International Edition

Introductory Circuit Analysis

Twelfth Edition

Boylestad

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PREFACE

It is with great pleasure that I find myself writing the preface for the 12th edition of a text whose first edition was written more than 40 years ago and has been translated into six languages (Chinese, French, Korean, Portuguese, Spanish, and Taiwanese) and recently passed the one million–copy mark. I extend a heartfelt thanks to everyone involved with the publication process and to those textbook adopters who felt that the material met the requirements of their academic program.

NEW TO THIS EDITION

The following changes were made to this edition:

- This edition, like all those before it, has had material added to ensure that the content is up to date. However, this edition is quite special, in that it treats a fourth electrical element, called the **memristor,** that was developed by the Hewlett Packard Corporation; it appears in the cover design for this text. Long talked about and researched with a number of different approaches, it is finally a reality due to the arrival of the nanotechnology era. Other specific areas of expanded interest in this edition include computer touch pads, fluorescent versus incandescent lighting, true root mean square meters, lithium-ion batteries, fuel cells, solar cells, ESR capacitor ratings, decibel levels, and digital scopes.
- The area that has received the greatest attention in this revision is the problem set appearing at the end of each chapter, where improvements have been made in terms of content, variety, and completeness. In the past three or four parts appeared under the same question heading, the number has been reduced to one or two to permit an improved transition from simpler to more complex problems. New problems of a more challenging type have been added, along with a broader choice of problems at each difficulty level. In addition, more problems now use standard component values rather than fictitious values that were chosen previously simply to make the calculations less complex.
- Another major change in this edition is the addition of Chapter 26 on system analysis. Although introductory in nature, it does give some insight into how to work with the many packaged systems available today in industrial catalogs. The content will find application in the broad range of subjects that follow this course, such as op-amps and industrial design and application courses.
- The coverage of PSpice and Multisim remains but with the addition of a Cadence OrCAD 16.2 Demo software (PSpice) disk packaged with the text. This DVD package can be quickly downloaded and allow the user to follow along with the detailed coverage of the material in the text. For those institutions using Multisim Version 10.1, detailed coverage is also provided for the application of this excellent software package. For this edition, additional comments have been added regarding the downloading process and the application to some special configurations.
- There are more than 80 printouts from both software packages described in detail. The content was written under the assumption that the user has no background whatsoever in applying either of these software packages. The detail provided is simply not available in any other publication. The choice was made to delete the MathCAD material that was previously included because it was used so seldomly by current adopters, and MathLAB seemed to surface as the choice of those using this type of program. The addition of MathLAB is being considered for the next edition.
- Because the TI-86 is no longer manufactured by Texas Instruments and the availability of any new units is essentially nil, the coverage of the TI-86 calculator has been dropped for this edition. However, coverage of the use of the TI-89 has been expanded to ensure that it can easily be understood by any new user. At times it may seem like a lengthy process to perform a specific maneuver such as polar-to-rectangular conversions or determinants, but the reader can be assured that after a few examples the process becomes quite straightforward and can be applied quite quickly.
- In a number of chapters the material has been reorganized to improve the general flow of the material from the simpler to the more complex. Entire sections have been moved around with new examples to accommodate such changes. Tables have been redesigned for clarity and a number of derivations expanded to provide additional understanding of the maneuvers involved.
- As in the past, a laboratory manual has been developed that follows the content of the text very closely. Through the extended efforts of Prof. Franz Monssen, four new laboratory experiments have been added to improve the selection process for users. The computer remains an integral part of the laboratory experience.

SUPPLEMENTS

To enhance the learning process, a full supplements package accompanies this text and is available to students and instructors using the text for a course.

Student Resources

- **Laboratory Manual,** ISBN 0-13-506014-1
- **Companion Website** (student study guide) at www.pearsonhighered.com/boylestad
- **DVD.** Packaged with this textbook, the DVD contains PSpice software. The software is available for download at http://www.orcad.com

Instructor Resources

To access supplementary materials online, instructors need to request an instructor access code. Go to www.pearsonhighered.com, click **Educators,** then click **Download Instructor Resources,** and finally **Request IRC Access.** Within 48 hours after registering you will receive a confirming e-mail including an instructor access code. Once you have received your code, go to the site and log on for full instructions on downloading the materials you wish to use.

- **Instructor's Resource Manual,** containing text solutions.
- **PowerPoint Lecture Notes.**
- **TestGen,** a computerized test bank.

ACKNOWLEDGMENTS

Associated with every edition are a number of individuals in the academic community who have contributed to the success of the book. My good friend Prof. Louis Nashelsky spent countless hours working on the software printouts to ensure their accuracy and correctness. Jerry Sitbon, with his years of experience, has always been available to contribute to the practical side of the material. I can't thank Prof. Monssen enough for the many hours he spent updating the content of the laboratory manual.

As with any revision, there were a number of very capable reviewers providing suggestions and criticisms that are very important to the quality of the presentation. For this edition I would like to thank Tracy Barnes, Hillsborough Community College; Ron Krahe, Penn State Erie, Behrend College; and Peter Novak, Queensborough Community College.

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Finally, I wish to thank Peggy Kellar for the long hours she spent with the edited manuscript and page proofs and for ensuring that I stayed on schedule, Philip Koplin for the copyediting process, and Kelly Barber for the extensive work in the solutions manual. A sincere thank you to my editor Wyatt Morris for taking care of all of the logistical issues to ensure that the entire process ran smoothly. I continue to remain fortunate that my good friend over the years Rex Davidson was the production editor, always ensuring that the text has all the positive elements I could ever hope for.

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