

# IT English

Reading and Writing

## 初级IT英语读写教程

Preliminary

1

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清华大学出版社

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常州大学图书馆  
藏书章

Preliminary

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## 内 容 简 介

为顺应经济全球化和信息技术的发展趋势,培养兼具 IT 专业技能和外语能力的人才,以适应 IT 行业发展需要,特编写了本教材。全书共有 8 个单元,内容涉及信息技术简介、计算思维、因特网起源、IT 巨头、极客文化、智能城市、大数据和物联网八个方面。每个单元分为 Section A 和 Section B 两大部分,每部分包含一篇主课文和与主课文相关的生词和短语,并设计了大量形式多样、内容丰富的练习,同时还配有科技文写作和学术写作技能方面的指导,以全面提高学生的阅读、写作和翻译能力。本书部分课后习题的参考答案请读者访问 <ftp://ftp.tup.tsinghua.edu.cn/> 下载使用。

本书适合作为 IT 及其相关专业本科高年级学生和科技英语专业学生的英语教材,也可作为从事 IT 相关工作人士自我提升的参考资料。

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# 初级 IT 英语读写教程 1

## Preliminary IT English Reading and Writing 1

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本教材是 2016 年辽宁省社会科学规划基金项目“专门用途英语理论在大学英语教学中的实践与应用——基于辽宁省 IT 英语人才培养模式的研究”（项目编号：L16DYY005）的阶段性成果；辽宁省教育科学“十三五”规划 2017 年度立项课题：“IT 专门用途英语教材体系建设研究”（项目编号：JG17DB103）的阶段性成果；也是 2016 年国家社科基金项目：信息技术背景下中国外语学习环境“生态给养”转化有效性研究（项目编号：16BYY093）的阶段性成果。



# 前言

## 一、编写背景

### 1. 《国家中长期教育改革和发展规划纲要（2010—2020 年）》

信息时代的悄然而至，使得我国教育在面临难得的改革与发展机遇的同时，也面临着全新的挑战。传统的教育教学理念、教育模式、教学内容、教学方式、教学手段、教育结构乃至整个教育体制都将随之发生变革。2010 年，教育部颁发了《国家中长期教育改革和发展规划纲要（2010—2020 年）》（以下简称《纲要》），《纲要》中提出要“优化学科专业、类型、层次结构，促进多学科交叉和融合。扩大应用型、复合型、技能型人才培养规模”。在对创新人才培养模式的论述中提出，要“加强教材建设，确定不同教育阶段学生必须掌握的核心内容，形成教学内容更新机制”。

### 2. 《全民科学素质行动计划纲要实施方案（2016—2020 年）》

2016 年 3 月，国务院办公厅印发了《全民科学素质行动计划纲要实施方案（2016—2020 年）》。方案中对高等教育中的教材要求有清楚的阐述：“加强各类人群科技教育培训的教材建设。结合不同人群特点和需求，不断更新丰富科技教育培训的教材内容，注重培养具有创意、创新、创业能力的高层次创造性人才。将相关学科内容纳入各级各类科技教育培训教材和教学计划。”

### 3. 《大学英语教学指南》

《大学英语教学指南》（以下简称《指南》）是新时期普通高等学校制定大学英语教学大纲、进行大学英语课程建设、开展大学英语课程评价的依据。《指南》在对教材建设和教学资源的论述中明确阐述了：“鼓励各高校建设符合本校定位与特点的大学英语校本数字化课程资源；鼓励本区域内同类高校跨校开发大学英语数字化课程资源。”

## 二、编写原则

本套教材是与 IT 及其相关专业密切相关的知识课程，符合新形势下国家对复合型人才培养提出的要求，符合语言学习规律和新时代大学生的认知水

平,也满足大学生专业学习和未来职业发展的实际需要,有利于促进复合型人才培养目标的实现。本套教材在设计与编写过程中遵循以下原则:

