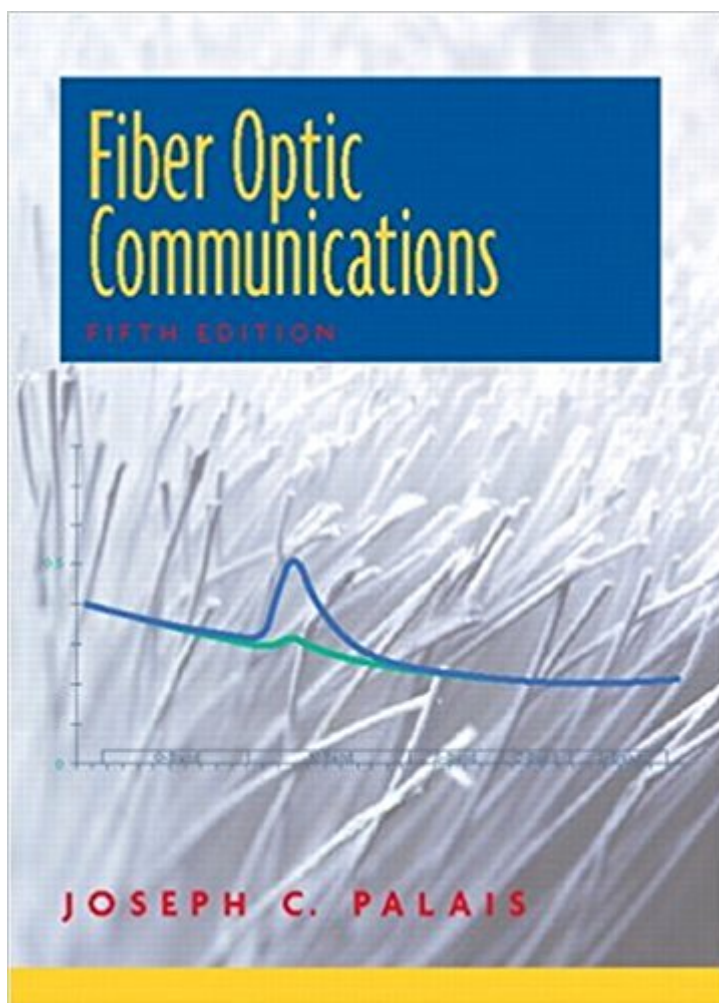**The book was found**

Fiber Optic Communications (5th Edition)

Synopsis

This new and fully revised Fifth Edition of Fiber Optic Communications incorporates coverage of significant advances made in the fiber industry in recent years to present a comprehensive and in-depth introduction to the basics of communicating with optical fiber transmission lines. Readers will learn system design as well as operating principles, characteristics, and application of the components that comprise fiber-optic systems.   New and expanded topics include Raman amplifier, erbium-doped waveguide amplifier, the arrayed waveguide grating, electroabsorption modulator, optical micro-electro-mechanical (MEMs) components, dispersion compensation, tunable light sources, tunable filters, optical time-division multiplexing, dense and course wavelength-division multiplexing, increased utilization of the optical spectrum, and emphasis on external modulation. Other topics include fiber lasers and optical amplifiers, vertical-cavity surface-emitting laser diodes, dense wavelength-division multiplexing, fiber Bragg grating technology, new component descriptions (fiber attenuator, circulator, and polarization controller), new phenomena descriptions (polarization mode dispersion, mode-partition noise), and power penalty. Expanded discussions of additional topics include polarization effects in fiber systems, integrated optic components, practical fiber connectors and how to minimize reflections.   For practicing design engineers concerned with the selection and application of components and with the design of applications systems. For professionals involved with fiber optics, including high-level engineering decision makers, project managers, technicians, marketing and sales personnel, and teachers.

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Customer Reviews

The fifth edition of Fiber Optic Communications by Joseph C. Palais marks the book's twentieth anniversary. In the 20 years since the first edition of the book was published, fiber optics systems have become more flexible and less costly and information capacity and transmission length have increased. This edition includes the many new and improved components and system architectures that have been added to the fiber-optic-communications designer's tool kit. New component discussions describe Improved fibers that more fully utilize the optical spectrum Non-zero dispersion shifted fibers Graded-index polymer fibers Raman amplifiers Erbium-doped waveguide amplifiers Arrayed waveguide gratings Electroabsorption modulators Optical micro-electro-mechanical (MEMs) components Dispersion compensators Tunable light sources Tunable filters Small-form-factor connectors Non-adhesive splices Expanded coverage of system strategies and considerations include Optical time-division multiplexing Dense and coarse wavelength-division multiplexing Polarization mode dispersion External modulation   The fifth edition also includes new problems, new figures, new worked examples, and an updated bibliography.

