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Business Process Modeling, Simulation and Design-Laguna Manuel 2011
Most textbooks on business process management focus on either the nuts and bolts of computer simulation or the managerial aspects of business processes. Covering both technical and managerial aspects of business process management, Business Process Modeling, Simulation and Design, Second Edition presents the tools to design effective business processes and the management techniques to operate them efficiently. New to the Second Edition Three completely revised chapters that incorporate ExtendSim 8 An introduction to simulation A chapter on business process analytics Developed from the authors’ many years of teaching process design and simulation courses, the text provides students with a thorough understanding of numerous analytical tools that can be used to model, analyze, design, manage, and improve business processes. It covers a wide range of approaches, including discrete event simulation, graphical flowcharting tools, deterministic models for cycle time analysis and capacity decisions, analytical queuing methods, and data mining. Unlike other operations management books, this one emphasizes user-friendly simulation software as well as business processes, rather than only manufacturing processes or general operations management problems. Taking an analytical modeling approach to process design, this book illustrates the power of simulation modeling as a vehicle for analyzing and designing business processes. It teaches how to apply process simulation and discusses the managerial implications of redesigning processes. The ExtendSim software is available online and ancillaries are available for instructors.

Process Modeling and Simulation for Chemical Engineers-Simant R. Uperti 2017-04-05
This book provides a rigorous treatment of the fundamental concepts and techniques involved in process modeling and simulation. The book allows the reader to: (i) Get a solid grasp of “under-the-hood” mathematical results (ii) Develop models of sophisticated processes (iii) Transform models to different geometries and domains as appropriate (iv) Utilize various model simplification techniques (v) Learn simple and effective computational methods for model simulation (vi) Intensify the effectiveness of their research Modeling and Simulation for Chemical Engineers: Theory and Practice begins with an introduction to the terminology of process modeling and simulation. Chapters 2 and 3 cover fundamental and constitutive relations, while Chapter 4 on model formulation builds on these relations. Chapters 5 and 6 introduce the advanced techniques of model transformation and simplification. Chapter 7 deals with model simulation, and the final chapter reviews important mathematical concepts. Presented in a methodical, systematic way, this book is suitable as a self-study guide or as a graduate reference, and includes examples, schematics and diagrams to enrich understanding. End
of chapter problems with solutions and computer software available online at www.wiley.com/go/upreti/pms_for_chemical_engineers are designed to further stimulate readers to apply the newly learned concepts.

Process Modelling and Simulation-César de Prada 2019-09-23 Since process models are nowadays ubiquitous in many applications, the challenges and alternatives related to their development, validation, and efficient use have become more apparent. In addition, the massive amounts of both offline and online data available today open the door for new applications and solutions. However, transforming data into useful models and information in the context of the process industry or of bio-systems requires specific approaches and considerations such as new modelling methodologies incorporating the complex, stochastic, hybrid and distributed nature of many processes in particular. The same can be said about the tools and software environments used to describe, code, and solve such models for their further exploitation. Going well beyond mere simulation tools, these advanced tools offer a software suite built around the models, facilitating tasks such as experiment design, parameter estimation, model initialization, validation, analysis, size reduction, discretization, optimization, distributed computation, co-simulation, etc. This Special Issue collects novel developments in these topics in order to address the challenges brought by the use of models in their different facets, and to reflect state of the art developments in methods, tools and industrial applications.

Business Process Modeling, Simulation, and Design:-Manuel Laguna, Johan Marklund Business Process Modeling, Simulation and Design covers the design of business processes from a broad quantitative modeling perspective. The text presents a multitude of analytical tools that can be used to model, analyze, understand and ultimately, to design business processes. The range of topics in this text include graphical flowcharting tools, deterministic models for cycle time analysis and capacity decisions, analytical queuing methods, as well as the use of Data Envelopment Analysis (DEA) for benchmarking purposes. And a major portion of the book is devoted to simulation modeling using a state of the art discrete-event simulation package.