### 1. 满足社会对于复合型人才培养的需求

当代大学生正面临多元化社会带来的冲突和挑战,复合型人才的培养成为国家、社会发展的需求。因此,为社会提供既具有专业知识又具备跨语言交际能力、能够直接参与国际交流与竞争的国际化通用型人才是高校人才培养的重点和难点,也是全球化对人才提出的更高、更新的要求。

### 2. 满足学生对于专业与外语知识相结合的需求

高校开设大学英语课程,一方面满足了国家、社会发展的需求,为国家改革开放和经济社会发展服务;另一方面,也满足了学生专业学习、国际交流、继续深造、工作就业等方面的需要。本套教材旨在满足 IT 及其相关专业学生的需求,帮助他们在掌握专业知识的同时提高英语水平。此外,教材亦体现了专门用途英语理论对大学英语教学课程设置的具体要求。

### 3. 满足大学英语教学大纲和教学目标的要求

大学英语的教学目标是培养学生的英语应用能力,增强学生的跨文化交际意识和交际能力;同时发展其自主学习能力,提高综合文化素养,使他们在生活、学习、社会交往和未来工作中能够有效地使用英语,满足国家、社会、学校和个人发展的需要。本套教材编写的目的就是使学生能够在 IT 专业领域中使用英语进行有效的交流;能够有效地运用有关篇章、语用等知识;能够较好地理解有一定语言难度、内容较为熟悉或与本人所学专业相关的口头或书面材料;能够对不同来源的信息进行综合、对比、分析,并得出自己的结论或形成自己的认识。

## 三、编写依据

### 1. “专业知识”+“外语能力”的“复合型”人才培养目标

大学英语课程作为高等学校人文教育的一部分,兼具工具性和人文性。在进一步提高学生英语听、说、读、写、译基本能力的基础上,学生可以通过学习与专业或未来工作有关的学术英语或职业英语获得在学术或职业领域进行交流的相关能力。本套教材是根据大学英语教学大纲和教学目标的要求,采用系统、科学的教材编写原则和方法编写而成。从教材的前期策划和准备、单元设计、教学资源开发、编写团队、内容设置和编排到教学效果的评价和评估都有整体的体系构建,以满足教学大纲和课程目标的要求。本套教材不但注重培养学生听、说、读、写、译这些语言基本技能,而且强化学生思辨、创新能力的培养。

## 2. “学生为主体”+“教师为主导”的“双主”教学理念

《指南》中提出大学英语教学应贯彻分类指导、因材施教的原则，以适应个性化教学的实际需要。新一轮的大学英语教学改革中也明确提出了“以教师为主导，以学生为主体”的“双主”教学理念。在教学过程中，教师的主导作用主要体现在课堂教学设计、教学组织、教学策略使用、教学管理和协调、课堂教学评价和评估等方面，而教师对课堂的主导方向要以满足学生的个性需求、促进学生的个性发展和自主学习为目的，只有两者相互结合，方能相得益彰，顺利实现大学英语教学改革目标。

## 3. “语言输入”+“语言输出”的“双向”驱动教学体系

本套教材在课堂教学活动和课后练习中设计了很多“语言输入”和“语言输出”的互动环节，教材采用任务式、合作式、项目式、探究式等教学方法，体现以教师为主导、以学生为主体的教学理念，使教学活动满足从“语言输入”到“语言输出”的需求。课后练习的设计关注学生自主学习能力的培养，引导和帮助他们掌握学习策略，学会学习；促使学生从“被动学习”向“主动学习”转变，真正让学生成为学习过程中的主体，实现课内和课外学习“不断线”。

## 4. “平面教材”+“立体化教材”的“双辅”交互优势

本套教材将大力推进最新信息技术与课程教学的融合，凸显现代学习方式的自主性、移动性、随时性等特点，发挥现代教育技术的推介作用。积极创建多元的教学与学习环境，利用互联网等信息基础设施和网络交流平台，使“平面教材”呈现出信息化教育的特征，形成“立体化教材”的特征。

此外，本套教材鼓励教师建设和使用微课、慕课，拓展教学内容，实施基于“教材平面内容”和“网上立体课件”的混合式教学模式，使学生朝着主动学习、自主学习和个性化学习方向发展，实现教学资源网络化、教学环境虚拟化、教学个性化、学习评估过程化等。

