

总主编 安晓灿 车贵成

21世纪应用型本科教育行业英语系列教材

Workplace English
for
Mechanical & Electrical Engineering

机电行业英语

刘清波 李丹峰 主编







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前言

2002 年教育部启动新世纪大学英语教学改革,2007 年颁布《大学英语课程教学要求》。在该教学文件的指导下,大学英语课程教学改革与建设蓬勃发展,取得了令人瞩目的成绩: 创建出以现代信息技术,特别是网络技术为支撑的教学模式,确立了学生在教学过程中的主体地位,开设了资源共享的大学英语学习网站和自主学习视听说学习中心,使英语学习朝着个性化和自主式学习方向发展;课程内容体系也开始向综合类、语言技能类、语言应用类、语言文化类和专业类的必修课程和选修课程相结合的方向发展。

在过去的十年中,许多地方应用型本科院校的大学英语课程建设经历了从专科教育 向本科教育的过渡,包括师资队伍建设、教学文件建设、基础英语教学内容体系和教学 方法的改革等方面都取得比较显著的成效。但是,目前大多数院校把教学内容定位在基础英语,教学目标定位在大学英语四级考试合格率。显然,这样的教学目标与地方院校应用型人才的培养目标和社会需求是不完全吻合的。地方高校大学英语教学深化改革面临的重大研究课题应该是根据应用型人才的培养目标和社会需求扩展课程内容体系,做到辅助专业、注重实用、面向社会、服务行业。开发应用型本科教育行业英语教材正是基于上述的分析和改革的需要,目的是培养学生在职场环境中使用英语进行交际的能力,为提升就业竞争力及未来的可持续发展打下必要的基础。

本系列教材的开发是在积极与专业课教师合作,针对应用型本科院校大学英语开设 拓展课程的教学需要进行设计的,其突出特色有如下三点:

- (1) 突出行业职场交际所需要的英语知识与技能训练,注重交际语言和技能的实用性、通用性、时效性、典型性和可模拟性。
- (2) 选用的材料反映该行业的发展史和在技术应用方面的最新或重大成果。听说 材料与职场情景密切相关,简短精练;阅读文章的题材以职场交际需求为主线,体裁多 样化,如行业人物访谈、行业发展趋势与动向、企业或公司简介、新产品/技术引进与

开发介绍等,既体现行业涉外交际的需要,又生动有趣;选用的应用文体现职业需求,简短典型、易读易模拟。

(3) 练习的设计体现以完成职场任务为导向和引导学生主体参与的教学理念,充分利用 group work, pair work, discussion, presentation, project, survey report 等学习方式, 使练习体现职业性、实践性、交际性和协作性, 不仅能为学生创造参与课堂活动的机会, 还能指导他们到相关企业进行现场学习和实践, 完成 group project, survey report 等学习任务。

本系列教材的每册书由八个单元组成,每个单元包括五个部分,即单元目标(Unit Objectives)、听与说(Let's Listen and Talk)、读与写(Let's Read and Write)、职场项目(Workplace Project)和职业沙龙(Career Salon)。书后附有练习答案、参考译文、听力会话和短文的文字材料及光盘。

本书以机电行业为背景,涉及的题材包括机电领域的职业前景、机电一体化技术概观、机电产品的开发设计、智能检测、安装与维护、市场调研、推广与销售以及世界著名企业家访谈录。

本系列教材的总主编是韶关学院外语学院安晓灿教授和车贵成教授。机电行业英语由韶关学院外语学院和物理与机电工程学院合作完成,主编是韶关学院外语学院刘清波,物理与机电工程学院李丹峰,副主编是外语学院谢传惠和彭卓;编者有刘清波(第一单元)、彭卓(第二单元)、钟安林(第三单元)、刘贞(第四单元)、曾畅怀(第五单元)、白志英(第六单元)、钟仕兰(第七单元)、谢传惠(第八单元);本书由物理与机电学院的李丹峰和吴伟辉担任专业指导,他们提供了编写规划和部分选材,吴伟辉对阅读材料的翻译进行了修改和校正。

