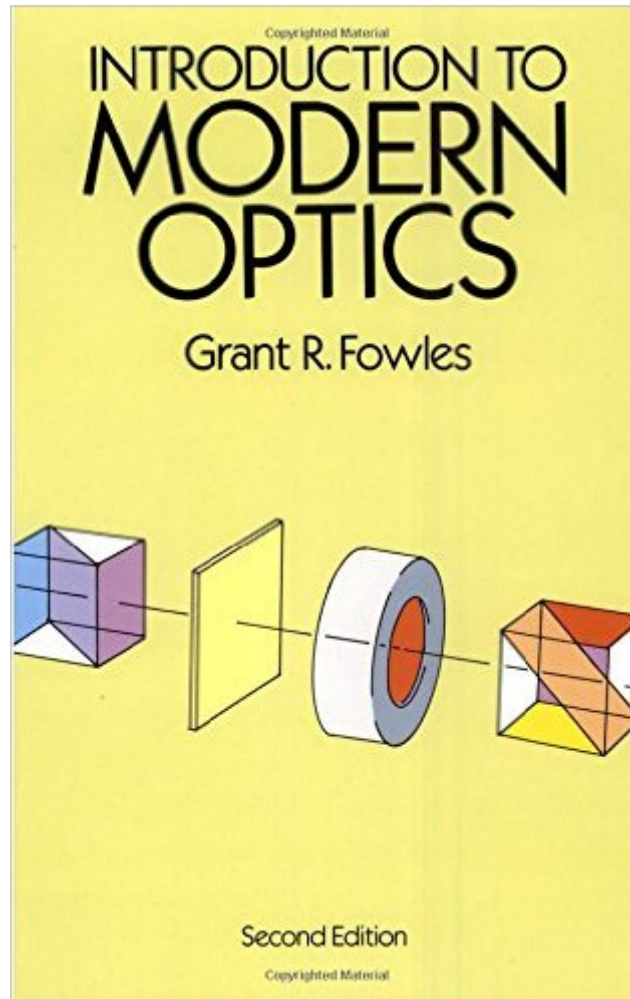


The book was found

Introduction To Modern Optics (Dover Books On Physics)



Synopsis

This incisive text provides a basic undergraduate-level course in modern optics for students in physics, technology and engineering. The first half of the book deals with classical physical optics; the second principally with the quantum nature of light. Chapters 1 and 2 treat the propagation of light waves, including the concepts of phase and group velocities, and the vectorial nature of light. Chapter 3 applies the concepts of partial coherence and coherence length to the study of interference, and Chapter 4 takes up multiple-beam interference and includes Fabry-Perot interferometry and multilayer-film theory. Diffraction and holography are the subjects of Chapter 5, and the propagation of light in material media (including crystal and nonlinear optics) are central to Chapter 6. Chapters 7 and 8 introduce the quantum theory of light and elementary optical spectra, and Chapter 9 explores the theory of light amplification and lasers. Chapter 10 briefly outlines ray optics in order to introduce students to the matrix method for treating optical systems and to apply the ray matrix to the study of laser resonators. Many applications of the laser to the study of optics are integrated throughout the text. The author assumes students have had an intermediate course in electricity and magnetism and some advanced mathematics beyond calculus. For classroom use, a list of problems is included at the end of each chapter, with selected answers at the end of the book.

