



图说技术英语系列丛书

数控 专业英语

SHUKONG ZHUANYE YINGYU

陈青云 莫瑜 ◎ 主编



机械工业出版社
CHINA MACHINE PRESS



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本书根据数控技能人才培养方案和最新的数控专业教学计划编写,实用性和针对性强。本书结合相关专业课程,主要介绍了数控系统、操作面板、数控加工中心、五轴加工中心、数控刀具、第三角画法、“6S”管理及安全预防措施等内容。为了便于阅读对照,书后附有词汇表、机械图常用英文术语和参考译文。

本书可作为职业院校及技工学校数控专业英语教材,也可作为相关技术人员的参考书。

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前言

preface

近几年来,随着计算机技术的发展,数字控制技术已经广泛应用于工业控制的各个领域,普通机械机床被高效率、高精度、高自动化的数控机床替代。随着我国机械行业新技术日益普及,数技术的人才需求量大。随着经济的全球化,对外经济合作的增多,数控机床或机加图样里常常包含很多的英文术语。如果不懂这些专业英文术语,就会给数控加工和读图带来不便。为了让学生更快地认识这些专业词汇,我们编写了这本图文并茂、实用性强的专业英语教材。

本书根据数控技能人才培养方案和最新的数控专业教学计划编写。书中结合专业课程,以及学校乃至国内外现在最常用FANUC 0i-mc等数控机床系统作为实例。本书共有15个单元,内容主要包括数控系统、操作面板、数控加工中心、五轴加工中心、数控刀具、第三角画法、“6S”管理及安全预防措施等内容。书中采用大量实物照片,力求图文并茂。通过本书的学习,学生可在实际数控机床操作中轻松看懂机床以及使用说明书上常见的英文。

本书在结构安排上遵循由浅入深、循序渐进的认知规律,从基础知识、操作面板开始逐步加深。同时,本书还加入了五轴加工中心、第三角画法及英文机械图常用英文术语等较新的知识。

每单元包括一篇短文、一篇简短英语对话,以及多种形式的练习。通过反复练习,使学生能够更好地掌握专业词句。通过结合实际情景的对话练习,增加学生学习英语的兴趣,提高学生英语口语能力。

本教材由陈青云、莫瑜任主编,黄彩英、李常香、卢月娣任副主编,杨光生、宁子戈、许伟辉、李永龙参加了编写。本书在编写中得到了广东省湛江市技师学院及岭南师范学院领导和老师的大力支持,对此我们表示衷心的感谢。他们分别是于锦杰、罗斌、杨红强、冯君振、冯彪、庞剑云、邓远营、梁敏、杨光生、李红、许伟辉、李壮、谢耀福、欧建玲、莫碧霞、宁子戈、谢小宁、陈尚真、刘晓玲、朱媚君、陈婷、黄宁。

由于水平有限,书中错误之处在所难免,恳请广大读者批评指正。

编者

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Numerical Modern Factory



Part I Text

Visiting a Modern Factory

Welcome to the numerical modern factory. Here are a variety of devices in **numerical production**.^[1] They are called CNC. CNC is the short form for **computerized numerical control**.^[2]

Look, here is a CNC lathe. That is a CNC milling machine. And the last one is a CNC five-axis machining center.

There are also other machines, such as CNC **electric discharge machine** and CNC **electric discharge wire-cut machine**.

The numerical control machine could accomplish many types of **cutting process**. It is flexibly manufacturing and highly versatile.

It can be adapted to the frequent changes of the **product varieties and specifications**.^[3] The numerical control machine is widely used in **mechanical manufacturing**, such as automobile manufacturing and aircraft manufacturing.^[4]