本系列教材的开发是一次大胆的尝试,目的是推进应用型本科教育大学英语课程的 改革与建设,其中不当和疏漏之处在所难免,敬请专家学者和广大师生批评指正。

编 者 2012 年 3 月

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Unit 1

The Career Path in Mechanical and Electrical Engineering

Unit Objectives

- * Learn how to prepare and attend a job interview
- * Learn about mechanical and electrical engineering
- * Learn how to write a cover letter and resume

Let's Listen and Talk

Listening

Situation	1 1 Talking about the career prospect
Task 1	
Listen to	the conversation and tick the advice the professor gives.
□ 1. In	terest is important while you are choosing a career.
□ 2. El	ectrical engineers have a better working environment.
☐ 3. Me	echanical engineers have more job opportunities.
☐ 4. Au	utomation engineers have more opportunities for career advancement.
□ 5. El	ectrical engineers earn more money than mechanical engineers.
☐ 6. Sa	lary is not the first consideration.
☐ 7. Th	ne jobs in mechanical engineering are safer.
Task 2	
Listen to t	the conversation again and complete the sentences according to what you've heard.
Michael:	Hi, Prof. Smith. There are an amazing number of engineering-related careers. I
	can't make sure whether to go into electrical, mechanical, or1
	Can you give me some suggestions?
Smith:	It depends on But in reality, mechanical engineering and
	automation engineering are taught in the same way since a lot of the same

	aspects are used in both fields.
Michael:	I have been curious about how machines work ever since I was a child. And I
	am interested in installing all my3
Smith:	Obviously you have a4 mechanical stuff.
Michael:	So I tend to go more with mechanical engineering since there will be better
	5 for me. But how about electrical engineering?
Smith:	Electrical engineering is different from6 and automation engineering,
	but it makes more money.
Michael:	You mean the electrical engineers are better paid.
Smith:	Yes. But mechanical engineering provides a7 since virtually every
	manufacturing company requires a few of mechanical engineers.
Michael:	Thank you for your advice. I'll take $\underline{8}$ into consideration before I make
	the decision.
Situation	2 Getting better prepared for a job interview
Task 3	
Listen to t	he passage and answer the following questions.
1. What	can the interviewees and interviewers benefit from job interviews?
2. What	should the interviewees know about a job interview?
3. What	should the interviewees display before the interviewers?
4. Why s	should the interviewees have self-confidence at the interview?
5. How s	hould the interviewees dress for an interview?
Task 4	
Listen to t	he passage again with some blanks for you to fill in.
Nowadays	job interviews are playing a very important role in finding1 . On the
one hand, a j	ob interview offers both interviewees and interviewers a chance to know each
other within qu	tite On the other hand, excellent performance in an interview will
enable the inte	rviewees to make a good 3 upon the interviewer and finally get the job.
Therefore	, how to succeed in a job interview is worth paying attention to. First,
	ould have some knowledge about the company and the4 they apply
for. Second, in	nterviewees should display their ability, especially their grasp of5
knowledge requ	aired by the position. In other words, interviewees should have self-confidence
because being	too modest is not welcome to most6professionals. Third, interviewees
should dress _	7 . In this way, interviewees could show that they attach to
the job.	

Speaking

Situation 3 Asking about a job opening

Sample dialogue 1

Stephen: Hello! I'm asking about your ad for a maintenance engineer in today's

newspaper. Do you still have that vacancy?

Receptionist: Yes, there will be an opening in one month.

Stephen: What are the qualifications for the job?

Receptionist: The applicants should have a B. S. degree in mechanical engineering.

Stephen: I've got the degree two years ago.

Receptionist: OK. Do you have any experience for the job?

Stephen: I've been working as a maintenance man at a machinery company for two years.

Receptionist: Which company?

Stephen: The Northeast Machinery Company.

Receptionist: That's good.

Stephen: What should I do to apply for the job?

Receptionist: You should send us your cover letter and resume.

