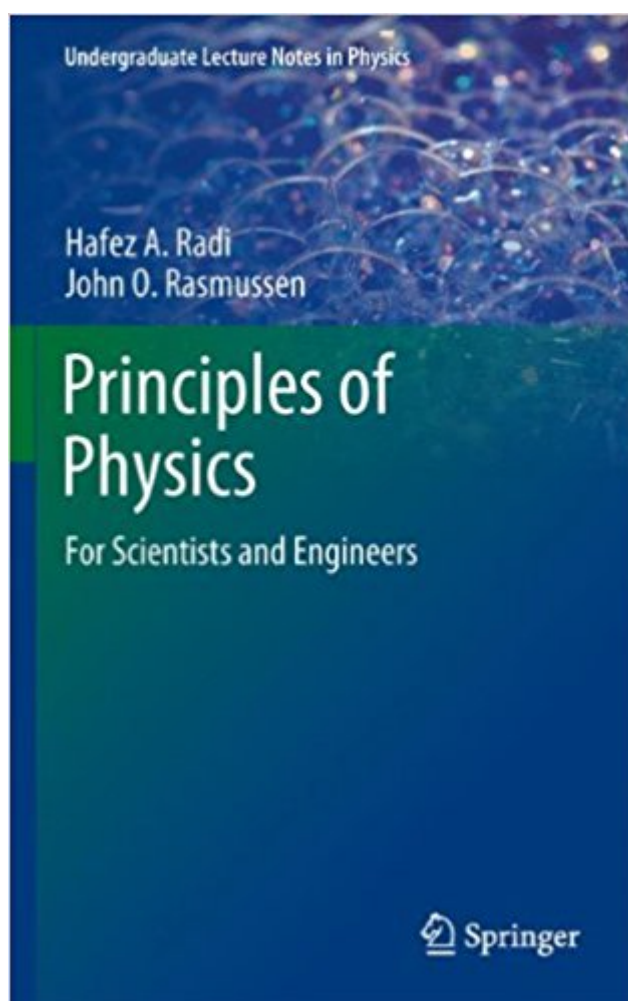


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# Principles Of Physics: For Scientists And Engineers (Undergraduate Lecture Notes In Physics)



## Synopsis

This textbook presents a basic course in physics to teach mechanics, mechanical properties of matter, thermal properties of matter, elementary thermodynamics, electrodynamics, electricity, magnetism, light and optics and sound. It includes simple mathematical approaches to each physical principle, and all examples and exercises are selected carefully to reinforce each chapter. In addition, answers to all exercises are included that should ultimately help solidify the concepts in the minds of the students and increase their confidence in the subject. Many boxed features are used to separate the examples from the text and to highlight some important physical outcomes and rules. The appendices are chosen in such a way that all basic simple conversion factors, basic rules and formulas, basic rules of differentiation and integration can be viewed quickly, helping student to understand the elementary mathematical steps used for solving the examples and exercises. Instructors teaching from this textbook will be able to gain online access to the solutions manual which provides step-by-step solutions to all exercises contained in the book. The solutions manual also contains many tips, coloured illustrations, and explanations on how the solutions were derived.

## Book Information

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From the book reviews: "The book follows the basic organization of an introductory physics course and covers all of the topics with sufficient depth". The book contains all the essentials, showing different applications for varied laws of physics and introducing the working principles of

some of the instruments that students might work with in a physics lab. â | a textbook to read before a lecture on a specific topic, as the student can familiarize himself with the definitions and mathematics used.â • (Kadri Tinn, AstroMadness.com, August, 2014)â œl recommend this book to people who need easy and direct access to a wide spectrum of physics theories to apply practically in their professional life. This is a very well written text book. I love the colorful diagrams and illustrations. I would highly recommend this book for any respectful universities and colleges. Students would invest once in this book and use it in multiple courses.â • (Philosophy, Religion and Science Book Reviews, bookinspections.wordpress.com, March, 2014)

