

职场实用英语丛书

丛书主编 许之所

# 机械工程、电气工程及 信息工程类实用英语

Occupational Practical English for Mechanical Engineering,  
Electrical Engineering and Information Engineering

主 编 何艳红 胡 丹

副主编 郑丹清 邓 妍



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# 前 言

《职场实用英语丛书》系列教材是在地方本科高校转型为应用技术型的大背景下产生的, 大学英语已经逐渐走向专业化、职业化道路。为了培养应用技术型大学机械工程、电气工程及自动化以及信息工程专业学生的英语职场应用能力和职业素养, 我们挑选了优秀的大学英语教师, 联合相关专业的骨干教师, 共同编写了《机械工程、电气工程及信息工程类实用英语》。本书以职业教育理念为指导, 注重职场真实环境下英语交际能力的培养, 真正体现英语的职业性、实践性和实用性。

本教材是在参考大量英文专业书籍的基础上, 按照最新的项目式教学理念编写的。全书共 12 个项目, 涉及地方本科高校普遍开设的机械工程、电气工程及自动化、信息工程 3 个专业方向, 每个专业方向下包含 4 个项目。

每个项目分为 3 个部分: 1. Situational Dialogues; 2. Technical Terms and Expressions; 3. Exercises。每个部分的具体内容如下:

1. Situational Dialogues: 该部分由 3 个情景对话(Dialogue)组成。每个对话后面附有中英文注解(Notes)。

2. Technical Terms and Expressions: 该部分收录了该专业职场英语中常用的术语, 便于学生在第三部分 Exercises 中的 Role Play 及真实职场情境中运用。

3. Exercises: 该部分包括句子翻译(Sentence Translation)和角色扮演(Role Play)两部分。句子翻译包括中译英和英译中两部分, 各 10 个句子, 以巩固和提升学生对于情景对话和术语的学习, 还补充了一些重要的专业知识。角色扮演是根据真实场景设定的, 供学生在学习对话后在课堂上演练。

本教材涵盖了机电与信息工程的 3 个主要专业, 可以作为大学英语的补充教材或专业英语教材, 供专业教师和学生根据自己的专业方向选择与专业有关的两个或多个项目学习, 也可作为英语学习爱好者普及机电与信息工程类专业知识的一本参考资料。本教材每个项目建议学时为 6 个学时。其中 Situational Dialogues 和 Technical Terms and Expressions 4 个学时, Exercises 2 个学时。具体的学时分配, 教师可以根据学生的英语实际水平和专业需要进行调整。

《机械工程、电气工程及信息工程类实用英语》由湖北工业大学商贸学院外国语学院 6 位教师合作编写完成, 何艳红和胡丹老师负责全书的设计、编写和修订工作。Project 1 和 Project 2 由何艳红老师编写; Project 3 和 Project 4 由邓妍老师编写; Project 5 和 Project 8 由罗莉老师编写; Project 6 和 Project 7 由郑丹清老师编写; Project 9 和 Project 10 由董艳老师编写; Project 11 和 Project 12 由胡丹老师编写。

本教材在编写过程中, 得到了湖北工业大学商贸学院外国语学院和机电与信息工程学

院领导和老师的帮助，在此深表感谢。特别感谢外国语学院许之所院长在教材设计和编写过程中提出的宝贵建议，以及机电与信息工程学院鞠剑平、熊才高、李丽君等老师的鼎力帮助。

由于自身水平和经验有限，书中难免有疏漏和不当之处，恳请广大师生和读者批评指正，以便我们及时修订和完善。

编 者

2015年1月

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# **Project 1 Mechanical Engineering**

## **1. Situational Dialogues**

### **Dialogue 1**

*Situation: Michael is an apprentice of BYD Guangzhou Plant which manufactures vehicles. He makes a new friend, Bob, at the welcome party.*

*M: Michael            B: Bob*

M: Hi, I saw you with Jack in the personnel department the other day. We room together. My name is Michael, but you can call me Mike.

B: It's nice to meet you, Mike. My name is Bob. How are you doing?

M: I'm okay, but the plant has been really hectic since I came. I haven't even had a chance to breathe!

B: I know. It's especially crazy at the end of the year because of the increasing demand. Hey, which department do you work for?

M: R&D department. I am just an apprentice. What about you?

B: Sales department. I came here six months ago.

M: Marketing is quite challenging for me.

B: Well, when I first started college, I majored in physics, but later I realized I might have a hard time finding a job in that field. I ended up changing to marketing. Finding a job in that area shouldn't be as difficult.

