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KEY=SINGH - CARTER MADELINE

ANAEROBIC BIOTECHNOLOGY FOR BIOENERGY PRODUCTION

PRINCIPLES AND APPLICATIONS

John Wiley & Sons Anaerobic biotechnology is a cost-effective and sustainable means of treating waste and wastewaters that couples treatment processes with the reclamation of useful by-products and renewable biofuels. This means of treating municipal, agricultural, and industrial wastes allows waste products to be converted to value-added products such as biofuels, biofertilizers, and other chemicals. Anaerobic Biotechnology for Bioenergy Production: Principles and Applications provides the reader with basic principles of anaerobic processes alongside practical uses of anaerobic biotechnology options. This book will be a valuable reference to any professional currently considering or working with anaerobic biotechnology options.

FUNDAMENTALS OF NATURAL FIBRES AND TEXTILES

Woodhead Publishing The textile industry is focused in its search for alternative green fibres with the aim of providing high-quality products which are fully recyclable and biodegradable. Natural textile materials from renewable sources play an increasingly important role in the industry due to their unique properties and functionality over synthetic fibres, as well as their sustainability. Fundamentals of Natural Fibres and Textiles covers all the fundamental and basic information about natural fibres and textiles. Many different fibres are covered from their origin, through processing, properties, and applications. The latest methods for characterisation and testing of natural fibres are all addressed with reference to cutting-edge industry trends. This uniquely comprehensive approach to the topic provides the ideal entry point to natural fibres for textile and clothing scientists, engineers, designers, researchers, students, and manufacturers of such products. Explains the characteristics of natural fibres to show how they compare to synthetic fibres for a range of purposes Provides an overview of the environmental impact of the processing of fibres and how this creates industrial waste Covers a wide range of natural fibres in detail, from traditional silk and wool to electrospun biopolymers Provides the latest updates on technologies for designing natural fibres and applying them to the development of new products

CHEMICAL ENGINEERING DESIGN

PRINCIPLES, PRACTICE AND ECONOMICS OF PLANT AND PROCESS DESIGN

Elsevier Chemical Engineering Design, Second Edition, deals with the application of chemical engineering principles to the design of chemical processes and equipment. Revised throughout, this edition has been specifically developed for the U.S. market. It provides the latest US codes and standards, including API, ASME and ISA design codes and ANSI standards. It contains new discussions of conceptual plant design, flowsheet development, and revamp design; extended coverage of capital cost estimation, process costing, and economics; and new chapters on equipment selection, reactor design, and solids handling processes. A rigorous pedagogy assists learning, with detailed worked examples, end of chapter exercises, plus supporting data, and Excel spreadsheet calculations, plus over 150 Patent References for downloading from the companion website. Extensive instructor resources, including 1170 lecture slides and a fully worked solutions manual are available to adopting instructors. This text is designed for chemical and biochemical engineering students (senior undergraduate year, plus appropriate for capstone design courses where taken, plus graduates) and lecturers/tutors, and professionals in industry (chemical process, biochemical, pharmaceutical, petrochemical sectors). New to this edition: Revised organization into Part I: Process Design, and Part II: Plant Design. The broad themes of Part I are flowsheet development, economic analysis, safety and environmental impact and optimization. Part II contains chapters on equipment design and selection that can be used as supplements to a lecture course or as essential references for students or practicing engineers working on design projects. New discussion of conceptual plant design, flowsheet development and revamp design Significantly increased coverage of capital cost estimation, process costing and economics New chapters on equipment selection, reactor design and solids handling processes New sections on fermentation, adsorption, membrane separations, ion exchange and chromatography Increased coverage of batch processing, food, pharmaceutical and biological processes All equipment chapters in Part II revised and updated with current information Updated throughout for latest US codes and standards, including API, ASME and ISA design codes and ANSI standards Additional worked examples and homework problems The most complete and up to date coverage of equipment selection 108 realistic commercial design projects from diverse industries A rigorous pedagogy assists learning, with detailed worked examples, end of chapter exercises, plus supporting data and Excel spreadsheet calculations plus over 150 Patent References, for downloading from the companion website Extensive instructor resources: 1170 lecture slides plus fully worked solutions manual available to adopting instructors

FUNDAMENTALS OF GEOPHYSICS

Cambridge University Press This second edition of Fundamentals of Geophysics has been completely revised and updated, and is the ideal geophysics textbook for undergraduate students of geoscience with an introductory level of knowledge in physics and mathematics. It gives a comprehensive treatment of the fundamental principles of each major branch of geophysics, and presents geophysics within the wider context of plate tectonics, geodynamics and planetary science. Basic principles are explained with the aid of numerous figures and step-by-step mathematical treatments, and important geophysical results are illustrated with examples from the scientific literature. Text-boxes are used for auxiliary explanations and to handle topics of interest for more advanced students. This new edition also includes review questions at the end of each chapter to help assess the reader's understanding of the topics covered and quantitative exercises for more thorough evaluation. Solutions to the exercises and electronic copies of the figures are available at www.cambridge.org/9780521859028.