This textbook presents a basic course in physics to teach mechanics, mechanical properties of matter, thermal properties of matter, elementary thermodynamics, electrodynamics, electricity, magnetism, light and optics and sound. It includes simple mathematical approaches to each physical principle, and all examples and exercises are selected carefully to reinforce each chapter. In addition, answers to all exercises are included that should ultimately help solidify the concepts in the minds of the students and increase their confidence in the subject. Many boxed features are used to separate the examples from the text and to highlight some important physical outcomes and rules. The appendices are chosen in such a way that all basic simple conversion factors, basic rules and formulas, basic rules of differentiation and integration can be viewed quickly, helping student to understand the elementary mathematical steps used for solving the examples and exercises. Instructors teaching from this textbook will be able to gain online access to the solutions manual which provides step-by-step solutions to all exercises contained in the book. The solutions manual also contains many tips, colored illustrations, and explanations on how the solutions were derived.

Review Summary:-----This is a very well written text book. I love the colorful diagrams and illustrations. I would highly recommend this book for any respectful universities and colleges. Students would invest once in this book and use it in multiple courses. Review Details:-----1) Great range of topics, all of which are very well presented: The book covers a lot of topics and presents the material in a very simple. The ability of the authors to present gradually complicated material in an always simple and interesting way is one of the biggest differentiators of this book compared to other Physics text books out in the market. The wide range of topics covered range from introductory to advanced, making it a great value for the price. You can see for yourself what I mean by downloading a copy of the table of contents from the Springer website.2) A lot of

supporting material: It's obvious that a lot of effort went into this text book, and the quality shows. The book is packed with detailed examples that really help you understand the topics, and every chapter comes with a large number of exercises, with answers at the end of the textbook.3) A lot of colorful diagrams and illustrations. A good portion of the figures/diagrams/illustrations are colored. The colors are very vivid and make you enjoy the book as you read it. My only concern was that I wish ALL diagrams/illustrations were colored. I'm glad that all of the pictures that have multiple components are colored. If those were black and white, it would have been confusing.

I'm working on my experimental research of hi-voltage energy conversion cycles so I purchased this book to refresh my knowledge of principles of physics as books name suggested: "Principles of Physics for Scientists and Engineer" and because of positive reviews. After examining this books I find out that actual "Principles of Physics" are completely missed in this book in every chapter of this book. For example, in chapter "Sound and Light Waves" - there is missed theory of the nature of origin of sound/wave physics phenomena supported by historical experimental data. In books chapter "Electricity" - there are missed principles of physics matter of electric current and theory of electron based on historical experimental data. The book is loaded with mathematical analysis (they are very good) in every chapter but the principles of physics are completely missed. Wondering how this may have happened I did research on the books author Professor Hafez A. Radi and find out that his academic career is based on academics standards of Egypt and Kuwait, - that gave me idea why principles of physics where missed in this book. I'm returning this book since it's totally useless for scientists and also very expensive.

I found this text to be very helpful in understanding all the basic principles of Physics that are typically studied in college. Unlike other Physics books, the author's language is simple and clear, and the colorful illustrations make a huge difference. The fact that he also used many real-world examples was extremely beneficial. I also found the examples and step by step solutions helpful when I wasn't fully grasping a concept, paired with the questions at the end of the chapter, really helped solidify the concepts (or let me know if I needed to re-read a section!). I think this is one of the best physics books to learn the basics, and is the Physics book I reach for when I need to brush up on something.

As a professional engineer, I find myself in many situations where I need to refer back to several principals and theories of physics before applying them to real-life practical situations. Before buying

this text book, I used to rely on multiple sources, often not finding what I need. After buying this text book, I no longer face this problem. In a nutshell, the biggest value for me for this book is that it encompasses many topics, all of which are very easy to find, and it also includes practical examples that I can easily relate to. I recommend this book to people who need easy and direct access to a wide spectrum of physics theories to apply practically in their professional life.

Outstanding text. I thought it was more helpful than the Schaum Guides. It has more extensive explanations on a greater range of topics for Calculus based Physics courses than other study aides I have tried.

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