M: You're right. I am quite interested in mechanical engineering, and I dream to be a mechanical engineer. I was pretty lucky to find a part-time job in a manufacturing plant when I was at college.

B: A manufacturing plant? That seems like a perfect experience for you! You can learn how machines work.

M: Actually, that's why I got the present job!



### Notes:

- (1) plant: a factory or a place where power is produced 工厂, 车间
- (2) hectic: very busy 紧张忙碌的
- (3) R&D department: research and development department 研发部
- (4) apprentice: a young person who works for someone in order to learn their skill 学徒
- (5) major in: specialize in (a particular subject) at college or university 主修
- (6) end up: 到头来
- (7) mechanical engineering: the branch of engineering concerned with the design, construction, and operation of machines and machinery 机械工程
- (8) manufacturing: (manufacture 的动名词形式) to make something in a factory, usually in large quantities 制造, 生产

## Dialogue 2

*Situation: Steve and Jack meet Mr. Lee, a mechanical engineer of BYD Company, on their way to the cinema. Steve introduces Jack to Lee.*

S: Steve      J: Jack      L: Lee

S: Hi, Mr. Lee.

L: Hi, Steve.

S: Jack, I'd like you to meet Mr. Lee, a mechanical engineer working in the Assembly Department. Mr. Lee, this is my friend, Jack.

J: I am very pleased to meet you, Mr. Lee.

L: A pleasure to meet you, Jack.

S: Mr. Lee is very kind and patient. If you have any question, feel free to ask him.

J: Thank you. (to Mr. Lee) Would you mind telling me more about what mechanical engineers do?

L: I'd be happy to. Mechanical engineers typically do the following: Analyze problems to see how mechanical and thermal devices might help solve the problem; design or redesign mechanical and thermal devices using analysis and computer-aided design; develop and test prototypes of devices they design; analyze the test results and change the design as needed, and oversee the manufacturing process for the device.

J: That's great! I happen to have questions in this field. Could I visit your office someday?

L: Of course. You're welcome at any time.

J: Thank you. (Looking at his watch) Excuse us, we're going to watch a movie, and

it's about that time. Very nice meeting you, Mr. Lee. See you.

L: Same here. Have fun!



### Notes:

- (1) thermal devices: 热元件, 过热保护装置
- (2) computer-aided design: 计算机辅助设计
- (3) test prototype: 试验样机
- (4) oversee: watch and direct 监督
- (5) manufacturing process: 生产过程
- (6) happen to: chance to do something or come about 碰巧
- (7) Same here: Me too/Same to you 我也一样

## Dialogue 3

*Situation: Jack visits Mr. Lee at his office to learn more about mechanical engineering.*

J: Jack      L: Lee

J: Excuse me, Mr. Lee. May I talk to you for a moment?

L: By all means. Take a seat, please. What can I do for you?

J: Would you tell me something about how to become a mechanical engineer?

L: Yes, with pleasure. But what would you like to know first?

J: What is the academic requirement for a mechanical engineer?

L: Nearly all entry-level mechanical engineering jobs require a bachelor's degree in mechanical engineering or mechanical engineering technology. A graduate degree is typically needed to conduct research.

J: What qualities are required?

L: The following qualities are quite important to be a mechanical engineer: creativity, listening skills, math skills, mechanical skills, problem-solving skills.

J: Listening skills, can you tell me more?

L: Mechanical engineers often work on projects with other engineers and professionals, such as architects. They must listen to and analyze different approaches to the task at hand. Therefore, listening skills are quite crucial.

J: Oh, I see. Mr. Lee, I've learned a lot. Thank you so much.

L: It's my pleasure. Goodbye and good luck to you.



### Notes:

- (1) by all means: definitely or certainly 当然可以
- (2) academic: used to describe things that relate to the work done in schools, colleges, and universities, especially work that involves studying and reasoning rather than practical or technical skills 学术上的
- (3) entry-level: suitable for people who do not have previous experience or qualifications in a particular area of work 初级水平的(工作)
- (4) bachelor's degree: a first degree awarded by colleges or universities 学士学位
- (5) graduate: of or relating to studies beyond a bachelor's degree 研究生的
- (6) creativity: the ability to create 创造力
- (7) professional: (a person) engaged in one of the learned professions 专业的(人士)
- (8) architect: the person who invents an idea, event, or institution or makes it happen 设计师, 缔造者
- (9) crucial: extremely important 至关重要的

