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A unique and interdisciplinary field, food processing must meet basic process engineering considerations such as material and energy balances, as well as the more specialized requirements of food acceptance, human nutrition, and food safety. Food engineering, therefore, is a field of major concern to university departments of food science, and chemical and biological engineering as well as engineers and scientists working in various food processing industries. Part of the notable CRC Press

Contemporary Food Engineering series, Food Process Engineering Operations focuses on the application of chemical engineering unit operations to the handling, processing, packaging, and distribution of food products. Chapters 1 through 5 open the text with a review of the fundamentals of process engineering and food processing technology, with typical examples of food process applications. The body of the book then covers food process engineering operations in detail, including theory, process equipment, engineering operations, and application examples and problems. Based on the

authors' long teaching and research experience both in the US and Greece, this highly accessible textbook employs simple diagrams to illustrate the mechanism of each operation and the main components of the process equipment. It uses simplified calculations requiring only elementary calculus and offers realistic values of food engineering properties taken from the published literature and the authors' experience. The appendix contains useful engineering data for process calculations, such as steam tables, engineering properties, engineering diagrams, and suppliers of process equipment. Designed as a one or two

semester textbook for food science students, Food Process Engineering Operations examines the applications of process engineering fundamentals to food processing technology making it an important reference for students of chemical and biological engineering interested in food engineering, and for scientists, engineers, and technologists working in food processing industries. A number of food engineering operations, in which heat is not used as a preserving factor, have been employed and are applied for preparation (cleaning, sorting, etc.), conversion (milling, agglomeration, etc.) or

preservation (irradiation, high pressure processing, pulsed electric fields, etc.) purposes in the food industry. This book presents a comprehensive treatise of all normally used food engineering operations that are carried out at room (or ambient) conditions, whether they are aimed at producing microbiologically safe foods with minimum alteration to sensory and nutritive properties, or they constitute routine preparative or transformation operations. The book is written for both undergraduate and graduate students, as well as for educators and practicing food process engineers. It reviews theoretical concepts, analyzes

their use in operating variables of equipment, and discusses in detail different applications in diverse food processes. This volume contains contributions from prominent researchers who participated in the 2007 IAENG International Conference on Operations Research. It presents theories and applications of modern industrial engineering and operations research to meet the needs of rapidly developing fields. The book reflects the tremendous advances in communication systems and electrical engineering and also serves as an excellent reference work for researchers and graduate students. This book provides a comprehensive

understanding of each aspect of offshore operations including conventional methods of operations, emerging technologies, legislations, health, safety and environment impact of offshore operations. The book starts by coverage of notable offshore fields across the globe and the statistics of present oil production, covering all types of platforms available along with their structural details. Further, it discusses production, storage and transportation, production equipment, safety systems, automation, storage facilities and transportation. Book ends with common legislation acts and comparison of different legislation acts of major oil/gas

producing nations. The book is aimed at professionals and researchers in petroleum engineering, offshore technology, subsea engineering, and Explores the engineering, technology, system, environmental, operational and legislation aspects of offshore productions systems Covers most of the subsea engineering material in a concise manner Includes legislation of major oil and gas producing nations pertaining to offshore operations (oil and gas) Incorporates case studies of major offshore operations (oil and gas) accidents and lessons learnt Discusses environment impact of offshore operations The focus of Supply

Chain Engineering is the engineering design and planning of supply chain systems. There exists a very large variety of supply chain system types, all with different goals, constraints, and decisions, but a systematic approach for the design and planning of any supply chain can be based on the principles and methods of system engineering. In this book, author Marc Goetschalckx presents material developed at the Georgia Tech Supply Chain and Logistics Institute, the largest supply chain and logistics research and education program in the world. The book can be roughly divided into four sections. The

first section focuses on data management. Since most of planning and design requires making decisions today so that supply chain functions can be executed efficiently in the future, this section introduces forecasting principles and techniques. The second section of the book focuses on transportation systems. First, the characteristics of transportation assets and infrastructure are shown. Then four chapters focus on the planning of transportation activities depending on who controls the transportation assets. The third section of the book is focused on storing goods, and the last section of the book is focused on supply

