



高校专门用途英语 (ESP) 系列教材

# English *for* SOFTWARE PROJECTS

Listening & Speaking

软件项目英语 **听说**

张宏岩 编著



清华大学出版社

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北京

## 内 容 简 介

本书通过案例情景教授软件工程师如何使用英语完成独立软件开发的全流程任务,采用职场沟通场景和软件开发场景双线索的方式,从新入职开始逐步经历项目可行性研究、需求分析、设计、详细设计、编码、测试到最终项目总结,覆盖各阶段所需职场沟通和技术对话的英语听说技能。适合软件类专业的大学本科生、硕士生和需要使用英语从事软件开发和项目管理的从业者。

练习答案、录音、教学资源可在<ftp://ftp.tup.tsinghua.edu.cn/>上下载。

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投稿与读者服务:010-62776969, [c-service@tup.tsinghua.edu.cn](mailto:c-service@tup.tsinghua.edu.cn)

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# 序

说起软件，不能不提到印度。我在 2006 年撰写的《大学英语教学：回顾、反思和研究》一书中，曾这样评论印度人的软件神话：“自 20 世纪 80 年代以来，为了适应世界的高科技需求，印度迅速地甚至奇迹般地发展了自己的软件产业，在短短的十几年里，软件生产量已经占世界软件总量的 16.7%，成为世界第二软件大国，软件科技人员总数仅次于美国而居世界第二，其信息技术知识产权出口以年均 35% 的高速度增长。”美国微软巨头比尔·盖茨惊呼“印度将会在 21 世纪成为软件的超级大国”。

印度之所以能够做到这一点，我当时分析，除了其他原因，很重要的一条就是他们软件从业人员英语纯熟，能用英语熟练摄取行业里最前沿的信息和科研成果。中国软件从业人员或工程师人数不比印度同行少，技术也不差。但是比起他们用英语获取信息和国际交流的能力，我们的弱点就暴露了出来。2005 年麦肯锡调查报告指出，“中国目前工科毕业生中只有不到 10% 的毕业生具备在国际环境下工作所需要的语言技能”，英语水平高的软件人才更是凤毛麟角，可以说，工程师的英语能力已成为制约我国软件产业国际竞争力的一个重要因素。

英语能力可以分为通用英语能力和专门用途英语能力（ESP：English for Specific Purposes）。两者是有差异的。传统的观点是只要基础扎实就能胜任专业方面的工作和研究。这是一个误区。任何一个学科的理论知识构建和传播都是通过特定的语言方式来实现的。如自然学科往往通过图表公式来描述实验结果；人文学科则通过引经据典来阐述一个观点。因此，即使同一语类如期刊论文、项目报告等，其语篇结构、修辞手段、句法特征也是因学科而异的，其话语范式和语言表达是因行业而异的。因此，任何

学生和工程师,不管他们的英语语言基础如何,在他们专业圈子或者行业共同体里都是一个新成员,只有通过结合他们专业或行业的独特的话语范式和典型的工作场景进行专门的语言训练,才有可能融入他们各自的学科或行业共同体内,用英语开展有效的工作和研究。

最近几年,我国出版的专门用途英语教材不少,但真正符合 ESP 理念的教材不多,好多仅仅是专业英语教材的翻版,或是全英语专业教材的通俗本。必须清楚,专业英语主要是介绍某个学科或行业术语、概念、理论等,而专门用途英语则主要分析特定学科或行业里的知识和理论是用什么方法构建和交流的,主要是训练学生和科技人员在特定行业里的英语交流能力,两者之间有很大差异。张宏岩博士主编的《软件项目英语》让我眼前一亮,这是最接近我理想中的专门用途英语教材。