Business Process Management-Wil, van der Aalst 2003-07-31 Business processes are among today's hottest topics in the science and practice of information systems. Business processes and workflow management systems attract a lot of attention from R&D professionals in software engineering, information systems, business-oriented computer science, and management sciences. The carefully reviewed chapters contributed to this state-of-the-art survey by internationally leading scientists consolidate work presented at various workshops on the topic organized by the editors of the book in the past few years. The book spans the whole spectrum of business process management ranging from theoretical aspects, conceptual models, and application scenarios to implementation issues. It will become a valuable source of reference and information for R&D professionals active in the fascinating interdisciplinary area of business process management and for ambitious practitioners.

Process Modeling, Simulation, and Environmental Applications in Chemical Engineering-Bharat A. Bhanvase 2016-10-14 In this valuable volume, new and original research on various topics on chemical engineering and technology is presented on modeling and simulation, material synthesis, wastewater treatment, analytical techniques, and microreactors. The research presented here can be applied to technology in food, paper and pulp, polymers, petrochemicals, surface coatings, oil technology aspects, among other uses. The book is divided into five sections: modeling and simulation environmental applications materials and applications processes and applications analytical methods Topics include: modeling and simulation of chemical processes process integration and intensification separation processes advances in unit operations and processes chemical reaction engineering fuel and energy advanced materials CFD and transport processes wastewater treatment The valuable research presented here will be of interest to researchers, scientists, industry practitioners, as well as upper-level students.

Conceptual Modeling - ER 2009-Alberto H. F. Laender 2009-10-26 This book constitutes the refereed proceedings of the 28th International Conference on Conceptual Modeling, ER 2009, held in Gramado, Brazil, in November 2009. The 31 revised full papers presented together with 18 demo papers were carefully reviewed and selected from 162 submissions. The papers are organized in topical sections on conceptual modeling, requirements engineering, query approaches, space and time modeling, schema matching and integration, application contexts, process and service modeling, and industrial session.

ARIS - Business Process Frameworks-August-Wilhelm Scheer 2012-12-06 ARIS (Architecture of Integrated Information Systems) is a unique and internationally renowned method for optimizing business processes and implementing application systems. This book enhances the proven ARIS
concept by describing product flows and explaining how to classify modern software concepts. The importance of the link between business process organization and strategic management is stressed. Bridging the gap between the different approaches in business theory and information technology, the ARIS concept provides a full-circle approach from the organizational design of business processes to IT implementation. With an emphasis on SAP R/3, real-world examples of standard software solutions illustrate these business process frameworks.

Simulation Modelling for Business-Andrew Greasley 2017-03-02 Simulation Modelling has been used for many years in the manufacturing sector but has now become a mainstream tool in business situations. This is partly because of the popularity of Business Process Reengineering (BPR) and other process-based improvement methods that use simulation to help analyze changes in process design. This text book includes case studies in both manufacturing and service situations to demonstrate the usefulness of the approach. A further reason for the increasing popularity of the technique is the development of business orientated and user-friendly windows-based software. This text provides a guide to the use of ARENA, SIMUL8 and WITNESS simulation software systems which are widely used in industry and available to students. Overall this text provides a practical guide to building and implementing the results from a simulation model. All the steps in a typical simulation study are covered including data collection, input data modelling and experimentation.

Modeling and Simulation Techniques for Improved Business Processes-Ebrahimi, Maryam 2018-01-05 Companies are constantly faced with the need to grow and advance in order to compete with other corporations. The implementation of computer innovations allows for smoother transitions to adaptive changes through the use and understanding of analytical tools. Modeling and Simulation Techniques for Improved Business Processes is a critical scholarly resource that examines the systems currently implemented in companies and how they can be upgraded and advanced through various computer design methods. Featuring coverage of a broad range of topics including scenario planning, casual modeling, and system dynamics, this publication is targeted toward researchers, professionals, and engineers searching for current research on corporate innovations created through computer design methods.