chain systems that consider simultaneously procurement, production, and transportation and inventory as well as the design of the supply chain infrastructure or network design. In each chapter, first a model of the process being studied is developed followed by a description of practical solution algorithms. More advanced material is typically described in appendices. This makes it possible to use an integrated, breath-first treatment of supply chain systems by using the initial material in each chapter. A more in depth treatment of a specific topic or process can be found towards the end of each chapter. End-of-chapter

exercises are included throughout. This text is suitable for several target audiences. The first target is a course for upper-level undergraduate students on supply chains. The second target is the use in a capstone senior design project in the supply chain area. The third target is an introductory course on supply chains either in a master of engineering or a master of business administration program, and the final audience consists of students attending logistics or supply chain post-graduate or continuing education courses. Unlike some other reproductions of classic texts (1) We have not used

OCR(Optical Character Recognition), as this leads to bad quality books with introduced typos. (2) In books where there are images such as portraits, maps, sketches etc We have endeavoured to keep the quality of these images, so they represent accurately the original artefact. Although occasionally there may be certain imperfections with these old texts, we feel they deserve to be made available for future generations to enjoy. This volume gathers selected peer-reviewed papers presented at the XXVI International Joint Conference on Industrial Engineering and Operations Management (IJCIEOM), held on July 8-11,

2020 in Rio de Janeiro, Brazil. The respective chapters address a range of timely topics in industrial engineering, including operations and process management, global operations, managerial economics, data science and stochastic optimization, logistics and supply chain management, quality management, product development, strategy and organizational engineering, knowledge and information management, work and human factors, sustainability, production engineering education, healthcare operations management, disaster management, and

more. These topics broadly involve fields like operations, manufacturing, industrial and production engineering, and management. Given its scope, the book offers a valuable resource for those engaged in optimization research, operations research, and practitioners alike. Discover how to apply engineering thinking and data analytics to business operations This comprehensive textbook shows readers how to develop their engineering thinking and analytics to support making strategic and tactical decisions in managing and control of operations systems and supply chains. The book is created in a modular fashion so that



sections and chapters can stand alone and be used within operations courses across the spectrum. **Operations Engineering and Management: Concepts, Analytics and Principles for Improvement** is based on the author's successful classes in both business and engineering. The book presents concepts and principles of operations management, with a strong emphasis on analytics and a sharp focus on improving operations. You will explore both the engineering approach to operations (e.g., analytics and engineering thinking) and the classic management approach. • Focuses on teaching and developing strong

problem-solving analytics skills • Each section is designed to stand alone and can be used in a wide variety of courses • Written by an operations management and engineering expert Modern engineering systems are complex and multi-faceted, and must be flexible, adaptable, and fully integrated with the supply chain and other stakeholders to deliver an effective level of performance. Therefore, this book aims to create an operational view and new understanding of modern system design, commissioning, operation, services and support. It includes system of systems modelling and analysis techniques essential to develop whole of system in view of

essential requirements. This book will address professional engineers/operations managers required to design, develop, implement and operate a complex socio-technical system containing many engineering systems. **Key Features** • Develops a holistic view of system of systems from all possible fields of interest • Introduces the idea of system configurability to understand system of systems in parallel with the typical, classical concepts of engineering systems design • Offers effective coverage of both the engineering aspects and operational aspects of systems of systems • Focuses on pragmatic viewpoints on how

to analyze system of systems • Provides practical tools and methods for the readers to develop competence to configure and operate system of systems Author John Mittendorf has completely rewritten his best-selling book, Truck Company Operations, a must-have for all firefighters who are assigned to the truck and who have responsibilities for the truck on the fireground. The new second edition covers the many aspects, tasks, and functions of a truck company, and contains new and expanded information related to search, reading a building, reading smoke, the Ten Commandments of truck company operations, operating

truck apparatus, and more--all from a truck company perspective. Clinical Simulation: Education, Operations and Engineering, Second Edition, offers readers a restructured, comprehensive and updated approach to learn about simulation practices and techniques in a clinical setting. Featuring new and revised chapters from the industry's top researchers and educators, this release gives readers the most updated data through modern pedagogy. This new edition has been restructured to highlight five major components of simulation education, including simulation scenarios as tools, student learning, faculty teaching,

