

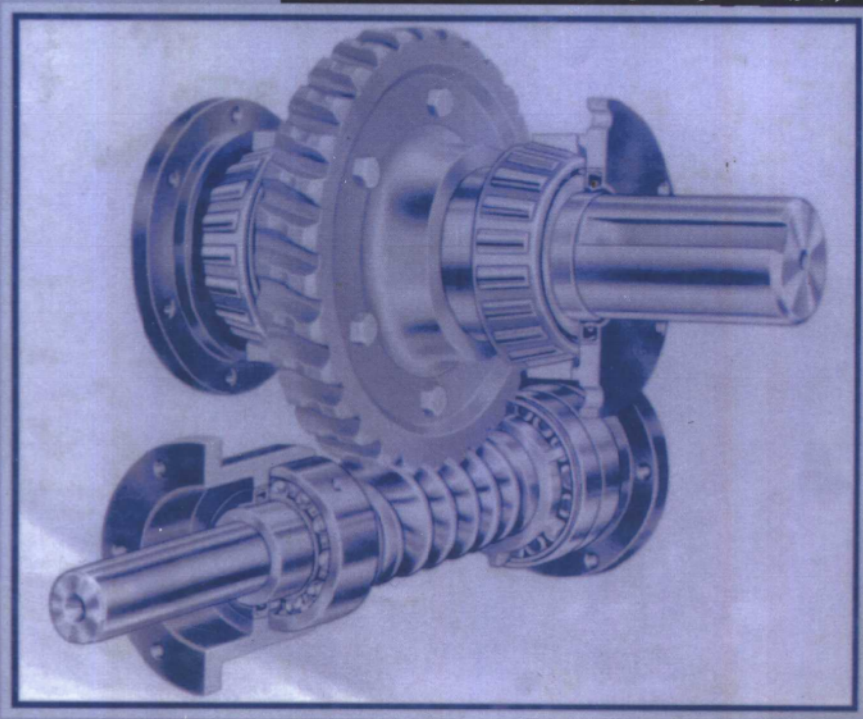
时代教育·国外高校优秀教材精选

附1张光盘


机械零件设计

Design of Machine Elements

(英文版·原书第7版)



(美) M.F. 斯波茨 (M.F. Spotts) 著
T.E. 舒普 (T.E. Shoup)

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本书内容与我国同类课程相近, 涉及机械设计概论、工程力学、轴、弹簧、螺旋运动、铆焊连接、润滑、轴承、齿轮和蜗杆传动、过盈配合连接、飞轮、受冲击载荷的零件设计、凸轮设计、工程材料等。本书附有一张光盘, 其中约有 50 个计算程序, 可进行多种设计计算。本书的习题和例题兼有公制和英制, 并给出了换算表, 使用很方便。书中例题、习题丰富, 内容广泛实用, 启发性强, 同时增加了现代机械设计的内容。

本书可作为从事机械工程设计、制造方面的教师、大学生、研究生使用的教材, 对工程技术人员或管理人员来说是一本很好的参考书, 也可以作为学习工程英语的参考书。

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序

本书是美国大学现行的机械设计课程教材。本书已使用多年。我国曾翻译出版过它的第5版，本次影印出版的是修订后的第7版，其内容比第5版有很大改进。特别是在引入计算机辅助设计和加强机械创新设计能力方面有了明显的进展，值得注意。该书的主要特点表现在如下几方面：

1. 内容有机械设计概论、工程力学、基础、轴、弹簧、螺旋传动、铆焊连接、润滑、轴承、齿轮和蜗杆传动及其他（如过盈配合连接、飞轮、受冲击载荷的零件设计、钢绳、曲柄和凸轮的设计、工程材料）等。其内容涉及面与我国同类课程相近，且稍广泛。书中对各零件设计基本理论的叙述的深入程度比较适当，而对其设计计算方法有较详细的介绍。对教学和工程设计有参考价值。

2. 本书对美国使用的一些标准，如螺纹、V带、滚动轴承、润滑剂、常用材料等都有介绍。习题和例题兼有公制和英制，并给出了适用的换算表，使用很方便。

3. 据统计，书中共有例题133题，习题666题，较国内一般教材为多。其内容广泛实用，对使用本书的读者有较大的启发性。

4. 本书第1章对机械设计的步骤和总体设计的一些问题作了概括介绍，第13章专门介绍了形状综合的原理，这些都是现代机械设计的内容，意在加强读者的创新设计能力。

5. 本书附有一张光盘，其中约有50个计算程序，可以进行多种设计计算，还可与教材中的示例密切配合。由此可以看到国外本课程的一个重要发展趋势。

在我国加入世界贸易组织后，需要了解国外机械设计的发展情况，本书具有一定的代表性和参考价值。

本书可以作为机械工程设计、制造方面的教师、大学生、研究生的教材或教学参考书；对从事机械工程设计、制造、安装、修理、实验工作，以及与国外有相关业务的工程技术人员或管理人员，是一本很好的参考书。本书专业词汇比较广泛，语言流畅，也可以作为学习工程英语的参考书。

