

高等学校“十三五”
应用型本科规划教材



专业英语

(土建类专业)

• 主编 屈钧利 刘向东



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内 容 简 介

本教材是根据国家教育部审定的《高等工业学校专业英语课程教学基本要求》、结合应用型本科专业的特点编写的,内容包括建筑学、土木工程、工程管理、建筑环境及建筑材料等方面的文章共 35 篇。

本教材可作为普通高等院校、独立学院、继续教育学院土建类专业“专业英语”课程教材及自学参考用书,也可供有关工程技术人员参考。

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出版说明

本书为西安科技大学高新学院课程建设的最新成果之一。西安科技大学高新学院是经教育部批准，由西安科技大学主办的全日制普通本科独立学院。学院秉承西安科技大学 50 余年厚重的历史文化传统，充分利用西安科技大学优质教育教学资源，开创了一条以“产学研”相结合为特色的办学路子，成为一所特色鲜明、管理规范的本科学独立学院。

学院开设本、专科专业 32 个，涵盖工、管、文、艺等多个学科门类，在校学生 1.5 万余人，是陕西省在校学生人数最多的独立学院。学院是“中国教育改革创新示范院校”，2010、2011 连续两年被评为“陕西最佳独立学院”。2013 年被评为“最具就业竞争力”院校，部分专业已被纳入二本招生。2014 年学院又获“中国教育改革创新示范”殊荣。

学院注重教学研究与教学改革，实现了陕西独立学院国家级教改项目零的突破。学院围绕“应用型创新人才”这一培养目标，充分利用合作各方在能源、建筑、机电、文化创意等方面的产业优势，突出以科技引领、产学研相结合的办学特色，加强实践教学，以科研、产业带动就业，为学生提供了实习、就业和创业的广阔平台。学院注重国际交流合作和国际化人才培养模式，与美国、加拿大、英国、德国、澳大利亚以及东南亚各国进行深度合作，开展本科双学位、本硕连读、本升硕、专升硕等多个人才培养交流合作项目。

在学院全面、协调发展的同时，学院以人才培养为根本，高度重视以课程设计为基本内容的各项专业建设，以扎扎实实的专业建设，构建学院社会办学的核心竞争力。学院大力推进教学内容和教学方法的变革与创新，努力建设与与时俱进、先进实用的课程教学体系，在师资队伍、教学条件、社会实践及教材建设等各个方面，不断增加投入、提高质量，为广大学子打造能够适应时代挑战、实现自我发展的人才培养模式。为此，学院与西安电子科技大学出版社合作，发挥学院办学条件及优势，不断推出反映学院教学改革与创新成果的新教材，以逐步建设学校特色系列教材为又一举措，推动学院人才培养质量不断迈向新的台阶，同时为在全国建设独立本科教学示范体系，服务全国独立本科人才培养，做出有益探索。

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高等学校“十三五”应用型本科规划教材 编审专家委员会名单

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前 言

专业英语是大学英语教学的不可或缺的组成部分,对于培养学生的文献阅读能力、科技论文写作能力是非常重要的。本教材依据国家教育部审定的《高等工业学校专业英语课程教学基本要求》、结合作者们几年来为土建类应用型专业本科生讲授专业英语课程的教学实践经验,并汲取各兄弟院校教学改革的共识和国内各种版本的专业英语教材的优点编写而成,其目的是为土建类专业应用型本科生提供一本难度适中的实用教材。

本书的特点是:

(1) 教材内容涉及面广、适应性强,包含了建筑学、土木工程、工程管理、建筑环境、建筑材料等方面的文章共 35 篇,可满足 32~64 学时土建类专业专业英语课程的教学要求,可根据不同的专业、授课对象选取部分或全部内容讲授。

(2) 考虑到应用型本科学生的特点,教材中的内容通俗易懂、可读性强。通过介绍土木建筑领域相关的技术、成果,使读者在获得广泛的专业知识的同时,了解专业英语的阅读特点、技巧和翻译方法,从而提升读者的专业英语阅读和翻译水平。

(3) 针对科技论文(毕业设计)英文摘要的写作需要,本教材介绍了英文摘要的写作方法和实例。

本教材由西安科技大学屈钧利、刘向东任主编。参加编写的人员有西安科技大学的刘向东(Unit 32、33),西安科技大学高新学院的王建斌(Unit 3、5、6、7)、王平乐(Unit 15、16、17、18)、王丹(Unit 11、12、13、14)、王帅(Unit 34、35)、李琴(Unit 4、19、20、21、22、23、24)、汤颖凡(Unit 30、31)、冯文焕(Unit 10)、张圆圆(Unit 1、8、9、25、26、27、附录)、任改霞(Unit 2、28、29)

本教材在编写的过程中,参阅了国内外出版的一些同类教材及网络资料,得到了西安科技大学高新学院、西安电子科技大学出版社高新分社等单位的支持和帮助。编者在此对他们及对本书所引用文献的著作者表示衷心的感谢。

由于水平所限,书中难免有疏漏和不妥之处,恳请广大读者批评指正。

编 者

2015 年 5 月

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Unit 1

Architecture

⇒ Text

Architecture is both the process and product of planning, designing and construction. Architectural works, in the material form of buildings, are often perceived as cultural symbols and as works of art. In relation to buildings, architecture has to do with the planning, designing and constructing form, space and ambience that reflect functional, technical, social, environmental, and aesthetic considerations. It requires the creative manipulation and coordination of material, technology, light and shadow. Architecture also encompasses the pragmatic aspects of realizing buildings and structures, including scheduling, cost estimating and construction administration^[1]. As documentation produced by architects, typically drawings, plans and technical specifications, architecture defines the structure and/or behavior of a building or any other kind of system that is to be or has been constructed.