《软件项目英语》虽然围绕软件项目的启动、策划和实施等专业内容展开,但具有以下 ESP 的特征: 1. 内容上,直接来自行业的实践,符合软件行业典型的工作场景和流程; 2. 教材所培养的能力是当前软件行业实践最紧缺的技能,比如软件行业所需的技术英语对话能力、商务英语对话能力和文档阅读能力; 3. 教材所选材料能较好地反映英语语言在该特定领域的使用规范(如真实、可借鉴的软件文档)和使用规律,所涉及的情境具有可扩展性,能够让读者举一反三; 4. 配有多媒体资源、教师资源、学生资源等完整的配套体系以确保教学能够开展得有声有色。

张博士之所以能编写出这样一本我理想中的专门用途英语教材,得益于其多学科背景、在北京大学软件与微电子学院的教学经历及在工业和信息化部教育与考试中心 IT 职业英语水平考试项目的有关工作经历。尤其是,张博士作为我国“专门用途英语专业委员会”的常务理事,做了大量开拓性的实践工作,积累了非常宝贵的经验。这一切都为此书的编写和出版奠定了良好的基础。真心希望此书能为我国培养具有国际竞争力和国际话语权的软件精英做出贡献,为我国的专门用途英语教材策划、编写与出版提供路子。

蔡基刚

复旦大学教授、博导

中国专门用途英语专业委员会会长

2018年8月28日

# 前言

在我从事英语教育的 20 多年中，最难忘的是一个学生跟我描述的他与英语的悲情故事。这位同学因为英语不够好在 IBM 软件工程师的面试中败下阵来，于是加入了联想，然而 2004 年联想并购了 IBM 的 PC 和笔记本电脑部，他刚有起色的 IT 人生又遭到尾随而至的语言挑战，他说最尴尬的人生一幕是：在一次有关中国区业务的讨论中，他听到一位美国同事对中方人员毫无根据地指责，他忍无可忍，拍案而起，大喊了一声“NO!”。当激动的中国同事们带着期望看向他时，他居然卡壳了，“我大脑运行的速度远远超出了舌头能够反应的速度，那一刻，学了多年的英语关键时刻竟没能再冒出一个单词来，无语凝噎! ”。他身上所反映出的是九成半传统英语课程体系下成长起来的软件人员的普遍情况：所学的英语和行业应用无法接轨，更确切地说，在大学和其后的英语学习中，从未受过如何将英语应用在软件项目工作中的训练，这是一个系统性的缺失。

2005 年，笔者作为工信部教育与考试中心全国 IT 职业英语水平考试项目组组长，组织了 20 人的专家团队，陆续对全国 40 家 IT 类外企、合资企业、软件外包企业的 200 余名高级软件工程师、软件项目经理、软件开发与测试人员的外语需求做了调研，调研发现：软件项目过程中，一个合格的工程师或项目经理应具备：①一定的商务英语口语沟通能力；②软件开发过程中使用技术英语沟通的口语能力；③高效、准确阅读技术文档的阅读能力；④编写软件开发各阶段技术文档或报告的写作能力。一言以蔽之，所缺的就是软件项目英语应用能力。

2006 年至 2008 年，我先后在北大、北航、北理工、哈工程这四所高校的软件学院教授软件英语类课程，同一时期获得了中关村科技园区管委

会软环境建设专项基金资助，研发适合中国软件工程师的英语课程体系，本书的早期版本是一个研究成果，并在清华科技园试点培训软件工程师，为 SUN、MOTOROLA、联想、紫光、软通动力等企业的软件项目经理和工程师提供了专题培训。课程体系进而吸纳了不同领域的专家组提出的中肯意见，融合了计算机教育、英语教育、国际 IT 企业内训三个领域的教育理念。2013 年，我开始在北京大学软件与微电子学院全职任教，经过在教学实践中对本书核心内容的进一步完善修订，这本凝聚了“帮助中国软件人才突破英语瓶颈”梦想的《软件项目英语：听说》如今终于有机会正式公开发行出版。

鉴于本书内容从取材、编撰到应用都已经在高校和企业当中有过成功的实践，本书既适合作为高等院校软件学院本科和研究生层次的专业英语教材，也适合作为软件从业人员的内训或自学教材。

