Advanced Regulatory Control Applications And Techniques

A guide to all practical aspects of building, implementing, managing, and maintaining MPC applications in industrial plants Multivariable Predictive Control: Applications in Industry provides engineers with a thorough understanding of all practical aspects of multivariate predictive control (MPC) applications, as well as expert guidance on how to derive maximum benefit from those systems. Short on theory and long on step-by-step information, it covers everything plant process engineers and control engineers need to know about building, deploying, and managing MPC applications in their companies. MPC has more than proven itself to be one the most important tools for optimising plant operations on an ongoing basis. Companies, worldwide, across a range of industries are successfully using MPC systems to optimise materials and utility consumption, reduce waste, minimise pollution, and maximise production. Unfortunately, due in part to the lack of practical references, plant engineers are often at a loss as to how to manage and maintain MPC systems once the applications have been installed and the consultants and vendors' reps have left the plant. Written by a chemical engineer with two decades of experience in operations and technical services at petrochemical companies, this book fills that regrettable gap in the professional literature. Provides a cost-benefit analysis of typical MPC projects and reviews commercially available MPC software packages Details software implementation steps, as well as techniques for successfully evaluating and monitoring software performance once it has been installed Features case studies and real-world examples from industries, worldwide, illustrating the advantages and common pitfalls of MPC systems Describes MPC application failures in an array of companies, exposes the root causes of those failures, and offers proven safeguards and corrective measures for avoiding similar failures Multivariable Predictive Control: Applications in Industry is an indispensable resource for plant process engineers and control engineers working in chemical plants, petrochemical companies, and oil refineries in which MPC systems already are operational, or where MPC implementations are being considering.

Ideal for classroom use or self-study, this best-selling text has provided thousands of students, technicians, sales people, and others with a practical introduction to the technologies, systems, and strategies involved in industrial process control. The third edition takes the same proven intuitive approach of previous editions. Each chapter begins with basic definitions and mathematical concepts that allow readers to become well versed in the principles necessary to understand the variables that affect process control systems. New features in the third edition include coverage of advanced control-loop tuning methods; magnetostrictive displacement pressure transducers; infrared, microwave, nuclear, radar, and thermal level instruments; radiation, optical, and infrared pyrometers; oxidation-reduction potential measurement; and completely updated material on programmable logic controllers, PC-based control, and human-machine interfaces. The book also includes, for the first time, solutions to exercises that make it more suitable for self-study.

This comprehensive handbook provides a simplified, practical and innovative approach to understanding the design and manufacture of plastic products. It will expand the reader's understanding of plastics technology by defining and focusing on past, current, and future technical trends. The content is presented so that both technical and nontechnical readers can understand the interrelationships of materials to processes. Different plastic products are examined and their related critical factors are shown, from meeting performance requirements in different environments, to reducing costs and targeting for zero defects. Examples used include small to large, and simple to complex shapes. Information is included on static properties (tensile, flexural), dynamic properties (creep, fatigue, impact) and physical and chemical properties. Extensive reference sources and useful data and physical and chemical constants are also provided. Volume 2 offers detailed coverage of most major plastics processing techniques, including injection molding, extrusion, blow molding, and thermoforming.

Plastics Technology Handbook -

A Practical Approach

PEM Fuel Cells

Measurement and Monitoring

Handbook of Polymer Reaction Engineering

Chemical Engineering in the Pharmaceutical Industry

*This new book, by the original developer of the BACnet standards, explains how BACnet's protocols manage all basic building functions in a seamless, integrated way. BACnet is a data communication protocol for building automation and control systems, developed within ASHRAE in cooperation with ANSI and the ISO. This book explains how BACnet works with all major control systems--including those made by Honeywell, Siemens, and Johnson Controls--to manage everything from heating to ventilation to lighting to fire control and alarm systems. BACnet is used today throughout the world for commercial and institutional buildings with complex mechanical and electrical systems. Contractors, architects, building systems engineers, and facilities managers must all be cognizant of BACnet and its applications. With a real 'seat at the table,' you'll find it easier to understand the intent and use of each of the data sharing techniques, controller requirements, and opportunities for interoperability between different manufacturers' controllers and systems. Highlights include: * A review of the history of BACnet and its essential features, including the object model, data links, network technologies, and BACnet system configurations; * Comprehensive coverage of services including object access, file access, remote device management, and BACnet-2012's new alarm and event capabilities; * Insight into future directions for BACnet, including wireless networking, network security, the use of IPv6, extensions for lifts and escalators, and a new set of BACnet Web Services; * Extensive reference appendices for all objects and services; and * Acronyms and abbreviations*

