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Introduction to Electrodynamics Solution Manual for Classical Mechanics and Electrodynamics
Modern Electrodynamics Introduction to Electrodynamics *Classical Electrodynamics* **Classical Theory of Electromagnetism** **Classical Theory of Electromagnetism** **Classical Mechanics and Electrodynamics Solution Manual For Classical Mechanics And Electrodynamics** Introduction to Quantum Mechanics **Davis's Manual of Magnetism, Including Galvanism, Magnetism, Electro-magnetism, Electro-dynamics, Magneto-electricity, and Thermo-electricity ... Essential Advanced Physics Electrodynamics** Macroscopic Electrodynamics Electrodynamics: A Concise Introduction *Classical Electrodynamics* **Field and Wave Electromagnetics** Principles of Electrodynamics *A Student's Guide to Maxwell's Equations* *Revolutions in Twentieth-Century Physics* **Instructor's Solutions Manual The Classical Theory of Fields A Modern Approach to Quantum Mechanics** Classical Electromagnetic Radiation Introduction to Elementary Particles **Modern Problems in Classical Electrodynamics An Introduction To Quantum Field Theory** **Electromagnetic Noise and Quantum Optical Measurements** Theoretical Physics 3 **Vector and Tensor Analysis** *Gravity* Fundamentals of Applied Electromagnetics **Concepts in Thermal Physics** Solutions to Problems for Student Friendly Quantum Field Theory Electrodynamics: The Field-Free Approach **Introduction to**

Engineering Electromagnetics *Special Relativity, Electrodynamics, and General Relativity*
Essential Mathematical Methods for the Physical Sciences *Electromagnetics, Volume 1 (BETA)*
Quantum Physics

Electrodynamics: A Concise Introduction Aug 20 2021 This textbook is intended for advanced undergraduates or beginning graduates. It is based on the notes from courses I have taught at Indiana State University from 1967 to the present. The preparation needed is an introductory calculus-based course in physics and its prerequisite calculus courses. Courses in vector analysis and differential equations are useful but not required, since the text introduces these topics. In writing this book, I tried to keep my own experience as a student in mind and to write the kind of book I liked to read. That goal determined the choice of topics, their order, and the method of presentation. The organization of the book is intended to encourage independent

study. Accordingly, I have made every effort to keep the material self-contained, to develop the mathematics as it is needed, and to present new material by building incrementally on preceding material. In organizing the text, I have taken care to give explicit cross references, to show the intermediate steps in calculations, and to give many examples. Provided they are within the mathematical scope of this book, I have preferred elegant mathematical treatments over more ad hoc ones, not only for aesthetic reasons, but because they are often more profound and indicate connections to other branches of physics. I have emphasized physical understanding by presenting mechanical models. This book is organized somewhat differently from the traditional textbook at this level.

Solution Manual For Classical Mechanics And Electrodynamics

Feb 23 2022 As the essential companion book to Classical Mechanics and Electrodynamics (World Scientific, 2018), a textbook which aims to provide a general introduction to classical theoretical physics, in the fields of mechanics, relativity and electromagnetism, this book provides worked solutions to the exercises in Classical Mechanics and Electrodynamics. Detailed explanations are laid out to aid the reader in advancing their understanding of the concepts and applications expounded in the textbook.

Jul 19 2021 Classical Electrodynamics captures Schwinger's inimitable lecturing style, in which everything flows inexorably from what has gone before. Novel elements of the approach include the immediate inference of Maxwell's equations from Coulomb's law and (Galilean) relativity, the use of action and stationary principles, the central role of Green's functions both in statics

and dynamics, and, throughout, the integration of mathematics and physics. Thus, physical problems in electrostatics are used to develop the properties of Bessel functions and spherical harmonics. The latter portion of the book is devoted to radiation, with rather complete treatments of synchrotron radiation and diffraction, and the formulation of the mode decomposition for waveguides and scattering. Consequently, the book provides the student with a thorough grounding in electrodynamics in particular, and in classical field theory in general, subjects with enormous practical applications, and which are essential prerequisites for the study of quantum field theory. An essential resource for both physicists and their students, the book includes a ?Reader's Guide,? which describes the major themes in each chapter, suggests a possible path through the book, and identifies topics for inclusion in, and exclusion from, a given course, depending on the instructor's preference.