由衷感谢以下人员在本书初稿编辑和审校过程中所作的贡献：Janice Willson(美)、Corrin Nielson(美)、Charles Odenhal(美)、Robert Makelin(美)、Janice Willson(美)、Christine Hansell(美)、Brian Connors(美)、段磊、冯宇、李子亮、韩清月、李健利、王秋桐、宋京晶、张露薇。感谢 Janice Willson 和 Robert Makelin 精心录制的配套音频。感谢协助本书修订工作的尹玉珺。感谢资深国际软件开发专家 Gerald Cheong、张玉超、Eric Dao、李扬等为确定国际软件企业英语应用需求及确立应用规范提供的直接帮助。最后还要感谢众多参与了需求调查和章节测试的中关村软件园区企业的软件工程师们，他们的反馈意见提高了教材的针对性、互动性，最终使教材更好地贯彻了以用户体验为主导的编撰思路。

祝愿所有的本书学习者都能够在这个虚拟的全流程软件项目开发过程中汲取所需的各样养分，成为全球化时代精通英语的中国软件精英。对本书有任何意见和建议，欢迎您联系主编 drzhy@pku.edu.cn。

张宏岩

2018 年 8 月 28 日

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Unit

1

# Getting Started

## 项目启动

- I. Work environment
- II. Discussing feasibility



# Work environment

## Listening & speaking

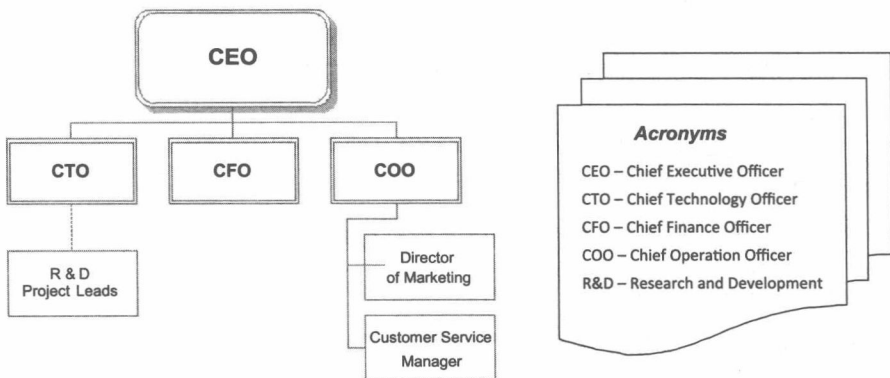
In this section, you'll learn...

- The organization of a company;
- Organizational ranks;
- The work environment.

### A Business structure

When we talk about a successful company, say, Microsoft, what's the first image that occurs to you? Its widely used products? The fabulous logos? The incredible revenue growth during the last year? Or the insightful and talented CEO?

Any of these aforementioned pictures may be your impression of this legendary business organization. But, have you ever thought about this question: what made it such a great hit? Was it simply because of Bill Gate's incredible insights? Or, was it merely a result of its creative engineers? In order to answer this question, we need to take a look at the graph below:



Graph 1 Simplified Organizational Chart

This is a simplified organizational chart. The real structure of a company is likely to be much more complex than the chart depicts. This chart tells us the hierarchical structure of a company: the CEO is the head of the company; the CTO, CFO and COO report directly to the CEO; the Director of Marketing and the Manager of Customer Services are under the supervision of the COO.

As this company grows, its organization may become more complex. Therefore, every position on this chart is expandable, which means the CTO and the CFO may each have teams working under them.

**Organizational charts**

An organizational chart is a chart which represents the structure of an organization in terms of rank. The chart shows the managers and subordinates that make up an organization, and it also shows relationships between them.

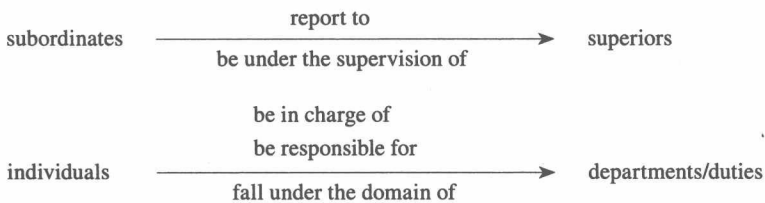
An organization chart facilitates the understanding of the company that a new employee works for. It is important that every new member gets to know the organizational structure and adapts to the new work environment as soon as possible.

