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A Physical Introduction to Fluid Mechanics Apr 13 2022 Uncover Effective Engineering Solutions to Practical Problems With its clear explanation of fundamental principles and emphasis on real world applications, this practical text will motivate readers to learn. The author connects theory and analysis to practical examples drawn from engineering practice. Readers get a better understanding of how they can apply these concepts to develop engineering answers to various problems. By using simple examples that illustrate basic principles and more complex examples representative of engineering applications throughout the text, the author also shows readers how fluid mechanics is relevant to the engineering field. These examples will help them develop problem-solving skills, gain physical insight into the material, learn how and when to use approximations and make assumptions, and understand when these approximations might break down. Key Features of the Text * The underlying physical concepts are highlighted rather than focusing on the mathematical equations. * Dimensional reasoning is emphasized as well as the interpretation of the results. * An introduction to engineering in the environment is included to spark reader interest. * Historical references throughout the chapters provide readers with the rich history of fluid mechanics.

Classical Electrodynamics Oct 15 2019 Classical Electrodynamics: Lecture notes is intended to be the basis for a two-semester graduate-level course on electricity and magnetism, including not only the interaction and dynamics charged point particles, but also properties of dielectric, conducting, and magnetic media. The course also covers special relativity, including its kinematics and particle-dynamics aspects, and electromagnetic radiation by relativistic particles.

Power System Dynamics and Stability Nov 27 2020

Soil Dynamics in Tillage and Traction Sep 06 2021

Cavitation and Bubble Dynamics Mar 12 2022 Cavitation and Bubble Dynamics deals with fundamental physical processes of bubble dynamics and cavitation for graduate students and researchers.

River Mechanics Aug 17 2022 Completely updated and with three new chapters, this analysis of river dynamics is invaluable for advanced students, researchers and practitioners.

Real Analysis (Classic Version) Aug 25 2020 This text is designed for graduate-level courses in real analysis. Real Analysis, 4th Edition, covers the basic material that every graduate student should know in the classical theory of functions of a real variable, measure and integration theory, and some of the more important and elementary topics in general topology and normed linear space theory. This text assumes a general background in undergraduate mathematics and familiarity with the material covered in an undergraduate course on the fundamental concepts of analysis.

Marine Hydrodynamics, 40th anniversary edition Oct 27 2020 A textbook that offers a unified treatment of the applications of hydrodynamics to marine problems. The applications of hydrodynamics to naval architecture and marine engineering expanded dramatically in the 1960s and 1970s. This classic textbook, originally published in 1977, filled the need for a single volume on the applications of hydrodynamics to marine problems. The book is solidly based on fundamentals, but it also guides the student to an understanding of engineering applications through its consideration of realistic configurations. The book takes a balanced approach between theory and empirics, providing the necessary theoretical background for an intelligent evaluation and application of empirical procedures. It also serves as an introduction to more specialized research methods. It unifies the seemingly diverse problems of marine hydrodynamics by examining them not as separate problems but as related applications of the general field of hydrodynamics. The book evolved from a first-year graduate course in MIT's Department of Ocean Engineering. A knowledge of advanced calculus is assumed. Students will find a previous introductory course in fluid dynamics helpful, but the book presents the necessary fundamentals in a self-contained manner. The 40th anniversary of this pioneering book offers a foreword by John Grue. Contents Model Testing • The Motion of a Viscous Fluid • The Motion of an Ideal Fluid • Lifting Surfaces • Waves and Wave Effects • Hydrodynamics of Slender Bodies

Introduction to Fluid Mechanics Jan 30 2021 One of the bestselling books in the field, Introduction to Fluid Mechanics continues to provide readers with a balanced and comprehensive approach to mastering critical concepts. The new seventh edition once again incorporates a proven problem-solving methodology that will help them develop an orderly plan to finding the right solution. It starts with basic equations, then clearly states assumptions, and finally, relates results to expected physical behavior. Many of the steps involved in analysis are simplified by using Excel.

Fundamentals of Incompressible Fluid Flow Dec 21 2022 This highly informative and carefully presented book offers a comprehensive overview of the fundamentals of incompressible fluid flow. The textbook focuses on foundational topics to more complex subjects such as the derivation of Navier-Stokes equations, perturbation solutions, inviscid outer and inner solutions, turbulent flows, etc. The author has included end-of-chapter problems and worked examples to augment learning and self-testing. This book will be a useful reference for students in the area of mechanical and aerospace engineering.