## 5. 以教材为引导、推动教师的自主专业发展，实现“教”“学”相长

《纲要》明确指出，要“建设高素质教师队伍。提升教师素养，努力造就一支师德高尚，业务精湛，结构合理，充满活力的高素质专业化教师队伍”。教师的专业发展能力受多种主客观因素的影响，需要外在环境和管理机制的保障。教师专业发展的规律性特点可归纳为长期性、动态性、实践性和环境依托性。本套教材的编写和使用正是根据实践性和环境依托性的特点，编写和使用新教材的过程也是教师更新教学理念、提高教学技能的专业发展必经过程。



## 四、教材结构

本套教材共包含“读写”和“听说”两大系列。其中，“读写”系列分为初级、中级、高级三个级别，共六个分册。“听说”系列分为初级和中级两个级别，共四个分册。

在“读写”系列中，每册书有 8 个单元。每个单元分为 Section A 和 Section B 两部分。Section A 根据大学英语教学大纲的要求编制，包含一篇精读课文，课文后有生词表、短语和表达、缩略词、术语和课后练习。Section B 是按照专业英语学生的培养目标和要求编写，包含一篇与 Section A 同主题的阅读文章，旨在补充和强化专业阅读内容。两篇文章一易一难，每个单元都可以满足分级教学的需要和不同程度学生水平的需求，两个部分的练习形式多样，具有丰富性和系统性的特点。练习设计遵循语言学习的规律，针对不同层次、不同年级的学生，选材的难易程度、知识侧重点等方面均有所不同。

在“听说”系列中，每册书有 16 个单元，每个单元分为 Section A、Section B 及 Section C 三部分。其中，Section A 为听力技能训练，听力内容围绕 IT 相关主题展开。该部分由 Text A 和 Text B 两部分组成，前者针对 IT 及相关专业（非英语专业）学生，题目设计相对简单；后者针对英语专业（如科技英语）学生，题目设计难度有所增加。Section B 为口语技能训练，旨在培养学生的口头交际能力。Section C 为听力考试强化训练，该部分侧重应试，根据当下国内外几大英语考试（如大学英语四、六级，托福，雅思等），全方位、多角度满足学生对英语学习的需求。希望通过题型多样、题量丰富的考试强化训练，让学生一方面熟悉并适应听力考试的多样题型，另一方面让学生检测自己的英语听力水平，提高自主学习能力。

## 五、教材特色

### 1. 素材原汁原味

本套教材的所有阅读和听力文本均选自英美国家真实的 IT 专业文本，包括 IT 相关专业的学术网站、期刊及英语原版教材。编者在选择文本时尽量选择新颖、有趣的分支话题，文章的语言也尽量避免过于严肃和刻板，使学生在理解和分析课文的过程中既能利用专业知识进行思考和判断，又不觉得枯燥。

### 2. 内容注重实用性

本套教材的“读写”系列避免了国内同类教材培养目标单一、片面的缺陷，注重提高学生的多种技能。每个单元不仅包括阅读板块、翻译板块和写作板块，针对 IT 及其相关专业的英语阅读、翻译、学术写作等技能进行系统的学习和训练。而在“听说”系列中，编者在选择听说文本的话题时，一方面迎合当今 IT 产业就业的发展趋势，另一方面也考虑与高校 IT 专业课程紧密相关，并参考国内各大重点高校 IT 专业设置，挑选出 IT 领域相关的热门话题，这些话题广泛涉及 IT 相关专业学生所关心的 IT 就业方面的问题、IT 专业知识

的学习方法、全国重点高校 IT 相关专业课程中开设的典型编程语言、当今的网络环境、时下 IT 领域多项前沿技术等内容,以便在提升学生英语语言能力的同时了解和学习与 IT 相关的专业知识,突出语言运用,通过文本传递 IT 知识,重现真实 IT 场景。