**Describing organizational structure**

There are several useful expressions to describe an organizational chart, such as

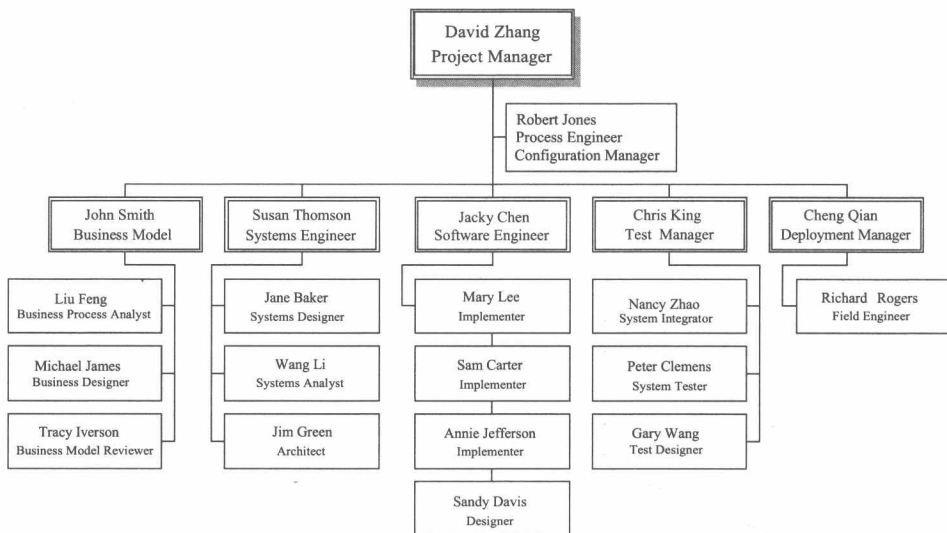
*report directly to; be under the supervision of; be in charge of*

We add two more phrases and illustrate their usages as below:



**Graph 2** Reporting relationship

Below is an example of organizational charts for project teams. Try to describe it using the expressions you've just learned.



Graph 3 A Project Team of General Computers Corporation

## B Getting to know the work environment

Jacky Chen is a software engineer in General Computers Corporation. He has worked there for a year. Thanks to his hard work and industry, he has been appointed Development Team Lead in several projects. He is welcoming a new implementer, Mary Lee, who begins her job today. Listen to the following conversations.

**Mary:** Good morning, Mr. Chen. It's a pleasure to meet you again.

**Jacky:** Nice to see you at long last, Ms. Lee. Call me Jacky, please.

**Mary:** Fine, Jacky. Please call me Mary.

**Jacky:** We'd like to welcome you to our company. If you work hard, the sky is the limit here.

**Mary:** Thanks, I'll try my best.

**Jacky:** Great. Well, let me show you where everything is.

**Mary:** OK.

**Jacky:** Everybody, I would like you to meet our new comer, Mary Lee. She's just

graduated from college, and she'll join our team.

**Mary:** Nice to meet you, everybody.

**Everybody:** Nice to meet you, Mary.

**Jacky:** This is our Project Engineering Configuration Manager, Robert Jones.

**Robert:** It's a pleasure to meet you. Welcome to GCC.

**Mary:** It's a pleasure to meet you, too.

**Robert:** We're glad to have you aboard. If you have any questions, please feel free to ask. We're all glad to help you out.

**Mary:** It's very nice of you. I would very much appreciate your guidance.

**Robert:** That's all right. I will try my best to assist.

*Jacky gets back to his work. But Mary still has some problems with the facilities in the office. She is requesting help from Robert, when Chris King, the Test Team Lead, comes back from a business trip.*

**Mary:** Do you have a minute, Robert?

**Robert:** Yes, what's up?

**Mary:** Actually, I don't know where the Human Resources Department is.

**Robert:** It's over there, next to the Accounting Department. You'll probably have to fill out some forms on your first day, right?