Carefully constructed problems complement the material of the text, and introduce new topics. The book should be of great value to all physicists, from first-year graduate students to senior researchers, and to all those interested in electrodynamics, field theory, and mathematical physics. The text for the graduate classical electrodynamics course was left unfinished upon Julian Schwinger's death in 1994, but was completed by his coauthors, who have brilliantly recreated the excitement of Schwinger's novel approach.

[Electrodynamics: The Field-Free Approach](#) Nov 30 2019 This book is intended as an undergraduate textbook in electrodynamics at basic or advanced level. The objective is to attain a general understanding of the electrodynamic theory and its basic experiments and phenomena in order to form a foundation for further studies in the engineering sciences as well as in modern quantum physics. The outline of the book is obtained from the following

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principles:

- Base the theory on the concept of force and mutual interaction
- Connect the theory to experiments and observations accessible to the student
- Treat the electric, magnetic and inductive phenomena cohesively with respect to force, energy, dipoles and material
- Present electrodynamics using the same principles as in the preceding mechanics course
- Aim at explaining that theory of relativity is based on the magnetic effect

• Introduce field theory after the basic phenomena have been explored in terms of force Although electrodynamics is described in this book from its 1st principles, prior knowledge of about one semester of university studies in mathematics and physics is required, including vector algebra, integral and differential calculus as well as a course in mechanics, treating Newton's laws and the energy principle. The target groups are physics and engineering students, as well as professionals in the field, such as high school teachers and employees in the telecom industry.

Chemistry and computer science students may also benefit from the book.

Essential Mathematical Methods for the Physical Sciences Aug 27 2019 The mathematical methods that physical scientists need for solving substantial problems in their fields of study are set out clearly and simply in this tutorial-style textbook. Students will develop problem-solving skills through hundreds of worked examples, self-test questions and homework problems. Each chapter concludes with a summary of the main procedures and results and all assumed prior knowledge is summarized in one of the appendices. Over 300 worked examples show how to use the techniques and around 100 self-test questions in the footnotes act as checkpoints to build student confidence. Nearly 400 end-of-chapter problems combine ideas from the chapter to reinforce the concepts. Hints and outline answers to the odd-numbered problems are given at the end of each chapter, with fully-worked solutions to these

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problems given in the accompanying Student Solutions Manual. Fully-worked solutions to all problems, password-protected for instructors, are available at www.cambridge.org/essential. Introduction to Electrodynamics Jul 31 2022 For junior/senior-level electricity and magnetism courses. This book is known for its clear, concise and accessible coverage of standard topics in a logical and pedagogically sound order. The Third Edition features a clear, accessible treatment of the fundamentals of electromagnetic theory, providing a sound platform for the exploration of related applications (ac circuits, antennas, transmission lines, plasmas, optics, etc.). Its lean and focused approach employs numerous examples and problems.

Classical Mechanics and Electrodynamics Mar 27 2022 The book gives a general introduction to classical theoretical physics, in the fields of mechanics, relativity and electromagnetism. It is analytical in approach and detailed in the derivations of physical

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consequences from the fundamental principles in each of the fields. The book is aimed at physics students in the last year of their undergraduate or first year of their graduate studies. The text is illustrated with many figures, most of these in color. There are many useful examples and exercises which complement the derivations in the text.

Essential Advanced Physics Nov 22 2021

Essential Advanced Physics is a series comprising four parts: Classical Mechanics, Classical Electrodynamics, Quantum Mechanics and Statistical Mechanics. Each part consists of two volumes, Lecture Notes and Problems with Solutions, further supplemented by an additional collection of test problems and solutions available to qualifying university instructors. This volume, Classical Electrodynamics: Problems with Solutions contains detailed model solutions to the exercise problems formulated in the companion Lecture Notes volume. In many cases, the solutions include result discussions

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that enhance the lecture material. For reader's convenience, the problem assignments are reproduced in this volume.