In many ancient civilizations, such as those of Egypt and Mesopotamia, architecture and urbanism reflected the constant engagement with the divine and the supernatural, and many ancient cultures resorted to monumentality in architecture to represent symbolically the political power of the ruler, the ruling elite, or the state itself. The architecture and urbanism of the Classical civilizations such as the Greek and the Roman evolved from civic ideals rather than religious or empirical ones and new building types emerged. Architectural “style” developed in the form of the Classical orders.

The architecture of different parts of Asia developed along different lines from that of Europe; Buddhist, Hindu and Sikh architecture each having different characteristics. Buddhist architecture, in particular, showed great regional diversity. In many Asian countries a pantheistic religion led to architectural forms that were designed specifically to enhance the natural landscape.

Islamic architecture began in the 7th century CE, incorporating architectural forms from the ancient Middle East and Byzantium, but also developing features to suit the religious and social needs of the society. Examples can be found throughout the Middle East, North Africa, Spain and the Indian Sub-continent. The widespread application of the pointed arch was to influence European architecture of the Medieval period.

In Europe, in both the Classical and Medieval periods, buildings were not often attributed to specific individuals and the names of architects remain frequently unknown, despite the vast

scale of the many religious buildings extant from this period. During the Medieval period guilds were formed by craftsmen to organize their trade and written contracts have survived, particularly in relation to ecclesiastical buildings. The role of architect was usually one with that of master mason, or Magister lathomorum as they are sometimes described in contemporary documents. With the emerging knowledge in scientific fields and the rise of new materials and technology, architecture and engineering began to separate, and the architect began to concentrate on aesthetics and the humanist aspects, often at the expense of technical aspects of building design^[2]. There was also the rise of the “gentleman architect” who usually dealt with wealthy clients and concentrated predominantly on visual qualities derived usually from historical prototypes, typified by the many country houses of Great Britain that were created in the Neo Gothic or Scottish Baronial styles. Formal architectural training in the 19th century, for example at Ecole des Beaux-Arts in France, gave much emphasis to the production of beautiful drawings and little to context and feasibility. Effective architects generally received their training in the offices of other architects, graduating to the role from clerks. Meanwhile, the Industrial Revolution laid open the door for mass production and consumption. Aesthetics became a criterion for the middle class as ornamented products, once within the province of expensive craftsmanship, became cheaper under machine production.

Around the turn of the 20th century, a general dissatisfaction with the emphasis on revivalist architecture and elaborate decoration gave rise to many new lines of thought that served as precursors to Modern Architecture. Notable among these is the Deutscher Werkbund, formed in 1907 to produce better quality machine made objects. The rise of the profession of industrial design is usually placed here. Following this lead, the Bauhaus school, founded in Weimar, Germany in 1919, redefined the architectural bounds prior set throughout history, viewing the creation of a building as the ultimate synthesis—the apex of art, craft, and technology^[3]. When Modern architecture was first practiced, it was an avant-garde movement with moral, philosophical, and aesthetic underpinnings. Immediately after World War I, pioneering modernist architects sought to develop a completely new style appropriate for a new post-war social and economic order, focused on meeting the needs of the middle and working classes. They rejected the architectural practice of the academic refinement of historical styles which served the rapidly declining aristocratic order. The approach of the Modernist architects was to reduce buildings to pure forms, removing historical references and ornament in favor of functionalist details. Buildings displayed their functional and structural elements, exposing steel beams and concrete surfaces instead of hiding them behind decorative forms. Many architects resisted Modernism, finding it devoid of the decorative richness of ornamented styles and as the founders of that movement lost influence in the late 1970s, Postmodernism developed as a reaction against its austerity. Postmodernism viewed Modernism as being too extreme and even harsh in regards to design^[4]. Instead, Postmodernists combined Modernism with older styles from before the 1900s to form a middle ground. Robert Venturi’s contention that a “decorated shed” (an ordinary building which is functionally designed inside and embellished on the outside) was better than a

“duck” (an ungainly building in which the whole form and its function are tied together) gives an idea of these approaches.

