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Introduction to Modern Optics Oxford University Press
Wave Optics: Basic Concepts and Contemporary Trends combines classical optics with some of the latest developments in the field to provide readers with an appreciation and understanding of advanced research topics. Requiring only a basic knowledge of electromagnetic theory and mathematics, this book: Covers the fundamentals of wave optics, such as oscillations, scalar and vector waves, reflection and refraction, polarization, interference and diffraction, and rays and beams Focuses on concepts related to advances in negative materials and superresolution, reflectionless potentials, plasmonics, spin-orbit interaction, optical tweezers, Pendry lensing, and more Includes MATLAB® codes for specific research problems, offering readers a behind-the-scenes look at the computational practices as well as an opportunity to extend the research Drawing parallels with corresponding quantum problems whenever possible to broaden the horizon and outlook, Wave Optics: Basic Concepts and Contemporary Trends gives readers a taste of what is happening in modern optics today and shows why wave optics remains one of the most interesting and challenging areas of physics.

Introduction to Optics Cambridge University Press
The expanded fourth edition of the book that offers an essential introduction to laser technology and the newest developments in the field The revised and updated fourth edition of Understanding Lasers offers an essential guide and introduction that explores how lasers work, what they do, and how they are applied in the real world. The author—a Fellow of The Optical Society—reviews the key concepts of physics and optics that are essential for understanding lasers and explains how lasers operate. The book also contains information on the optical accessories used with lasers. Written in non-technical terms, the book gives an overview of the wide-variety laser types and configurations. Understanding Lasers covers fiber, solid-state, excimer, helium-neon, carbon dioxide, free-electron lasers, and more. In addition, the book also explains concepts such as the difference between laser oscillation and amplification, the importance of laser gain, and tunable lasers. The updated fourth edition highlights the most recent research and development in the field. This important resource: Includes a new chapter on fiber lasers and amplifiers Reviews new topics on physics of optical fibers and fiber lasers, disk lasers, and Ytterbium lasers Contains new sections on Laser Geometry and Implications, Diode Laser Structures, Optimal Parametric Sources, and 3D Printing and Additive Manufacturing Puts the focus on research and emerging developments in areas such as spectroscopy, slow light, laser cooling, and extremely precise measurements Contains appendices, glossary, and index that help make this book a useful reference Written for engineering and physics students, engineers, scientists, and technicians, the fourth edition of Understanding Lasers contains the basic concepts of lasers and the most recent advances in the technology.

Elements of Modern Optical Design Elsevier
Tough Test Questions? Missed Lectures? Not Enough Time? Textbook too Pricey? Fortunately, there's Schaum's. This all-in-one-package includes more than 900 fully-solved problems, examples, and practice exercises to sharpen your problem-solving skills. Plus, you will have access to the revised online Schaum's.com website—it's just like having your own virtual tutor! You'll find everything you need to build confidence, skills, and knowledge for the highest score possible. More than 40 million students have trusted Schaum's to help them succeed in the classroom and on exams. Schaum's is the key to faster learning and higher grades in every subject. Each Outline presents all the essential course information in an easy-to-follow, topic-by-topic format. Helpful tables and illustrations increase your understanding of the subject at hand. Schaum's Outline of College Physics, 12th Edition features: • Updated content to match the latest curriculum • Over 900 fully-solved problems • Hundreds of practice problems with answers • Clear explanations for all physics concepts • An accessible outline format for quick and easy review • Access to revised Schaums.com website

Free Space Optics Courier Corporation
Discusses free-space optics and their use in high-bandwidth systems and high-speed networks, covering topics including the physics behind free-space optics technology and using free-space optics to extend existing networks.

Basics of Photonics and Optics Cambridge University Press
In recent years, photonics has found increasing applications in such areas as communications, signal processing, computing, sensing, display, printing, and energy transport. Now, Fundamentals of Photonics is the first self-contained introductory-level textbook to offer a thorough survey of 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 light with matter, and the theory of semiconductor materials and their optical properties. Presented at increasing levels of complexity, these sections serve as building blocks for the treatment of more advanced topics, such as Fourier optics and holography, guidedwave and fiber optics, photon sources and detectors, electro-optic and acousto-optic devices, nonlinear optical devices, fiber-optic communications, and photonic switching and computing. Included are such vital topics as: Generation of coherent light by lasers, and incoherent light by luminescence sources such as light-emitting diodes Transmission of light through optical components (lenses, apertures, and imaging systems), waveguides, and fibers Modulation, switching, and scanning of light through the use of electrically, acoustically, and optically controlled devices Amplification and frequency conversion of light by the use of wave interactions in nonlinear materials Detection of light by means of semiconductor photodetectors Each chapter contains summaries, highlighted equations, problem sets and exercises, and selected reading lists. Examples of real systems are included to emphasize the concepts governing applications of current interest, and appendices summarize the properties of one- and two-dimensional Fourier transforms, linear-systems theory, and modes of linear systems. An Instructor's Manual presenting detailed solutions to all the problems in the book is available from the Wiley editorial department.