## 2. Technical Terms and Expressions

mechanical creation design, MCD 机械创新设计

mechanical system design, MSD 机械系统设计

dynamic analysis of machinery 机械动力分析

dynamic design of machinery 机械动力设计

dynamics of machinery 机械动力学

modern machine design 现代机械设计

mechanical system 机械系统

computer aided design, CAD 计算机辅助设计

computer aided manufacturing, CAM 计算机辅助制造

structural design 结构设计

analytical design 分析设计

analysis of mechanism 机构分析

balance of mechanism 机构平衡

mechanism 机构学

kinematic design of mechanism 机构运动学设计

lathe 车床

bearing capacity factor 承载系数

bearing capacity 承载量/力

punch 冲床

machine center 加工中心

miller 铣床  
 air permeability test 透气性试验  
 back shaft 支撑轴  
 baffle plate 挡块  
 casting flange 铸造凸缘  
 clutch brake 离合器制动器  
 drill press 台式钻床  
 drill stand 钻台  
 quality assurance, QA 质量保证/质保  
 rockwell hardness test 洛氏硬度试验

### 3. Exercises

#### (A) Sentence Translation

(a) *Directions: Translate the following sentences into English, using the words or phrases given in the brackets.*

- (1) 机械工 (mechanist) 使用诸如车床、铣床和加工中心等机床制造精密 (precision) 金属零件。
- (2) 加工 (machine) 零件之前, 机械工必须对整个加工过程进行仔细的规划和准备。
- (3) 首先, 这些工人阅读作业零件的图纸 (blueprints) 或书面说明 (specifications)。
- (4) 机械工必须基于温度调整 (adjust) 切削 (cut) 用量。
- (5) 规划工作 (layout work) 完成以后, 机械工就进行 (perform) 必需的加工操作。
- (6) 机械工同时要保证工件 (workpiece) 被恰当润滑 (lubricate) 和冷却, 因为金属产品加工会产生大量切削热 (heat)。
- (7) 为了确定产生给定的切削速度 (cutting speed) 所需的转速 (rotational speed), 有必要知道待切削工件的直径 (diameter)。
- (8) 车床是一种相对尖锐的刀具 (tool) 连续转动金属材料的机床。
- (9) 溜板箱 (apron) 连接在大托板 (carriage) 的前方。
- (10) 实际所需的编程指令 (programming commands) 也随制造厂家的不同而不同 (vary)。

(b) *Directions: Translate the following sentences into Chinese.*

- (1) It is recommended that you never remove your hand from the chuck key when it is in the chuck.
- (2) The cutting tool is moved a definite distance along the work for each revolution of the spindle.
- (3) Because most machinists train in CNC programming, they may write basic programs

themselves and often modify programs in response to problems encountered during test runs.

- (4) Therefore, the number of workers learning to be machinists is expected to be less than the number of job openings arising each year from the need to replace experienced machinists who retire or transfer to other occupations.
- (5) One disadvantage of this technique is the differences in pressed density that can occur in different parts of the component due to particle/particle and die wall/particle frictional effects.
- (6) The continuous chip is characterized by a general flow of the separated metal along the tool face.
- (7) Chemical mechanical polishing refers to polishing by abundant slurry that interacts both chemically and mechanically with the surface being polished.
- (8) In order to be able to apply these principles to commercial working processes, we require answers to two main questions.
- (9) It is often only possible to achieve a general shape; the final part to drawing must be created by subsequent hand work; springback is a problem with high strength materials.
- (10) It is clear that this is a low production rate process and it is used today predominantly in the aircraft industry for simple forming of high strength aluminum alloys.

## **(B) Role Play**

**Situation 1** Li Ming is a machinist of Cherry Corporation. At the corporation's year-end party, he meets Gary, an apprentice working in the assembly line. Gary shares his feelings as well as problems he has met with Li Ming.

**Situation 2** Olivia and Susan meet each other on the factory road. Susan is going to the bookstore to find books on mechanical engineering. Olivia introduces Mr. White to Susan. Olivia feels Mr. White is a kind and knowledgeable expert who can give Susan some suggestions.

**Situation 3** Susan makes an appointment with Mr. White and visits him at his office. Susan dreams to be a mechanical engineer, but she has not made a specific plan yet because she has no idea about the qualifications for an engineer. She believes Mr. White can give her some help.

## Project 2 Manufacturing

### 1. Situational Dialogues

#### Dialogue 1

*Situation: Mr. Zhang comes from a Chinese motor manufacturing corporation. He has an appointment with Mr. Henry, manager of BMW Munich Plant. Unfortunately, Henry is stuck in the traffic jam. His personal assistant, Lisa, takes care of the visitor.*

L: Lisa            Z: Zhang

L: Hello. You must be Mr. Zhang from Blue-sky Motor Manufacturing Corporation. I'm Lisa, Mr. Henry's personal assistant.