Principles of Electrodynamics May 17 2021 The 1988 Nobel Prize winner establishes the subject's mathematical background, reviews the principles of electrostatics, then introduces Einstein's special theory of relativity and applies it to topics throughout the book.

Classical Theory of Electromagnetism Apr 27 2022 New Edition: Classical Theory of Electromagnetism (3rd Edition)The topics treated in this book are essentially those that a graduate student of physics or electrical engineering should be familiar with in classical electromagnetism. Each topic is analyzed in detail, and each new concept is explained with examples. The text is self-contained and oriented toward the student. It is concise and yet very detailed in mathematical calculations; the equations are explicitly derived, which is of great help to students and allows them to

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concentrate more on the physics concepts, rather than spending too much time on mathematical derivations. The introduction of the theory of special relativity is always a challenge in teaching electromagnetism, and this topic is considered with particular care. The value of the book is increased by the inclusion of a large number of exercises.

Solutions to Problems for Student Friendly

Quantum Field Theory Jan 01 2020 This booklet contains solutions to 191 problems in quantum field theory found in the text Student Friendly Quantum Field Theory Volume 1: Basic Principles and Quantum Electrodynamics by Robert D. Klauber.

Introduction to Elementary Particles Oct 10 2020

Quantum Physics Jun 25 2019 This textbook is intended to accompany a two-semester course on quantum mechanics for physics students. Along with the traditional material covered in such a course (states, operators, Schrödinger

equation, hydrogen atom), it offers in-depth discussion of the Hilbert space, the nature of measurement, entanglement, and decoherence – concepts that are crucial for the understanding of quantum physics and its relation to the macroscopic world, but rarely covered in entry-level textbooks. The book uses a mathematically simple physical system – photon polarization – as the visualization tool, permitting the student to see the entangled beauty of the quantum world from the very first pages. The formal concepts of quantum physics are illustrated by examples from the forefront of modern quantum research, such as quantum communication, teleportation and nonlocality. The author adopts a Socratic pedagogy: The student is guided to develop the machinery of quantum physics independently by solving sets of carefully chosen problems. Detailed solutions are provided.

Electromagnetic Noise and Quantum Optical Measurements Jul 07 2020

From the reviews: "Haus' book provides numerous

insights on topics of wide importance, and contains much material not available elsewhere in book form. [...] an indispensable resource for those working in quantum optics or electronics."

Optics & Photonics News

Gravity Apr 03 2020 Best-selling, accessible physics-first introduction to GR uses minimal new mathematics and begins with the essential physical applications.

A Modern Approach to Quantum Mechanics

Dec 12 2020 Inspired by Richard Feynman and J.J. Sakurai, *A Modern Approach to Quantum Mechanics* allows lecturers to expose their undergraduates to Feynman's approach to quantum mechanics while simultaneously giving them a textbook that is well-ordered, logical and pedagogically sound. This book covers all the topics that are typically presented in a standard upper-level course in quantum mechanics, but its teaching approach is new. Rather than organizing his book according to the historical development of the field and jumping into a

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mathematical discussion of wave mechanics, Townsend begins his book with the quantum mechanics of spin. Thus, the first five chapters of the book succeed in laying out the fundamentals of quantum mechanics with little or no wave mechanics, so the physics is not obscured by mathematics. Starting with spin systems it gives students straightforward examples of the structure of quantum mechanics. When wave mechanics is introduced later, students should perceive it correctly as only one aspect of quantum mechanics and not the core of the subject.

Davis's Manual of Magnetism, Including Galvanism, Magnetism, Electro-magnetism, Electro-dynamics, Magneto-electricity, and Thermo-electricity ...

