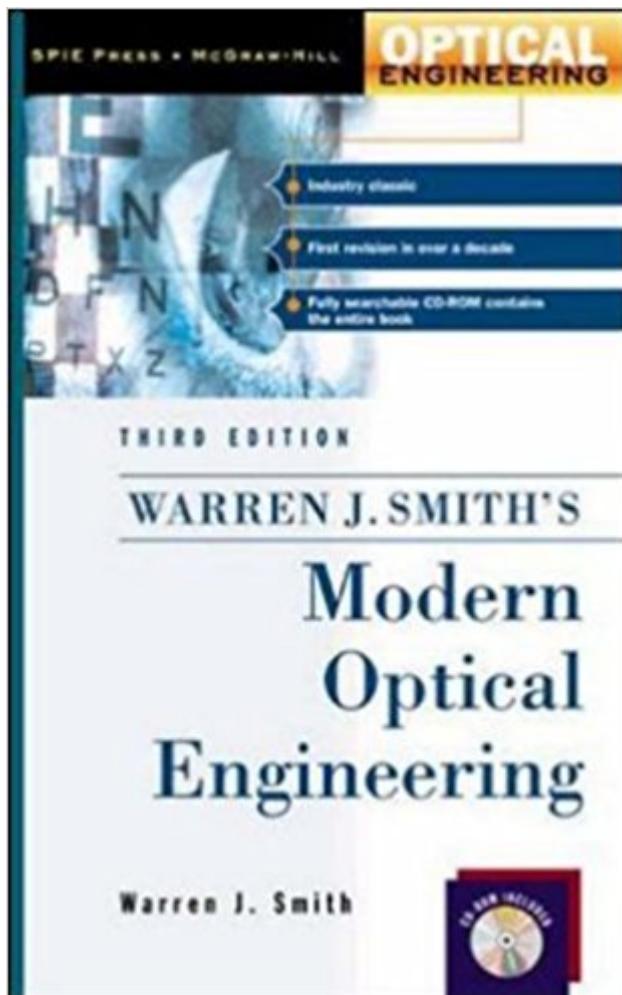


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Modern Optical Engineering



Synopsis

The optical engineering field's most widely used, benchmark book/CD, now updated to reflect an entire decade's worth of optical and lens advances. New! Chapter on lens design, and sections on new types of optics: diffractive, holographic, binary, etc.

Book Information

Series: Optical Engineering (McGraw Hill)

Hardcover: 617 pages

Publisher: McGraw-Hill Professional; 3rd edition (July 26, 2000)

Language: English

ISBN-10: 0071363602

ISBN-13: 978-0071363600

Product Dimensions: 6.3 x 2.1 x 9.1 inches

Shipping Weight: 2.2 pounds (View shipping rates and policies)

Average Customer Review: 4.5 out of 5 stars 4 customer reviews

Best Sellers Rank: #1,462,293 in Books (See Top 100 in Books) #94 in Books > Engineering & Transportation > Engineering > Electrical & Electronics > Electronics > Optoelectronics #324 in Books > Textbooks > Engineering > Electrical & Electronic Engineering #570 in Books > Science & Math > Physics > Optics

Customer Reviews

"The most valuable reference text available today to those working in the field." --Bruce H. Walker, Walker Associates, Southampton, MA "An enduring classic standard text because of Smith's style and ability to explain optical concepts." --R.R. Shannon, Professor Emeritus, Optical Sciences Center, University of Arizona; author of The Art and Science of Optical Design Smith's Classic, for Millennium Three The book that both experts and neophytes turn to first, Warren J. Smith's revered Modern Optical Engineering is now updated with the latest applications, tools, and techniques--plus new insights from the master. It's a resource that anyone interested in optics won't want to miss. NEW IN THIS EDITION*Expanded coverage of diffractive and replicated optics*Lens design in depth*Testing and fabrication updates*Updates on IR and illumination systems, detectors, scanners, and image quality*More on radiometry*Computer aids*Wave front aberration verses PSF and Strehl ratio*Smith's own "Rules of Thumb"**Current developments*Electronic version of the complete book on CD-ROMA volume in the McGraw-Hill Series on Optical and Electro-Optical Engineering.

Warren J. Smith, chief scientist at Kaiser Electro-Optics and an independent consultant, is one of the most widely known writers and educators in the field of optical design. He is the author of *Modern Optical Engineering*, *Modern Lens Design*, and *Practical Optical System Layout*.

Without doubt, this is the best general survey of optical engineering, in or out of print. The book shows both the author's broad experience as well as his ability to apply theory to practice. The book is far superior in its selection of topics and in clarity and accuracy of presentation to the alternatives, particularly Shannon's book. The book is useful for engineers or scientists from other fields who need to learn some optics, and for experienced practitioners who need a reference and refresher on particular topics. For example, try to calculate the spectral radiance of a blackbody at a particular wavelength and temperature using the formula in your college physics text, then see how Smith treats the same topic; if you got within an order of magnitude of Smith's correct answer from the college text, give yourself a gold star. The second edition's only weakness was its sparse references; I haven't seen the third edition so this may have been improved. However, this still puts Smith's book ahead of Shannon's, which has no references whatever. If you only buy one book on optics, this should be it.

This book is an excellent source for technical people (a.k.a. engineers) who do not know much about optics but want to enter the field. Warren Smith discussed in great detail a plethora of subjects: how lenses & prisms affect light; how lenses can vary from ideal (a.k.a. first order optics) conditions and how to compensate their aberrations; how to use lenses, prisms, and mirrors in an optical system. I gave this book four stars out of five because I was expecting the CD to have free optical software with which I could play around with. The CD is great if you want to read the book off of your computer or share it with a friend, but it has no exercises to reinforce (a.k.a. to "learn by doing") the material the book covers.

The book is probably the best general text on optical engineering. It is written simple and clear. "Modern Optical Engineering" covers basic topics quite comprehensive. On the other hand, additional books are needed for good understanding of aberrations and a lens design procedure.

The Warren J. Smith book has been the only helpful book for me for above one year with the OSLO LT manual. It's not at all a formal text book. It's not at all a how to do for stupid people something

book. It's not at all an look how I know so much of thing and you will never understand what I mean because I write a book only to impress people who can only look at my bibliography to hire me. Smith did not gave you an history course, an mathematic course, Smith really gave you advice when it's needed and some useful general formula you will never use but who give you some idea to create you own. Smith book is a multi level text. You read it once, and work a little, then you read it again and go back to try something...Smith approach helps you to understand how each problem you will meet will request a particular optical system. The best analogy to describe Smith book: A cook book without recipe, but advice to understand how to use you local potato to find yourself the best potato pie you can do with. The section about the modulation transfert function and the whole chapter 12: The design of Optical System: General have been particularly useful for me. The only missing thing in the first edition I have consulted was absence of in book return (synergy) and the lack of formal presentation (for the optical prescription, notably). For example when Smith speak about merit function I say: "You will have to decide yourself of what is a good merit function and it's not really easy at all, it's the most difficult thing in that job-", So I would have find some example an example of merit function in the end chapter about design 12, 13 and 14! It's a lack of return within the book. With the messy graphical presentation in chapter 13 and 14, it the only critic I have against Smith book who provide otherwise good understandable and ingenious graph combination to made simple the basic optical plot used in lens design.

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