Fiber optic communications developed very quickly after the first low-loss fibers were produced in 1970. Operational fiber systems are now common, and new installations and applications appear continually. Communication by fibers has taken over many of the functions previously performed by copper-based systems and extended them significantly. Fibers have become an enabling technology in the information society in which we live. They work together with the remaining copper applications and the growing wireless infrastructure to meet our expanding communications needs. Fiber technology has matured sufficiently so that many books have been written on the subject. Some of these books are quite detailed in terms of theoretical and mathematical content, and the beginner could find the level difficult.   This text is intended to be less difficult, while still bringing to the reader the information necessary to understand the design, operation, and capabilities of fiber systems. Important theoretical and mathematical results are given without accompanying lengthy proofs. However, results are explained in physical terms when possible and appropriate, and extensive tables and figures are used to make those results readily usable. To provide a realistic view, numerical values are given for the ranges of typical device parameters.   When the first edition of this book appeared in 1984, fibers had already crisscrossed much of the United States and many other countries to deliver telephone messages between the major exchanges. By 1988, when the

second edition was published, the land-based long-distance fiber telephone network was nearly complete, and submarine fiber telephone cables were being installed beneath the major oceans. In addition, fiber optic local-area networks (LANs) were in development. When the third edition went to press in 1992, over 10 million kilometers of fiber had been installed worldwide, undersea cables were being constructed, and installation of fiber LANs was increasing. By 1998, when the fourth edition was published, numerous submarine fiber cables covering the Atlantic and Pacific oceans and many smaller seas were operational. In addition, numerous tests had been completed for bringing fiber to all homes, holding out the promise for expanded services to the individual subscriber. With this fifth edition, we note several new developments. The demand for more transmission bandwidth (particularly for Internet and business applications) has required design of fiber systems carrying information at terabit-per-second rates over great distances. Metropolitan area networks (MANS) have become significant parts of the fiber industry. Bringing fiber connections to the home is still a goal, but an elusive one. Economic considerations have slowed progress in this direction. It is the insatiable demand for greater bandwidth that makes this fifth edition necessary. The fundamentals have not changed, but new technological advances and improvements have emerged to satisfy this demand. I have attempted to work these new ideas into the previous edition with as little disruption as possible. This is an introductory book. No background in fiber optics or in optic communications is assumed. Only the simplest concepts from algebra and trigonometry are invoked in explaining the characteristics of fiber systems. Appropriate background material on optics, electronics, and communications is introduced in the text as needed.

This book was originally based on a set of notes I developed and used for numerous short courses on fiber optic communications. Participants in these courses had training ranging from two years of technical school through the Ph.D. level. Jobs varied from designer to board chairman. Attendees included personnel from industry, government, and academia. Individual backgrounds were in chemistry, physics, and many areas of engineering. In addition to the short course presentatior3.s, I have taught this material to over 1,500 electrical engineering students at the senior and first-yeargraduate level. The course has been taught over television for more than 20 years. In the last few years it has also been available as an Internet-delivered class. The professionals benefiting from this book include practicing design engineers concerned with the selection and application of components and with the design and evaluation of systems. Knowledge of the entire system is useful for the device designer as well. Others involved in fiber optics, such as high-level engineering-decision makers, project managers, technicians, marketing and sales personnel, and teachers, can also obtain valuable information from the material presented. The organization of the

book is as follows. Block diagrams of entire fiber optic systems are presented at the outset. This identifies the components of fiber systems, providing motivation for their individual study in succeeding chapters. Chapters 2 and 3 contain a review of important results from the fields of optics and wave travel. This basic information is needed for an understanding of fiber optic devices and systems. Chapter 4, on integrated optics, introduces the technology of combining optic components onto a single substrate. The integrated optic waveguide provides an excellent, simplified model for propagation of light in a fiber. Chapters 5-9 present the main devices encountered in a fiber optic system. These are the fiber, the light source, the light detector, the couplers, and the distribution networks. System considerations appear in Chapters 10-12, where modulation formats, the effects of noise on message quality, and system design are covered. The last chapter includes examples of operational systems. In that chapter, the design information developed throughout the book is applied to realistic problems.   I expect the reader who has mastered this material to be able to design and specify systems and to choose and evaluate such system components as fibers, light sources, detectors, and couplers. Commercially available subsystems, such as complete transmitters and receivers, will also be amenable to evaluation by the techniques presented in this book.   This new and fully revised edition of Fiber Optic Communications incorporates significant advances made in the fiber industry since publication of the fourth edition. Because the fundamentals of the technology have remained the same, the number of changes is moderate. Nonetheless, the changes and additions are significant. Added or expanded topics include the following: Raman amplifiers, erbium-doped waveguide amplifiers, arrayed waveguide gratings, electroabsorption modulators, optical microelectro-mechanical (MEMs) components, dispersion compensation, tunable light sources, tunable filters, optical time-division multiplexing, dense and coarse wavelength-division multiplexing, increased utilization of the optical spectrum, and emphasis on external modulation. A new table showing the current spectral band classification scheme has been added. Small-form-factor connectors and nonadhesive splices are described. In addition, the discussions in a number of sections were modified to improve the clarity of the presentation. Because numerous colleges adopted the initial text for an undergraduate course in fiber optics, a homework problem set was inserted in the second edition. New problems have been added, and several of the old ones have been updated for this new edition, making this text's use in the classroom even more desirable. Some problems are merely "plug-in"-type questions, intended to give the student practice and confidence in understanding of the material presented. Other problems take more thought and might even require finding and reviewing material from other sources. Answers to most problems appear at the end of the book, and a new solutions manual is