Dec 24 2021 **Electrodynamics** Oct 22 2021 The emphasis in this text is on classical electromagnetic theory and electrodynamics, that is, dynamical solutions to the Lorentz-force and Maxwell's equations. The natural appearance of the Minkowski

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spacetime metric in the paravector space of Clifford's geometric algebra is used to formulate a covariant treatment in special relativity that seamlessly connects spacetime concepts to the spatial vector treatments common in undergraduate texts. Baylis' geometrical interpretation, using such powerful tools as spinors and projectors, essentially allows a component-free notation and avoids the clutter of indices required in tensorial treatments. The exposition is clear and progresses systematically - from a discussion of electromagnetic units and an explanation of how the SI system can be readily converted to the Gaussian or natural Heaviside-Lorentz systems, to an introduction of geometric algebra and the paravector model of spacetime, and finally, special relativity. Other topics include Maxwell's equation(s), the Lorentz-force law, the Fresnel equations, electromagnetic waves and polarization, wave guides, radiation from accelerating charges and time-dependent currents, the Liénard-Wiechert

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potentials, and radiation reaction, all of which benefit from the modern relativistic approach. Numerous worked examples and exercises dispersed throughout the text help the reader understand new concepts and facilitate self-study of the material. Each chapter concludes with a set of problems, many with answers. Complete solutions are also available. An excellent feature is the integration of Maple into the text, thereby facilitating difficult calculations. To download accompanying Maple worksheets, please visit

<http://www.cs.uwindsor.ca/users/b/baylis>

The Classical Theory of Fields Jan 13 2021

The study of classical electromagnetic fields is an adventure. The theory is complete mathematically and we are able to present it as an example of classical Newtonian experimental and mathematical philosophy. There is a set of foundational experiments, on which most of the theory is constructed. And then there is the bold theoretical proposal of a field-field interaction

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from James Clerk Maxwell. This textbook presents the theory of classical fields as a mathematical structure based solidly on laboratory experiments. Here the student is introduced to the beauty of classical field theory as a gem of theoretical physics. To keep the discussion fluid, the history is placed in a beginning chapter and some of the mathematical proofs in the appendices. Chapters on Green's Functions and Laplace's Equation and a discussion of Faraday's Experiment further deepen the understanding. The chapter on Einstein's relativity is an integral necessity to the text. Finally, chapters on particle motion and waves in a dispersive medium complete the picture. High quality diagrams and detailed end-of-chapter questions enhance the learning experience.

[Introduction to Quantum Mechanics](#) Jan 25 2022
Changes and additions to the new edition of this classic textbook include a new chapter on symmetries, new problems and examples,

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improved explanations, more numerical problems to be worked on a computer, new applications to solid state physics, and consolidated treatment of time-dependent potentials.

Modern Electrodynamics Sep 01 2022 An engaging writing style and a strong focus on the physics make this graduate-level textbook a must-have for electromagnetism students.

Field and Wave Electromagnetics Jun 17 2021

Concepts in Thermal Physics Jan 31 2020

This text provides a modern introduction to the main principles of thermal physics, thermodynamics and statistical mechanics. The key concepts are presented and new ideas are illustrated with worked examples as well as description of the historical background to their discovery.

An Introduction To Quantum Field Theory

Aug 08 2020 An Introduction to Quantum Field Theory is a textbook intended for the graduate

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physics course covering relativistic quantum mechanics, quantum electrodynamics, and Feynman diagrams. The authors make these subjects accessible through carefully worked examples illustrating the technical aspects of the subject, and intuitive explanations of what is going on behind the mathematics. After presenting the basics of quantum electrodynamics, the authors discuss the theory of renormalization and its relation to statistical mechanics, and introduce the renormalization group. This discussion sets the stage for a discussion of the physical principles that underlie the fundamental interactions of elementary particle physics and their description by gauge field theories.

Special Relativity, Electrodynamics, and General Relativity Sep 28 2019 *Special Relativity, Electrodynamics, and General Relativity: From Newton to Einstein* is intended to teach students of physics, astrophysics, astronomy, and cosmology how to think about special and

general relativity in a fundamental but accessible way. Designed to render any reader a "master of relativity, all material on the subject is comprehensible and derivable from first principles. The book emphasizes problem solving, contains abundant problem sets, and is conveniently organized to meet the needs of both student and instructor. Fully revised and expanded second edition with improved figures Enlarged discussion of dynamics and the relativistic version of Newton's second law Resolves the twin paradox from the principles of special and general relativity Includes new chapters which derive magnetism from relativity and electrostatics Derives Maxwell's equations from Gauss' law and the principles of special relativity Includes new chapters on differential geometry, space-time curvature, and the field equations of general relativity Introduces black holes and gravitational waves as illustrations of the principles of general relativity and relates them to the 2015 and 2017 observational

