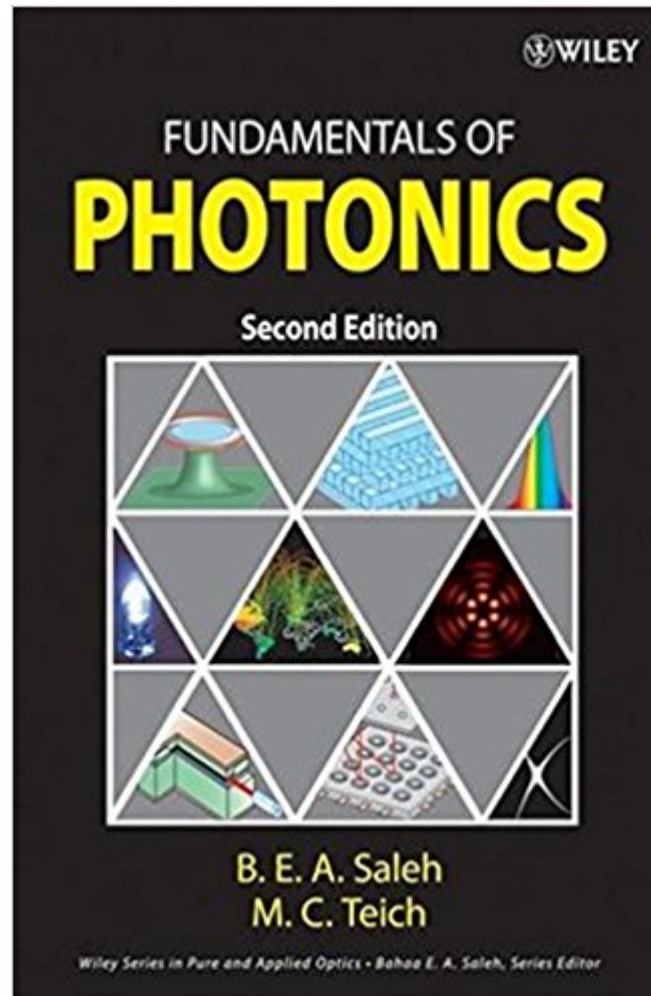




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Fundamentals Of Photonics



Synopsis

Now in a new full-color edition, *Fundamentals of Photonics*, Second Edition is a self-contained and up-to-date introductory-level textbook that thoroughly surveys this rapidly expanding area of engineering and applied physics. Featuring a logical blend of theory and applications, coverage includes detailed accounts of the primary theories of light, including ray optics, wave optics, electromagnetic optics, and photon optics, as well as the interaction of photons and atoms, and semiconductor optics. Presented at increasing levels of complexity, preliminary sections build toward more advanced topics, such as Fourier optics and holography, guided-wave and fiber optics, semiconductor sources and detectors, electro-optic and acousto-optic devices, nonlinear optical devices, optical interconnects and switches, and optical fiber communications. Each of the twenty-two chapters of the first edition has been thoroughly updated. The Second Edition also features entirely new chapters on photonic-crystal optics (including multilayer and periodic media, waveguides, holey fibers, and resonators) and ultrafast optics (including femtosecond optical pulses, ultrafast nonlinear optics, and optical solitons). The chapters on optical interconnects and switches and optical fiber communications have been completely rewritten to accommodate current technology. Each chapter contains summaries, highlighted equations, exercises, problems, and selected reading lists. Examples of real systems are included to emphasize the concepts governing applications of current interest.

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Customer Reviews

"A broad survey on photonics that encompasses theory and applications." (CHOICE,

September 2007) "...excellent and up to date." (Books-On-Line)

