



SPICE for Power Electronics and Electric Power, Second Edition (Electrical and Computer Engineering)

By Muhammad H. Rashid, Hasan M. Rashid

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SPICE for Power Electronics and Electric Power, Second Edition (Electrical and Computer Engineering) By Muhammad H. Rashid, Hasan M. Rashid

To be accredited, a power electronics course should cover a significant amount of design content and include extensive use of computer-aided analysis with simulation tools such as SPICE. Based upon the authors' experience in designing such courses, SPICE for Power Electronics and Electric Power, Second Edition integrates a SPICE simulator with a power electronics course at a junior or senior level. This textbook assumes no prior knowledge of SPICE and introduces the applications of various SPICE commands through numerous examples of power electronic circuits.

The authors emphasize the techniques for power conversions and for quality output waveforms, rather than accurate modeling of power semiconductor devices. This textbook enables students to compare the results with those that are obtained in a classroom environment via simple switch models or devices.

Not only a supplement to any standard textbook on power electronics and power systems, this volume can also be used as a textbook on SPICE. It suggests laboratory experiments and design problems, and presents complete laboratory guidelines for each experiment. This text can also be used as a laboratory manual for power electronics, with its design problems serving as assignments for a design-oriented simulation laboratory.

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Editorial Review

Review

"...an excellent way to learn the basics of PSpice. It provides many examples, generally much better than the software manuals, on how each circuit element is specified and, more importantly, how the various options and special commands are used. There are also good examples that show how to model various circuit components such as a power transformer by using a combination of elements and commands. ... The material on simulation errors contains excellent advice on the little details in PSpice that are important when higher currents and voltages are being used in power electronics and other higher-power circuits. ... Electrical engineering students, especially those with a power engineering interest, will find this book very helpful for validating circuit designs. Electrical engineers will also find this book useful as a concise reference source for PSpice simulation examples for various power electronic circuit examples. It could also be used as a supplemental textbook in an undergraduate electrical engineering course, since it has problems listed at the end of each chapter and is a very good instructional resource book."

IEEE Electrical Insulation Magazine, November/December 2013

From the Publisher

Unique, practical book that shows how to use SPICE for power electronics and electric power as a tool for design verification and a theoretical laboratory bench.

About the Author

Muhammad H. Rashid is a professor (and past director, 1997-2007) of electrical and computer engineering at the University of West Florida. Dr. Rashid received his BSc degree in electrical engineering from the Bangladesh University of Engineering and Technology, and his MSc and PhD degrees from the University of Birmingham in the United Kingdom. He has worked around the world as a professor of electrical engineering. Dr. Rashid is actively involved in teaching, researching, and lecturing in power electronics. He has published 17 books and more than 140 technical papers. His books are adopted as textbooks all over the world. In addition, He has been invited by many foreign governments and agencies to give keynote lectures and consulted by foreign universities to serve as an external examiner for undergraduate, master's degree, and PhD examinations, by funding agencies to review research proposals, and by U.S. and foreign universities to evaluate promotion cases for professorship. Among his many awards, Dr. Rashid has received the Outstanding Engineer Award from The Institute of Electrical and Electronics Engineers, the IEEE Educational Activity Award (EAB) for Meritorious Achievement Award in Continuing Education, and the IEEE Undergraduate Teaching Award.

Users Review

From reader reviews:

Stephen Williams:

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