ADVANCES IN PRODUCTION MANAGEMENT SYSTEMS. THE PATH TO INTELLIGENT, COLLABORATIVE AND SUSTAINABLE MANUFACTURING

IFIP WG 5.7 INTERNATIONAL CONFERENCE, APMS 2017, HAMBURG, GERMANY, SEPTEMBER 3-7, 2017, PROCEEDINGS, PART II

Springer The two-volume set IFIP AICT 513 and 514 constitutes the refereed proceedings of the International IFIP WG 5.7 Conference on Advances in Production Management Systems, APMS 2017, held in Hamburg, Germany, in September 2017. The 121 revised full papers presented were carefully reviewed and selected from 163 submissions. They are organized in the following topical sections: smart manufacturing system characterization; product and asset life cycle management in smart factories of industry 4.0; cyber-physical (IIoT) technology deployments in smart manufacturing systems; multi-disciplinary collaboration in the development of smart product-service solutions; sustainable human integration in cyber-physical systems: the operator 4.0; intelligent diagnostics and maintenance solutions; operations planning, scheduling and control; supply chain design; production management in food supply chains; factory planning; industrial and other services; operations management in engineer-to-order manufacturing; gamification of complex systems design development; lean and green manufacturing; and eco-efficiency in manufacturing operations.

CORN

CHEMISTRY AND TECHNOLOGY

Elsevier Corn: Chemistry and Technology, Third Edition, provides a broad perspective on corn from expert agronomists, food scientists and geneticists. This encyclopedic storehouse of comprehensive information on all aspects of the world's largest crop (in metric tons) includes extensive coverage of recent development in genetic modification for the generation of new hybrids and genotypes. New chapters highlight the importance of corn as a raw material for the production of fuel bioethanol and the emerging topic of phytochemicals or nutraceutical compounds associated to different types of corns and their effect on human health, especially in the prevention of chronic diseases and cancer. Written by international experts on corn, and edited by a highly respected academics, this new edition will remain the industry standard on the topic. Presents new chapters that deal with specialty corns,

the production of first generation bioethanol, and the important relationship of corn phytochemicals or nutraceuticals with human health Provides contributions from a new editor and a number of new contributors who bring a fresh take on this highly successful volume Includes vastly increased content relating to recent developments in genetic modification for the generation of new hybrids and genotypes Contains encyclopedic coverage of grain chemistry and nutritional quality of this extensively farmed product Covers the production and handling of corn, with both food and non-food applications

LIPIDS IN PLANTS AND ALGAE: FROM FUNDAMENTAL SCIENCE TO INDUSTRIAL APPLICATIONS

Academic Press Lipids in Plants and Algae: From Fundamental Science to Industrial Applications, Volume 101 provides in-depth reviews on the most important aspects of the field. Topics in this volume encompass the most recent data about the physical properties of membrane lipids, lipid biosynthesis and metabolism (including glycerolipids, fatty acids, sterols, N-acylethanolamines, prostaglandins, phytosterols), lipid storage, acyl flux, the dynamic and transport of glycerolipids, and the conversion of fatty acids into hydrocarbons. Lipid metabolism and lipidomics in plants and algae are one of the most challenging areas in biology, not only for fundamental research but also for the sustainable production of valuable molecules for green chemistry, including biofuel and health. Includes sections on fatty acid synthesis, lipid storage and hydrocarbon production Covers biophysics, biochemistry, metabolism and the bioengineering of plant and algae lipids Provides readers with a comprehensive resource on lipid dynamics and fluxes in plants and algae

FUNDAMENTALS OF GEOMORPHOLOGY

Routledge This extensively revised, restructured, and updated edition continues to present an engaging and comprehensive introduction to the subject, exploring the world's landforms from a broad systems perspective. It covers the basics of Earth surface forms and processes, while reflecting on the latest developments in the field. Fundamentals of Geomorphology begins with a consideration of the nature of geomorphology, process and form, history, and geomorphic systems, and moves on to discuss: structure: structural landforms associated with plate tectonics and those associated with volcanoes, impact craters, and folds, faults, and joints process and form: landforms resulting from, or influenced by, the exogenic agencies of weathering, running water, flowing ice and meltwater, ground ice and frost, the wind, and the sea; landforms developed on limestone; and landscape evolution, a discussion of ancient landforms, including palaeosurfaces, stagnant landscape features, and evolutionary aspects of landscape change. This third edition has been fully updated to include a clearer initial explanation of the nature of geomorphology, of land surface process and form, and of land-surface change over different timescales. The text has been restructured to incorporate information on geomorphic materials and processes at more suitable points in the book. Finally, historical geomorphology has been integrated throughout the text to reflect the importance of history in all aspects of geomorphology. Fundamentals of Geomorphology provides a stimulating and innovative perspective on the key topics and debates within the field of geomorphology. Written in an accessible and lively manner, it includes guides to further reading, chapter summaries, and an extensive glossary of key terms. The book is also illustrated throughout with over 200 informative diagrams and attractive photographs, all in colour.