Ultrafast Optics Addison-Wesley
Presents a fully updated, self-contained textbook covering the core theory and practice of both classical and modern optical microscopy techniques.

Quantum Atom Optics Cambridge University Press
Fully revised and in its second edition, this standard reference on nano-optics is ideal for graduate students and researchers alike.

Schaum's Outline of College Physics, Twelfth Edition John Wiley & Sons
Since it was first published in 1995, Photonic Crystals has remained the definitive text for both undergraduates and researchers on photonic band-gap materials and their use in controlling the propagation of light. This newly expanded and revised edition covers the latest developments in the field, providing the most up-to-date, concise, and comprehensive book available on these novel materials and their applications. Starting from Maxwell's equations and Fourier analysis, the authors develop the theoretical tools of photonics using principles of linear algebra and symmetry, emphasizing analogies with traditional solid-state physics and quantum theory. They then investigate the unique phenomena that take place within photonic crystals at defect sites and surfaces, from one to three dimensions. This new edition includes entirely new chapters describing important hybrid structures that use band gaps or periodicity only in some directions: periodic waveguides, photonic-crystal slabs, and photonic-crystal fibers. The authors demonstrate how the capabilities of photonic crystals to localize light can be put to work in devices such as filters and splitters. A new appendix provides an overview of computational methods for electromagnetism. Existing chapters have been considerably updated and expanded to include many new three-dimensional photonic crystals, an extensive tutorial on device design using temporal coupled-mode theory, discussions of diffraction and refraction at crystal interfaces, and more. Richly illustrated and accessibly written, Photonic Crystals is an indispensable resource for students and researchers. Extensively revised and expanded Features improved graphics throughout Includes new chapters on photonic-crystal fibers and combined index-and band-gap-guiding Provides an introduction to coupled-mode theory as a powerful tool for device design Covers many new topics, including omnidirectional reflection, anomalous refraction and diffraction, computational photonics, and much more.

Understanding Fiber Optics McGraw Hill Professional
This invaluable second edition provides more in-depth discussions and examples in various chapters. Based largely on the authors' own in-class lectures as well as research in the area, the comprehensive textbook serves two purposes. The first introduces some traditional topics such as matrix formalism of geometrical optics, wave propagation and diffraction, and some fundamental background on Fourier optics. The second presents the essentials of acousto-optics and electro-optics, and provides the students with experience in modeling the theory and applications using a commonly used software tool MATLAB®. Request Inspection Copy

Quantum Optics McGraw-Hill Companies

Introduction to Optics is now available in a re-issued edition from Cambridge University Press. Designed to offer a comprehensive and engaging introduction to intermediate and upper level undergraduate physics and engineering students, this text also allows instructors to select specialized content to suit individual curricular needs and goals. Specific features of the text, in terms of coverage beyond traditional areas, include extensive use of matrices in dealing with ray tracing, polarization, and multiple thin-film interference; three chapters devoted to lasers; a separate chapter on the optics of the eye; and individual chapters on holography, coherence, fiber optics, interferometry, Fourier optics, nonlinear optics, and Fresnel equations. Modern Optical Engineering Trafford Publishing
A complete basic undergraduate course in modern optics for students in physics, technology, and engineering. The first half deals with classical physical optics; the second, quantum nature of light. Solutions. Vibrations and Waves McGraw Hill Professional