Stephen: Where can I get the details about the job?

Receptionist: You can get easy access to the details from our website.

Stephen: Thanks! It's very kind of you to offer me the information.

Task 5

Pair work. Start a conversation with your partner according to the situation:

You've come across a job opening for an electrical engineer advertised by Starwood Furniture Manufacturing Corporation, and now you are calling the company to ask about it.

Language tips:

ask about your ad for

an opening

the qualifications for the job

B. S. degree, M. S. degree

cover letter

get easy access to the details

Situation 4 Attending a job interview

Sample dialogue 2

Stephen: Good morning. I am glad to be here for this interview.

Interviewer: Please take a seat. We'll just have a free talk here.

Stephen: Thank you. It's my honor to answer your questions.

Interviewer: The major roles and responsibilities of the position include carrying out

quality inspections, responding immediately to equipment breakdowns. Above

all, you need good eyesight and normal color vision.

Stephen: I've gained a lot of practical knowledge and experience while working at the

Northeast Machinery Company. And I am very proud of my eyesight.

Interviewer: Great! The job may involve either preventative or emergency maintenance. So

sometimes you need to fulfill emergency call-out duties. Can you work

overtime?

Stephen: Yes, I can. Is there any opportunity to advance?

Interviewer: Of course. There're good prospects for promotion.

Stephen: What's the salary, may I ask?

Interviewer: It will be \$65,000 a year.

Stephen: When can I know the interview result?

Interviewer: Our final decision will be available next week. Thank you for coming to the

interview.

Stephen: Thank you for considering my application.

Task 6

Pair work. Role-play a job interview with your partner according to the situation;

You are attending a job interview with the personnel manager of Superbrain Sewing Machine Company. The manager is introducing the roles and responsibilities of an automation engineer and you are asking the qualifications for the position.

Language tips:

the major roles and responsibilities of the position include troubleshoot problems with mechanical equipment involve either preventative or emergency maintenance good prospects for promotion enjoy health insurance and paid vacation

Let's Read and Write

Reading

Task 7

Read Passage 1 and then work in pairs to speak out the common expressions given in brackets.

- 1. An engineer applies mathematics and ______ (科学原理), creating solutions to technical problems.
- 2. The engineering field offers a variety of _____ (专业领域), two of which are mechanical and electrical engineering.
- 3. An electrical egnineer prepares, modifies and studies _______(技术图纸) that include detailed calculations and ______(规格) of electrical equipments.
 - 4. The electrical engineer oversees the scale of project production to ensure it is on time

Unit 1 The Career Path in Mechanical and Electrical Engineering

and	(预算内).	
5.	Then the engineer modifies the prototypes to	(删减或
增加)n	ew features such as wires or motors; then he tests the prototype a	gain.
6.	An electrical egnineer also makes recommendations on	
(设计的	修改) to stop system malfunctions.	
7.]	During undergraduate education, the engineer focuses on eith	er a mechanical or
electrical	(专业).	
	The engineer's study may also include a cooperative curriculu	m, which combines
classroom	instruction with(实际操练).	
9.	(工程学理论和实践) exam is complet	ed after the engineer
	red work experience in the field.	
10 200	Average (起始工资) for business major	ors is also lower than
	engineer fresh out of college.	
	0	
Passage 1	1	
	The Career Path in Mechanical and Electrical Engineering	
If w	ou're inquisitive, detail-oriented and creative, then think about a career as	好奇的
1	eer. An engineer applies mathematics and scientific principles, creating	CH IPH IX
	to technical problems. The engineering field offers a variety of specialized	
	o of which are mechanical and electrical engineering. According to the	
	reau of Labor Statistics (BLS), the need for engineers is expected to	局; 办事处
900	11 percent by 2018.	
	etrical engineers	
	electrical engineer is someone who creates, develops and observes the	
manufact	uring of electrical equipment such as machinery controls, aircraft and	
automobil	e electrical systems, electric motors and communications systems. According	
to Degree	Directory, an electrical engineer conducts research to understand what	目录;指南
others ha	ve done to resolve problems with equipment such as radar systems. The	
electrical	engineer oversees the scale of project production to ensure it is on time and	
within b	adget. He/She prepares, modifies and studies technical drawings that	修改
include	detailed calculations and specification s of electrical equipments. An	规格
electrical	engineer make s prototypes of products such as computer hardware and	模型
electronic	gadgets and tests the prototypes to understand what works. Then the	小工具
engineer	modifies the prototypes to delete or add new features such as wires or	特征
motors; t	hen he/she tests the prototype again.	