1000 Solved Problems in Classical Physics Jul 24 2020 This book basically caters to the needs of undergraduates and graduates physics students in the area of classical physics, specially Classical Mechanics and Electricity and Electromagnetism. Lecturers/Tutors may use it as a resource book. The contents of the book are based on the syllabi currently used in the undergraduate courses in USA, U.K., and other countries. The book is divided into 15 chapters, each chapter beginning with a brief but adequate summary and necessary formulas and Line diagrams followed by a variety of typical problems useful for assignments and exams. Detailed solutions are provided at the end of each chapter.

Computational Fluid Dynamics Sep 18 2022 The techniques pertaining to computational fluid dynamics (CFD) are being used world over to analyse and solve complex problems in fluid flow and heat transfer. This text covers a range of topics including elementary concepts for the uninitiated students to state-of-the-art algorithms useful for the practitioners.

Hydrodynamics and Transport Processes of Inverse Bubbly Flow Jan 22 2023 Hydrodynamics and Transport Processes of Inverse Bubbly Flow provides the science and fundamentals behind hydrodynamic characteristics, including flow regimes, gas entrainment, pressure drop, holdup and mixing characteristics, bubble size distribution, and the interfacial area of inverse bubble flow regimes. Special attention is given to mass and heat transfer. This book is an indispensable reference for researchers in academia and industry working in chemical and biochemical engineering. Hydrodynamics and Transport Processes of Inverse Bubbly Flow helps facilitate a better understanding of the phenomena of multiphase flow systems as used in chemical and biochemical industries. A first book in the market dedicated to the hydrodynamics of inverse bubbly flows Includes fundamentals of conventional and inverse bubble columns for different hydrodynamic parameters Includes recommendations for future applications of bubble flows

Porous Media Transport Phenomena Feb 11 2022 The book that makes transport in porous media accessible to students and researchers alike Porous Media Transport Phenomena covers the general theories behind flow and transport in porous media—a solid permeated by a network of pores filled with fluid—which encompasses rocks, biological tissues, ceramics, and much more. Designed for use in graduate courses in various disciplines involving fluids in porous materials, and as a reference for practitioners in the field, the text includes exercises and practical applications while avoiding the complex math found in other books, allowing the reader to focus on the central elements of the topic. Covering general porous media applications, including the effects of temperature and particle migration, and placing an emphasis on energy resource development, the book provides an overview of mass, momentum, and energy conservation equations, and their applications in engineered and natural porous media for general applications. Offering a multidisciplinary approach to transport in porous media, material is presented in a uniform format with consistent SI units. An indispensable resource on an extremely wide and varied topic drawn from numerous engineering fields, Porous Media Transport Phenomena includes a solutions manual for all exercises found in the book, additional questions for study purposes, and PowerPoint slides that follow the order of the text.

Dynamical Systems IV Oct 07 2021 This book takes a snapshot of the mathematical foundations of classical and quantum mechanics from a contemporary mathematical viewpoint. It covers a number of important recent developments in dynamical systems and mathematical physics and places them in the framework of the more classical approaches; the presentation is enhanced by many illustrative examples concerning topics which have been of special interest to workers in the field, and by sketches of the proofs of the major results. The comprehensive bibliographies are designed to permit the interested reader to retrace the major stages in the development of the field if he wishes. Not so much a detailed textbook for plodding students, this volume, like the others in the series, is intended to lead researchers in other fields and advanced students quickly to an understanding of the 'state of the art' in this area of mathematics. As such it will serve both as a basic reference work on important areas of mathematical physics as they stand today, and as a good starting point for further, more detailed study for people new to this field.