Z: Yes, I'm Zhang Yuan. Pleased to meet you.

L: Pleased to meet you too. Mr. Henry has just called to say that he will be a quarter of an hour late. I'm sorry about that. The traffic is really heavy right now. Please take a seat. Would you like something to drink, coffee or tea?

Z: Yes. Please. A coffee with milk and two sugars would be lovely.

...

L: Is this the first time you've visited BMW, Mr. Zhang?

Z: Yes, it is. We do a lot of business with Chinese companies, but we haven't had the opportunity to work with BMW Munich Plant before.

L: Then let me tell you a little bit about our Munich plant.

Z: Yes, please do.

L: This plant is BMW Group's home plant. It is located in the north of Munich, directly next to the BMW Group Headquarters, the BMW Museum and the BMW Welt.

Z: I thought it must be the largest BMW plant.

L: It's not the largest one, but the oldest one, beginning operation in 1922.

Z: I see. How many people actually work for Munich plant?

L: The plant employs a workforce of around 9,000 people from more than 50 countries

around the world, including around 700 apprentices.

Z: And how many cars are built each day?

L: As a part of the BMW Group's worldwide production network, Munich plant builds more than 900 cars and up to 1,400 engines a day.

Z: That adds up to a lot of cars!



### Notes:

- (1) the traffic is really heavy: vehicles that are moving along the roads are unusually great in degree or quantity or number 交通十分拥堵
- (2) opportunity: a situation in which it is possible for you to do something that you want to do 机会
- (3) headquarters: main offices of an organization 总部
- (4) workforce: the total number of people who are employed by a particular company 劳动力, 雇员总数
- (5) add up to: 总计为

## Dialogue 2

*Situation: Mr. Liu is a sales representative of a motor sales corporation in China. After his visits to BMW Munich Plant, he is quite interested in the new product, hoping to establish cooperative relationship with the plant. David, sales manager of BMW Munich Plant, receives the visitor and introduces the characteristics of their new product.*

D: David      L: Liu

D: Hello, Mr. Liu. I'm David, sales manager of BMW Munich Plant. Nice to meet you.

L: Nice to meet you too.

D: How was your journey from China? Did everything run smoothly?

L: Yes, it was fine. We landed on time, and the traffic was light on the way here from the airport.

D: Good. Let's walk over to the conference room. We can help ourselves to some coffee and biscuits.

(A little later...)

D: Well, Mr. Liu, I'm very glad that you are interested in our new product and willing to establish cooperative relationship with us. I hope there is a ready market for our new product in China.

L: In fact, our sales department has carried out a market analysis, finding there is a



great demand for BMW i3. The design is really inspiring.

D: That's great! BMW i3 is tailor-made for electric vehicles. With its visionary design, the BMW i3 design defines the automobile of tomorrow. Its innovative BMW eDrive power train was designed in the scope of the BMW EfficientDynamics technology and is not only locally emission-free, but also offers an incomparable and near-silent driving experience.

L: How about its interior and exterior design?

D: The innovative LifeDrive architecture with carbon passenger compartment provides an especially roomy feeling in the interior and is characterized by the use of high-quality, sustainable materials. The aerodynamic exterior design with opposing doors, the characteristic black belt and large wheels create a dynamic impression about the driving agility of the BMW i3 even when it's standing still.

L: I think that's why so many people in China want it. I wonder how this amazing car is produced.

D: That's no problem. We can take a plant tour right away.

L: Wonderful!



### Notes:

- (1) market analysis: marketing research that yields information about the marketplace  
市场分析
- (2) inspiring: making you feel strongly interested and enthusiastic 鼓舞人心的, 启发灵感的
- (3) tailor-made: specially designed for a particular person or purpose 量身定制的, 专门设计的
- (4) innovative: new and original 创新的, 革新的
- (5) eDrive: electric drive 电驱动
- (6) power train: 动力传动系
- (7) EfficientDynamics: 高效动力
- (8) emission-free: 零排放
- (9) passenger compartment: 车厢
- (10) aerodynamic: (汽车等) 流线型的

## Dialogue 3

*Situation: John makes a reservation for plant tours in Benz Manufacturing Co. LLC. He wants to see how a vehicle is born. Nancy, an expert of the corporation, serving as a tour guide, answers the guest's specific questions.*