NEW HORIZONS IN WHEAT AND BARLEY RESEARCH

GLOBAL TRENDS, BREEDING AND QUALITY ENHANCEMENT

Springer Nature This book outlines comprehensive information on the global trends, policies, research priorities and frontier innovations made in the research domain of breeding, biotechnology, biofortification and quality enhancement of wheat and barley. With contributions by international group of leading wheat and barley researchers, this book offers data-based insights along with a holistic view of the subject and serve as a vital resource of information for scientists engaged in breeding future high-yielding biofortified varieties. It catalogs both conventional as well as modern tools for gene identification and genome editing interventions for enhancing the yield, grain quality, disease and pest resistance, nutrient-use efficiency and abiotic stress tolerance. The prospects of processing high quality wheat end-products with long term storage and high nutritional quality are also discussed. This book is of interest to teachers, researchers, molecular breeders, cereal biochemists and biotechnologist, policymakers and professionals working in the area of wheat and barley research, food and cereal industry. Also, the book serves as an additional reading material for the undergraduate and graduate students of agriculture and food sciences. National and international agricultural scientists, policy makers will also find this book to be a useful read. Volume 2 of New Horizons in Wheat and Barley Research covers topics in crop protection and resource management.

COMMUNITIES IN ACTION

PATHWAYS TO HEALTH EQUITY

National Academies Press In the United States, some populations suffer from far greater disparities in health than others. Those disparities are caused not only by fundamental differences in health status across segments of the population, but also because of inequities in factors that impact health status, so-called determinants of health. Only part of an individual's health status depends on his or her behavior and choice; community-wide problems like poverty, unemployment, poor education, inadequate housing, poor public transportation, interpersonal violence, and decaying neighborhoods also contribute to health inequities, as well as the historic and ongoing interplay of structures, policies, and norms that shape lives. When these factors are not optimal in a community, it does not mean they are intractable: such inequities can be mitigated by social policies that can shape health in powerful ways. Communities in Action: Pathways to Health Equity seeks to delineate the causes of and the solutions to health inequities in the United States. This report focuses on what communities can do to promote health equity, what actions are needed by the many and varied stakeholders that are part of communities or support them, as well as the root causes and structural barriers that need to be overcome.

HANDBOOK OF FOOD PRODUCTS MANUFACTURING, 2 VOLUME SET

John Wiley and Sons The Handbook of Food Products Manufacturing is a definitive master reference, providing an overview of food manufacturing in general, and then covering the processing and manufacturing of more than 100 of the most common food products. With editors and contributors from 24 countries in North America, Europe, and Asia, this guide provides international expertise and a truly global perspective on food manufacturing.

HANDBOOK OF BIOFUELS PRODUCTION

Woodhead Publishing Handbook of Biofuels Production, Second Edition, discusses advanced chemical, biochemical, and thermochemical biofuels production routes that are fast being developed to address the global increase in energy usage. Research and development in this field is aimed at improving the quality and environmental impact of biofuels production, as well as the overall efficiency and output of biofuels production plants. The book provides a comprehensive and systematic reference on the range of biomass conversion processes and technology. Key changes for this second edition include increased coverage of emerging feedstocks, including microalgae, more emphasis on by-product valorization for biofuels' production, additional chapters on emerging biofuel production methods, and discussion of the emissions associated with biofuel use in engines. The editorial team is strengthened by the addition of two extra members, and a number of new contributors have been invited to work with authors from the first edition to revise existing chapters, thus offering fresh perspectives. Provides systematic and detailed coverage of the processes and technologies being used for biofuel production Discusses advanced chemical, biochemical, and thermochemical biofuels production routes that are fast being developed to address the global increase in energy usage Reviews the production of both first and second generation biofuels Addresses integrated biofuel production in biorefineries and the use of waste materials as feedstocks

HANDBOOK OF WATER HARVESTING AND CONSERVATION

BASIC CONCEPTS AND FUNDAMENTALS

John Wiley & Sons Water harvesting is gaining more and more recognition as a sustainable and resilient water supply options. It is economically viable, socially compatible and environmentally friendly. Water harvesting has proven to be a robust solution to overcome or reduce water shortages all over the world. It is important to understand how to apply this practice in a sustainable and effective way to make full use of its potential in a world increasingly threatened by water scarcity. The Handbook of Water Harvesting and Conservation: Basic Concepts and Fundamentals is the most comprehensive, up-to-date and applied handbook on water harvesting and conservation yet published. The book's 30 chapters -- written by 84 outstanding international experts from approximately 20 selected countries faced by drought -- explore, critique and develop concepts and systems for water harvesting. The editors bring together many perspectives into a synthesis that is both academically based and practical in its potential applications. The Handbook of Water Harvesting and Conservation: Basic Concepts and Fundamentals is an important tool for education, research and technical works in the areas of soil, water and watershed management and is highly useful for drought strategy planning, flood management and developing techniques to adapt to climate change in urban, agricultural, forest and rangeland areas.

EMERGING TRENDS IN AGRI-NANOTECHNOLOGY

FUNDAMENTAL AND APPLIED ASPECTS

CABI The science of nanotechnology, the manipulation, design and engineering of devices at the atomic and molecular scale, is starting to be applied to many disciplines including aspects of agriculture and crop science. This book opens with a brief history of nanotechnology in agriculture. Applications are then examined in detail, including nanopesticides, nanosensors, nanofertilizers, and nanoherbicides. Topics covered include; the biosynthesis of nanoparticles (through microbes, plants and other biotic agents); the ecological consequences of their delivery into the environment (examining effects and toxicity on soil, soil biota, and plants); safety issues; an overview of the global market for nanotechnology products, and the regulation of nanotechnology in agriculture. The book concludes with speculations on what the future holds for the technology. The book has been written by an international group of researchers and experts from over 12 countries with experience across a wide range of issues relating to the industry. This book will be of use to a wide range of researchers and professional scientists in the agricultural sector, academia and industry, including microbiologists, chemical engineers, geneticists, plant scientists and biochemists.