Mechanical engineers

A mechanical engineer is a person who plans, envisions and tests equipment such as machines, tools and engines. A mechanical engineer designs machines that use energy, such as power saws, elevators and air conditioners. He/She also designs tools that engineers need, according to Career State University. The engineer creates prototypes of small parts that are used to make the gears in equipment like bulldozers work properly. He/She oversees the installation, operation and maintenance of mechanical products. He/She conducts research to investigate the feasibility of a piece of equipment's design, operation and performance. He/She also makes recommendations on design modifications to stop system malfunctions.

Education

Both electrical and mechanical engineers need a bachelor's degree in engineering from a college engineering program that has been approved by the Accreditation Board for Engineering and Technology (ABET). During undergraduate education, the engineer focuses on either an electrical or mechanical specialization. He/She must have a solid background on various subjects such as mathematics, science, English and the humanities. The engineer's study may also include a cooperative curriculum, which combines classroom instruction with practical work experience.

Licensure

An engineer who plans to offer his/her services to the public must be licensed to work. To be **eligible** to take the licensure examination, an engineer must have a degree from an ABET-accredited engineering program, at least four years of relevant experience and a passing score on his/her state exam, according to the BLS. The state examination is taken in two sections: the **Fundamentals** of Engineering (FE) section is completed after graduation, and the Principles and Practice of Engineering exam is completed after the engineer has acquired work experience in the field.

Work environment

Most engineers work in office buildings, laboratories, or industrial plants. Others may spend time outdoors at construction sites and oil, gas exploration and production sites, where they monitor or direct operations, solve onsite problems. Some engineers travel extensively to plants or worksites here and abroad.

Many engineers work a standard 40-hour week. At times, **deadlines** or design standards may bring extra pressure to a job, requiring engineers to work longer hours.

Considerations

The range in pay for engineers varies **tremendously**. Pay scales are most often a factor of your level of education and experience. But other factors also play a role as well. These may include where you are seeking employment and the positions you can apply for. On the average, engineers employed with the government or in private sectors earn the most.

想象

齿轮 推土机

可行性 故障

认证

人文学科 课程

资格认证

有资格的

基础

最后期限

(差异) 显著地

Engineers just out of college earn a starting salary of \$40,000 a year, comparing this with the average salary of a liberal arts major (about \$32,000 a	文科
year) . Average starting salaries for business majors is also lower than that of an	
engineer fresh out of college.	

Task 8

Read the passage again and supply the missing words or expressions to complete the following statements in pairs.

1. An electrical engineer creates, develops and observes the manufacturing of ______ such as machinery controls, aircraft and automobile electrical systems, _____ and communications systems.

2. A mechanical engineer plans, _____ and tests equipment such as machines, tools and engines.

3. A mechanical engineer also ______ on design modifications to stop system malfunctions.

4. As far as education background is concerned, an electrical or mechanical engineer must have a ______from an ABET-accredited college engineering program.

5. An engineer who plans to offer his/her services to the public must be ______to work.

6. One of the qualifications of taking the licensure examination is that an engineer must have at least four years of ______according to the BLS.

7. Some engineers work at construction sites and oil and gas exploration and ______, where they monitor or direct operations or solve _____.

8. Engineers just out of college earn a starting salary of ______, while liberal arts majors earn about \$32,000.

Task 9

Work in groups and discuss the following questions.