吴宗泽

清华大学精密仪器系

2002年3月

出版说明

随着我国加入 WTO，国际间的竞争越来越激烈，而国际间的竞争实际上也就是人才的竞争、教育的竞争。为了加快培养具有国际竞争力的高水平技术人才，加快我国教育改革的步伐，国家教育部近来出台了一系列倡导高校开展双语教学、引进原版教材的政策。以此为契机，机械工业出版社拟于近期推出一系列国外影印版教材，其内容涉及高等学校公共基础课，以及机、电、信息领域的专业基础课和专业课。

引进国外优秀原版教材，在有条件的学校推动开展英语授课或双语教学，自然也引进了先进的教学思想和教学方法，这对提高我国自编教材的水平，加强学生的英语实际应用能力，使我国的高等教育尽快与国际接轨，必将起到积极的推动作用。

为了做好教材的引进工作，机械工业出版社特别成立了由著名专家组成的国外高校优秀教材审定委员会。这些专家对实施双语教学做了深入细致的调查研究，对引进原版教材提出许多建设性意见，并慎重地对每一本将要引进的原版教材一审再审，精选再精选，确认教材本身的质量水平，以及权威性和先进性，以期所引进的原版教材能适应我国学生的外语水平和学习特点。在引进工作中，审定委员会还结合我国高校教学课程体系的设置和要求，对原版教材的教学思想和方法的先进性、科学性严格把关，同时尽量考虑原版教材的系统性和经济性。

这套教材出版后，我们将根据各高校的双语教学计划，举办原版教材的教师培训，及时地将其推荐给各高校选用。希望高校师生在使用教材后及时反馈意见和建议，使我们更好地为教学改革服务。

机械工业出版社

2002 年 3 月



Preface

Those of us who first learned about the field of machine design using one of the earlier editions of this classic text by Professor Spotts were saddened at the loss of this thoughtful teacher and innovative practitioner. Many of us feel strongly that this classic text should continue through additional editions. Thus, I consider it an honor to work with Prentice Hall to keep the tradition of this classic text alive for the benefit of our profession.

The essential features of the previous editions have been retained in this, the seventh edition. Changes have been made throughout the book to simplify and update design methods and to make them more understandable and easier to use. In some cases, the material has been organized differently to accommodate recent practice in the profession and in engineering education. The use of spreadsheet calculations to facilitate the computational process has been added to many of the example applications. These applications, along with other resource materials, are available as a floppy disk inside the back cover of the book. Wherever appropriate, new material has been added to individual chapters in order to bring the material up to date from the previous edition. A new chapter on form synthesis has been included at the end of the text to give some useful tools to improve the practitioner's design capabilities.

As with previous editions of this book, the objective of this text is to give tools and techniques to facilitate design calculations for the most frequently encountered mechanical elements. While much more could be said about each individual element, space limitations make it necessary to present what is felt to be the central and most important material. Almost all mathematical derivations have been given in full detail to make the book as practical and useful, as well as authoritative and adaptable, as possible.

As in the sixth edition, dual unit systems have been used in order to allow the design engineer to be as versatile as possible in the calculations. The spreadsheet templates are designed to handle both U.S. customary and SI unit systems. Conversion templates allow changes to be made both quickly and accurately from one unit system to the other. Additional references are appended to each chapter so that the reader can pursue any topic that requires further information.

Since learning is a life-long process for engineers, this book should serve both as a point of departure for both young engineers and as a useful reference for seasoned professionals. The notation in this text is designed to be simple and unified. The chapters following the introductory material can be studied in any order.

This book represents over 60 years of experience of its two authors in industry and in the classroom. The principles presented here are fundamental to the entire field of machine design.

I would like to thank the reviewers of this text: William L. Cleghorn, University of Toronto, Harvey Hoy, University of Wisconsin, Richard A. Hultin, Rochester Institute of Technology, Ronald L. Priebe, University of North Carolina-Charlotte, and Lily Sanchez, Santa Clara University.

T. E. Shoup
Santa Clara University



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