正好与客户机/服务器相反, 在客户机/服务器网络中, 特定的计算机专门用于文件打印和通信等功能, 而个人是不能使用的。)

in marked contrast to... 是一个介词短语, 表示“正好与...相反”
关系副词where引导的是非限定性定语从句, 修饰network。

Exercises

41. Answer the following questions:

1. Which separate information infrastructures does our world have?
2. What does ATM mean?
3. How does ATM overcome the delay problems?
4. What's the difference between a peer network and a client/server network?
5. What do you think of peer-to-peer networks?
6. Why can't peer-to-peer networks perform the high-volume, high-transaction work?
7. What does ISDN mean?
8. What's the difference among various peer-based network operating systems?
9. What do LAN & WAN mean?
10. Which one will be tomorrow's mainstay of network?

II. Fill in a word or a phrase:

1. _____ history, our world has three separate information infrastructures.
2. These separate voice, video, and data infrastructures are all moving from _____ to digital for transmission.
3. The television infrastructure has evolved from wireless to

_____ .
4. To efficiently transfer millions of bits per second, packets vary in_____.

5. ATM overcomes the delay problems by using_____, fixed-length packets.

6. End-to-End virtual circuit routes are computed _____ the transmission.

7. ATM will allow you to _____ voice, video, and data transmissions in the same information infrastructure.

8. This is in marked contrast _____ a client/server network.

9. As you might imagine, all this flexibility comes _____ a price.

10. Peer-to-peer LANs are great solutions _____ small and medium-sized companies.

III. Translate the following into English:

1. 由于历史的原因, 我们的世界存在三种独立的信息基础。
2. 电话的基础从其内部, 早已实现了数字化, 而且迄今已可向外部提供数字服务了。
3. 电视的基础已从无线发展到电缆传输了。
4. 异步传输模式是由世界上的电话公司开发和实现标准化的。
5. ATM利用短的、固定长度的分组克服了这种延迟问题。
6. 你在理解ATM方面已领先了一步。
7. 在对等网中每个站既可起服务器又可起客户机的作用。
8. 这一点正好与对等网相反。
9. 你可以想象, 对等网的这种灵活性是有代价的。
10. 一般来说, 对等网是廉价的。

IV. Translate the following into Chinese:

SCSI—The Smart Subsystem

If powerful PCs are ever going to live up to their potential, they will need an I/O interface like SCSI. The Small Computer Systems Interface is one of the few standard technologies to move out of the domain of minicomputers and workstations down to PC turf.

The move hasn't been a smooth one, SCSI devices still cost more than the I/O devices DOS is geared to handle — the Enhanced Small Device Interface or integrated drive electronics disks. And, because of the lack of PC operating system support, SCSI devices require drivers.

On the other hand, SCSI has evolved beyond the SCSI-1 stage that followed its adoption as an ANSI standard in 1986. At that time vendors embraced different portions of the SCSI command set in their device drivers while claiming to be SCSI-compliant. Hence, two different SCSI peripherals might not work with the same SCSI expansion card (or host adapter, as it is known in the minicomputer world.).

Sensing that user frustration was building, suppliers of SCSI-1 devices finally got together to seek greater compatibility. Most incompatibilities have disappeared with today's SCSI-2 devices.

In addition, a part of the SCSI-2 standard known as Fast SCSI doubled the data transfer rate from 5M to 10M byte/sec., while Wide SCSI increased the data path from 8 to 16 or 32 bits. Teaming up Fast and Wide SCSI over 32-bit path yields a 40M byte/sec. transfer rate, a bandwidth that can stand up to the heaviest demands of PC applications.

SCSI is now one of those technologies that allows you to start small and scale up to the system you want. Starting from a single disk drive, a SCSI-equipped PC could add up to seven

peripherals of various kinds—say, a mix of disk drives, a CD-ROM, rewritable optical and tape.

In the meantime, buyers with an eye to longevity might be wise to consider SCSI as the I/O bus of choice for the more powerful PCs. Unlike standard PC peripherals, SCSI devices are bidirectional they can send and receive commands through the host adapter.

SCSI thus allows greater use of the multithreading, multitasking power of the a 32-bit operating systems, such as OS/2 or handle requests from several different devices attached to the SCSI bus at the same time.

And the 32-bit power is more fully realized with desktop Unix Solaris, UnixWare and the Santa Cruz Operation's Open Desktop—as support for SCSI is built into the operating system kernel. Special drivers do not need to be added.