Intended for control system engineers working in the chemical, refining, paper, and utility industries, this book reviews the general characteristics of processes and control loops, provides an intuitive feel for feedback control behavior, and explains how to obtain the required control action witho

This expanded new edition is specifically designed to meet the needs of the process industry, and closes the gap between theory and practice. Back-to-basics approach, with a focus on techniques that have an immediate practical application, and heavy maths relegated to the end of the book Written by an experienced practitioner, highly regarded by major corporations, with 25 years of teaching industry courses Supports the increasing expectations for Universities to teach more practical process control (supported by IChemE)

Process Software and Digital Networks, Fourth Edition

The Art of Successful Information Systems Outsourcing

Applied Mechanics Reviews

Applications and Case Studies

Expert Systems Applications in Advanced Control

Controller Tuning

Without modern instrumentation control, industry would be at a standstill. This book describes advanced regulatory control and its application to continuous processes in a nonmathematical format and in as practical a manner as possible in order to be of benefit to all skill levels.

Ultrasonics is a reliable and proven technology for level measurement. It has been used for decades in many diverse industries such as water treatment, mining, aggregates, cement, and plastics. Ultrasonics provides superior inventory accuracy, process control, and user safety. Understanding Ultrasonic Level Measurement is a comprehensive resource in which you will learn about the history of ultrasonics and discover insights about its systems, installation and applications. This book is designed with many user-friendly features and vital resources including: • Real-life application stories • Diagrams and recommendations that aid both the novice and advanced user in the selection and application of an ultrasonic level measurement system • Glossary of terminology

Describing the principles and applications of single input, single output and multivariable predictive control in a simple and lively manner, this practical book discusses topics such as the handling of on-off control, nonlinearities and numerical problems. It gives guidelines and methods for reducing the computational demand for real-time applications. With its many examples and several case studies (incl. injection molding machine and waste water treatment) and industrial applications (stripping column, distillation column, furnace) this is invaluable reading for students and engineers who would wish to understand and apply predictive control in a wide variety of process engineering application areas.

Fundamentals, Advanced Technologies, and Practical Application

Proceedings of the 1988 American Control Conference

Atlanta Hilton Hotel and Towers, Atlanta, GA., June 15-17, 1988

Instrument Engineers' Handbook, Volume 3

Continuous Process Control

Successes, Techniques, Requirements and Limitations : Proceedings of the Seventeenth Annual Advanced Control Conference, West Lafayette, Indiana, September 30- October 2, 1991

A guide to the important chemical engineering concepts for the development of new drugs, revised second edition The revised and updated second edition of Chemical Engineering in the Pharmaceutical Industry offers a guide to the experimental and computational methods related to drug product design and development. The second edition has been greatly expanded and covers a range of topics related to formulation design and process development of drug products. The authors review basic analytics for quantitation of drug product quality attributes, such as potency, purity, content uniformity, and dissolution, that are addressed with consideration of the applied statistics, process analytical technology, and process control. The 2nd Edition is divided into two separate books: 1) Active Pharmaceutical Ingredients (API's) and 2) Drug Product Design, Development and Modeling. The contributors explore technology transfer and scale-up of batch processes that are exemplified experimentally and computationally. Written for engineers working in the field, the book examines in-silico process modeling tools that streamline experimental screening approaches. In addition, the authors discuss the emerging field of continuous drug product manufacturing. This revised second edition: Contains 21 new or revised chapters, including chapters on quality by design, computational approaches for drug product modeling, process design with PAT and process control, engineering challenges and solutions Covers chemistry and engineering activities related to dosage form design, and process development, and scale-up Offers analytical methods and applied statistics that highlight drug product quality attributes as design features Presents updated and new example calculations and associated solutions Includes contributions from leading experts in the field Written for pharmaceutical engineers, chemical engineers, undergraduate and graduation students, and professionals in the field of pharmaceutical sciences and manufacturing, Chemical Engineering in the Pharmaceutical Industry, Second Edition contains information designed to be of use from the engineer's perspective and spans information from solid to semi-solid to lyophilized drug products.