necessary subject matter, and the learning environment. With clear and efficient organization throughout the book, users will find this to be an ideal text for students and professionals alike. Edited by a leading educator, consultant and practitioner in the clinical simulation field Redesigned structure emphasizes the five components of simulation pedagogy Contains over 30 new chapters that feature the most up-to-date industry information and practices Mass customization (MC) has been hailed as a successful operations strategy across manufacturing and service industries for the past three decades. However, the wider

implications of using MC approaches in the broader industrial and economic environment are not yet clearly understood. Mass Customization: Engineering and Managing Global Operations presents emerging research on the role of MC and personalization in today's international operations context. The chapters cover MC in the context of global industrial economics and operations. Moreover, the book discusses MC topics that are relevant to the manufacturing and service sectors, such as: • product platforms; • learning curve modeling; • additive manufacturing; and • service customization. Case studies in

manufacturing (e.g., apparel and transportation) and services (e.g., banking and virtual worlds) are also included. Mass Customization: Engineering and Managing Global Operations is a valuable text for mass customization researchers and practitioners. Researchers will find a selection of chapters prepared by internationally renowned authors, comprising most of their recent research in MC. Engineering professionals will be drawn by the vivid discussion of operational aspects and methods of MC, as well as by the selection of cases illustrating their practical application. Winner of 2013 IIE/Joint Publishers Book-

of-the-Year Award Emphasizing a quantitative approach, Supply Chain Engineering: Models and Applications provides state-of-the-art mathematical models, concepts, and solution methods important in the design, control, operation, and management of global supply chains. The text provides an understanding of The text is written for both Civil and Environmental Engineering students enrolled in Wastewater Engineering courses, and for Chemical Engineering students enrolled in Unit Processes or Transport Phenomena courses. It is oriented toward engineering design based on fundamentals.

The presentation allows the instructor to select chapters or parts of chapters in any sequence desired. The telecommunications industry has advanced in rapid, significant and unpredictable ways into the 21st century. *Global Networks: Design, Engineering and Operation* guides the global industry and academia even further by providing an in-depth look at the current and developing trends, as well as examining the complex issues of developing, introducing, and managing cutting-edge telecommunications technologies. The author draws upon his considerable experience in the

telecommunications industry to educate engineers designing equipment and systems on the hardware and software features essential to fault tolerant operation. He describes how to design networks that are fault tolerant and global in scope; how to identify best engineering and operations practices; and examines the role of technology labs in carrier networks. Software and hardware engineering practices are covered in depth. Hardware and software designs are explained with an emphasis on application and interaction of craft and operators with equipment and systems. The author proposes that

equipment, systems and network designs should be integrated with the engineering and operations teams that run them. Practice, experience and a historical background are used to describe which designs and technologies fit which network services and applications. *Global Networks* is a complete and thorough assessment of the communications industry today, written by an author of international renown. Key features: Comprehensive treatment of the key theories and technologies associated with the design of modern communications networks, including equipment, systems and network design Coverage

of equipment and software design, mobile networks, integration and the characteristics of large network outages Written in an accessible style and fully illustrated, it offers a complete and up-to-date picture of communications technologies from initial design through to application Includes a section on future challenges such as the Exabyte traffic growth and an assessment of the dual roles of IPV4 and IPV6 Engineering Principles of Unit Operations in Food Processing, volume 1 in the Woodhead Publishing Series, In Unit Operations and Processing Equipment in the Food Industry series, presents basic principles of food

engineering with an emphasis on unit operations, such as heat transfer, mass transfer and fluid mechanics. Brings new opportunities in the optimization of food processing operations Thoroughly explores applications of food engineering to food processes Focuses on unit operations from an engineering viewpoint What you need to know to survive, long term. Interests between broadcasters and telecom people are blurring. Technical operations and design engineers in one field are increasingly required to deal with practices and techniques in the other. The problem is expectations and terminology differences aren't

recognized until it's too late. Take "Quality of Service." The telecom people specify a percentage of the time that the service is guaranteed to be available. The down time may be very, very small. But, if it occurs during a high-priced commercial in the Super Bowl, it is very, very serious for the broadcaster. Practical IP and Telecom for Broadcast Engineering and Operations teaches the technology and how to structure it and make sure the finances work in your favor. Learn how to: \* Define communications circuit, equipment, facilities and services used in broadcast engineering and operations. \* Evaluate suppliers as well as

