

<<化学和工程热力学>>

图书基本信息

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## 前言

This book is intended to be the text for a course in thermodynamics for undergraduate students in chemical engineering. It has been used in this manner at the University of Delaware for more than twenty years, originally as a course for third-year students and currently for sophomores. I had two objectives in writing the first edition of this book, which have been retained in the succeeding editions. The first was to develop a modern applied thermodynamics text especially for chemical engineering students, that was relevant to other parts of the curriculum, specifically courses in separations processes, chemical reactor analysis, and process design. The other objective was to organize and present material in sufficient detail, and in such a way that the student obtained a good understanding of the principles of thermodynamics, and a proficiency in applying these principles to the solution of a large variety of energy flow and equilibrium problems. Since the first two editions largely met these goals, and the principles of thermodynamics have not changed in the last decade, this edition is similar in structure to the earlier ones. However, there have been three important changes in engineering education in the recent decades. The first is the availability of powerful desktop computers. The second is greater concerns about safety and the environment. The third is the application of chemical engineering principles to new technology areas such as biotechnology, polymers, solid state processing, etc. In the current edition of this text I have made changes to address each of these issues. The availability of desktop computers and equation solving software has now made it possible to bring engineering science, industrial practice, and undergraduate education much closer together. In particular, students in their dormitory rooms or at home can now perform sophisticated thermodynamics and phase equilibrium calculations similar to those that they will encounter in industry. I provide two different ways to accomplish this.

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## 内容概要

随着中国社会主义现代化建设进入新的阶段，以高质量的高等教育培养千百万专门人才，迎接新世纪的挑战，是实现“科教兴国”战略的基础工程，也是完成“十五”计划各项奋斗目标的重要保证。

为切实加强高等学校本科教学并提高教学质量，教育部于2001年专门下发文件提出12条意见，对高等学校教学工作从认识、管理、教师队伍到教学方法和教学手段等给予指导。

文件强调，按照“教育要面向现代化、面向世界、面向未来”的要求，为适应经济全球化和科技国际化的挑战，本科教育要创造条件使用英语等外语进行公共课和专业课教学。

在文件精神指导下，全国普通高等学校尤其是重点高校中兴起了使用国外教材开展教学活动的潮流。

如生物技术与工程、环境科学与工程、材料科学与工程及作为其学科基础理论重要组成部分的化学技术和化学工程技术又是这股潮流中最为活跃的领域之一。

在教育部“化工类专业人才培养方案及教学内容体系改革的研究与实践”项目组及“化工类专业创新人才培养模式、教学内容、教学方法和教学改革的研究与实践”项目组和“全国本科化学工程与工艺专业教学指导委员会”的指导和帮助下，化学工业出版社及时启动了引进国外名校名著的教材工程。

出版社组织编辑人员多次赴国外学习考察，通过国外出版研究机构对国外著名的高等学校进行调查研究，搜集了一大批国际知名院校的现用教材选题。

他们还联络国内重点高校的专家学者组建了“国外名校名著评价委员会”，对国外和国内高等本科教学进行比较研究，对教材内容质量进行审查评议，然后决定是否引进。

他们与国外许多著名的出版机构建立了联系，有的还建立了长期合作关系，以掌握世界范围内优秀教材的出版动态。

以其化学化工专业领域的优势资源为基础，化学工业出版社的教材引进主要涉及化学、化学工程与工艺、环境科学与工程、生物技术与工程、材料科学与工程、制药工程等专业，对过程装备与控制工程、自动化等传统专业教材的引进也在规划之中。

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