Enterprise, Business-Process and Information Systems Modeling-Selmin Nurcan 2013-06-20 This book contains the refereed proceedings of the 14th International Conference on Business Process Modeling, Development and Support (BPMDS 2013) and the 18th International Conference on Exploring Modeling Methods for Systems Analysis and Design (EMMSAD 2013), held together with the 25th International Conference on Advanced Information Systems Engineering (CAiSE 2013) in Valencia, Spain, in June 2013. The 15 full papers, two experience reports, and three idea papers accepted for BPMDS were selected from 54 submissions and cover a wide spectrum of issues related to business process development, modeling, and support. They are grouped into sections on innovative representations for knowledge-intensive processes; business process management in practice; analysis of business process models; model-based business process analysis; flexible business process management; improvement and change patterns; and process model repositories. The 10 full and 2 short papers accepted for EMMSAD were chosen from 27 submissions and focus on exploring, evaluating, and enhancing current information modeling methods and methodologies. They are grouped in sections on advanced modelling; capturing design knowledge; method engineering; modelling process; specialized modelling; and modelling experiences.

Chromatographic Processes-Roger-Marc Nicoud 2015-04-20 Addressing all aspects of the design, modeling and simulation of chromatographic processes, this result-oriented primer provides a practical guide to all the necessary approaches, methodologies and tools. Beginning with key definitions and concepts, it builds up from the most simple to the most complex situations, including multicomponent systems, non-uniform velocity profiles, bed instability, particle size distributions, and the influence of complex environments on chromatographic process design. In addition to covering classical approaches, it introduces efficient tools for investigating chromatographic processes, such as the 'Russian-Lego' approach for linear systems, phenomenological models, and specific shortcuts for deriving the key properties of industrial processes. With an emphasis on real-world problems and applications, step-by-step modeling design guidelines, and detailed exercises for self-assessment, this is a must-have guide for practitioners and researchers working in chemical, biochemical, food and pharmaceutical engineering.

Business Process Modelling with ARIS-Rob Davis 2001-04-09 This practical book describes the key operations of ARIS Toolset - the market leading Business Process Modelling Tool. Based on his experience of using ARIS in British Telecommunications plc, the author describes practical ways of
using the tool. Using screen shots and plenty of practical examples, Rob Davis shows how ARIS can be used to model business processes. Throughout the book Davis provides readers with tips and short-cuts, enabling users to start modelling quickly and effectively. He also provides insights into the ARIS concepts, and tells readers about the benefits and trade-offs of using the tool in alternative ways. Unlike other books, this practical guide tackles issues found in real projects.

Process Modelling-Bernd Scholz-Reiter 2012-12-06 A process model is very often used for system analysis, design and management in various application areas. Using a process model has the advantage that it has only to be as precise as necessary within the parameters of the individual field of application, whereas the precision externally is less important. This makes process modeling easier and open for structuring. The contributions deal with different approaches to process modelling, especially in the areas of business process modelling, logistics and production processes and water systems.


Modeling Business Processes-Wil Van Der Aalst, M.P. 2011-05-27 An introduction to the modeling of business information systems, with processes formally modeled using Petri nets. This comprehensive introduction to modeling business-information systems focuses on business processes. It describes and demonstrates the formal modeling of processes in terms of Petri nets, using a well-established theory for capturing and analyzing models with concurrency. The precise semantics of this formal method offers a distinct advantage for modeling processes over the industrial modeling languages found in other books on the subject. Moreover, the simplicity and expressiveness of the Petri nets concept make it an ideal language for explaining foundational concepts and constructing exercises. After an overview of business information systems, the book introduces the modeling of processes in terms of classical Petri nets. This is then extended with data, time, and hierarchy to model all aspects of a process. Finally, the book explores analysis of Petri net models to detect design flaws and errors in the design process. The text, accessible to a broad audience of professionals and students, keeps technicalities to a minimum and offers numerous examples to illustrate the concepts covered. Exercises at different levels of difficulty make the book ideal for independent study or classroom use.

Gasification Processes-Petr A. Nikrityuk 2014-06-18 Bridging the gap between the well-known technological description of gasification and the underlying theoretical understanding, this book covers the latest numerical and semi-empirical models describing interphase phenomena in high-temperature conversion processes. Consequently, it focuses on the description of gas-particle reaction systems by state-of-the-art computational models in an integrated, unified form. Special attention is paid to understanding and modeling the interaction between individual coal particles and a surrounding hot gas, including heterogeneous and homogeneous chemical reactions inside the particle on the particle interface and near the interface between the solid and gas phases. While serving the needs of engineers involved in industrial research, development and design in the field of gasification technologies, this book's in-depth coverage makes it equally ideal for young and established researchers in the fields of thermal sciences and chemical engineering with a focus on heterogeneous and homogeneous reactions.