WASTE PRODUCTION AND UTILIZATION IN THE METAL EXTRACTION INDUSTRY

CRC Press Increasingly stringent environmental regulations and industry adoption of waste minimization guidelines have thus, stimulated the need for the development of recycling and reuse options for metal related waste. This book, therefore, gives an overview of the waste generation, recycle and reuse along the mining, beneficiation, extraction, manufacturing and post-consumer value chain. This book reviews current status and future trends in the recycling and reuse of mineral and metal waste and also details the policy and legislation regarding the waste management, health and environmental impacts in the mining, beneficiation, metal extraction and manufacturing processes. This book is a useful reference for engineers and researchers in industry, policymakers and legislators in governance, and academics on the current status and future trends in the recycling and reuse of mineral and metal waste. Some of the key features of the book are as follows: Holistic approach to waste generation, recycling and reuse along the minerals and metals extraction. Detailed overview of metallurgical waste generation. Practical examples with complete flow sheets, techniques and interventions on waste management. Integrates the technical issues related to efficient resources utilization with the policy and regulatory framework. Novel approach to addressing future commodity shortages.

THE OXFORD HANDBOOK OF FOOD, POLITICS, AND SOCIETY

Oxford University Press, USA This volume explores the complex interrelationships between food and agriculture, politics, and society. More specifically, it considers the political aspects of three basic economic questions: what is to be produced? how is it to be produced? how is it to be distributed? It also outlines three unifying themes running through the politics of answering these societal questions with regard to food, namely: ecology, technology and property.

ADDITIVE MANUFACTURING

Elsevier Additive Manufacturing explains the background theory, working principles, technical specifications, and latest developments in a wide range of additive manufacturing techniques. Topics addressed include treatments of manufactured parts, surface characterization, and the effects of surface treatments on mechanical behavior. Many different perspectives are covered, including design aspects, technologies, materials and sustainability. Experts in both academia and industry contribute to this comprehensive guide, combining theoretical developments with practical improvements from R&D. This unique guide allows readers to compare the characteristics of different processes, understand how they work, and provide parameters for their effective implementation. This book is part of a four-volume set entitled Handbooks in Advanced Manufacturing. Other titles in the set include Advanced Machining and Finishing, Advanced Welding and Deformation, and Sustainable Manufacturing Processes. Provides theory, operational parameters, and latest developments in 20 different additive manufacturing processes Includes contributions from experts in industry and academia with a wide range of disciplinary backgrounds, providing a comprehensive survey of this diverse and influential subject Includes case studies of innovative additive manufacturing practices from industry

SELENIUM CONTAMINATION IN WATER

John Wiley & Sons The contamination of environment and water resources by Selenium (Se) and its oxyanions from various sources are emerging contaminants of significant health and environmental concern. The primary sources include agricultural drainage water, mine drainage, residues from fossil fuels, thermoelectric power plants, oil refineries, and metal ores. Various methods and technologies have been developed which focus on the treatment of selenium-containing waters and wastewater. High concentrations of selenium in water cause various adverse impact to human health, such as carcinogenic, genotoxic, and cytotoxic effects. But in the lower concentrations, it is a useful constituent of the biological system. The range between toxicity and deficiency of selenium is minimal (40 to 400 µg per day), due to its dual nature. Selenium Contamination in Water contains the latest status and information on selenium's origin, its chemistry and its toxicity to humans. The book represents a comprehensive and advanced reference book for students, researchers, practitioners, and policymakers in working in the field of metalloids, in particular selenium. A special emphasis is given on its geological distribution, monitoring techniques, and remedial technologies. As such, the authors critically analyze the various techniques used for the monitoring and removal of selenium from water. Featuring chapters arranged according to the major themes of the latest research, with specific case-studies from industrial experiences of selenium detection and removal, Selenium Contamination in Water will be particularly valued by researchers, practitioners, and policymakers in working in the field of metalloids including selenium.

NEW AND FUTURE DEVELOPMENTS IN MICROBIAL BIOTECHNOLOGY AND BIOENGINEERING

SUSTAINABLE AGRICULTURE: MICROORGANISMS AS BIOSTIMULANTS

Elsevier This book provides a comprehensive overview of different agriculturally important microorganisms and their role as plant biostimulants. Arbuscular Mycorrhizal Fungi, Trichoderma, Cyanobacteria, Endophytes, and Plant growth promoting rhizobacteria have the potential to promote plant growth, disease management, nutrient acquisition, stress alleviation, and soil health management. Presenting an all-inclusive collection of information, this book will be important for students, academicians, researchers working in the field of sustainable agriculture, microbial technology, and biochemical engineers. It will also be of use for policymakers in the area of food security and sustainable agriculture. Introduces new microorganisms as plant biostimulants. Describes potential mechanisms of plant-microbe interaction for stress alleviation and crop improvement. Provides information about different microbial formulations (consortium) and their application to the alleviation of different abiotic stresses (salt, drought, nutrient deficiency, heavy metal, etc.) in plants. Discusses about psychrophilic microbes, endophytic microbes, and total plant microbiome and their uses as biostimulants for improving plant health.