The Macintosh is one of the few examples where SCSI is standard across the product line. The SCSI underpinning is one of the reasons why Macintosh applications work together more consistently than those in the DOS/Windows world.

Buying into SCSI for Intel-based PCs is more expensive initially—a Fast SCSI hard disk drive will cost \$200 or \$ 220 more than a non-SCSI drive. But what the extra money buys is a more intelligent subsystem that is better able to support the needs of the desktop of the future.

V. Choose the one answer that best completes the sentence the sentence:

1. My father did not go to New York; the doctor suggested that he _____ there.

A. not go

B. hadn't gone

C. not to go

D. wouldn't go

2. Most people who travel in the course of their work are given travelling _____.

A. allowances

C. wages

B. income

D. pay

3. He failed to supply the facts relevant _____ the case in question.

A. for

C. of

B. with

D. to

4. The service operates 36 libraries throughout the country, while six _____ libraries specially serve the countryside.

A. mobile

C. shifting

B. drifting

D. rotating

5. Physics is the present-day equivalent of _____ used to be called natural philosophy, from which most of present-day science arose.

A. that

C. all

B. what

D. which

6. Before he started work, I asked the builder to give me an _____ of the cost of repairing the roof.

A. assessment

C. estimate

B. announcement

D. evaluation

7. We often advise him not to drink more wine _____ is good for his health.

A. as

C. that

B. but

D. than

8. When Jack was eighteen he _____ going around with a strange set of people and staying out very late.

A. took up

C. took to

B. took for

D. took on

9. A good teacher must know how to _____ his ideas.

- A. consult
B. display
C. convey
D. confront
10. I'd rather you _____ those important documents with you.
A. not take
B. don't take
C. won't take
D. didn't take
11. You should have put the milk in the ice-box; I expect it _____ undrinkable by now.
A. became
B. had become
C. has become
D. becomes
12. Understanding the cultural habits of another nation, especially _____ containing as many different subcultures as the United States, is a complex task.
A. one
B. the one
C. that
D. such
13. _____ when she started complaining
A. Not until he arrived
B. Hardly had he arrived
C. No sooner had he arrived
D. Scarcely did he arrive
14. The manager promised to have my complaint _____.
A. looked through
B. looked into
C. looked over
D. looked after
15. You can't be _____ careful in making the decision as it was such a critical case.
A. very
B. quite
C. too
D. so

VI. Cloze

For each blank in the following passage, choose the most suitable word from the list of words provided underneath. Each word can be used once only.

expected either of discussed

related	that	to	mentioned
that	for	of	or
strength	those	thought	on
look at	that	to	annoy
which	live	varying	living
because			

Response to Noise

Response to noise in hospital was clearly related 1 custom and background. All patients of professional classes 2 ward noises, and expressed 3 degrees of dissatisfaction with what they 4 of as 'avoidable noise'. The 74 people who made no comment 5 noise and the 19 who thought 6 the ward was not noisy were 7 in unskilled work, often factories, 8 the wives of unskilled workers 9 a comparatively communal life in tenement property.

There is a suggestion also that noise is 10 to severity of illness, and resultant length 11 stay in hospital. Noises which may not 12 a seriously ill patient 13 of his condition, begin to irritate as he recovers 14. It would not be profitable to list noises 15 by patients, but it would perhaps be useful to 16 what were broadly thought 17 as 'hospital noise', 18 is noise inherent in a sickness situation and accepted, if not 19, by patients; and then to consider the 'avoidable noises' - 20 made through, perhaps, lack of thought or care.

VII. Identify the part of the sentence that is wrong and then write down your correction.

1. I will show you my photographs the moment they will be ready.

A

B

C

D

2. For a whole hour, we did our preparations and at last
A B
everything that we needed was ready.

C D
3. A measuring worm can hold itself straight out from a
A B C
branch so that looks like a small twig.

D
4. The eruptions of Mt. St. Helens were severe enough to cause
A B
numerous death.

C D
5. Idaho ranks the first among the states in potato production.

A B C D
6. No bank keeps enough cash paying all its depositors in full
A B C D
at one time.

7. Carbohydrates, proteins, and fats in food are broken down
A B
into simpler forms in the digestive tract.

C D
8. A condition of the soil, "hardpan", is disadvantageous to
A B
farming since it interferes the development of roots and the
C
circulation of moisture.

D
9. Kale is a vegetable some like cabbage, but with loose,
A B C