Process Modeling, Simulation, and Control for Chemical Engineers-William L. Luyben 1990 The purpose of this book is to convey to undergraduate students an understanding of those areas of process control that all chemical engineers need to know. The presentation is concise, readable and restricted to only essential elements. The methods presented have been successfully applied in industry to solve real problems. Analysis of closedloop dynamics in the time, Laplace, frequency and sample-data domains are covered. Designing simple regulatory control systems for multivariable processes is discussed. The practical aspects of process control are presented sizing control valves, tuning controllers, developing control structures and considering interaction between plant design and control. Practical simple identification methods are covered.

Process Modeling Style-John Long 2014-03-11 Process Modeling Style focuses on other aspects of process modeling beyond notation that are very important to practitioners. Many people who model processes focus on the specific notation used to create their drawings. While that is important, there are many other aspects to modeling, such as naming, creating identifiers, descriptions, interfaces, patterns, and creating useful process documentation. Experience author John Long focuses on those non-notational aspects of modeling, which practitioners will find invaluable. Gives solid advice for creating roles, work products, and processes Instucts
on how to organize and structure the parts of a process. Gives examples of documents you should use to define a set of processes.

Simulating Business Processes for Descriptive, Predictive, and Prescriptive Analytics-Andrew Greasley 2019-10-21 This book outlines the benefits and limitations of simulation, what is involved in setting up a simulation capability in an organization, the steps involved in developing a simulation model and how to ensure that model results are implemented. In addition, detailed example applications are provided to show where the tool is useful and what it can offer the decision maker. In Simulating Business Processes for Descriptive, Predictive, and Prescriptive Analytics, Andrew Greasley provides an in-depth discussion of Business process simulation and how it can enable business analytics. How business process simulation can provide speed, cost, dependability, quality, and flexibility metrics. Industrial case studies including improving service delivery while ensuring an efficient use of staff in public sector organizations such as the police service, testing the capacity of planned production facilities in manufacturing, and ensuring on-time delivery in logistics systems. State-of-the-art developments in business process simulation regarding the generation of simulation analytics using process mining and modeling people’s behavior. Managers and decision makers will learn how simulation provides a faster, cheaper and less risky way of observing the future performance of a real-world system. The book will also benefit personnel already involved in simulation development by providing a business perspective on managing the process of simulation, ensuring simulation results are implemented, and that performance is improved.

Enterprise and Organizational Modeling and Simulation-Joseph Barjis 2010-09-15 This book constitutes the post-proceedings of the 6th International Workshop on Enterprise and Organizational Modeling and Simulation (EOMAS 2010), held at the CAiSE 2010 conference in Hammamet, Tunisia, June 7-8, 2010. The 12 papers presented in this volume were carefully reviewed and selected from 30 submissions. They cover topics like business process management and simulation, organizational modeling and simulation, enterprise architecture and modeling, and workflow systems.

Simulating Business Process Modeling-Michael Havey 2005-08-18 Ten years ago, groupware bundled with email and calendar applications helped track the flow of work from person to person within an organization. Workflow in today’s enterprise means more monitoring and orchestrating massive systems. A new technology called Business Process Management, or BPM, helps software architects and developers design, code, run, administer, and monitor complex network-based business processes. BPM replaces those sketchy flowchart diagrams that business analysts draw on whiteboards with a precise model that uses standard graphical and XML representations, and an architecture that allows it converse with other services, systems, and users. Sound complicated? It is. But it’s downright frustrating when you have to search the Web for every little piece of information vital to the process. Essential Business Process Modeling gathers all the concepts, design, architecture, and standard specifications of BPM into one concise book, and offers hands-on examples that illustrate BPM’s approach to process notation, execution, administration and monitoring. Author Mike Havey demonstrates standard ways to code rigorous processes that are centerpieces of a service-oriented architecture (SOA), which defines how networks interact so that one can perform a service for the other. His book also shows how BPM complements enterprise application integration (EAI), a method for moving from older applications to new ones, and Enterprise Service BUS for integrating different web services, messaging, and XML technologies into a single network. BPM, he says, is to this collection of services what a conductor is to musicians in an orchestra: it coordinates their actions in the performance of a larger composition. Essential Business Process Modeling teaches you how to develop examples of process-oriented applications using free tools that can be run on an average PC or laptop. You’ll also learn about BPM design patterns and best practices, as well as some underlying theory. The best way to monitor processes within an enterprise is with BPM, and the best way to navigate BPM is with this valuable book.