Transport Phenomena Apr 20 2020

INTRODUCTION TO TRANSPORT PHENOMENA Aug 05 2021 This introductory text discusses the essential concepts of three fundamental transport processes, namely, momentum transfer, heat transfer, and mass transfer. Apart from chemical engineering, transport processes play an increasingly important role today in the fields of biotechnology, nanotechnology and microelectronics. The book covers the basic laws of momentum, heat and mass transfer. All the three transport processes are explained using two approaches—first by flux expressions and second by shell balances. These concepts are applied to formulate the physical problems of momentum, heat and mass transfer. Simple physical processes from the chemical engineering field are selected to understand the mechanism of these transfer operations. Though these problems are solved for unidirectional flow and laminar flow conditions only, turbulent flow conditions are also discussed. Boundary conditions and Prandtl mixing models for turbulent flow conditions are explained as well. The unsteady-state conditions for momentum, heat and mass transfer have also been highlighted with the help of simple cases. Finally, the approach of analogy has also been adopted in the book to understand these three molecular transport processes. Different analogies such as Reynolds, Prandtl, von Kármán and Chilton–Colburn are discussed in detail. This book is designed for the undergraduate students of chemical engineering and covers the syllabi on Transport Phenomena as currently prescribed in most institutes and universities.

Computer Aided Engineering Design Sep 25 2020 A new discipline is said to attain maturity when the subject matter takes the shape of a textbook. Several textbooks later, the discipline tends to acquire a firm place in the curriculum for teaching and learning. Computer Aided Engineering Design (CAED), barely three decades old, is interdisciplinary in nature whose boundaries are still expanding. However, it draws its core strength from several acknowledged and diverse areas such as computer graphics, differential geometry, Boolean algebra, computational geometry, topological spaces, numerical analysis, mechanics of solids, engineering design and a few others. CAED also needs to show its strong linkages with Computer Aided Manufacturing (CAM). As is true with any growing discipline, the literature is widespread in research journals, edited books, and conference proceedings. Various textbooks have appeared with different biases, like geometric modeling, computer graphics, and CAD/CAM over the last decade. This book goes into mathematical foundations and the core subjects of CAED without allowing itself to be overshadowed by computer graphics. It is written in a logical and thorough manner for use mainly by senior and graduate level students as well as users and developers of CAD software. The book covers (a) The fundamental concepts of geometric modeling so that a real understanding of designing synthetic surfaces and solid modeling can be achieved. (b) A wide spectrum of CAED topics such as CAD of linkages and machine elements, finite element analysis, optimization. (c) Application of these methods to real world problems.

Fundamentals of Rocket Propulsion Jul 04 2021 The book follows a unified approach to present the basic principles of rocket propulsion in concise and lucid form. This textbook comprises of ten chapters ranging from brief introduction and elements of rocket propulsion, aerothermodynamics to solid, liquid and hybrid propellant rocket engines with chapter on electrical propulsion. Worked out examples are also provided at the end of chapter for understanding uncertainty analysis. This book is designed and developed as an introductory text on the fundamental aspects of rocket propulsion for both undergraduate and graduate students. It is also aimed towards practicing engineers in the field of space engineering. This comprehensive guide also provides adequate problems for audience to understand intricate aspects of rocket propulsion enabling them to design and develop rocket engines for peaceful purposes.

Fox and McDonald's Introduction to Fluid Mechanics Mar 20 2020 Through ten editions, Fox and McDonald's Introduction to Fluid Mechanics has helped students understand the physical concepts, basic principles, and analysis methods of fluid mechanics. This market-leading textbook provides a balanced, systematic approach to mastering critical concepts with the proven Fox-McDonald solution methodology. In-depth yet accessible chapters present governing equations, clearly state assumptions, and relate mathematical results to corresponding physical behavior. Emphasis is placed on the use of control volumes to support a practical, theoretically-inclusive problem-solving approach to the subject. Each comprehensive chapter includes numerous, easy-to-follow examples that illustrate good solution technique and explain challenging points. A broad range of carefully selected topics describe how to apply the governing equations to various problems, and explain physical concepts to enable students to model real-world fluid flow situations. Topics include flow measurement, dimensional analysis and similitude, flow in pipes, ducts, and open channels, fluid machinery, and more. To enhance student learning, the book incorporates numerous pedagogical features including chapter summaries and learning objectives, end-of-chapter problems, useful equations, and design and open-ended problems that encourage students to apply fluid mechanics principles to the design of devices and systems.

Photonic Crystals Dec 29 2020 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.

