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The power electronics field is quite broad, and includes fundamentals in the areas of □ Converter circuits and electronics □ Control systems □ Magnetics □ Power applications □ Design-oriented analysis This wide variety of areas is one of the things which makes the field so interesting and appealing to newcomers.

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Fundamentals of Power Electronics, Third Edition, is an up-to-date and authoritative text and reference book on power electronics. This new edition retains the original objective and philosophy of focusing on the fundamental principles, models, and technical requirements needed for designing practical power electronic systems while adding a wealth of new material.

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Erickson, Robert W.(Author). Fundamentals of Power Electronics. Second Edition. Secaucus, NJ, USA: Kluwer Academic Publishers, 2000. p 213. <http://site.ebrary.com/lib ...>

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Robert W. Erickson, Dragan Maksimovic Fundamentals of Power Electronics, Second Edition, is an up-to-date and authoritative text and reference book on power electronics. This new edition retains the original objective and philosophy of focusing on the fundamental principles, models, and technical requirements needed for designing practical power electronic systems while adding a wealth of new material.

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Fundamentals of Power Electronics, Second Edition, is intended for use in introductory power electronics courses and related fields for both senior undergraduates and first-year graduate students interested in converter circuits and electronics, control systems, and magnetic and power systems. It will also be an invaluable reference for professionals working in power electronics, power conversion, and analogue and digital electronics.

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## Fundamentals of Power Electronics | SpringerLink

Revision to Fundamentals of Power Electronics Fundamentals of Power Electronics First Edition R. W. Erickson Power Electronics Group, University of Colorado at Boulder About the second edition A new textbook on power electronics converters. This book is intended for use in introductory power electronics courses at the

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Robert Erickson and Dragan Maksimovic, Fundamentals of Power Electronics, 2001, Springer Science+Business. The textbook was revised to improve its flow. Substantial new material was added on converter simulation using averaged switch models, current mode control, input filter design and Middlebrook's extra element theorem, improved explanations of proximity losses and MMF diagrams, and soft switching.

## Prof. Robert Erickson | CU-Boulder

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## Fundamentals of Power Electronics, Erickson, Robert W ...

Shigekane H, Fujihira T, Sasagawa K et al (2009) Macro-trend and a future expectation of innovations in power electronics and power devices. Proceedings of the IPEMC, pp 35-39 Google Scholar 44.

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Fundamentals of Power Electronics (Second Edition) by Robert W. Erickson ISBN 13: 9780792372707 ISBN 10: 0792372700 Hardcover; New York, Ny, U.s.a.: Springer, January ...

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As a graduate student in Electric Power Engineering, this is one of the best books I have purchased in all of my university studies. As long as you have taken an introductory circuits course in your undergraduate curriculum, Dr. Erickson does a great job at explaining power electronics in a way that anyone can understand.

## Amazon.com: Customer reviews: Fundamentals of Power ...

He is the author of the textbook Fundamentals of Power Electronics, now in its second edition. Professor Erickson is the author of over one hundred journal and conference papers in the area of power electronics, is a recipient of the IEEE Power Electronics Society Transactions Prize Paper Award, and the IEEE William E. Newell Power Electronics Award, the highest honor in the power area.

## Dr. Robert Erickson, Instructor | Coursera

Professor Erickson is a Fellow of the IEEE, a Fellow of the CU/NREL Renewable and Sustainable Energy Institute, and is the author of the textbook Fundamentals of Power Electronics, now in its second edition. He is the author of approximately one hundred journal and conference papers in the area of

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power electronics.

In many university curricula, the power electronics field has evolved beyond the status of comprising one or two special-topics courses. Often there are several courses dealing with the power electronics field, covering the topics of converters, motor drives, and power devices, with possibly additional advanced courses in these areas as well. There may also be more traditional power-area courses in energy conversion, machines, and power systems. In the breadth vs. depth tradeoff, it no longer makes sense for one textbook to attempt to cover all of these courses; indeed, each course should ideally employ a dedicated textbook. This text is intended for use in introductory power electronics courses on converters, taught at the senior or first-year graduate level. There is sufficient material for a one year course or, at a faster pace with some material omitted, for two quarters or one semester. The first class on converters has been called a way of enticing control and electronics students into the power area via the "back door". The power electronics field is quite broad, and includes fundamentals in the areas of □ Converter circuits and electronics □ Control systems □ Magnetics □ Power applications □ Design-oriented analysis This wide variety of areas is one of the things which makes the field so interesting and appealing to newcomers. This breadth also makes teaching the field a challenging undertaking, because one cannot assume that all students enrolled in the class have solid prerequisite knowledge in so many areas.