1. numerical production

数字化生产

2. computerized numerical control

计算机数字化控制

3. electric discharge machine

电火花加工机床

4. wire-cut electric discharge machine

线切割电火花加工机床

5. cutting process

切削加工

6. product varieties and specifications

产品品种和规格

7. mechanical manufacturing

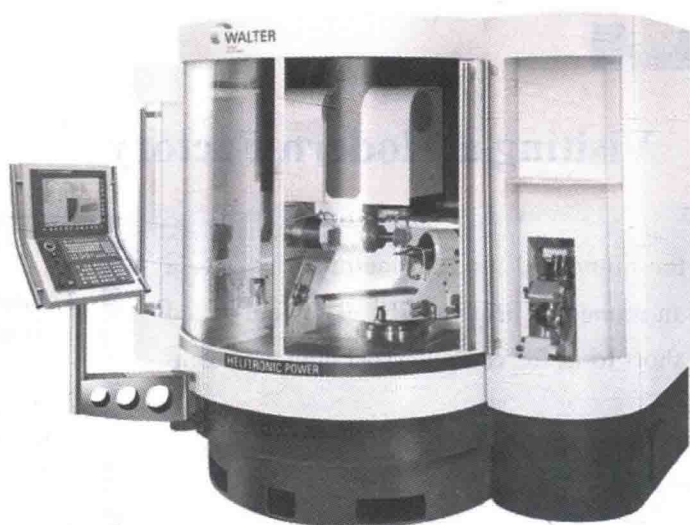
机械制造



CNC lathe



CNC milling machine



CNC five-axis machining center

New Words and Phrases

1. numerical [nju: 'merɪkl] *adj.* 数字的, 用数字表示的, 数值的
2. numerical control 数控
3. lathe [leið] *n.* 车床, 机床; *vt.* 用车床加工
4. milling ['mɪlɪŋ] *n.* 磨; 制粉; 轧齿边; (硬币边缘的) 沟槽
5. axis ['æksɪs] *n.* 轴, 轴线; five-axis machining center 五轴加工中心
6. electrode [i'lektroʊd] *n.* 电极
7. adapt [ə 'dæpt] *vi.* 适应于, 适应不同情况 (或环境) (to); *vt.* 改编, 改写; 改变……以适合(for)

Notes

1. Here are a variety of devices in numerical production.

全句的意思是：这里有各种各样数字化生产的设备装置。

本句中的 "...a variety of..." 表示各种各样。

2. CNC is the short form for computerized numerical control.

全句的意思是：CNC是计算机数字化控制的简称。

本句中的 "...the short form for..." 表示 "……的缩写形式" 或 "……的简称"。

3. It can be adapted to the frequent changes of the product varieties and specifications.

全句的意思是：数控车床加工灵活、通用性强、能适应产品品种和规格频繁变化。

4. The numerical control machine is widely used in mechanical manufacturing, such as automobile manufacturing and aircraft manufacturing.

全句的意思是：数控机床被广泛用于机械制造, 例如, 汽车制造和飞机制造。

本句中的 "...is widely used..." 是被动语态, 表示被广泛应用于……; "...such as..." 表示例如……。

Exercises

Task 1 Put the letters into correct order to make a word.

Letters

meri nu cal

duc tion pro

ic elec tr

fac nu ma turing

craft air

Words

Task 2 Fill in the blank according to the text.

1. CNC is the short form for _____.

2. There are _____ kinds of CNC mentioned in the text. They are _____.

3. The numerical machine would accomplish many types of _____.

4. The numerical control machine is widely used in mechanical manufacturing, such as _____ and _____.

Part III Dialogue

Hint: Jack (J) and Tom (T) are good friends. They happened to meet one day.

J: Hey, Tom. How are you?

T: Fine, thank you. And you?

J: I'm fine, too. I heard that you are studying at a technical school now, aren't you?

T: Yes. And my major is numerical control.

J: Wow, that sounds wonderful! I think numerical control is a good major.

T: I think so, too. Welcome to our school. I'll show you around the campus next time.

J: OK. Thank you. See you.

T: See you.



Exercises

Task 1 Put the words into correct order to make a sentence.

1. heard, studying, I, that, a, school, at, you, technical, are

2. major, numerical, my, control, is

3. our, to, welcome, school

4. Jack, are, friends, Tom, old, and

Task 2 Pair work: use the following sentences to make a conversation with your partner.



A: Hey, ...How are you?

A: I'm fine, too. I heard that you are studying at ..., aren't you?