OpenFOAM@ Dec 17 2019 This book contains selected papers of the 11th OpenFOAM@ Workshop that was held in Guimarães, Portugal, June 26 - 30, 2016. The 11th OpenFOAM@ Workshop had more than 140 technical/scientific presentations and 30 courses, and was attended by circa 300 individuals, representing 180 institutions and 30 countries, from all continents. The OpenFOAM@ Workshop provided a forum for researchers, industrial users, software developers, consultants and academics working with OpenFOAM@ technology. The central part of the Workshop was the two-day conference, where presentations and posters on industrial applications and academic research were shown. OpenFOAM@ (Open Source Field Operation and Manipulation) is a free, open source computational toolbox that has a larger user base across most areas of engineering and science, from both commercial and academic organizations. As a technology, OpenFOAM@ provides an extensive range of features to solve anything from complex fluid flows involving chemical reactions, turbulence and heat transfer, to solid dynamics and electromagnetics, among several others. Additionally, the OpenFOAM@ technology offers complete freedom to customize and extend its functionalities.

The Hopf Bifurcation and Its Applications Feb 28 2021 The goal of these notes is to give a reasonably complete, although not exhaustive, discussion of what is commonly referred to as the Hopf bifurcation with applications to specific problems, including stability calculations. Historically, the subject had its origins in the works of Poincaré [1] around 1892 and was extensively discussed by Andronov and Witt [1] and their co-workers starting around 1930. Hopf's basic paper [1] appeared in 1942. Although the term "Poincaré-Andronov-Hopf bifurcation" is more accurate (sometimes Friedrichs is also included), the name "Hopf Bifurcation" seems more common, so we have used it. Hopf's crucial contribution was the extension from two dimensions to higher dimensions. The principal technique employed in the body of the text is that of invariant manifolds. The method of Ruelle Takens [1] is followed, with details, examples and proofs added. Several parts of the exposition in the main text come from papers of P. Chernoff, J. Dorroh, O. Lanford and F. Weissler to whom we are grateful. The general method of invariant manifolds is common in dynamical systems and in ordinary differential equations: see for example, Hale [1,2] and Hartman [1]. Of course, other methods are also available. In an attempt to keep the picture balanced, we have included samples of alternative approaches. Specifically, we have included a translation (by L. Howard and N. Kopell) of Hopf's original (and generally unavailable) paper.

INTRODUCTION TO SEMICONDUCTOR MATERIALS AND DEVICES Jun 03 2021 Market_Desc : Graduate and Advanced Undergraduate Students of Electrical Engineering About The Book: This comprehensive introduction to the elementary theory and properties of semiconductors describes the basic physics of semiconductor materials and technologies for fabrication of semiconductor devices. Addresses approaches to modeling and provides details of measurement techniques. It also includes numerous illustrative examples and graded problems.

Fundamentals of the Physical Environment May 02 2021 Fundamentals of the Physical Environment has established itself as a well-respected core introductory book for students of physical geography and the environmental sciences. Taking a systems approach, it demonstrates how the various factors operating at Earth's surface can and do interact, and how landscape can be used to decipher them. The nature of the earth, its atmosphere and its oceans, the main processes of geomorphology and key elements of ecosystems are also explained. The final section on specific environments usefully sets in context the physical processes and human impacts. This fourth edition has been extensively revised to incorporate current thinking and knowledge and includes: a new section on the history and study of physical geography an updated and strengthened chapter on climate change (9) and a strengthened section on the work of the wind a revised chapter (15) on cryosphere systems - glaciers, ice and permafrost a new chapter (23) on the principles of environmental reconstruction a new joint chapter (24) on polar and alpine environments a key new joint chapter (28) on current environmental change and future environments new material on the Earth System and cycling of carbon and nutrients themed boxes highlighting processes, systems, applications, new developments and human impacts a support website at www.routledge.com/textbooks/9780415395168 with discussion and essay questions, chapter summaries and extended case studies. Clearly written, well-structured and with over 450 informative colour diagrams and 150 colour photographs, this text provides students with the necessary grounding in fundamental processes whilst linking these to their impact on human society and their application to the science of the environment.