CHEMICAL PROCESS MODELLING AND COMPUTER SIMULATION-AMIYA K. JANA 2011-11-05 This comprehensive and thoroughly revised text, now in its second edition, continues to present the fundamental concepts of how mathematical models of chemical processes are constructed and demonstrate their applications to the simulation of two of the very important chemical engineering systems: the chemical reactors and distillation systems. The book provides an integrated treatment of process description, mathematical modelling and dynamic simulation of realistic problems, using the robust process model approach and its simulation with efficient numerical techniques. Theoretical background materials on activity coefficient models, equation of state models, reaction kinetics, and
numerical solution techniques—needed for the development of mathematical models—are also addressed in the book. The topics of discussion related to tanks, heat exchangers, chemical reactors (both continuous and batch), biochemical reactors (continuous and fed-batch), distillation columns (continuous and batch), equilibrium flash vaporizer, and refinery debutanizer column contain several worked-out examples and case studies to teach students how chemical processes can be measured and monitored using computer programming. The new edition includes two more chapters—Reactive Distillation Column and Vaporizing Exchangers—which will further strengthen the text. This book is designed for senior level undergraduate and first-year postgraduate level courses in “Chemical Process Modelling and Simulation”. The book will also be useful for students of petrochemical engineering, biotechnology, and biochemical engineering. It can serve as a guide for research scientists and practising engineers as well.


Business Process Management—Michael Glykas 2012-09-18 Business Process Management (BPM) has been in existence for decades. It uses, complements, integrates and extends theories, methods and tools from other scientific disciplines like: strategic management, information technology, managerial accounting, operations management etc. During this period the main focus themes of researchers and professionals in BPM were: business process modeling, business process analysis, activity based costing, business process simulation, performance measurement, workflow management, the link between information technology and BPM for process automation etc. More recently the focus moved to subjects like Knowledge Management, Enterprise Resource Planning (ERP) Systems, Service Oriented Architectures (SOAs), Process Intelligence (PI) and even Social Networks. In this collection of papers we present a review of the work and the outcomes achieved in the classic BPM fields as well as a deeper insight on recent advances in BPM. We present a review of business process modeling and analysis and we elaborate on issues like business process quality and process performance measurement as well as their link to all other organizational aspects like human resources management, strategy, information technology (being SOA, PI or ERP), other managerial systems, job descriptions etc. We also present recent advances to BPR tools with special focus on information technology, workflow, business process modeling and human resources management tools. Other chapters elaborate on the aspect of business process and organizational costing and their relationship to business process analysis, organizational change and reorganization. In the final chapters we present some new approaches that use fuzzy cognitive maps and a recently developed software tool for scenario creation and simulation in strategic management, business process management, performance measurement and social networking. The audience of this book is quite wide. The first chapters can be read by professionals, academics and students who want to get some basic insight into the BPM field whereas the remaining present more elaborate and state of the art concepts methodologies and tools for an audience of a more advanced level.

Modern Business Process Automation—Arthur H. M. ter Hofstede 2009-11-18 The field of Business Process Management (BPM) is marred by a seemingly endless sequence of (proposed) industry standards. Contrary to other fields (e.g., civil or electronic engineering), these standards are not the result of a widely supported consolidation of well-understood and well-established concepts and practices. In the BPM domain, it is frequently the case that BPM vendors opportunistically become involved in the creation of proposed standards to exert or maintain their influence and interests in the field. Despite the initial fervor associated with such standardization activities, it is no less frequent that vendors either choose to drop their support for standards that they earlier championed on an opportunistic basis or elect only to partially support them in their commercial offerings. Moreover, the results of the standardization processes themselves are a concern. BPM standards tend to deal with complex concepts, yet they are never properly defined and all-too-often not informed by established research. The result is a plethora of languages and tools, with no consensus on concepts and their implementation. They also fail to provide clear direction in the way in which BPM standards should evolve. One can also observe a dichotomy between the “business” side of BPM and its “technical” side. While it is clear that the application of BPM will fail if not placed in a proper business context, it is equally clear that its application will go nowhere if it remains merely a motivational exercise with schemas of business processes hanging on the wall gathering dust.