GEOMICROBES: LIFE IN TERRESTRIAL DEEP SUBSURFACE

Frontiers Media SA The deep subsurface is, in addition to space, one of the last unknown frontiers to human kind. A significant part of life on Earth resides in the deep subsurface, hiding great potential of microbial life of which we know only little. The conditions in the deep terrestrial subsurface are thought to resemble those of early Earth, which makes this environment an analog for studying early life in addition to possible extraterrestrial life in ultra-extreme conditions. Early microorganisms played a great role in shaping the conditions on the young Earth. Even today deep subsurface microorganisms interact with their geological environment transforming the conditions in the groundwater and on rock surfaces. Essential elements for life are richly present but in difficultly accessible form. The elements driving the microbial deep life is still not completely identified. Most of the microorganisms detected by novel molecular techniques still lack cultured representatives. Nevertheless, using modern sequencing techniques and bioinformatics the functional roles of these microorganisms are being revealed. We are starting to see the differences and similarities between the life in the deep subsurface and surface domains. We may even begin to see the function of evolution by comparing deep life to life closer to the surface of Earth. Deep life consists of organisms from all known domains of life. This Research Topic reveals some of the rich diversity and functional properties of the great biomass residing in the deep dark subsurface.

CLIMATE CHANGE 2007 - IMPACTS, ADAPTATION AND VULNERABILITY

WORKING GROUP II CONTRIBUTION TO THE FOURTH ASSESSMENT REPORT OF THE IPCC

Cambridge University Press IPCC Fourth Assessment Report on climate change impacts, adaptation and vulnerability for researchers, students, policymakers.

FUNDAMENTALS OF SOLIDIFICATION

Trans Tech Publications Ltd Solidification phenomena play an important role in many of the processes used in fields ranging from production engineering to solid-state physics. The broad range of applications of solidification models - from the large tonnages of continuously cast products, through superalloy precision castings, to high-purity single crystals - means that a book such as the present one must cater for the requirements of a very wide range of readers.

MODELING AND SIMULATION OF SYSTEMS USING MATLAB AND SIMULINK

CRC Press Not only do modeling and simulation help provide a better understanding of how real-world systems function, they also enable us to predict system behavior before a system is actually built and analyze systems accurately under varying operating conditions. Modeling and Simulation of Systems Using MATLAB® and Simulink® provides comprehensive, state-of-the-art coverage of all the important aspects of modeling and simulating both physical and conceptual systems. Various real-life examples show how simulation plays a key role in understanding real-world systems. The author also explains how to effectively use MATLAB and Simulink software to successfully apply the modeling and simulation techniques presented. After introducing the underlying philosophy of systems, the book offers step-by-step procedures for modeling different types of systems using modeling techniques, such as the graph-theoretic approach, interpretive structural modeling, and system dynamics modeling. It then explores how simulation evolved from pre-computer days into the current science of today. The text also presents modern soft computing techniques, including artificial neural networks, fuzzy systems, and genetic algorithms, for modeling and simulating complex and nonlinear systems. The final chapter addresses discrete systems modeling. Preparing both undergraduate and graduate students for advanced modeling and simulation courses, this text helps them carry out effective simulation studies. In addition, graduate students should be able to comprehend and conduct simulation research after completing this book.

HANDBOOK OF PRODUCTION MANAGEMENT METHODS

Elsevier This unique book provides a guide to the selection of appropriate production and manufacturing methods for postgraduate and professional manufacturing engineers. It starts by helping the reader to identify the required objectives of industrial management for their particular situation. Having identified the objectives an analytical assessment of the available production and management methods is made. The analytical system presents an objective method of production selection. For example, this practical book will help the reader to decide whether or not a local Just-in-Time process is needed or a full chain JIT method is needed. Alternatively the problem may be deciding between set-up time reduction or changeover time reduction. Should TQM be ceded to PCIs? This book covers nearly all methods of production and manufacturing and will prove the most comprehensive guide to choosing and using these methods. Only book of its kind available Widest coverage of methods available Analytical approach to decision making

DYNAMICS FOR ENGINEERS

Springer Science & Business Media "Mechanics is one of the branches of physics in which the number of principles is at once very few and very rich in useful consequences. On the other hand, there are few sciences which have required so much thought-the conquest of a few axioms has taken more than 2000 years." -Rene Dugas, A History of Mechanics Introductory courses in engineering mechanics (statics and dynamics) are generally found very early in engineering curricula. As such, they should provide the student with a thorough background in the basic fundamentals that form the foundation for subsequent work in engineering analysis and design. Consequently, our primary goal in writing Statics for Engineers and Dynamics for Engineers has been to develop the fundamental principles of engineering mechanics in a manner that the student can readily comprehend. With this comprehension, the student thus acquires the tools that would enable him/her to think through the solution of many types of engineering problems using logic and sound judgment based upon fundamental principles. Approach We have made every effort to present the material in a concise but clear manner. Each subject is presented in one or more sections followed by one or more examples, the solutions for which are presented in a detailed fashion with frequent reference to the basic underlying principles. A set of problems is provided for use in homework assignments.