their products and services. \* Prepare technical specifications and requests for bids, proposals required in competitive procurement actions. \* Conduct communications operational effectiveness and cost audits. \* Prepare communications cost management strategies and plans. \* Plan and execute capital projects. \* Survive Long-Term Critical for engineers, technicians, and managers engaged in designing, installing, testing, and maintaining equipment and network services for program content, training material, or audio/video conferencing. Valuable knowledge for planning, design, integration

and operation of communications equipment, facilities and services used in broadcast operations, training and conferencing applications. Fred Huffman is a systems engineer with Athens Olympic Broadcasting, the Host Broadcaster for the 2004 Games. He has more than 35 years experience in technical and management roles in broadcasting and telecommunications fields. This work is largely a reflection of that experience, captured in a way that introduces the reader to technical aspects of IP, ATM and classical telecom, along with business essentials such as contracts, tariffs, project planning, budgeting and long

range planning. Economic growth and rising levels of consumption in developing and developed countries has been observed as being deeply coupled with natural resource usage and material consumption. The increasing need for natural resources has raised concerns regarding issues such as resource scarcity, undesirable environmental impacts due to material extraction, primary production, and suboptimal product disposal, and social or political tensions. Product End-of-Life (EoL) options, such as reusing or recycling, attempt to limit or reduce the amount of waste sent to a landfill, providing strategic means to

decouple the link between economic growth and resource usage. These EoL options have the potential to close material loops, further utilizing wastes as resources, reducing environmental impacts, conserving natural resources, reducing material prices, and providing job opportunities in developing countries.

Remanufacturing, on the other hand, is a unique EoL option due to increasing the number of life cycles of a product before final disposal. First, recurring environmental benefits, such as emission and raw material extraction avoidance are obtained with each additional product life cycle. Second, individual

resource efficiency yields increase through product remanufacture. Resource efficiency or, using more with less will continue to compound with each additional life cycle. Third, recirculating products decreases the demand and dependency for primary resource production, further closing the material loop and creating a more circular economy. In addition, remanufacturing can initiate more preferable EoL options such as recovery, recycling, and waste reduction. While remanufacturing offers numerous benefits, there is significant lack of literature and books covering the fundamentals of operations,

technologies and business models. The proposed book will provide in-depth coverage of remanufacturing fundamentals and its strong link to circular economy and resource efficiency. Based on the 2018 International Joint Conference on Industrial Engineering and Operations Management (IJCIEOM) conference that took place in Lisbon, Portugal, this proceedings volume is the first of two focusing on mathematical applications in digital transformation. The different contributions in this volume explore topics such as modelling, simulation, logistics, innovation, sustainability, health care, supply chain, lean manufacturing, operations

management, quality and digital. Written by renowned scientists from around the world, this multidisciplinary volume serves as a reference on industrial engineering and operations management and as a source on current findings for researchers and students aiming to work on industrial-related problems. This book comprises select peer-reviewed contributions from the 6th International Conference on Production and Industrial Engineering (CPIE - 2019). The volume focuses on latest research in the field of Industrial and Systems Engineering, and its allied areas. Articles on variety of topics such as Human Factors

Engineering, Lean Manufacturing, Six Sigma, Logistics and Supply Chain Management, Operations Research, Quality Engineering, Measurement and Control, Reliability and Maintenance Engineering, Green Supply Chain Management, Modelling and Simulation, Sustainability, Technology Management, Agile and Flexible Manufacturing, Technology Management and Computer Aided Manufacturing are discussed in this book. Given the range of topics covered, the book will be useful for students, researchers, and professionals interested in different areas of Industrial and Systems Engineering. This proceedings volume gathers

together selected peer-reviewed papers presented at the second edition of the XXVI International Joint Conference on Industrial Engineering and Operations Management (IJCIEOM), which was virtually held on February 22-24, 2021 with the main organization based at the Pontifical Catholic University of Rio de Janeiro, Brazil. Works cover a range of topics in industrial engineering, including operations and process management, global operations, managerial economics, data science and stochastic optimization, logistics and supply chain management, quality management, product