- 1. What job opportunities do engineers have according to the U. S. Bureau of Labor Statistics?
- 2. What do the typical duties of an electrical engineer include according to the Degree Directory?
- 3. In order to have a solid career background, what subjects should the electrical and mechanical engineers learn?
- 4. What qualifications must engineers have in order to take the Licensure Examination according to the BLS?
 - 5. What factors affect the pay scale of an engineer?

lask 10	
Read the sentences taken from Passage 1 and work in groups to translate them into Chinese	2.
1. If you're inquisitive, detail-oriented and creative, then think about a career as a	m
engineer.	
	_
2. An electrical engineer makes prototypes of products such as computer hardware as	ıd
electronic gadgets and tests the prototypes to understand what works.	
3. A mechanical engineer is a person who plans, envisions and tests equipment such	_ as
machines, tools and engines.	
4. The engineer creates prototypes of small parts that are used to make the gears	in
equipment like bulldozers work properly.	
5. At times, deadlines or design standards may bring extra pressure to a job, requiring	
engineers to work longer hours.	_
Task 11	
Work in pairs to complete the statements with the information in Passage 2.	
An automation engineer must be an excellent troubleshooter and must on technology.	
2. Their expert knowledge and skills make them a hot commodity for companies looking	to
revolutionize and optimize tasks and procedures that were once done by	
3. However, even with automation engineers being so desired in the work force	٠,
individuals in this line of work should not neglect the of creating	ıg
a quality resume.	
4. However, individuals who are interested inpositions are more like	ly
to face stiff competition from comparably	
5. You need dedicate a little bit of your time to that can awe potenti	al
employers if you want to grab a high-level job in automation engineering.	
6. If you can use your to prove to potential employers that you can	

Unit 1 The Career Path in Mechanical and Electrical Engineering

a previous design, you will be leaps and bounds above your	competitors.
7. When you list experience on your resume, you must make sure t	hat it is
the position you are applying for.	
8. Make sure that you describe the previous work experience by lis	sting
you worked on, daily and requirements, any	you
were in.	
9. You should list your education since it will prove to the	that
you are indeed to perform the work that they will need.	
10. Start by listing your first, with the particular	field of study, and
moving backwards into of study.	
Passage 2	
Automation Engineer Resume	
Automation Engineers design, program, simulate and test automated	模拟
machinery and processes. They typically are employed in industries such as car	10.15
manufacturing, where robots or machines are used to perform specific	•
functions. Automation Engineers are responsible for design specifications and other	
detailed documentation for their creations. They must be excellent troubleshooters	文件编制; 故障检
and must stay current on technology.	测能手
Automation Engineers are currently in high demand and there are no signs of	
this decreasing. Their expert knowledge and skills make them a hot commodity for	
companies looking to revolutionize and optimize tasks and procedures that were	彻底变革; 优化
once done by manual labor. Automation Engineering was typically used in	
manufacturing processes but with the rise in computer engineering it has grown in	
leaps and bounds and is now being implemented in previously unimaginable	突飞猛进; 实施
ways. However, even with automation engineers being so desired in the workforce,	
individuals in this line of work should not neglect the basic principles of creating a	
quality resume.	
Competition for run-of-the-mill automation engineering positions would	普通的
definitely not be defined as cutthroat; individuals interested in high-level	竞争激烈的
automation engineering positions, however, are more likely to face stiff competition	
from comparably skilled competitors. If you want to grab one of the high-level jobs in	
this industry, and the large pay increase that comes with it, you will need to	A.L. Mat. 199
dedicate a little bit of your time to creating a resume that can awe potential	使敬畏
employers. There are tons of automation engineer resume samples online that can give	
you a good idea of where to start.	
Previous work experience	再列华
The automation engineering industry constantly builds upon and reinvents	再创造
itself. If you can use your previous work experience to prove to potential employers	
that you are capable of continuously improving a previous design or that you are	
capable of coming up with new ideas to continue to expand the limits of the industry, you will be leaps and bounds above your competitors.	
When listing experience on a resume you must make sure that it is relevant to	
the position you are applying for. If the information does not provide a link from your	