Fundamentals of Power Electronics, Third Edition, is an up-to-date and authoritative text and reference

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book on power electronics. This new edition retains the original objective and philosophy of focusing on the fundamental principles, models, and technical requirements needed for designing practical power electronic systems while adding a wealth of new material. Improved features of this new edition include: new material on switching loss mechanisms and their modeling; wide bandgap semiconductor devices; a more rigorous treatment of averaging; explanation of the Nyquist stability criterion; incorporation of the Tan and Middlebrook model for current programmed control; a new chapter on digital control of switching converters; major new chapters on advanced techniques of design-oriented analysis including feedback and extra-element theorems; average current control; new material on input filter design; new treatment of averaged switch modeling, simulation, and indirect power; and sampling effects in DCM, CPM, and digital control. Fundamentals of Power Electronics, Third Edition, is intended for use in introductory power electronics courses and related fields for both senior undergraduates and first-year graduate students interested in converter circuits and electronics, control systems, and magnetic and power systems. It will also be an invaluable reference for professionals working in power electronics, power conversion, and analog and digital electronics.

Designed for polytechnic and undergraduate students of electrical/electronics, this book offers short questions and answers at the end of chapters. It is also suitable for those preparing for professional courses like AMIE and AMITE.

Market\_Desc: · Electrical Engineering Students · Electrical Engineering Instructors · Power Electronics

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Engineers Special Features:

- Easy to follow step-by-step in depth treatment of all the theory.
- Computer simulation chapter describes the role of computer simulations in power electronics. Examples and problems based on Pspice and MATLAB are included.
- Introductory chapter offers a review of basic electrical and magnetic circuit concepts.
- A new CD-ROM contains the following:
  - Over 100 of new problems of varying degrees of difficulty for homework assignments and self-learning.
  - PSpice-based simulation examples, which illustrate basic concepts and help in design of converters.
  - A newly-developed magnetic component design program that demonstrates design trade-offs.
  - PowerPoint-based slides, which will improve the learning experience and the ease of using the book

About The Book: The text includes cohesive presentation of power electronics fundamentals for applications and design in the power range of 500 kW or less. It describes a variety of practical and emerging power electronic converters made feasible by the new generation of power semiconductor devices. Topics included in this book are an expanded discussion of diode rectifiers and thyristor converters as well as chapters on heat sinks, magnetic components which present a step-by-step design approach and a computer simulation of power electronics which introduces numerical techniques and commonly used simulation packages such as PSpice, MATLAB and EMTP.

Based on the fundamentals of electromagnetics, this clear and concise text explains basic and applied principles of transformer and inductor design for power electronic applications. It details both the theory and practice of inductors and transformers employed to filter currents, store electromagnetic energy, provide physical isolation between circuits, and perform stepping up and down of DC and AC voltages.

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The authors present a broad range of applications from modern power conversion systems. They provide rigorous design guidelines based on a robust methodology for inductor and transformer design. They offer real design examples, informed by proven and working field examples. Key features include: emphasis on high frequency design, including optimisation of the winding layout and treatment of non-sinusoidal waveforms a chapter on planar magnetic with analytical models and descriptions of the processing technologies analysis of the role of variable inductors, and their applications for power factor correction and solar power unique coverage on the measurements of inductance and transformer capacitance, as well as tests for core losses at high frequency worked examples in MATLAB, end-of-chapter problems, and an accompanying website containing solutions, a full set of instructors' presentations, and copies of all the figures. Covering the basics of the magnetic components of power electronic converters, this book is a comprehensive reference for students and professional engineers dealing with specialised inductor and transformer design. It is especially useful for senior undergraduate and graduate students in electrical engineering and electrical energy systems, and engineers working with power supplies and energy conversion systems who want to update their knowledge on a field that has progressed considerably in recent years.

This fully updated textbook provides complete coverage of electrical circuits and introduces students to the field of energy conversion technologies, analysis and design. Chapters are designed to equip students with necessary background material in such topics as devices, switching circuit analysis techniques, converter types, and methods of conversion. The book contains a large number of examples, exercises, and problems to help enforce the material presented in each chapter. A detailed discussion of resonant and softswitching dc-to-dc converters is included along with the addition of new chapters covering

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digital control, non-linear control, and micro-inverters for power electronics applications. Designed for senior undergraduate and graduate electrical engineering students, this book provides students with the ability to analyze and design power electronic circuits used in various industrial applications.

Power Electronics and Motor Drives: Advances and Trends, Second Edition is the perfect resource to keep the electrical engineer up-to-speed on the latest advancements in technologies, equipment and applications. Carefully structured to include both traditional topics for entry-level and more advanced applications for the experienced engineer, this reference sheds light on the rapidly growing field of power electronic operations. New content covers converters, machine models and new control methods such as fuzzy logic and neural network control. This reference will help engineers further understand recent technologies and gain practical understanding with its inclusion of many industrial applications. Further supported by a glossary per chapter, this book gives engineers and researchers a critical reference to learn from real-world examples and make future decisions on power electronic technology and applications. Provides many practical examples of industrial applications Updates on the newest electronic topics with content added on fuzzy logic and neural networks Presents information from an expert with decades of research and industrial experience

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