Liquefied natural gas (LNG) is a commercially attractive phase of the commodity that facilitates the efficient handling and transportation of natural gas around the world. The LNG industry, using technologies proven over decades of development, continues to expand its markets, diversify its supply chains and increase its share of the global natural gas trade. The Handbook of Liquefied Natural Gas is a timely book as the industry is currently developing new large sources of supply and the technologies have evolved in recent years to enable offshore infrastructure to develop and handle resources in more remote and harsher environments. It is the only book of its kind, covering the many aspects of the LNG supply chain from liquefaction to regasification by addressing the LNG industries' fundamentals and markets, as well as detailed engineering and design principles. A unique, well-documented, and forward-thinking work, this reference book provides an ideal platform for scientists, engineers, and other professionals involved in the LNG industry to gain a better understanding of the key basic and advanced topics relevant to LNG projects in operation and/or in planning and development. Highlights the developments in the natural gas liquefaction industries and the challenges in meeting environmental regulations Provides guidelines in utilizing the full potential of LNG assets Offers advices on LNG plant design and operation based on proven practices and design experience Emphasizes technology selection and innovation with focus on a "fit-for-purpose design Updates code and regulation, safety, and security requirements for LNG applications

Addressing the needs of engineers interested in controlling a continuous process and designed to help technicians, salespeople, students, managers and others handle 'real-life' industrial concerns. This book belongs in every library. Divided into two parts, Part I provides a general background on the elements needed for continuous process control. Measurements, control systems, and final control elements are discussed. Simple and complex control techniques including model predictive control are described in detail. Part II shows how these elements are combined to control actual processes. Control strategies are explained and related to process problems and objectives. Specific control designs needed to implement the strategies are described. These designs address such problems as difficult measurements, frequent disturbances, and interacting loops. Contents: Part I: Introduction, Continuous Process Characteristics, Measurement, Pressure and Temperature, Inventory and Throughput, Composition, Control Elements, Controllability, Controllers, Advanced Control Techniques, Control System Architecture, Control System Implementation, Evaluation.Part II: Fired Heater, Exothermic Reactor, Boiler Control, Wastewater Neutralization, Evaporator, Distillation, Gas Fractionation, Paper Mill Steam and Power Distribution, Nitric Acid, Supervisory Control of a Cat Cracker.

Applications and Techniques

Separation Technologies for Minerals, Coal, and Earth Resources

Applications in Industry

Proceedings : April 8-10, Cobo Hall, Detroit, Michigan

Hydrocarbon Processing

Federal Regulation of Methadone Treatment

A blend of the science of outsourcing with the art of managing the intangibles of outsourcing.

This 756-page book examines coal processing, surface forces and hydrophobicity, process improvements and environmental controls, dewatering and drying, gravity separations, industrial minerals flotation, base metal flotation, flotation equipment and practice, process reagents, magnetic and electrostatic separations, modeling and process control, and resource engineering.

The purpose of this book is to provide a balanced introduction to process control and management, aimed at the general process engineer. Rapid changes have occurred in process control over the past decade, mainly because of the deployment of robust and effective digital control equipment, and the development of the models which underpin the area. Historically, process control was seen as simply the maintenance of particular process variables at appropriate setpoints. This very narrow view has been superseded by the view that process control involves the regulation of any given process, in the context of a complete processing plant, to maximise the economic return from the plant. This wider definition brings into play a range of control regimes, from basic regulatory control, through advanced regulatory control, to complex process management. The organization of the book reflects this hierarchy, and is thus split into 3 parts, covering basic regulatory control, advanced process control and finally process management. The book is completed by the inclusion of several useful appendices, covering mathematical modelling, process optimisation and simulation.

Smart Manufacturing

Modern Computer Process Control Refining Units

System Design and Application

Process Control and Management

Kirk-Othmer Encyclopedia of Chemical Technology, Power Generation to Recycling, Glass

Understanding Ultrasonic Level Measurement

Between 1973 and 2016, the ways to manipulate DNA to endow new characteristics in an organism (that is, biotechnology) have advanced, enabling the development of products that were not previously possible. What will the likely future products of biotechnology be over the next 5â€"10 years? What scientific capabilities, tools, and/or expertise may be needed by the regulatory agencies to ensure they make efficient and sound evaluations of the likely future products of biotechnology? Preparing for Future Products of Biotechnology analyzes the future landscape of biotechnology products and seeks to inform forthcoming policy making. This report identifies potential new risks and frameworks for risk assessment and areas in which the risks or lack of risks relating to the products of biotechnology are well understood.