Modeling and Simulation of Chemical Process Systems—Nayef Ghasem
In this textbook, the author teaches readers how to model and simulate a unit process operation through developing mathematical model equations, solving model equations manually, and comparing results with those simulated through software. It covers both lumped parameter systems and distributed parameter systems, as well as using MATLAB and Simulink to solve the system model equations for both. Simplified partial differential equations are solved using COMSOL, an effective tool to solve PDE, using the fine element method. This book includes end of chapter problems and worked examples, and summarizes reader goals at the beginning of each chapter.

Business Intelligence-Marie-Aude Aufaure 2013-01-11 To large organizations, business intelligence (BI) promises the capability of collecting and analyzing internal and external data to generate knowledge and value, thus providing decision support at the strategic, tactical, and operational levels. BI is now impacted by the “Big Data” phenomena and the evolution of society and users. In particular, BI applications must cope with additional heterogeneous (often Web-based) sources, e.g., from social networks, blogs, competitors’, suppliers’, or distributors’ data, governmental or NGO-based analysis and papers, or from research publications. In addition, they must be able to provide their results also on mobile devices, taking into account location-based or time-based environmental data. The lectures held at the Second European Business Process Modelling and Simulation with Finite Element Methods-William B. J. Zimmerman 2004 This book presents a systematic description and case studies of chemical engineering modelling and simulation based on the MATLAB/FEMLAB tools, in support of selected topics in undergraduate and postgraduate programmes that require numerical solution of complex balance equations (ordinary differential equations, partial differential equations, nonlinear equations, integro-differential equations). These systems arise naturally in analysis of transport phenomena, process systems, chemical reactions and chemical thermodynamics, and particle rate processes. Templates are given for modelling both state-of-the-art research topics (e.g. microfluidic networks, film drying, multiphase flow, population balance equations) and case studies of commonplace design calculations -- mixed phase reactor design, heat transfer, flowsheet analysis of unit operations, flash distillations, etc. The great strength of this book is that it makes modelling and simulating in the MATLAB/FEMLAB environment approachable to both the novice and the expert modeller.

Business Intelligence Summer School (eBISS), which are presented here in an extended and refined format, cover not only established BI and BPM technologies, but extend into innovative aspects that are important in this new environment and for novel applications, e.g., machine learning, logic networks, graph mining, business semantics, large-scale data management and analysis, and multicriteria and collaborative decision making. Combining papers by leading researchers in the field, this volume equips the reader with the state-of-the-art background necessary for creating the future of BI. It also provides the reader with an excellent basis and many pointers for further research in this growing field.

Business Process Management Workshops-Marcello La Rosa 2013-01-26 This book treats modeling and simulation in a simple way, that builds on the existing knowledge and intuition of students. They will learn how to build a model and solve it using Excel. Most chemical engineering students feel a shiver down the spine when they see a set of complex mathematical equations generated from the modeling of a chemical engineering system. This is because they usually do not understand how to achieve this mathematical model, or they do not know how to solve the equations system without spending a lot of time and effort. Trying to understand how to generate a set of mathematical equations to represent a physical system (to model) and solve these equations (to simulate) is not a simple task. A model, most of the time, takes into account all phenomena studied during a Chemical Engineering course. In the same way, there is a multitude of numerical methods that can be used to solve the same set of equations generated from the modeling, and many different computational languages can be adopted to implement the numerical methods. As a consequence of this comprehensiveness and combinatorial explosion of possibilities, most books that deal with this subject are very extensive andembracing, making need for a lot of time and effort to go through this subject. It is expected that with this book the chemical engineering student and the future chemical engineer feel motivated to solve different practical problems involving chemical processes, knowing they can do that in an easy and fast way, with no need of expensive software.