development, strategy and organizational engineering, knowledge and information management, sustainability, and disaster management, to name a few. These topics broadly involve fields like operations, manufacturing, industrial and production engineering, and management. This book can be a valuable resource for researchers and practitioners in optimization research, operations research, and correlated fields. A companion volume and sequel to The Wiley Engineer's Desk Reference. Covers major areas regarding the technology of engineering and its operational methodology, accentuating questions of schedule and

schedule maintenance. Describes professional practice skills and engineering aspects essential to success. Includes a slew of examples, checklists, sample forms and documents to facilitate understanding. Engineers and scientists need to have an introduction to the basics of linear algebra in a context they understand. Computer algebra systems make the manipulation of matrices and the determination of their properties a simple matter, and in practical applications such software is often essential. However, using this tool when learning about matrices, without first gaining a proper understanding of the underlying theory, limits the

ability to use matrices and to apply them to new problems. This book explains matrices in the detail required by engineering or science students, and it discusses linear systems of ordinary differential equations. These students require a straightforward introduction to linear algebra illustrated by applications to which they can relate. It caters to the needs of undergraduate engineers in all disciplines, and provides considerable detail where it is likely to be helpful. According to the author the best way to understand the theory of matrices is by working simple exercises designed to emphasize the theory, that at

the same time avoid distractions caused by unnecessary numerical calculations. Hence, examples and exercises in this book have been constructed in such a way that wherever calculations are necessary they are straightforward. For example, when a characteristic equation occurs, its roots (the eigenvalues of a matrix) can be found by inspection. The author of this book is Alan Jeffrey, Emeritus Professor of mathematics at the University of Newcastle upon Tyne. He has given courses on engineering mathematics at UK and US Universities. Volume I, General Engineering, includes chapters on mathematics, fluid

properties (fluid sampling techniques; properties and correlations of oil, gas, condensate, and water; hydrocarbon phase behavior and phase diagrams for hydrocarbon systems; the phase behavior of water/hydrocarbon systems; and the properties of waxes, asphaltenes, and crude oil emulsions), rock properties (bulk rock properties, permeability, relative permeability, and capillary pressure), the economic and regulatory environment, and the role of fossil energy in the 21st century energy mix (from SPE Website). This book presents the conference proceedings of the 25th edition

of the International Joint Conference on Industrial Engineering and Operations Management. The conference is organized by 6 institutions (from different countries and continents) that gather a large number of members in the field of operational management, industrial engineering and engineering management. This edition of the conference had the title: THE NEXT GENERATION OF PRODUCTION AND SERVICE SYSTEMS in order to emphasize unpredictable and very changeable future. This conference is aimed to enhance connection between academia and industry and to gather researchers and practitioners

specializing in operation management, industrial engineering, engineering management and other related disciplines from around the world. Modern engineering systems are complex and multifaceted, and must be flexible, adaptable, and fully integrated with the supply chain and other stakeholders to deliver an effective level of performance. Therefore, this book aims to create an operational view and new understanding of modern system design, commissioning, operation, services and support. It includes system of systems modelling and analysis techniques essential to develop whole of system in view of essential requirements. This

book will address professional engineers/operations managers required to design, develop, implement and operate a complex socio-technical system containing many engineering systems. Key Features • Develops a holistic view of system of systems from all possible fields of interest • Introduces the idea of system configurability to understand system of systems in parallel with the typical, classical concepts of engineering systems design • Offers effective coverage of both the engineering aspects and operational aspects of systems of systems • Focuses on pragmatic viewpoints on how to analyze system of systems •

Provides practical tools and methods for the readers to develop competence to configure and operate system of systems Whether you are interested in enhancing your own applications of VE and LCC - or you need to understand the current methodology in order to hire a practitioner and oversee the process - this unique publication will provide the information you are seeking. The book shows you: How to organize and apply VE and life cycle costing for maximum benefit Real-life VE demonstration projects - professionally organized reports, with recommendations you can apply right now Project

workbook with forms to conduct a complete VE study. Engineers seek solutions to problems, and the economic viability of each potential solution is normally considered along with the technical merits. This is typically true for the petroleum sector, which includes the global processes of exploration, production, refining, and transportation. Decisions on an investment in any oil or gas field development are made on the basis of its value, which is judged by a combination of a number of economic indicators. *Economic Analysis of Oil and Gas Engineering Operations* focuses on economic treatment of petroleum engineering