Advanced process control (APC) applications have become a norm for refining and petrochemical units. Evolving along the path of regulatory control to advanced regulatory control (ARC) to conventional APC to multivariable predictive control (MVPC), MVPC technology has not only been well established and proven but also has become the main workhorse of refinery process control and optimization, with several thousand applications implemented in the last 30 years. Recent additions of neural networks technology for inferential predictions, advisory/expert systems for abnormal situation management, and fuzzy logic for combining operating heuristics and rules with mathematical control have increased the control technology arsenal to monitor, control, and optimize during the normal operating period and during periods of fast ramping, feed changes, and unplanned events. This chapter provides the basis of understanding the various control technologies and their integration to meet the safety, operational, and economic objectives of refinery APC applications. The intention is not to provide academic theory of control, but to provide sufficient base knowledge and practical configuration examples of what has actually worked in real-life applications. Cheat-sheet-type configuration for MVPC control and a list of common conventional APC applications required to automate each unit are presented for most of the major refining units.

The Mahalanobis-Taguchi data handling and pattern recognition system is widely established-- built and extended from the original quality control precepts of Genichi Taguchi. But the MT system is not always well understood. This new book makes the system much more vivid and concrete with real-life applications in a wide variety of disciplines from industry to general commerce. The book offers a clear computational method to show the user how to actually apply the system to real manufacturing control problems. With the renowned international industry background of the three authors and their historic ties to Genichi Taguchi, this book will bring a unique insight into how to get the most benefits from the MT System. The book offers an overview of pattern recognition issues and the precepts of the MT system. explains the merits of the MT System and its computational methods. shows how to handle data with the MT System and extract useful information. provides a useful comparison of the advantages and disadvantages between traditional Artificial Intelligence systems and the MT system. provides case study examples of MT Systems applications.

Drug Product Design, Development, and Modeling

Handbook of Liquefied Natural Gas

Supplement to Basic and Advanced Regulatory Control: System Design and Application

Predictive Control in Process Engineering

Quality Recognition & Prediction

Springer Handbook of Petroleum Technology

This is a comprehensive reference on state-of-the art controls and systems for measuring and monitoring bulk solid materials. "Solids Level Measurement and Detection Handbook" features: * Definitions of standard terms and overview of typical problems and solutions in automated bulk materials handling * In-depth coverage of Point Level Detection Technology and Instrumentation * In-depth coverage of Continuous Level Technology and Instrumentation * Explains how automated solids materials can be integrated into inventory management Storing, handling, and processing of bulk solid materials is fundamental to nearly every manufacturing and processing industry, from the food industry and agribusiness, to the plastics industry, to the mining and cement industries, to coal-fired electric utilities. Automating the handling and processing of solids is rapidly growing, but heretofore little has been published on the latest in sensors and controls used in such applications. This book is intended to meet that need, with full coverage, from principles of measuring solid bulk materials to controlling their flow and movement to help with choosing the right equipment for specific applications. Nowhere else in the current literature will industrial engineers, controls engineers, and manufacturing technicians find a better resource on current sensor controls and systems used to automate the handling and process of bulk solid materials.

The 18th European Symposium on Computer Aided Process Engineering contains papers presented at the 18th European Symposium of Computer Aided Process Engineering (ESCAPE 18) held in Lyon, France, from 1-4 June 2008. The ESCAPE series brings the latest innovations and achievements by leading professionals from the industrial and academic communities. The series serves as a forum for engineers, scientists, researchers, managers and students from academia and industry to: - present new computer aided methods, algorithms, techniques related to process and product engineering, - discuss innovative concepts, new challenges, needs and trends in the area of CAPE. This research area bridges fundamental sciences (physics, chemistry, thermodynamics, applied mathematics and computer sciences) with the various aspects of process and product engineering. The special theme for ESCAPE-18 is CAPE for the Users! CAPE systems are to be put in the hands of end users who need functionality and assistance beyond the scientific and technological capacities which are at the core of the systems. The four main topics are: - off-line systems for synthesis and design, - on-line systems for control and operation, - computational and numerical solutions strategies, - integrated and multi-scale modelling and simulation, Two general topics address the impact of CAPE tools and methods on Society and Education. * CD-ROM that accompanies the book contains all research papers and contributions * International in scope with guest speeches and keynote talks from leaders in science and industry * Presents papers covering the latest research, key top areas and developments in Computer Aided Process Engineering

Instrument Engineers' Handbook - Volume 3: Process Software and Digital Networks, Fourth Edition is the latest addition to an enduring collection that industrial automation (AT) professionals often refer to as the "bible." First published in 1970, the entire handbook is approximately 5,000 pages, designed as standalone volumes that cover the measurement (Volume 1), control (Volume 2), and software (Volume 3) aspects of automation. This fourth edition of the third volume provides an in-depth, state-of-the-art review of control software packages used in plant optimization, control, maintenance, and safety.