### 3. 练习内容和形式丰富多样

本套教材在阅读和听力理解、语言知识学习及技能训练方面都设计了大量的练习,而且练习形式富于变化,如简答、判断、填空、选择、配对、翻译、图表、口语交际等,学生不仅可以学习词汇、短语等语言点,还可以提高阅读和听力理解能力、分析语言的能力及表达能力。

## 六、适用对象

本套教材特别适合计算机科学与技术、信息管理与信息系统、软件工程和网络工程等与 IT 相关专业的学生学习和使用,可以分阶段或分学期选用;也特别适合从事软件系统需求分析、设计、开发、测试、运行及维护工作的工程师和管理人员查阅和参考。编者在选材上保证与 IT 信息技术密切相关的同时,努力确保文章内容贴近生活,所选材料涵盖了当前教育、工作和社会领域的诸多热点,文字形象生动、可读性强。因此,本套教材也比较适合那些有一定英语基础,同时也喜爱计算机应用技术和互联网文化的人士阅读,以扩展知识,开拓视野。

## 七、编写团队

本套教材由大连外国语大学软件学院教师担任主编团队。参与编写的编者有来自全国各高校的大学英语教师、专业英语教师、计算机专业的教师,IT 职场的企业专家以及旅居海外的专家和学者。

本套教材在编写过程中得到校企合作教材编写组的大力支持,在此表示衷心感谢。校企合作编写组成员包括李鸿飞、王文智、姜超、韩参、蒋振彬、梁浩、刘志强(排名不分先后)。

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由于编者水平有限,错误与缺点在所难免,恳请读者批评指正。

司炳月

2017 年 6 月

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The background of the page features a dark grey upper section and a white lower section, separated by a curved, wavy line. In the dark grey section, there is a network diagram with a central large circle and several smaller circles connected by thin lines. In the white section, there is a similar network diagram with circles of varying sizes connected by lines. The title 'Unit 1' is in a large, bold, sans-serif font, and 'New Start' is in a slightly smaller, bold, sans-serif font below it.

# Unit 1

## New Start

The First Industrial Revolution used water and steam power to mechanize production. The Second used electric power to create mass production. The Third used electronics and information technology to automate production.

— *Klaus Schwab*

The number one benefit of information technology is that it empowers people to do what they want to do. It lets people be creative. It lets people be productive. It lets people learn things they didn't think they could learn before, and so in a sense it is all about potential.

— *Steve Ballmer*

Preview

The information technology (IT) industry has become one of the most robust industries in the world. IT, more than any other industry or economic facet, has increased productivity, particularly in the developed world, and therefore is a key driver of global economic growth. Economies of scale and insatiable demand from both consumers and enterprises characterize this rapidly growing sector.

Both software development and the hardware involved in the IT industry include everything from computer systems, to the design, implementation, study and development of IT and management systems. Owing to its easy accessibility and the wide range of IT products available, the demand for IT services has increased substantially over the years. The IT sector has emerged as a major global source of both growth and employment.

## Section



### Pre-reading Activities

1. The following are some common IT careers and their job responsibilities. Match each of the job titles with its main role.

(1) Computer programmer

(2) Software developer

(3) Technical consultant

(4) Chief information officer

(5) Chief technology officer

(6) System administrator

A. This person is concerned with facets of the software development process, including the research, design, programming, and testing of computer software.

B. This person analyzes an organization's computer systems and recommends ways to make the business run more efficiently.

C. This person is responsible for the upkeep, configuration, and reliable operation of computer systems, especially multi-user computers, such as servers.

D. This person designs, writes and tests computer programs.

E. This person provides help and advice to consumers or organizations that are using computer software or equipment.

F. This person works in the classroom and the computer lab to give students the skills they need to enter the technology industry with confidence.



(7) Computer systems analyst

G. This person is responsible for the information technology and computer systems that support enterprise goals in a company.

(8) Information technology trainer

H. This person sets all technology goals and policies within an organization.

2. *Work in pairs and discuss the following questions.*

- (1) Do you think studying IT courses will be different from studying the other courses in college? Why or why not?
- (2) In the future, which IT career do you expect to engage in? Why?