Book Information

Series: Dover Books on Physics

Paperback: 336 pages

Publisher: Dover Publications; 2 edition (June 1, 1989)

Language: English

ISBN-10: 0486659577

ISBN-13: 978-0486659572

Product Dimensions: 0.8 x 5.2 x 8.5 inches

Shipping Weight: 13.4 ounces (View shipping rates and policies)

Average Customer Review: 4.4 out of 5 stars [See all reviews](#) (37 customer reviews)

Best Sellers Rank: #40,605 in Books (See Top 100 in Books) #5 in [Books > Science & Math >](#)

[Physics > Optics](#) #13 in [Books > Science & Math > Physics > Acoustics & Sound](#) #98 in [Books > Textbooks > Science & Mathematics > Physics](#)

Customer Reviews

If you're studying optics in a college class using Hecht's classic text, or if you are an engineer who

needs an overview of the subject, this is a good practical and economical introduction to the subject. However, be aware that this book is short on two components - details of derivations of mathematical formulas and illustrations. That is not to say they do not exist, it is just to say that at several points during the book I could have been aided in my comprehension by either an illustration or derivation that simply wasn't there. There are end of chapter exercises included, and there are solutions to selected odd problems in the back of the book. However, there are no details as to how those solutions were arrived at. If you are an engineer, the only way to really be sure that you understand a subject is to solve problems. Thus I suggest Schaum's Outline of Optics by Hecht for that task. Often the solutions to problems in that outline are the mathematical details that are missing in this book! The table of contents are not included in the product description, so I add that here:

Chapter 1 The Propagation of Light

1.1 Elementary Optical Phenomena and the Nature of Light

1.2 Electrical Constants and the Speed of Light

1.3 Plane Harmonic Waves. Phase Velocity

1.4 Alternative Ways of Representing Harmonic Waves

1.5 Group Velocity

1.6 The Doppler Effect

Chapter 2 The Vectorial Nature of Light

2.1 General Remarks

2.2 Energy Flow. The Poynting Vector

2.3 Linear Polarization

2.4 Circular and Elliptic Polarization

2.5 Matrix Representation of Polarization. The Jones Calculus

2.6 Reflection and Refraction at a Plane Boundary

2.7 Amplitudes of Reflected and Refracted Waves. Fresnel's Equations

[Download to continue reading...](#)

Handbook of Optics, Third Edition Volume V: Atmospheric Optics, Modulators, Fiber Optics, X-Ray and Neutron Optics Handbook of Optics, Third Edition Volume IV: Optical Properties of Materials, Nonlinear Optics, Quantum Optics (set) Photonics Rules of Thumb: Optics, Electro-Optics, Fiber Optics and Lasers Photonics Rules of Thumb: Optics, Electro-Optics, Fiber Optics, and Lasers (Optical and Electro-Optical Engineering Series) Introduction to Modern Optics (Dover Books on Physics) Handbook of Optics, Third Edition Volume I: Geometrical and Physical Optics, Polarized Light, Components and Instruments (set) Applications of Nonlinear Fiber Optics, Second Edition (Optics and Photonics Series) Handbook of Optics, Third Edition Volume III: Vision and Vision Optics (set) The Solid State: An Introduction to the Physics of Crystals for Students of Physics, Materials Science, and Engineering (Oxford Physics Series) Advances in Chemical Physics: Modern Nonlinear Optics, Volume 119, Part 1, 2nd Edition Neutrons, Nuclei and Matter: An Exploration of the Physics of Slow Neutrons (Dover Books on Physics) Physics of Shock Waves and High-Temperature Hydrodynamic Phenomena (Dover Books on Physics) Electronic Structure and the Properties of Solids: The Physics of the Chemical Bond (Dover Books on Physics) Jokes For Kids - Joke Books : Funny Books : Kids Books : Books for kids age 9 12 : Best Jokes 2016 (kids

books, jokes for kids, books for kids 9-12, ... funny jokes, funny jokes for kids) (Volume 1)

Introduction to Modern Optics Advances in Imaging and Electron Physics, Volume 161: Optics of
Charged Particle Analyzers Fundamentals of Physics II: Electromagnetism, Optics, and Quantum
Mechanics: 2 (The Open Yale Courses Series) Introduction to Mathematical Fluid Dynamics (Dover
Books on Physics) An Introduction to Statistical Thermodynamics (Dover Books on Physics)
Symmetry: An Introduction to Group Theory and Its Applications (Dover Books on Physics)

[Dmca](#)