A: Wow, that sounds wonderful! I think ...is a good major.

A: OK. Thank you. See you.

B: Fine, thank you. And you?

B: Yes. And my major is ...

B: I think so. Welcome to ...I'll show you around the campus next time.

B: See you.



Unit 2

The Systems of CNC and the Division of Panel



Part I Text

The Systems and Regins of CNC

GSK980TD and HNC-21T are both home CNC systems.^[1] While **FANUC 0i-mc** is a Japanese CNC system, and **SINUMERIK 802S** is a German CNC System.

The panel of CNC can be classified as operating panel and controlling panel, or the two integrated in one panel. The panel can be divided into the following four parts:

Part 1: **LCD display**

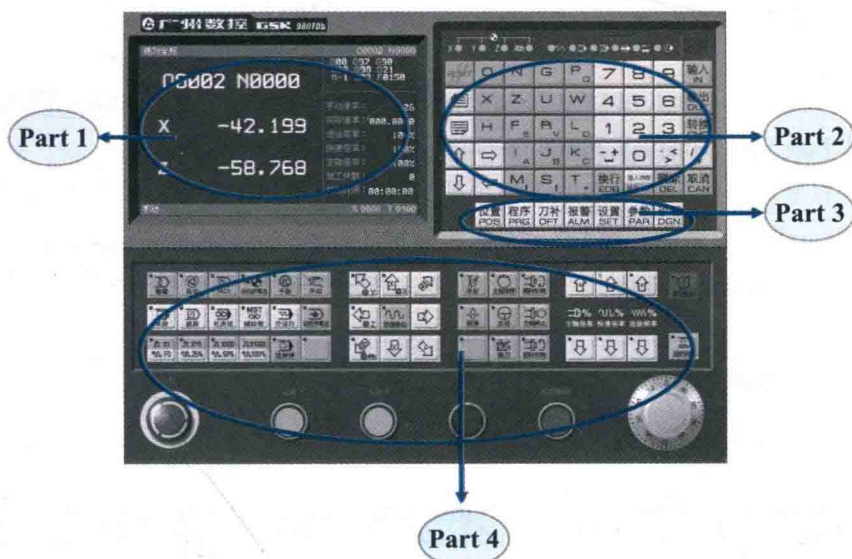
Part 2: **editing keyboard**

Part 3: **page display**

Part 4: **machine control display**^[2]

Different machines have different panels, but their divisions and the functions of the keys are almost the same.

1. **FANUC 0i-mc**
法那科 0i-mc
2. **SINUMERIK 802S**
西门子802S
3. **LCD display**
LCD显示区
4. **editing keyboard**
编辑键盘区
5. **page display**
页面显示区
6. **machine control display**
机床控制区



The panel of CNC

New Words and Phrases

1. system ['sɪstəm] *n.* 体系, 系统
2. division [dɪ'vɪz(ə)n] *n.* 划分, 分割
3. home [həʊm] *n.* 家; 家庭; *adj.* 国内的; 本地的; 本部的
4. device [dɪ'vaɪs] *n.* 装置, 设备
5. panel ['pænl] *n.* 面板
6. be classified as 以……来分类
7. be divided into 被划分为……
8. display [dɪ'spleɪ] *v.* 显示
9. edit ['edit] *v.* 编辑
10. keyboard ['ki:bɔ:d] *n.* 键盘

Notes

1. GSK980TD and HNC-21T are both home CNC systems.

全句的意思是: GSK980TD和HNC-21T机床都是国内数控系统。

本句中的“both”表示“两者都……”; 另外英语中的“all”表示“(三者以上)都……”。

例如: My father and mother are both workers.

我父母都是工人。(两人)

We are all students.

我们都是学生。(三人以上)

2. The panel can be divided into the following four parts: Part 1 LCD display, Part 2 editing keyboard, Part 3 page display, Part 4 machine control display.

全句的意思是：面板可以分为以下四个部分：第1部分LCD显示区；第2部分编辑键盘区；第3部分页面显示区；第4部分机床控制区。

本句中的“...be divided into...”为被动语态，表示“被划分为……”。

例如：The first floor can be divided into four rooms.