available for instructors.   Many new references have been added. The bibliography and periodicals listing at the end of the text provides a resource for further study. The bibliography includes both older "classic" fiber optics presentations and several newer ones that have appeared since the last edition of this textbook.   I find that the first seven chapters can be covered in a one-semester course. This introduces all the major system components to the students, allowing those who have mastered the material to enter productively into the fiber industry. The last five chapters, on more advanced topics, can be covered in a second term. To simplify the mathematics and reach a wider audience, many of the results presented in the text are not fully derived. Instructors of well-prepared students, such as seniors in electrical engineering programs, may wish to fill in the derivations to deepen student understanding. FIBER OPTIC SOFTWARE All technical workers and students have access to personal computers and the Internet. Because of this, many groups have developed software to illustrate fiber-related phenomena and to aid analysis and design. Several such programs are available through my home page (www.fulton.asu.edu/~palais). Some of these are available on CDs for instructors adopting the textbook. In addition, PowerPoint slides covering much of the textbook material are available on CDs to assist lecturers. ONLINE COURSE AVAILABILITY A two-semester course covering the material in the textbook is available online (and on CDs or DVDs) for university credit, for continuing education credit, or for self study. The online version contains lectures by the author, demonstrations, homework, and exams. Contact the author for information (joseph.palais@asu.edu).   JOSEPH C. PALMS Arizona State University

This is a very thorough book, it has a large number of examples, problems, and tables with everything you might need. It is logically structured and well written. However, it completely skimps on the math. Almost no derivations are shown in any of the chapters, formulas are just pulled out of nowhere.Overall, it's a pretty good book. But if you're interested in knowing where things come from, buy something else. I'd recommend it for the not-so-mathematically inclined electrical engineering junior/senior.

I was looking for a book on fiber optic technology that had a lot of practical info and wasn't too technology in the "text book" sense.This book fit the bill, it covers the technology without boring the hell out you with derivations of equations and semiconductor physics.I would recommend this book.

I have read many books looking for quick information regarding fiber optic systems and this book is by far better than any others in terms of giving you the "need to know" basics and principles. I like

how clearly the background information on optical is presented. Some other reviews have aptly pointed out: 1) If you are a fiber-optics professional and want in depth treatment of specific issues, you may not find it here. However, if you are like most engineers and need to go from a 0 to 65% expert quickly for making decisions, this book is EXCELLENT. Better than others by far in terms of clarity! 2) The background info on optical does assume you have had some basic physics including in order to breeze through it. It is still a good starting point even if you haven't. I actually understood some things better after reading this book versus what I remembered from EM/physics courses. A great book.

Yes it did thanks

If you are looking for a theoretical book concerning basic understanding of fiber optics and fiber optic communication, this is a good book for you. This book contains basic mathematics and physics concepts of the fiber optics. I think this book is suitable for researchers and anybody who is interested in the fiber optics from physics point of view.But if you are looking for a basic understanding non-mathematical of fiber optics and fiber optic communication, this is definitely not a good book for you. I could say that this book is for graduate students only (toward their master or doctoral degree) with already quite strong understanding of theoretical light physics. If you are students with little or no understanding of such theory, I suggest that you look for other books.This book covers a quite complete of basic understanding of fiber optics and fiber optic communications. Although this book is a good introduction toward mathematics and physics concepts, it does not cover the basic understanding deep enough. I could say that there are a lot of essential understanding were left unexplained. Like I said before that this book is perfect for somebody that has already quite strong understanding of theoretical light physics.

This is a good book for an introductory course in fiber optics for a B.S.E.E. program.But if you are looking for an in depth description of fiber optics communication, then you should check out "Fiber Optic Communications" by John Senior, published by Prentice-Hall. And for an introduction to the fiber optics theory without mathematical discussion, "Fiber Optic Communication: An applied approach" by A. Khan, published by Pearson Custom Publishing, is also a good introductory book for students in the telecommunications area.

Excellent.

This book is a very good introduction to this subject for engineering and sience students. It coveres the principles in a very clear way and it gives you also a good overview over the practical implementation of fiber optic networks and systems in real life.

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