begins by illustrating, using real world examples, the kind of damage that can be afflicted on the electrical systems inside buildings, houses, aircraft, and industrial plants. It then discusses how lighting surges can be coupled into power systems even by indirect strikes. This delves into various types of coupling modes such as ohmic, inductive, and capacitive. This is very useful for understanding how to protect against lighting strikes. Then, the majority of the book is dedicated to detailing protective measures focusing on German VDE and IEC standards. The various types of protection discussed, for low voltage power systems, cover protection zoning, surge protection, varistors, lightning arresters, and protective devices. Some of the specific devices include optical coupling, isolating spark gaps, surge arresters, fuses, grounding rods, and the Blitzductor. There are also specific examples for protecting electronic networks including computer networks and telecommunication systems. There are also specific applications, some of which include a central computer, fire alarm system, TV transmitter, and airport control tower among others.

The book is filled with many photographs of devices damaged by lightning and illustrations of low voltage power system protective devices used in the IEC market. Engineers who need to develop protective systems for low voltage power distribution systems will find this book to be very useful for obtaining a good understanding of the ways in which lightning can damage power systems and gain ideas for protecting such systems.

Principles of Electronic Materials and Devices, 2nd Edition

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Electronic solid-state devices are ubiquitous today. Applications include PC's, digital cameras, wireless communications, and many other consumer, commercial, and military electronic devices. Knowing the fundamentals of solid-state materials is a primary requirement for electrical engineers, physicists, and materials scientists.

This textbook and CD-ROM are a great introduction to understanding the fundamentals of solid-state materials and devices. It combines the areas of solid-state theory, materials, and electromagnetics into a very straightforward, understandable text aimed at an undergraduate or beginning graduate level student. The author clearly describes the theory of many of the key concepts for the foundation of solid-state materials and details many of their applications. Much of the clarity in the writing is attributed to conveying the principles without developing detailed mathematical derivations with the intent to make it a more practical engineering-oriented text. The author has successfully aimed at developing a physical understanding of the concepts presented through the use of intuitive examples including drawings, illustrations, graphs, tables of physical data, and many practical applications. These concepts are also reinforced with the color illustrations in the CD, containing a PDF and PowerPoint files of all of the illustrations in color and additional selected topics and solved problems not in the textbook. There are problems at the end of each chapter for assignment to the student, with the solutions manual, supported by McGraw-Hill, also available.

Some of the topics covered include electrical and thermal conduction in solids, quantum physics, semiconductor theory and devices, dielectric materials and insulation, magnetic properties, and optical properties. Additional topics in this second edition include conduction in insulators, Hall effect, phonons, and thermal properties. In addition to the typical discrete devices (pn junction, BJT, JFET, and LED), the book could be improved by adding more sophisticated solid-state devices used in modern electronics, such as the various types of sensor arrays used in electronic imaging devices among others.

As long as you are not looking for an in-depth book in solid-state physics, this is an excellent introduction to solid-state physics. Even the practicing engineering may even find this to be a good reference.

Modern Magnetic Materials - Principles and Applications

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Because magnetism involves a wide range of disciplines including electrical engineers, material scientists, physicists, metallurgists, chemists, and others, this text would have broad interest. Because of the wide and diverse world of magnetics, the intent of the author was to present a foundation of the most widely used concepts today in magnetic materials and describe some of the most recent applications. The depth of coverage allows the reader to gain enough background to understand the physics and underlying material issues to be able to understand the current literature in much of the field. Much of the book is dedicated to magnetic material behavior. A key feature of this book is in the author's ability to clearly explain much of the fundamental physics by practical examples and tying together many difficult and sometimes disparate subjects. These include the role of quantum mechanics and spectroscopy to magnetics along with practical examples of magnetic recording media. The author recognizes the real world and stresses the effects of processing on material characteristics rather than strictly theory. Many of the graphs and charts include material properties along with critical processing parameters. He also provides a concise summary at the end of each chapter to reinforce understanding.

The author begins the book by laying the foundation for magnetics, including magnetostatics, exchange interactions,