Since the 1980s, as the complexity of buildings began to increase (in terms of structural systems, services, energy and technologies), the field of architecture became multi-disciplinary with specializations for each project type, technological expertise or project delivery methods. The preparatory processes for the design of any large building have become increasingly complicated, and require preliminary studies of such matters as durability, sustainability, quality, money, and compliance with local laws. A large structure can no longer be the design of one person but must be the work of many. Modernism and Postmodernism have been criticised by some members of the architectural profession, such as Christopher Alexander, who felt that successful architecture was not a personal philosophical or aesthetic pursuit by individualists; rather it had to consider everyday needs of people and use technology to create liveable environments, with the design process being informed by studies of behavioral, environmental, and social sciences. Environmental sustainability has become a mainstream issue, with profound affect on the architectural profession. Many developers, those who support the financing of buildings, have become educated to encourage the facilitation of environmentally sustainable design, rather than solutions based primarily on immediate cost^[5]. Major examples of this can be found in greener roof designs, biodegradable materials, and more attention to a structure's energy usage. This major shift in architecture has also changed architecture schools to focus more on the environment.

⇒ New Words and Phrases

ambience n. 气氛, 布景; 周围环境

aesthetic a. 美的; 美学的; 审美的, 具有审美趣味的

divine a. 神圣的; 非凡的; 天赐的; 极好的

elite n. 精英; 精华; 中坚分子

pantheistic a. 泛神论的; 泛神论者的

pointed a. 尖的; 突出的; 锐利的; 率直的

arch n. 弓形, 拱形; 拱门

ecclesiastical a. 教会的; 牧师的; 神职的

mason n. 泥瓦匠

prototype n. 原型; 标准, 模范

consumption n. 消费; 消耗; 肺癆

precursor n. 先驱, 前导

philosophical a. 哲学的; 冷静的

underpinning n. 基础, 基础材料; [矿业]支柱, 支承结构; 支撑

devoid a. 缺乏的; 全无的

austerity n. 紧缩; 朴素; 苦行; 严厉
harsh a. 严厉的; 严酷的; 刺耳的; 粗糙的; 刺目的
contention n. 争论, 争辩; 争夺; 论点
embellish vt. 修饰; 装饰; 润色
greener n. 没经验的人, 生手
biodegradable a. 生物所能分解的, 能进行生物降解的
moral a. 道德的; 精神上的; 品行端正的

⇒ Notes

1. Architecture also encompasses the pragmatic aspects of realizing buildings and structures, including scheduling, cost estimating and construction administration.

建筑学还包括实现建筑功能和结构等方面的知识, 包括进度安排、费用估算和施工管理。

2. With the emerging knowledge in scientific fields and the rise of new materials and technology, architecture and engineering began to separate, and the architect began to concentrate on aesthetics and the humanist aspects, often at the expense of technical aspects of building design.

随着知识在科学领域的形成和新材料、新技术的兴起, 建筑和工程开始分离, 建筑师开始专注于美学与人文方面, 而通常将建筑设计涉及的技术层面留给工程设计人员。

3. Following this lead, the Bauhaus school, founded in Weimar, Germany in 1919, redefined the architectural bounds prior set throughout history, viewing the creation of a building as the ultimate synthesis—the apex of art, craft, and technology.

在此带动下, 于1919年设立在德国魏玛的包豪斯建筑学院, 重新定义了历史上先前设定的建筑界限, 将建筑视为最佳艺术、工艺和技术的完美结合。

4. Postmodernism viewed Modernism as being too extreme and even harsh in regards to design.

后现代主义认为现代主义过于极端, 在设计方面也显粗糙。

5. Many developers, those who support the financing of buildings, have become educated to encourage the facilitation of environmentally sustainable design, rather than solutions based primarily on immediate cost.

很多的开发商, 即这些建筑的资金提供者, 已经受到教育鼓励进行环境可持续性设计, 而不是立足于仅考虑短期费用的一些方案。

⇒ Exercises

Translate the following Chinese into English, or English into Chinese.

1. 建筑学是研究建筑物及其周围环境的学科, 它旨在总结人类建筑活动的经验, 以指

导建筑设计创作，构造某种体系环境等。建筑学的内容通常包括技术和艺术两个方面。

2. 但是建筑又不同于其他艺术门类，它需要大量的财富和技术条件、大量的劳动力和集体智慧才能实现。它的物质表现手段规模之大，为任何其它艺术门类所难以比拟。宏伟的建筑建成不易，保留时间也较长，这些条件导致建筑美学的变革相对迟缓。建筑艺术还常常需要应用绘画、雕刻、工艺美术、园林艺术，创造室内外空间艺术环境。因此，建筑艺术是一门综合性很强的艺术。

3. Further, architects themselves are constantly under a process of transformation; they unavoidably exist between the multiple poles of reality and abstraction, of the man-made and the natural, of present and future.

4. Many studies of the Greek Parthenon show that the frontal elevation design has been ordered according to the golden section rectangle.

5. For example, the Doric columns' vertical grooved fluting reveals the roundness of their cylindrical shafts through the shadows cast in the brilliant Greek sunlight.

6. What makes the building a clear example of passion, clarity and beauty is not simply tile shape of the elements, but the special relationship between them — the unity between the parts, and between parts and whole.

7. Not only have we come to depend on sight as a primary means of understanding the world, but we have also learned to translate information picked up by the senses into visual clues, so that, in many ways, sight is actually used as a substitute for the other senses.