A Textbook of Fluid Mechanics and Hydraulic Machines Dec 09 2021

An Introduction to Computational Fluid Dynamics The Finite Volume Method, 2/e May 14 2022

Vector Algebra and Calculus Jun 22 2020 The Present Book Aims At Providing A Detailed Account Of The Basic Concepts Of Vectors That Are Needed To Build A Strong Foundation For A Student Pursuing Career In Mathematics. These Concepts Include Addition And Multiplication Of Vectors By Scalars, Centroid, Vector Equations Of A Line And A Plane And Their Application In Geometry And Mechanics, Scalar And Vector Product Of Two Vectors, Differential And Integration Of Vectors,

Differential Operators, Line Integrals, And Gauss S And Stoke S Theorems. It is primarily designed for B.Sc and B.A. Courses, elucidating all the fundamental concepts in a manner that leaves no scope for illusion or confusion. The numerous high-graded solved examples provided in the book have been mainly taken from the authoritative textbooks and question papers of various university and competitive examinations which will facilitate easy understanding of the various skills necessary in solving the problems. In addition, these examples will acquaint the readers with the type of questions usually set at the examinations. Furthermore, practice exercises of multiple varieties have also been given, believing that they will help in quick revision and in gaining confidence in the understanding of the subject. Answers to these questions have been verified thoroughly. It is hoped that a thorough study of this book would enable the students of mathematics to secure high marks in the examinations. Besides students, the teachers of the subject would also find it useful in elucidating concepts to the students by following a number of possible tracks suggested in the book.

Chemical Engineering Apr 01 2021

Notes on Quantum Mechanics Oct 19 2022 The lecture notes presented here in facsimile were prepared by Enrico Fermi for students taking his course at the University of Chicago in 1954. They are vivid examples of his unique ability to lecture simply and clearly on the most essential aspects of quantum mechanics. At the close of each lecture, Fermi created a single problem for his students. These challenging exercises were not included in Fermi's notes but were preserved in the notes of his students. This second edition includes a set of these assigned problems as compiled by one of his former students, Robert A. Schluter. Enrico Fermi was awarded the Nobel Prize for Physics in 1938.

Fundamentals of Solid-state Electronics Jan 18 2020 This Solution Manual, a companion volume of the book, Fundamentals of Solid-State Electronics, provides the solutions to selected problems listed in the book. Most of the solutions are for the selected problems that had been assigned to the engineering undergraduate students who were taking an introductory device core course using this book. This Solution Manual also contains an extensive appendix which illustrates the application of the fundamentals to solutions of state-of-the-art transistor reliability problems which have been taught to advanced undergraduate and graduate students.

The Physics of Fluids and Plasmas Nov 20 2022 A good working knowledge of fluid mechanics and plasma physics is essential for the modern astrophysicist. This graduate textbook provides a clear, pedagogical introduction to these core subjects.

Assuming an undergraduate background in physics, this book develops fluid mechanics and plasma physics from first principles. This book is unique because it presents neutral fluids and plasmas in a unified scheme, clearly indicating both their similarities and their differences. Also, both the macroscopic (continuum) and microscopic (particle) theories are developed, establishing the connections between them. Throughout, key examples from astrophysics are used, though no previous knowledge of astronomy is assumed. Exercises are included at the end of chapters to test the reader's understanding. This textbook is aimed primarily at astrophysics graduate students. It will also be of interest to advanced students in physics and applied mathematics seeking a unified view of fluid mechanics and plasma physics, encompassing both the microscopic and macroscopic theories.

Chemical Engineering Process Simulation Nov 15 2019 Chemical Engineering Process Simulation, Second Edition guides users through chemical processes and unit operations using the main simulation software used in the industrial sector. The book helps predict the characteristics of a process using mathematical models and computer-aided process simulation tools, as well as how to model and simulate process performance before detailed process design takes place. Content coverage includes steady-state and dynamic simulation, process design, control and optimization. In addition, readers will learn about the simulation of natural gas, biochemical, wastewater treatment and batch processes. Provides an updated and expanded new edition that contains 60-70% new content Guides readers through chemical processes and unit operations using the primary simulation software used in the industrial sector Covers the fundamentals of process simulation, theory and advanced applications Includes case studies of various difficulty levels for practice and for applying developed skills Features step-by-step guides to using UniSim Design, SuperPro Designer, Symmetry, Aspen HYSYS and Aspen Plus for process simulation novices

Theoretical Fluid Mechanics Jul 16 2022 "Theoretical Fluid Mechanics" has been written to aid physics students who wish to pursue a course of self-study in fluid mechanics. It is a comprehensive, completely self-contained text with equations of fluid mechanics derived from first principles, and any required advanced mathematics is either fully explained in the text, or in an appendix. It is accompanied by about 180 exercises with completely worked out solutions. It also includes extensive sections on the application of fluid mechanics to topics of importance in astrophysics and geophysics. These topics include the equilibrium of rotating, self-gravitating, fluid masses; tidal bores; terrestrial ocean tides; and the Eddington solar model."--Prov  de l'editor.