operations and serves as a helpful resource for making practical and profitable decisions in oil and gas field development. Reflects major changes over the past decade or so in the oil and gas industry. Provides thorough coverage of the use of economic analysis techniques in decision-making in petroleum-related projects. Features real-world cases and applications of economic analysis of various engineering problems encountered in petroleum operations. Includes principles applicable to other engineering disciplines. This work will be of value to practicing engineers and industry professionals, managers, and executives

working in the petroleum industry who have the responsibility of planning and decision-making, as well as advanced students in petroleum and chemical engineering studying engineering economics, petroleum economics and policy, project evaluation, and plant design. Based on the 2018 International Joint Conference on Industrial Engineering and Operations Management (IJCIEOM) conference that took place in Lisbon, Portugal, this proceedings volume is the first of two focusing on mathematical applications in digital transformation. The different contributions in this

volume explore topics such as health care, social technologies, mathematical programming applications, public transport services, new product development, industry 4.0, occupational safety, quality control, e-services, risk management, and supply chain management. Written by renowned scientists from around the world, this multidisciplinary volume serves as a reference on industrial engineering and operations management and as a source on current findings for researchers and students who focus in business models, digital literacy and technology in education, logistics, production and information

systems, and operations management. Understanding hydraulics and pump operations doesn't have to be difficult, and it is of key importance to the science of fire engineering. Putting all the pieces together correctly so that the right stream is brought to the fire is essential to effective fireground operations. In the second edition of *Fire Service Hydraulics and Pump Operations*, author Paul Spurgeon, engineer/pump operator with the Denver Fire Department, breaks down the sometimes difficult-to-understand formulas of hydraulics and pumps into easily learned steps, taking care to explain the hows and

whys of each formula discussed. Using an in-the-street, practical approach, Spurgeon teaches readers how to develop proper fire streams as well as how they relate to overall fireground strategies. He covers hydraulics and pumps extensively—from the properties of water to its supply to pumping to sprinkler systems and foams. So readers can put what they've learned into practice, Spurgeon provides both end-of-chapter tests and practice sets at the end of the book, complete with answers so that readers can check their knowledge. The second edition includes numerous updates and additions, including the Rule of

Thumb chapter that illustrates how to perform these complex calculations while under stress on the fireground. This text meets the learning objectives for FESHE Fire Protection Hydraulics and Water Supply course work. Features and Benefits: • Summary of chapter formulas • End-of-chapter tests with answers • Practice sets with answers to further test your understanding This book is a printed edition of the Special Issue "Forest Operations, Engineering and Management" that was published in Forests Practical, hands-on expertise and technical data, covering essential issues in design, construction, operations and

maintenance... The editors, a team of leaders in facilities and plant management, have selected key information with the most common applications in managing facilities operations. Coverage includes: Economics (budgeting/cost control, financial analysis, VE, etc.) Civil engineering and construction practices Maintenance (with detailed staffing guidance and job descriptions, CMMS, planning, scheduling, training, work orders, inventory, preventive/predictive maintenance) Energy efficiencies (optimizing energy use, including heating, cooling, lighting, and water) HVAC Mechanical engineering

Instrumentation and controls Environmental, health and safety issues The overwhelming majority of a software system's lifespan is spent in use, not in design or implementation. So, why does conventional wisdom insist that software engineers focus primarily on the design and development of large-scale computing systems? In this collection of essays and articles, key members of Google's Site Reliability Team explain how and why their commitment to the entire lifecycle has enabled the company to successfully build, deploy, monitor, and maintain some of the largest software systems in the world. You'll learn the principles and

practices that enable Google engineers to make systems more scalable, reliable, and efficient—lessons directly applicable to your organization.

This book is divided into four sections: Introduction—Learn what site reliability engineering is and why it differs from conventional IT industry practices

Principles—Examine the patterns, behaviors, and areas of concern that influence the work of a site reliability engineer (SRE)

Practices—Understand the theory and practice of an SRE's day-to-day work: building and operating large distributed computing systems

Management—Explore

Google's best practices for training, communication, and meetings that your organization can use

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