## Text A

### What Does It Mean to Study Information Technology?<sup>1</sup>

1. A degree in information technology can prepare you for an exciting career in a variety of **industries**. As information technology (IT) plays an increasingly important role in business, employers search for skilled workers with experience in **handling** information technology hardware and software.

2. Whether you are a student graduating directly from high school or a working **professional yearning** for **upward mobility**, the right technology degree program waits for you. From traditional colleges and universities to **accredited** online and distance learning degree programs, you can take advantage of educational opportunities that suit every **budget** and **schedule**.

3. So, what is information technology? IT is the study of how computers process and manage all manner of information. IT professionals work in all kinds of industries, designing hardware, software, communications networks, Internet applications, and more. Because of the broad range of opportunities **available** to information technology professionals, a degree in information technology can help nearly anyone with an interest in computers find a job they are qualified for in an industry they find exciting.

4. Students who earn information technology degrees can **excel** at a variety of jobs right out of college. Graduates with strong people skills can work at information technology services help desks or at customer service call centers. **Creative** specialists can design **microchips** or new software. Skilled multi-taskers can **juggle** the management of an entire computer network for a company.

5. The broad information technology field allows students to bring their general computer knowledge into a variety of **specialized niches**. The world of information technology is always

<sup>1</sup> This text material is retrieved at <http://www.worldwidelearn.com/online-education-guide/technology/information-technology-major.htm>.

growing and changing, so learning how to keep up with the pace of technology is one of the most important things students learn when **enrolled** in a degree program.

6. The fast pace at which technology changes means that many different types of people are required to specialize in a variety of different areas, providing plenty of opportunities for everyone. It is much easier to keep up with one **aspect** of technology than with all of them. Therefore, it is important for specialists in different fields to communicate with each other. They have to be able to communicate with their **colleagues** in a clear, patient fashion. This requires good people skills and excellent communication abilities, whether it is in-person, over the phone, or via e-mail.

7. Students who **pursue** college degrees in information technology tend to be natural problem solvers. While computers help **streamline** business to an amazing degree, they can also slow things down if they aren't working **properly**. Thinking on your feet, being able to **identify**, locate, and fix problems in a **timely** fashion are essential skills for working professionals in the information technology industry.

8. Information technology professionals also tend to spend a lot of time at the **keyboard** and in front of the computer screen. This means having good **manual dexterity**, typing skills, and hand-eye **coordination**. Students who pursue degrees in information tend to already have these skills. If they don't, they'd better develop them quite rapidly.

9. Here are some examples of the skills and **characteristics** students enrolled in information technology degree programs typically **possess**.

● **Troubleshooting**

- Problem solving
- Typing skills
- Communication abilities
- Computer **literacy**
- Patience
- Manual dexterity
- **Logical** thinking
- **Critical** thinking
- Creative thinking
- Technical writing skills
- Interest in changing and developing technologies

10. Working professionals in any industry can benefit from information technology training. Staying current on trends in technology and the changing online environment can increase job **security** and upward mobility. Employers consider people with advanced computer knowledge

and experience an essential part of keeping their companies **competitive** in the Internet Age.

11. Imagine this situation: Two men work for a large **construction** materials supplier. Both men have been at the company for the same number of years, and both are committed, **dedicated** workers. A **managerial** position has opened up, and both are under consideration for the **promotion**. The men seem equally qualified as far as experience, attitude, and dedication. But, one man recently earned an accredited online degree in information technology. Which employee do you think will get the promotion?

12. A degree in information technology won't get you every promotion you want, but it can give you the edge you need over others competing for the same position. No matter what industry you work in, you can rest assured that your company uses information technology in a number of ways. From streamlining order-processing systems to increasing customer service, information technology is moving to the leading **edge** of industry in general.