discoveries of LIGO

Macroscopic Electrodynamics Sep 20 2021

“Macroscopic Electrodynamics” is a comprehensive two-semester introductory graduate-level textbook on classical electrodynamics for use in physics and engineering programs. The word “macroscopic” is intended to indicate both the large-scale nature of the theory, as well as the fact that emphasis is placed upon applications of the so-called macroscopic Maxwell equations to idealized media. This book emphasizes principles and practical methods of analysis, which are often presented in fresh and original ways. Illustrative examples are carefully chosen to promote the students' physical intuition, and are worked out in detail to give students a thorough grounding in solution techniques. The style is informal yet mathematically sound, and presumes only a basic familiarity with electrodynamics such as may be obtained in a one-semester junior-level undergraduate class.

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At the end of each chapter many original problems are provided which illustrate or expand upon specific sections of the text. The problems are at the heart of the text and are meant to encourage students, develop confidence, and emphasize ideas while avoiding both oversimplification and inordinate calculational difficulties. Errata(s) Errata *Classical Electrodynamics* Jun 29 2022 A revision of the defining book covering the physics and classical mathematics necessary to understand electromagnetic fields in materials and at surfaces and interfaces. The third edition has been revised to address the changes in emphasis and applications that have occurred in the past twenty years.

Introduction to Engineering

Electromagnetics Oct 29 2019 This text provides students with the missing link that can help them master the basic principles of electromagnetics. The concept of vector fields is introduced by starting with clear definitions of

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position, distance, and base vectors. The symmetries of typical configurations are discussed in detail, including cylindrical, spherical, translational, and two-fold rotational symmetries. To avoid serious confusion between symbols with two indices, the text adopts a new notation: a letter with subscript 1-2 for the work done in moving a unit charge from point 2 to point 1, in which the subscript 1-2 mimics the difference in potentials, while the hyphen implies a sense of backward direction, from 2 to 1. This text includes 300 figures in which real data are drawn to scale. Many figures provide a three-dimensional view. Each subsection includes a number of examples that are solved by examining rigorous approaches in steps. Each subsection ends with straightforward exercises and answers through which students can check if they correctly understood the concepts. A total 350 examples and exercises are provided. At the end of each section, review questions are inserted to point out key concepts and relations

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discussed in the section. They are given with hints referring to the related equations and figures. The book contains a total of 280 end-of-chapter problems.

Classical Electromagnetic Radiation Nov 10 2020 Newly corrected, this highly acclaimed text is suitable for advanced physics courses. The authors present a very accessible macroscopic view of classical electromagnetics that emphasizes integrating electromagnetic theory with physical optics. The survey follows the historical development of physics, culminating in the use of four-vector relativity to fully integrate electricity with magnetism. Corrected and emended reprint of the Brooks/Cole Thomson Learning, 1994, third edition.

Introduction to Electrodynamics Nov 03 2022 This is a re-issued and affordable printing of the widely used undergraduate electrodynamics textbook.

Fundamentals of Applied Electromagnetics Mar

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03 2020 CD-ROM contains: Demonstration exercises -- Complete solutions -- Problem statements.

Modern Problems in Classical

Electrodynamics Sep 08 2020 This text on Electrodynamics is intended for upper level undergraduates or postgraduates in Physics. Unlike the competition, the text presents classical theory in an accessible way, while recognizing the role of modern software tools relative to the necessary theoretical mathematics. Some of the strongest features of the text are the integration of current, real world applications and a wide range of exercises. *A Student's Guide to Maxwell's Equations* Apr 15 2021 Gauss's law for electric fields, Gauss's law for magnetic fields, Faraday's law, and the Ampere-Maxwell law are four of the most influential equations in science. In this guide for students, each equation is the subject of an entire chapter, with detailed, plain-language explanations of the physical meaning of each

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symbol in the equation, for both the integral and differential forms. The final chapter shows how Maxwell's equations may be combined to produce the wave equation, the basis for the electromagnetic theory of light. This book is a wonderful resource for undergraduate and graduate courses in electromagnetism and electromagnetics. A website hosted by the author at www.cambridge.org/9780521701471 contains interactive solutions to every problem in the text as well as audio podcasts to walk students through each chapter.