HANDBOOK OF FOOD PRODUCTS MANUFACTURING

PRINCIPLES, BAKERY, BEVERAGES, CEREALS, CHEESE, CONFECTIONARY, FATS, FRUITS, AND FUNCTIONAL FOODS

Wiley-Interscience * Covers the manufacturing and processing of foods in: Bakery, Beverages, Cereals, Cheese, Confectionary, Fats, Fruits, and Functional Foods * Includes coverage of manufacturing principles * Presents details of commercial processing for each commodity including (where appropriate) a general introduction, ingredients, technologies, types and evaluation of industrial products, special problems, types and evaluation of consumer products, and processing and product trends * Includes truly international coverage with editors and contributors from all over the world.

FOOD MICROBIOLOGY

FUNDAMENTALS AND FRONTIERS

John Wiley & Sons Since its introduction in 1997, the purpose of Food Microbiology: Fundamentals and Frontiers has been to serve as an advanced reference that explores the breadth and depth of food microbiology. Thoroughly updated, the new Fifth Edition adds coverage of the ever-expanding tool chest of new and extraordinary molecular methods to address many of the roles that microorganisms play in the production, preservation, and safety of foods. Sections in this valuable reference cover material of special significance to food microbiology such as: stress response mechanisms, spores, and the use of microbiological criteria and indicator organisms commodity-oriented discussion of types of microbial food spoilage and approaches for their control the major foodborne pathogens, including diseases, virulence mechanisms, control measures, and up-to-date details on molecular biology techniques state-of-the-science information on food preservation approaches, including natural antimicrobials and the use of bacteriophages in controlling foodborne pathogens beneficial microbes used in food fermentations and to promote human and animal health updated chapters on current topics such as antimicrobial resistance, predictive microbiology, and risk assessment This respected reference provides up-to-the-minute scientific and technical insights into food production and safety, readily available in one convenient source.

AULTON'S PHARMACEUTICS

THE DESIGN AND MANUFACTURE OF MEDICINES

Elsevier Health Sciences Pharmaceutics is one of the most diverse subject areas in all of pharmaceutical science. In brief, it is concerned with the scientific and technological aspects of the design and manufacture of dosage forms or medicines. An understanding of pharmaceutics is therefore vital for all pharmacists and those pharmaceutical scientists who are involved with converting a drug or a potential drug into a medicine that can be delivered safely, effectively and conveniently to the patient. Now in its fourth edition, this best-selling textbook in pharmaceutics has been brought completely up to date to reflect the rapid advances in delivery methodologies by eye and injection, advances in drug formulations and delivery methods for special groups (such as children and the elderly), nanomedicine, and pharmacognosy. At the same time the editors have striven to maintain the accessibility of the text for students of pharmacy, preserving the balance between being a suitably pitched introductory text and a clear reflection of the state of the art. provides a logical, comprehensive account of drug design and manufacture includes the science of formulation and drug delivery designed and written for newcomers to the design of dosage forms New to this edition New editor: Kevin Taylor, Professor of Clinical Pharmaceutics, School of Pharmacy, University of London. Twenty-two new contributors. Six new chapters covering parenteral and ocular delivery; design and administration of medicines for the children and elderly; the latest in plant medicines; nanotechnology and nanomedicines, and the delivery of biopharmaceuticals. Thoroughly revised and updated throughout.

STORAGE OF CEREAL GRAINS AND THEIR PRODUCTS

Elsevier Storage of Grains and Their Products, Fifth Edition, presents the most authoritative reference on the principles and practices of storing and handling grains and their products. Divided into four main sections, the book covers the range of storage systems available in both the developed and developing world, the practicalities of the design and implementation of grain storage systems, looking in detail at handling, cleaning, drying, aeration, instrumentation amongst other topics, specific threats to stored grains, pulses, oils and pseudocereals from chemicals, rodents, insects and biosecurity, and the economics of grain storage, government regulations and future considerations. Professionals responsible for the storage and handling of grains will find this book a great resource, however, it will also be of interest to academic researchers and postgraduate students in both cereal science and food processing. Presents an up-to-date, end-to-end overview of the processing and storage of grain and grain related products Includes eleven new chapters that provide the latest insights into grain storage Edited by active cereals researchers working in industry, with experts from both academia and industry supplying chapters Includes essential information on the design and operation of grain facilities Provides coverage of the preservation of grain quality against specific threats

ANT COLONY OPTIMIZATION

MIT Press An overview of the rapidly growing field of ant colony optimization that describes theoretical findings, the major algorithms, and current applications. The complex social behaviors of ants have been much studied by science, and computer scientists are now finding that these behavior patterns can provide models for solving difficult combinatorial optimization problems. The attempt to develop algorithms inspired by one aspect of ant behavior, the ability to find what computer scientists would call shortest paths, has become the field of ant colony optimization (ACO), the most successful and widely recognized algorithmic technique based on ant behavior. This book presents an overview of this rapidly growing field, from its theoretical inception to practical applications, including descriptions of many available ACO algorithms and their uses. The book first describes the translation of observed ant behavior into working optimization algorithms. The ant colony metaheuristic is then introduced and viewed in the general context of combinatorial optimization. This is followed by a detailed description and guide to all major ACO algorithms and a report on current theoretical findings. The book surveys ACO applications now in use, including routing, assignment, scheduling, subset, machine learning, and bioinformatics problems. AntNet, an ACO algorithm designed for the network routing problem, is described in detail. The authors conclude by summarizing the progress in the field and outlining future research directions. Each chapter ends with bibliographic material, bullet points setting out important ideas covered in the chapter, and exercises. Ant Colony Optimization will be of interest to academic and industry researchers, graduate students, and practitioners who wish to learn how to implement ACO algorithms.