(754 words)

## 🔊 New Words

**industry** /'ɪndəstri/

- n.* 1. [C] the people and activities involved in producing a particular thing, or in providing a particular service 行业 2. [U] (branch of) manufacture or production 工业

**handle** /'hændl/

- vt.* to deal with, manage or control (people, a situation, a machine, etc.) 对付、管理或控制
- n.* [C] part of a tool, cup, bucket, door, drawer, etc., by which it may be held, carried or controlled (工具、杯、桶、门、抽屉等的) 柄; 把手; 拉手

**professional** /prə'feʃnəl/

- n.* [C] 1. person who does a job that needs special training and a high level of education 专门人员; 专业人士; 专家 2. person who does a sport or other activity as a paid job rather than as a hobby 职业运动员; (从事某活动的) 专业人员
- a.* 1. connected with a job that needs special training or skill, esp. one that needs a high level of education 职业的; 专业的 2. showing that sb. is well trained and extremely skilled 娴熟的; 训练有素的; 精通业务

**yearn** /jɜ:n/

- vi.* to desire strongly or with compassion or tenderness; to be filled with longing 渴望; 盼望

**upward** /'ʌpwəd/

- a.* 1. pointing towards or facing a higher place 向上的; 向高处的 2. increasing in amount or price (数量、价格) 上升的; 上涨的; 增长的

**mobility** /məu'biliti/

- n.* [U] the ability to move easily from one place, social class, or job to another 流动能力; 移动性

- accredit** /ə'kredit/ *vt.* 1. to officially approve sb. / sth. as being of an accepted quality or standard 经官方认可 2. (usu. passive) to believe that sb. is responsible for doing or saying sth. 把……归于; 认为(某事为某人所说、所做)
- budget** /'bʌdʒɪt/ *n.* [C] estimate or plan of how money will be spent over a period of time, in relation to the amount of money available 预算  
*vt.* to plan the spending of or provide (money) in a budget 将(款项)编入预算
- schedule** /'ʃedju:l/ *n.* 1. [C, U] plan that gives a list of events or tasks and the times at which each one should happen or be done 工作计划; 日程安排 2. [C] written list of things, for example prices, rates or conditions (价格、收费或条款等的)一览表; 明细表; 清单
- available** /ə'veɪləbl/ *a.* 1. (of things) that can be used or obtained (指物)可用的或可得到的 2. (of people) free to be seen, talked to, etc. (指人)可会见的; 可与之交谈的等
- excel** /ɪk'sel/ *vi.* to be exceptionally good at sth. 擅长
- creative** /kri'eɪtɪv/ *a.* 1. of or involving creation 创造的; 创造性的; 创作的 2. able to create 有创造力的
- microchip** /'maɪkrəʊtʃɪp/ *n.* [C] very small piece of silicon or similar material carrying a complex electrical circuit 微芯片; 微型集成电路片
- juggle** /'dʒʌɡl/ *v.* 1. to organize information, figures, money, etc. in the most useful or effective way 有效地组织; 有效利用 2. to throw a set of three or more objects such as balls into the air and catch and throw them again quickly, one at a time 玩杂耍(连续向空中抛接多个物体)
- specialized** /'speʃəlaɪzd/ *a.* designed or developed for a particular purpose or area of knowledge 专用的; 专业的; 专门的
- niche** /nɪʃ/ *n.* [C] suitable or comfortable position, place, job, etc. 适合的或舒适的位置、地方、职业等
- enroll** /ɪn'rəʊl/ *v.* to become or make (sb.) a member (of sth.) 登记; 注册
- aspect** /'æspekt/ *n.* 1. [C] particular part or feature of sth. being considered 方面 2. [C, usu. sing.] side of a building that faces a particular direction (建筑物的)方向; 方位
- colleague** /'kɒli:g/ *n.* [C] person with whom one works, esp. in a profession or business 同事; 同僚
- pursue** /pə'sju:/ *vt.* 1. to do sth. or try to achieve sth. over a period of time 追求; 致力于; 执行 2. to follow (sb. / sth.), esp. in order to catch or kill; chase 追赶; 追逐
- streamline** /'stri:mleɪn/ *vt.* 1. to make (sth.) more efficient and effective, eg. by improving or simplifying working methods 使(某事物)效率更高、作用更大 2. to give a streamlined form to (sth.) 使(某物)成流线型