

PREFACE TO THE THIRD EDITION

Studying Engineering, Third Edition has been updated and expanded. The primary change is that the key chapter—Chapter 3, "Academic Success Strategies"—has been expanded substantially and divided into three chapters. The new Chapters 3, 4, and 5 provide significant new information to aid students in taking advantage of both the teaching part and the learning part of the *teaching/learning* process. All of the dated material throughout the book has been updated, and a wealth of useful new Internet sites has been added. Finally, reflection exercises have been included as a new feature to assist students in processing the material.

Chapter 1 lays the foundation for the entire book. The process of achieving success in engineering study is introduced. Key elements of the success process—goal identification, goal clarification, and behavioral and attitudinal change—are presented. Three models that will help students understand what is meant by a quality education and how to go about getting that education are also introduced. The important topic of "Structuring Your Life Situation" has been moved into this chapter to ensure that students get exposed to it early on.

Chapter 2 addresses the subject of professional development. One of the primary purposes of the chapter is to motivate students through an increased understanding of the engineering profession and an increased awareness of the rewards and opportunities that will come to them if they are successful in graduating in engineering.

Chapter 3 provides an overview of the *teaching/learning* process. Various types of learning—cognitive; psychomotor; and affective—are described. Preferred learning styles and teaching styles are presented and contrasted. General guidelines for improving the learning process are provided, and a summary of the most common mistakes students make is presented along with approaches and strategies for avoiding these mistakes.

Chapter 4 provides guidance on how to get the most out of the teaching process. The importance of getting off to a good start is emphasized. Strategies for taking full advantage of lectures—including listening skills, note-taking skills, and questioning skills—are presented and discussed. Approaches for making effective use of professors are described in detail.

Chapter 5 guides students in designing their learning process. Two important skills for learning—reading for comprehension; and analytical problem solving—are covered. Approaches for organizing the learning process, including important time management skills, are discussed. Study skills that are relevant to math/science/engineering coursework are presented. Approaches for making effective use of peers through collaborative learning and group study are described in detail.

Chapter 6 focuses on the important subject of personal growth and development. A *Student Success Model* is presented to assist students in understanding the process of making behavioral and attitudinal changes essential to success in engineering study. Important personal development topics—understanding self, appreciating differences, personal assessment, communication skills, and health and wellness—are included in this chapter.

Chapter 7 addresses four extracurricular activities that can greatly enhance the quality of a student's education: (1) student organizations; (2) engineering projects; (3) pre-professional employment; and (4) service to the university.

Chapter 8 provides an orientation to the engineering education system including faculty, curriculum, students, facilities, administration, and institutional commitment. Academic regulations, student ethics, and opportunities for graduate education are also covered in this chapter.

The target audience for the book is first-year engineering students; therefore it is ideally suited for use in an *Introduction to Engineering* course that has a "student development/student success" objective. Much of what is in the book has direct application to the community college experience, and the topics that are specific to the four-year university experience can provide community college students with a preview of what they will encounter when they transfer to four-year institutions.

High school students considering engineering as their college major will find the book useful as well. Engineering faculty can turn to it as a resource for ideas they can convey to students in formal and informal advising sessions or in the classroom. Deans of engineering have indicated that the book contains material to help them prepare talks they give to high school students and first-year engineering students.

This book was the outgrowth of more than 30 years of teaching *Introduction to Engineering* courses. Much of the material was developed through brainstorming exercises with students. My greatest thanks go to

the many students who contributed to the evolution of the ideas in this book. Thanks also go to the many engineering professors who have used the book since the *First Edition* was published in 1995. Those who provided valuable feedback on the *Second Edition* include: Hillar Unt, Sam Landsberger, Keith Sinkhorn, Janet Meyer, Jim Thomas, Dan Gulino, Wes Grebski, Ali Kujoory, Ken Brannan, Herb Schroeder, David Jackson, Blair Rowley, Ron Musiak, Brinda Subramaniam, Rick Dalrymple, Karen Groppi, Jim Lallas, Jose Ramirez, Jim Butler, Medica Denton, Marty Sirowatka, Hani Saad, Dick Otte, Mike Kelly, Dave Lueders, Dan Justice, Noel Caldwell, Zahir Khan, Gary Mishra, Daniel Styer, Laura Demsetz, Susan Sherod, Nick Arnold, Vince Bertsch, Chris Lenz, and Michael Read.

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I would like to particularly acknowledge my wife Kathy Landis, who wrote the excellent section on Communication Skills in Chapter 6 and who did major editing and rewriting of the first two editions of the book. Her gifts as a writer and editor have made the book much easier to read and understand.

Raymond B. Landis
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