Boundary-Layer Theory Nov 08 2021 This new edition of the near-legendary textbook by Schlichting and revised by Gersten presents a comprehensive overview of boundary-layer theory and its application to all areas of fluid mechanics, with particular emphasis on the flow past bodies (e.g. aircraft aerodynamics). The new edition features an updated reference list and over 100 additional changes throughout the book, reflecting the latest advances on the subject.

TEXTBOOK OF FINITE ELEMENT ANALYSIS Jun 15 2022 Designed for a one-semester course in Finite Element Method, this compact and well-organized text presents FEM as a tool to find approximate solutions to differential equations. This provides the student a better perspective on the technique and its wide range of applications. This approach reflects the current trend as the present-day applications range from structures to biomechanics to electromagnetics, unlike in conventional texts that view FEM primarily as an extension of matrix methods of structural analysis. After an introduction and a review of mathematical preliminaries, the book gives a detailed discussion on FEM as a technique for solving differential equations and variational formulation of FEM. This is followed by a lucid presentation of one-dimensional and two-dimensional finite elements and finite element formulation for dynamics. The book concludes with some case studies that focus on industrial problems and Appendices that include mini-project topics based on near-real-life problems. Postgraduate/Senior undergraduate students of civil, mechanical and aeronautical engineering will find this text extremely useful; it will also appeal to the practising engineers and the teaching community.

Notes for the First Year Lecture Course : an Introduction to Fluid Mechanics May 22 2020 Notes For the First Year Lecture Course : An Introduction to Fluid Mechanics By Dr Andrew Sleigh

Essentials and Applications of Food Engineering Feb 23 2023 Essentials & Applications of Food Engineering provides a comprehensive understanding of food engineering operations and their practical and industrial utility. It presents pertinent case studies, solved numerical problems, and multiple choice questions in each chapter and serves as a ready reference for classroom teaching and exam preparations. The first part of this textbook contains the introductory topics on units and dimensions, material balance, energy balance, and fluid flow. The second part deals with the theory and applications of heat and mass transfer, psychrometry, and reaction kinetics. The subsequent chapters of the book present the heat and mass transfer operations such as evaporation, drying, refrigeration, freezing, mixing, and separation. The final section focuses on the thermal, non-thermal, and nanotechnology-based novel food processing techniques, 3D food printing, active and intelligent food packaging, and fundamentals of CFD modeling. Features Features 28 case studies to provide a substantial understanding of the practical and industrial applications of various food engineering operations Includes 178 solved numerical problems and 285 multiple choice questions Highlights the application of mass balance in food product traceability and the importance of viscosity measurement in a variety of food products Provides updated information on novel food processing techniques such as cold plasma, 3D food printing, nanospray drying, electrospraying, and electrospinning The textbook is designed for undergraduate and graduate students pursuing Food Technology and Food Process Engineering courses. This book would also be of interest to course instructors and food industry professionals.

Handbook of Hydraulic Resistance Jan 10 2022 Product Dimensions: 9.7 x 6.6 x 2.1 inches The Handbook has been composed on the basis of processing, systematization, and classification of the results of a great number of investigations published at different time. The essential part of the book is the outcome of investigations carried out by the author. The present edition of this Handbook should assist in increasing the quality and efficiency of the design and usage of industrial power engineering and other constructions and also of the devices and apparatus through which liquids and gases move.

Introduction to Hydrodynamic Stability Feb 17 2020 Instability of flows and their transition to turbulence are widespread phenomena in engineering and the natural environment, and are important in applied mathematics, astrophysics, biology, geophysics, meteorology, oceanography and physics as well as engineering. This is a textbook to introduce these phenomena at a level suitable for a graduate course, by modelling them mathematically, and describing numerical simulations and laboratory experiments. The visualization of instabilities is emphasized, with many figures, and in references to more still and moving pictures. The relation of chaos to transition is discussed at length. Many worked examples and exercises for students illustrate the ideas of the text. Readers are assumed to be fluent in linear algebra, advanced calculus, elementary theory of ordinary differential equations, complex variables and the elements of fluid mechanics. The book is aimed at graduate students but will also be very useful for specialists in other fields.

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