MATERIALS, DESIGN, AND MANUFACTURING FOR SUSTAINABLE ENVIRONMENT

SELECT PROCEEDINGS OF ICMDMSE 2020

Springer Nature This book comprises the select proceedings of the International Conference on Materials, Design and Manufacturing for Sustainable Environment (ICMDMSE 2020). The primary focus is on emerging materials and cutting-edge manufacturing technologies for sustainable environment. The book covers a wide range of topics such as advanced materials, vibration, tribology, finite element method (FEM), heat transfer, fluid mechanics, energy engineering, additive manufacturing, robotics and automation, automobile engineering, industry 4.0, MEMS and nanotechnology, optimization techniques, condition monitoring, and new paradigms in technology management. Contents of this book will be useful to students, researchers, and practitioners alike.

THE SCIENCE OF MECHANICS

Cambridge University Press This is the 1893 English translation of the 1888 second German edition of Ernst Mach's historical and philosophical account of mechanics. Discussing the development of statics and dynamics, it was originally written to clarify physical concepts without detailed mathematical discussion, and is best known for its criticism of Newtonian concepts of time and space.

RECENT ADVANCES IN MECHANICAL ENGINEERING

SELECT PROCEEDINGS OF RAME 2020

Springer Nature This book presents the select proceedings of the second International Conference on Recent Advances in Mechanical Engineering (RAME 2020). The topics covered include aerodynamics and fluid mechanics, automation, automotive engineering, composites, ceramics and polymers processing, computational mechanics, failure and fracture mechanics, friction, tribology and surface engineering, heating and ventilation, air conditioning system, industrial engineering, IC engines, turbomachinery and alternative fuels, machinability and formability of materials, mechanisms and machines, metrology and computer-aided inspection, micro- and nano-mechanics, modelling, simulation and optimization, product design and development, rapid manufacturing technologies and prototyping, solid mechanics and structural mechanics, thermodynamics and heat transfer, traditional and non-traditional machining processes, vibration and acoustics. The book also discusses various energy-efficient renewable and non-renewable resources and technologies, strategies and technologies for sustainable development and energy & environmental interaction. The book is a valuable reference for beginners, researchers, and professionals interested in sustainable construction and allied fields.

IRRIGATION AND WATER RESOURCES ENGINEERING

New Age International The Book Irrigation And Water Resources Engineering Deals With The Fundamental And General Aspects Of Irrigation And Water Resources Engineering And Includes Recent Developments In Hydraulic Engineering Related To Irrigation And Water Resources Engineering. Significant Inclusions In The Book Are A Chapter On Management (Including Operation, Maintenance, And Evaluation) Of Canal Irrigation In India, Detailed Environmental Aspects For Water Resource Projects, A Note On Interlinking Of Rivers In India, And Design Problems Of Hydraulic Structures Such As Guide Bunds, Settling Basins Etc. The First Chapter Of The Book Introduces Irrigation And Deals With The Need, Development And Environmental Aspects Of Irrigation In India. The Second Chapter On Hydrology Deals With Different Aspects Of Surface Water Resource. Soil-Water Relationships Have Been Dealt With In Chapter 3. Aspects Related To Ground Water Resource Have Been Discussed In Chapter 4. Canal Irrigation And Its Management Aspects Form The Subject Matter Of Chapters 5 And 6. Behaviour Of Alluvial Channels And Design Of Stable Channels Have Been Included In Chapters 7 And 8, Respectively. Concepts Of Surface And Subsurface Flows, As Applicable To Hydraulic Structures, Have Been Introduced In Chapter 9. Different Types Of Canal Structures Have Been Discussed In Chapters 10, 11, And 13. Chapter 12 Has Been Devoted To Rivers And River Training Methods. After Introducing Planning Aspects Of Water Resource Projects In Chapter 14, Embankment Dams, Gravity Dams And Spillways Have Been Dealt With, Respectively, In Chapters 15, 16 And 17. The Students Would Find Solved Examples (Including Design Problems) In The Text, And Unsolved Exercises And The List Of References Given At The End Of Each Chapter Useful.

CONSUMER BEHAVIOR

Pearson Education India

151 TRADING STRATEGIES

Springer The book provides detailed descriptions, including more than 550 mathematical formulas, for more than 150 trading strategies across a host of asset classes and trading styles. These include stocks, options, fixed income, futures, ETFs, indexes, commodities, foreign exchange, convertibles, structured assets, volatility, real estate, distressed assets, cash, cryptocurrencies, weather, energy, inflation, global macro, infrastructure, and tax arbitrage. Some strategies are based on machine learning algorithms such as artificial neural networks, Bayes, and k-nearest neighbors. The book also includes source code for illustrating out-of-sample backtesting, around 2,000 bibliographic references, and more than 900 glossary, acronym and math definitions. The presentation is intended to be descriptive and pedagogical and of particular interest to finance practitioners, traders, researchers, academics, and business school and finance program students.