Process Modeling in Composites Manufacturing-Suresh G. Advani 2010-07-14 There is a wealth of literature on modeling and simulation of polymer composite manufacturing processes. However, existing books neglect to provide a systematic explanation of how to formulate and apply science-based models in polymer composite manufacturing processes. Process Modeling in Composites Manufacturing, Second Edition provides tangible m

Fundamentals of Business Process Management-Marlon Dumas 2018-03-23 This textbook covers the entire Business Process Management (BPM) lifecycle, from process identification to process monitoring, covering along the way process modelling, analysis, redesign and automation. Concepts, methods and tools from business management, computer science and industrial engineering are blended into one comprehensive and inter-disciplinary approach. The presentation is illustrated using the BPMN industry standard defined by the Object Management Group and widely endorsed by practitioners and vendors worldwide. In addition to explaining the relevant conceptual background, the book provides dozens of examples, more than 230 exercises - many with solutions - and numerous suggestions for further reading. This second edition includes extended and completely revised chapters on process identification, process discovery, qualitative process analysis, process redesign, process automation and process monitoring. A new chapter on BPM as an enterprise capability has been added, which expands the scope of the book to encompass topics such as the strategic alignment and governance of BPM initiatives. The textbook is the result of many years of combined teaching experience of the authors, both at the undergraduate and graduate levels as well as in the context of professional training. Students and professionals from both business management and computer science will benefit from the step-by-step style of the textbook and its focus on fundamental concepts and proven methods. Lecturers will appreciate the class-tested format and the additional teaching material available on the accompanying website.

Process Control-B. Wayne Bequette 2003 Process Control: Modeling, Design, and Simulation is the first complete introduction to process control that fully integrates software tools-helping you master critical techniques hands-on, using MATLAB-based computer simulations. Author B. Wayne Bequette includes process control diagrams, dynamic modeling, feedback control, frequency response analysis techniques, control loop tuning, and start-to-finish chemical process control case studies.

Modeling and Simulation of Energy Systems-Thomas A. Adams II 2019-11-06 Energy Systems Engineering is one of the most exciting and fastest growing fields in engineering. Modeling and simulation plays a key role in Energy Systems Engineering because it is the primary basis on which energy system design, control, optimization, and analysis are based. This book contains a specially curated collection of recent research articles on the modeling and simulation of energy systems written by top experts around the world from universities and research labs, such as Massachusetts Institute of Technology, Yale University, Norwegian University of Science and Technology, National Energy Technology Laboratory of the US Department of Energy, University of Technology Sydney, McMaster University, Queens University, Purdue University, the University of Connecticut, Technical University of Denmark, the University of Toronto, Technische Universität Berlin, Texas A&M, the University of Pennsylvania, and many more. The key research themes covered include energy systems design, control systems, flexible operations, operational strategies, and systems analysis. The addressed areas of application include electric power generation, refrigeration cycles, natural gas liquefaction, shale gas treatment, concentrated solar power, waste-to-energy systems, micro-gas turbines, carbon dioxide capture systems, energy storage, petroleum refinery unit operations, Brayton cycles, to name but a few.

Process Dynamics-B. Wayne Bequette 1998 Suitable as a text for Chemical Process Dynamics or Introductory Chemical Process Control courses at the junior/senior level. This book aims to provide an introduction to the modeling, analysis, and simulation of the dynamic behavior of chemical processes.
Chemical Engineering-Tanase Gh. Dobre 2007-07-16 A description of the use of computer aided modeling and simulation in the development, integration and optimization of industrial processes. The two authors elucidate the entire procedure step-by-step, from basic mathematical modeling to result interpretation and full-scale process performance analysis. They further demonstrate similitude comparisons of experimental results from different systems as a tool for broadening the applicability of the calculation methods. Throughout, the book adopts a very practical approach, addressing actual problems and projects likely to be encountered by the reader, as well as fundamentals and solution strategies for complex problems. It is thus equally useful for student and professional engineers and chemists involved in industrial process and production plant design, construction or upgrading.

Managing Change with Business Process Simulation-David M. Profozich 1998 This is the first practical guide to simulating business processes and predicting the impact of change. The book offers new tools for reducing the risks associated with strategic change. Pragmatic strategies are given for implementing simulation.

Business Process Modeling Simulation And Design