一楼可以被划分为四个房间。

Exercises

Task 1 Look at the following panel, do you know what four parts are? Fill in the blanks with the English and the Chinese.



English	Chinese
Part 1 _____	_____
Part 2 _____	_____
Part 3 _____	_____
Part 4 _____	_____

Task 2 Mark true (T) or false (F) according to the text.

- () 1. HNC-21T is a home CNC system.
- () 2. FANUC 0i-mc is a German CNC system.
- () 3. The panel of CNC machine can be divided into three parts.
- () 4. The panel of CNC can be classified as operating panel and controlling panel.

Part II Dialogue

Hint: Tom (T) is a student majoring in Numerical Control. He is asking Mr. Liu (Mr. L), a teacher, about a panel of CNC machine.

T: Good morning, Mr. Liu. May I ask you a question?

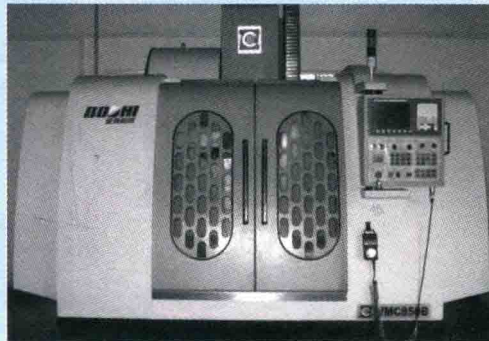
Mr. L: Of course.

T: I am confused with the functions of the panel. Would you please help me?

Mr. L: It's very easy. Let me show you. Look at the panel, and it can be divided into several parts. Part 1 is LCD display. You can see the whole operation on the screen. Part 2 is editing keyboard. You can use the keyboard to edit the program. Part 3 is page display. You can adjust the pages when needed. Part 4 is machine control display. You can see the machine control in this part.

T: I see. Thank you so much. You are so kind.

Mr. L: You're welcome.

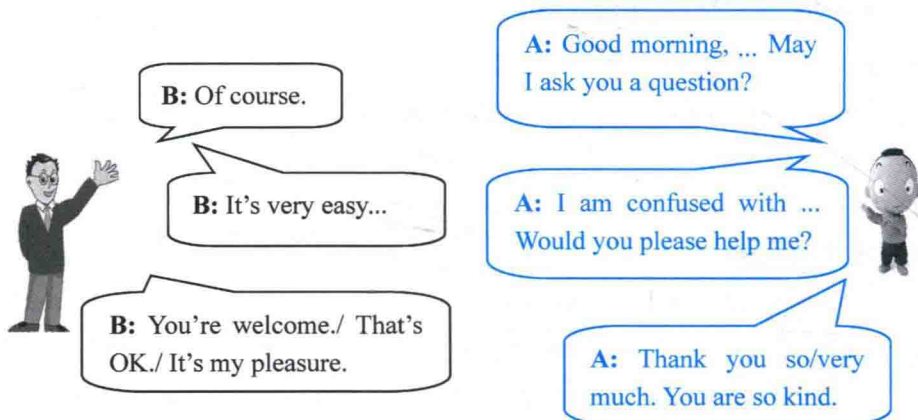
**Exercises****Task 1 Mark true(T) or false (F) according to the dialogue.**

- () 1. Tom's major is Computer.
- () 2. Tom is confused with the functions of the panel.
- () 3. Mr. Liu is Tom's teacher.
- () 4. Mr. Liu did not solve Tom's problem.

Task 2 Practice the following sentences with your partner.

1. Tom is a student of numerical control.
2. Would you please help me?
3. Look at the panel. It can be divided into several parts.
4. You are so kind.

Task 3 Pair work: use the following sentences to make a conversation with your partner.



Unit 3

Editing Keys



Part I Text

Editing Keys and Functions

The following is the editing keyboard of CNC panel.



editing keyboard



Editing keys and functions:

1. RESET Reset

Press this key and the system is reset. Stop inputting and outputting.

2. Address

Press these keys and input address.



1. editing keys

编辑键

2. function

功能

3. address

地址