THE SUPERALLOYS

FUNDAMENTALS AND APPLICATIONS

Cambridge University Press Superalloys are unique high-temperature materials used in gas turbine engines, which display excellent resistance to mechanical and chemical degradation. This book presents the underlying metallurgical principles which have guided their development and practical aspects of component design and fabrication from an engineering standpoint. The topics of alloy design, process development, component engineering, lifetime estimation and materials behaviour are described, with emphasis on critical components such as turbine blading and discs. The first introductory text on this class of materials, it will provide a strong grounding for those studying physical metallurgy at the advanced level, as well as practising engineers. Included at the end of each chapter are exercises designed to test the reader's understanding of the underlying principles presented. Solutions for instructors and additional resources are available at www.cambridge.org/9780521859042.

FUNDAMENTALS OF DAIRY CHEMISTRY

Springer Science & Business Media Fundamentals of Dairy Chemistry has always been a reference text which has attempted to provide a complete treatise on the chemistry of milk and the relevant research. The third edition carries on in that format which has proved successful over four previous editions (Fundamentals of Dairy Science 1928, 1935 and Fundamentals of Dairy Chemistry 1965, 1974). Not only is the material brought up-to-date, indeed several chapters have been completely re-written, but attempts have been made to streamline this edition. In view of the plethora of research related to dairy chemistry, authors were asked to reduce the number of references by eliminating the early, less significant ones. In addition, two chapters have been replaced with subjects which we felt deserved attention: "Nutritive Value of Dairy Foods" and "Chemistry of Processing." Since our society is now more attuned to the quality of the food it consumes and the processes necessary to preserve that quality, the addition of these topics seemed justified. This does not minimize the importance of the information in the deleted chapters, "Vitamins of Milk" and "Frozen Dairy Products." Some of the material in these previous chapters has been incorporated into the new chapters; furthermore, the information in these chapters is available in the second edition, as a reprint from ADSA (Vitamins in Milk and Milk Products, November 1965) or in the many texts on ice cream manufacture.

REINFORCEMENT LEARNING, SECOND EDITION

AN INTRODUCTION

MIT Press The significantly expanded and updated new edition of a widely used text on reinforcement learning, one of the most active research areas in artificial intelligence. Reinforcement learning, one of the most active research areas in artificial intelligence, is a computational approach to learning whereby an agent tries to maximize the total amount of reward it receives while interacting with a complex, uncertain environment. In Reinforcement Learning, Richard Sutton and Andrew Barto provide a clear and simple account of the field's key ideas and algorithms. This second edition has been significantly expanded and updated, presenting new topics and updating coverage of other topics. Like the first edition, this second edition focuses on core online learning algorithms, with the more mathematical material set off in shaded boxes. Part I covers as much of reinforcement learning as possible without going beyond the tabular case for which exact solutions can be found. Many algorithms presented in this part are new to the second edition, including UCB, Expected Sarsa, and Double Learning. Part II extends these ideas to function approximation, with new sections on such topics as artificial neural networks and the Fourier basis, and offers expanded treatment of off-policy learning and policy-gradient methods. Part III has new chapters on reinforcement learning's relationships to psychology and neuroscience, as well as an updated case-studies chapter including AlphaGo and AlphaGo Zero, Atari game playing, and IBM Watson's wagering strategy. The final chapter discusses the future societal impacts of reinforcement learning.

ADVANCES IN MANUFACTURING, PRODUCTION MANAGEMENT AND PROCESS CONTROL

PROCEEDINGS OF THE AHFE 2020 VIRTUAL CONFERENCES ON HUMAN ASPECTS OF ADVANCED MANUFACTURING, ADVANCED PRODUCTION MANAGEMENT AND PROCESS CONTROL, AND ADDITIVE MANUFACTURING, MODELING SYSTEMS AND 3D PROTOTYPING, JULY 16-20, 2020, USA

Springer Nature This book discusses the latest advances in the broadly defined field of advanced manufacturing and process control. It reports on cutting-edge strategies for sustainable production and product life cycle management, and on a variety of people-centered issues in the design, operation and management of manufacturing systems and processes. Further, it presents digital modeling systems and additive manufacturing technologies, including advanced applications for different purposes, and discusses in detail the implementation of and challenges imposed by 3D printing technologies. Based on three AHFE 2020 Conferences (the AHFE 2020 Virtual Conference on Human Aspects of Advanced Manufacturing, the AHFE 2020 Virtual Conference on Advanced Production Management and Process Control and the AHFE 2020 Virtual Conference on Additive Manufacturing, Modeling Systems and 3D Prototyping, the book merges ergonomics research, design applications, and up-to-date analyses of various engineering processes. It brings together experimental studies, theoretical methods and best practices, highlights future trends and suggests directions for further technological developments and the improved integration of technologies and humans in the manufacturing industry.