**Mary:** Right. Um... do you know where the time clock is?

**Robert:** It's near the entrance. Do you have a time card?

**Mary:** Not yet. I think the HR manager will give me one.

**Robert:** Well, make sure you get one soon. You don't want to be late on your first day. Anything else?

**Mary:** Just one more question: where is the coffee maker located?

**Robert:** A-ha! That's the most important place in the office. It's right over here. Come on, let's go and get a cup. Hey, Chris, you are back! Let me introduce this new comer to you. This is Mary, the new implementer in the development team.

**Chris:** Hi, my name is Chris King, a test engineer. You are new round here, huh?

**Mary:** Yes, my name's Mary Lee. I just started today.

**Chris:** Well, if there's anything I can do for you, let me know.

**Mary:** Thanks. I appreciate that!

## ● Sentence patterns

### Introduction

Introducing yourself to others:

- *I'm..., the... engineer of / for / at / in...*
- *Allow me to introduce myself.*
- *Let me introduce myself.*
- *I don't think we have met before.*

Introducing people to each other:

- *This is..., the... of...*
- *I would like to introduce..., the... of...*
- *I would like you to meet..., the... of...*
- *Allow me to introduce..., the... of...*
- *May I present/introduce..., the... of...*

### Greetings

A: How do you do?

- *It's nice/great to meet you.*
- *It's a pleasure to meet you.*
- *I'm pleased/glad/delighted to meet you.*

B: I'm pleased/glad/delighted to meet you, too.

## C Exercises

### Dictation

This textbook is designed especially for programmers, but what is a programmer and what do programmers actually do? The passage you are going to hear can provide you with some general ideas. This passage will be played THREE times at the same speed. Listen carefully, and fill in the blanks with the words you have heard.

## What Is a Computer Programmer?

Computer programmers \_\_\_\_\_ the detailed instructions, called \_\_\_\_\_, which computers must follow to perform their functions. They also conceive, design, and test logical structures for \_\_\_\_\_. In general, a computer programmer refers to individuals whose \_\_\_\_\_ is programming; this group has a wide range of responsibilities and educational backgrounds. Somebody who practices (or professes) a formal approach to programming may also be known as a \_\_\_\_\_.

Programmers \_\_\_\_\_. Professional programmers work in \_\_\_\_\_, \_\_\_\_\_ or \_\_\_\_\_. Their \_\_\_\_\_ may vary, depending on the organization.

Augusta Ada King, the countess of Lovelace is considered \_\_\_\_\_. She was the first to express an \_\_\_\_\_ intended for implementation on a computer, Charles Babbage's analytical engine, in October 1842.

Those \_\_\_\_\_ in computer programming skills may become infamous, though this notoriety is normally confined to \_\_\_\_\_. Many of the most notable programmers are often labeled "\_\_\_\_\_." Programmers often project an image of individualist geekdom, being resistant to wearing suits, institutional controls and collective bargaining.

## Glossary

instruction *n.* 指令

conceive *vt.* 构思

profess *vt.* 以……为业

vary *vi.* 变化, 不同

countess *n.* 伯爵夫人, 女伯爵

analytical *adj.* 解析的, 分析的

infamous *adj.* 声名狼藉的

notoriety *n.* 恶名

geekdom *n.* 怪诞可笑

## Oral practice

Today is your first day of employment. You are greeted by a senior officer, Mr. Clark. Think about how to carry on this conversation with him. Use the sentence patterns and phrases in our text.



**YOU:**

*(Greet Mr. Clark.)*

*(Show your gratitude.)*

*(Agree.)*

*(Greet everyone and  
introduce yourself.)*

**Mr. Clark:**

- Nice to see you. We are glad to have you join our company.
- Come with me. Let me introduce you to our colleagues.
- Everyone, this is our new co-worker.
- Good. If you have any problem, we will try our best to help you.