Fundamentals of Photonics: A complete, thoroughly updated, full-color second edition Now in a new full-color edition, Fundamentals of Photonics, Second Edition is a self-contained and up-to-date introductory-level textbook that thoroughly surveys this rapidly expanding area of engineering and applied physics. Featuring a logical blend of theory and applications, coverage includes detailed accounts of the primary theories of light, including ray optics, wave optics, electromagnetic optics, and photon optics, as well as the interaction of photons and atoms, and semiconductor optics. Presented at increasing levels of complexity, preliminary sections build toward more advanced topics, such as Fourier optics and holography, guided-wave and fiber optics, semiconductor sources and detectors, electro-optic and acousto-optic devices, nonlinear optical devices, optical interconnects and switches, and optical fiber communications. Each of the twenty-two chapters of the first edition has been thoroughly updated. The Second Edition also features entirely new chapters on photonic-crystal optics (including multilayer and periodic media, waveguides, holey fibers, and resonators) and ultrafast optics (including femtosecond optical pulses, ultrafast nonlinear optics, and optical solitons). The chapters on optical interconnects and switches and optical fiber communications have been completely rewritten to accommodate current technology. Each chapter contains summaries, highlighted equations, exercises, problems, and selected reading lists. Examples of real systems are included to emphasize the concepts governing applications of current interest.

As everyone has mentioned the book is a great reference book but absolutely terrible as a textbook especially for an introductory course into photonics. There are next to NO EXAMPLES in the book as it is almost entirely theory based with no applicational references. The number of students who learn by a pure theory method for instruction is next to none. Unfortunately trying to get the solution manual that accompanies the book is next to impossible whether from legitimate or illegitimate means. As my instructor does not give problems from the book using the solutions manual as a reference would be ideal. Honestly I wanted to give this book a zero due its disorganization and lack of examples however because it does have good reference material I couldn't. As a student I DO NOT recommend this book however as someone looking to use it on a supplemental basis to another course/project I can and do recommend it. That being said whether the price is worth it for a supplemental source is debatable.

This book is well-illustrated and has very readable, qualitative, and often quantitative descriptions of many topics. It does not go into great detail on many of the advanced or newer topics it mentions. This is an introductory book. Many people learn a topic best by first reading a semi-quantitative account, and then going on to higher-level detailed graduate level books or papers if they find the effort on that topic is warranted. For example, if one see "whispering gallery mode" in some article, and wants to know more, one can find a nice figure and a brief qualitative description in this book. Now, the description in the book is not enough to design anything, but it is adequate for a reader to have some understanding and decide if he or she needs or wants to know more about this topic. Let's give the authors credit for even including such topics - how many books do you have that even mention whispering gallery modes? Similar comments can be made about APDs using thin multiplication regions to lower noise, or the use of strain in semiconductor lasers to improve performance, etc. I think this book is very useful as an undergraduate text or as the first (but not final) book you will want to consult when studying a new topic.

I purchased this book and so did a friend of mine from the same supplier. His was printed in the states and mine was printed in Bangladesh. My textbook was over 1.5 times bulkier/thicker/heavier than the U.S. version, with cheap glossy paper and different page numbers. The binding on mine was flimsy and did not hold up to a semester's use. The binding is completely off, very cheap!! However the one my friend purchased is holding up fine, so be sure to ask the supplier where the book was printed before purchasing!! Now for the content: The book is definitely a reference. There are no illustrative examples and condenses entire subjects/books into a single sub chapter. Overall, this book would be great to keep on your desk for a quick reference or to refresh your memory, but I would not recommend this to learn from.

If you are in the field of optics or biomedical optics, there are three to four books which would be the most essential to own. This is one of them. This book is comprehensive, dealing with all the most critical areas in field, yet easy to read. It is either outstanding in understanding the most basic concepts, yet a phenomenal reference on the derivations of relationships whose origin is left to the imagination in most textbooks. This is a must buy.

I purchased this book as a text for a grad level optics course. The book covers a very broad range of material, however, there is a shortage of examples and most of the problems are geared towards proving concepts rather than demonstrating applications.

This book is great! I have been studying this photonics book for a while now. It presents material in a very conceptual way. I appreciate its simplicity. I find its concepts transparent and easy to understand. I highly recommend this book.

Dr. Saleh is an amazing professor, looking forward to his imaging and display class next semester. oh yeah and his fundamentals of photonics book allowed for me to get a foot in the door for my job. Cheers to all of your effort and to much more to learn from an awesome person

It is a complete book on optics. I recommend for those are interested in this area, in special graduate students and researchers.

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