An introduction to photonics and lasers that does not rely oncomplex mathematics This book evolved from a series of courses developed by the authorand taught in the areas of lasers and photonics. This thoroughlyclassroom-tested work fills a unique need for students,instructors, and industry professionals in search of anintroductory-level book that covers a wide range of topics in theseareas. Comparable books tend to be aimed either too high or toolow, or they cover only a portion of the topics that are needed fora comprehensive treatment. Photonics and Lasers is divided into four parts: * Propagation of Light * Generation and Detection of Light * Laser Light * Light-Based Communication The author has ensured that complex mathematics does not become anobstacle to understanding key physical concepts. Physical argumentsand explanations are clearly set forth while, at the same time,sufficient mathematical detail is provided for a quantitativeunderstanding. As an additional aid to readers who are learning tothink symbolically, some equations are expressed in words as wellas symbols. Problem sets are provided throughout the book for readers to testtheir knowledge and grasp of key concepts. A solutions manual isalso available for instructors. Finally, the detailed bibliographyleads readers to in-depth explorations of particular topics. The book's topics, lasers and photonics, are often treatedseparately in other texts; however, the author skillfullydemonstrates their natural synergy. Because of the combinedcoverage, this text can be used for a two-semester course or aone-semester course emphasizing either lasers or photonics. This isa perfect introductory textbook for both undergraduate and graduatstudents, additionally serving as a practical reference forengineers in telecommunications, optics, and laser electronics.

Problems and Solutions on Optics OpticsAccurate, authoritative and comprehensive, "Optics, Fourth Edition" has been revised to provide readers with the most up-to-date coverage of optics. The market leader for over a decade, this book provides a balance of theory and instrumentation, while also including the necessary classical background. The writing style is lively and accessible. For college instructors, students, or anyone interested in optics.Introduction to Optics
Written primarily for advanced undergraduate and Master's level students in physics, this text includes a broad range of topics in applied quantum optics such as laser cooling, Bose-Einstein condensation and quantum information processing.

Opticks: CRC Press

Optics
Principles of Optics Cambridge University Press
Covering a number of important subjects in quantum optics, this textbook is an excellent introduction for advanced undergraduate and beginning graduate students, familiarizing readers with the basic concepts and formalism as well as the most recent advances. The first part of the textbook covers the semi-classical approach where matter is quantized, but light is not. It describes significant phenomena in quantum optics, including the principles of lasers. The second part is devoted to the full quantum description of light and its interaction with matter, covering topics such as spontaneous emission, and classical and non-classical states of light. An overview of photon entanglement and applications to quantum information is also given. In the third part, non-linear optics and laser cooling of atoms are presented, where using both approaches allows for a comprehensive description. Each chapter describes basic concepts in detail, and more specific concepts and phenomena are presented in 'complements'.

Optics for Engineers Sams Publishing
A revised version of a text which was first published in 1966. The book is designed as a general reference book for engineers and assumes a broad knowledge of current optical systems and their design. Additional topics include fibre optics, thin films and CAD systems. Introduction to Lens Design Lulu.com

Accurate, authoritative and comprehensive, Optics, Fifth Edition has been revised to provide readers with the most up-to-date coverage of optics. The market leader for over a decade, this book provides a balance of theory and instrumentation, while also including the necessary classical background. The writing style is lively and accessible.

Introduction to Optical Microscopy CRC Press

For courses in Introduction to Fiber Optics and Introduction to Optical Networking in departments of Electronics Technology and Electronics Engineering Technology. Also suitable for corporate training programs. Ideal for technicians, entry-level engineers, and other nonspecialists, this best-selling practical, thorough, and accessible introduction to fiber optics reflects the expertise of an author who has followed the field for over 25 years. Using a non-theoretical/non-mathematical approach, it explains the principles of optical fibers, describes components and how they work, explores the tools and techniques used to work with them and the devices used to connect fiber network, and concludes with applications showing how fibers are used in modern communication systems. It covers both existing systems and developing technology, so students can understand present systems and new developments.

Understanding Lasers John Wiley & Sons

Accurate, authoritative and comprehensive, "Optics, Fourth Edition" has been revised to provide readers with the most up-to-date coverage of optics. The market leader for over a decade, this book provides a balance of theory and instrumentation, while also including the necessary classical background. The writing style is lively and accessible. For college instructors, students, or anyone interested in optics.

Schaum's Outline of Optics Wiley-Interscience

The rapid development of quantum technologies has driven a revolution in related research areas such as quantum computation and communication, and quantum materials. The first prototypes of functional quantum devices are beginning to appear, frequently created using ensembles of atoms, which allow the observation of sensitive, quantum effects, and have important applications in quantum simulation and matter wave interferometry. This modern text offers a self-contained introduction to the fundamentals of quantum atom optics and atomic many-body matter wave systems. Assuming a familiarity with undergraduate quantum mechanics, this book will be accessible for graduate students and early career researchers moving into this important new field. A detailed description of the underlying theory of quantum atom optics is given, before development of the key, quantum, technological applications, such as atom interferometry, quantum simulation, quantum metrology, and quantum computing.