Vector and Tensor Analysis May 05 2020 "Remarkably comprehensive, concise and clear." — Industrial Laboratories "Considered as a condensed text in the classical manner, the book can well be recommended." — Nature Here is a clear introduction to classic vector and tensor analysis for students of engineering and mathematical physics. Chapters range from elementary operations and applications of geometry, to application of vectors to

mechanics, partial differentiation, integration, and tensor analysis. More than 200 problems are included throughout the book.

Theoretical Physics 3 Jun 05 2020 This textbook offers a clear and comprehensive introduction to electrodynamics, one of the core components of undergraduate physics courses. The first part of the book describes the interaction of electric charges and magnetic moments by introducing electro- and magnetostatics. The second part of the book establishes deeper understanding of electrodynamics with the Maxwell equations, quasistationary fields and electromagnetic fields. All sections are accompanied by a detailed introduction to the math needed. Ideally suited to undergraduate students with some grounding in classical and analytical mechanics, the book is enhanced throughout with learning features such as boxed inserts and chapter summaries, with key mathematical derivations highlighted to aid understanding. The text is supported by numerous worked examples and end of chapter

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problem sets. About the Theoretical Physics series Translated from the renowned and highly successful German editions, the eight volumes of this series cover the complete core curriculum of theoretical physics at undergraduate level. Each volume is self-contained and provides all the material necessary for the individual course topic. Numerous problems with detailed solutions support a deeper understanding. Wolfgang Nolting is famous for his refined didactical style and has been referred to as the "German Feynman" in reviews.

Solution Manual for Classical Mechanics and Electrodynamics Oct 02 2022 As the essential companion book to Classical Mechanics and Electrodynamics (World Scientific, 2018), a textbook which aims to provide a general introduction to classical theoretical physics, in the fields of mechanics, relativity and electromagnetism, this book provides worked solutions to the exercises in Classical Mechanics and Electrodynamics. Detailed explanations are

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laid out to aid the reader in advancing their understanding of the concepts and applications expounded in the textbook.

Instructor's Solutions Manual Feb 11 2021
Revolutions in Twentieth-Century Physics Mar

15 2021 1. Classical foundations -- 2. Special relativity -- 3. Quantum mechanics -- 4. Elementary particles -- 5. Cosmology.

Classical Theory of Electromagnetism May 29 2022 The topics treated in this book are essentially those that a graduate student of physics or electrical engineering should be familiar with in classical electromagnetism. Each topic is analyzed in detail, and each new concept is explained with examples. The text is self-contained and oriented toward the student. It is concise and yet very detailed in mathematical calculations; the equations are explicitly derived, which is of great help to students and allows them to concentrate more on the physics concepts, rather than spending too much time on mathematical derivations. The introduction of

the theory of special relativity is always a challenge in teaching electromagnetism, and this topic is considered with particular care. The value of the book is increased by the inclusion of a large number of exercises.

Electromagnetics, Volume 1 (BETA) Jul 27 2019 Electromagnetics (CC BY-SA 4.0) is an open textbook intended to serve as a primary textbook for a one-semester first course in undergraduate engineering electromagnetics, and includes: electric and magnetic fields; electromagnetic properties of materials; electromagnetic waves; and devices that operate according to associated electromagnetic principles including resistors, capacitors, inductors, transformers, generators, and transmission lines. This book employs the "transmission lines first" approach, in which transmission lines are introduced using a lumped-element equivalent circuit model for a differential length of transmission line, leading to one-dimensional wave equations for voltage

and current. This book is intended for electrical engineering students in the third year of a

bachelor of science degree program. A free electronic version of this book is available at: <https://doi.org/10.7294/W4WQ01ZM>