Each updated volume of this renowned reference requires about ten years to prepare, so revised installments have been issued every decade, taking into account the numerous developments that occur from one publication to the next. Assessing the rapid evolution of automation and optimization in control systems used in all types of industrial plants, this book details the wired/wireless communications and software used. This includes the ever-increasing number of applications for intelligent instruments, enhanced networks, Internet use, virtual private networks, and integration of control systems with the main networks used by management, all of which operate in a linked global environment. Topics covered include: Advances in new displays, which help operators to more quickly assess and respond to plant conditions Software and networks that help monitor, control, and optimize industrial processes, to determine the efficiency, energy consumption, and profitability of operations Strategies to counteract changes in market conditions and energy and raw material costs Techniques to fortify the safety of plant operations and the security of digital communications systems This volume explores why the holistic approach to integrating process and enterprise networks is convenient and efficient, despite associated problems involving cyber and local network security, energy conservation, and other issues. It shows how firewalls must separate the business (IT) and the operation (automation technology, or AT) domains to guarantee the safe function of all industrial plants. This book illustrates how these concerns must be addressed using effective technical solutions and proper management policies and practices. Reinforcing the fact that all industrial control systems are, in general, critically interdependent, this handbook provides a wide range of software application examples from industries including: automotive, mining, renewable energy, steel, dairy, pharmaceutical, mineral processing, oil, gas, electric power, utility, and nuclear power.

Plant IT

Solids Level Measurement and Detection Handbook

Preparing for Future Products of Biotechnology

Integrating Information Technology into Automated Manufacturing

Multivariable Predictive Control

Basic and Advanced Regulatory Control

The discipline of instrumentation has grown appreciably in recent years because of advances in sensor technology and in the interconnectivity of sensors, computers and control systems. This 4e of the Instrumentation Reference Book embraces the equipment and systems used to detect, track and store data related to physical, chemical, electrical, thermal and mechanical properties of materials, systems and operations. While traditionally a key area within mechanical and industrial engineering, understanding this greater and more complex use of sensing and monitoring controls and systems is essential for a wide variety of engineering areas--from manufacturing to chemical processing to aerospace operations to even the everyday automobile. In turn, this has meant that the automation of manufacturing, process industries, and even building and infrastructure construction has been improved dramatically. And now with remote wireless instrumentation, heretofore inaccessible or widely dispersed operations and procedures can be automatically monitored and controlled. This already well-established reference work will reflect these dramatic changes with improved and expanded coverage of the traditional domains of instrumentation as well as the cutting-edge areas of digital integration of complex sensor/control systems. Thoroughly revised, with up-to-date coverage of wireless sensors and systems, as well as nanotechnologies role in the evolution of sensor technology Latest information on new sensor equipment, new measurement standards, and new software for embedded control systems, networking and automated control Three entirely new sections on Controllers, Actuators and Final Control Elements; Manufacturing Execution Systems; and Automation Knowledge Base Up-dated and expanded references and critical standards

This book presents the main methods and techniques for measuring and monitoring the accuracy of geometrical parameters of precision Computer Numerically Controlled (CNC) and automated machines, including modern coordinate measuring machines (CMMs). Highlights include: • Standard methods and means of testing, together with methods newly developed and tested by the authors; • Various parameters, such as straightness, perpendicularity, flatness, pitch, yaw, and roll, as well as the principal processes for measurement of these parameters; • Lists and tables of geometrical accuracy parameters, together with diagrams of arrangements for their control and evaluation of measurement results; • Special methods and some original new devices for measurement and monitoring, information measuring systems (consisting of laser interferometers, photoelectric raster encoders or scales, etc.), and methods for the measurement and testing of circular scales, length scales, and encoders; • Methods for measuring small lengths, gaps, and distances between two surfaces; • Examples showing the suitability of mechatronic methods for high accuracy correction of machines; and • Particular attention is given to the analysis of ISO written standards of accuracy control, terms and definitions, and methods for evaluation of the measurement results during performance verification.

Research efforts in the past decade have led to considerable advances in the concepts and methods of smart manufacturing. Smart Manufacturing: Applications and Case Studies includes information about the key applications of these new methods, as well as practitioners' accounts of real-life applications and case studies. Written by thought leaders in the field from around the world, Smart Manufacturing: Applications and Case Studies is essential reading for graduate students, researchers, process engineers and managers. It is complemented by a companion book titled Smart Manufacturing: Concepts and Methods, which describes smart manufacturing methods in detail. Includes examples of applications of smart manufacturing in process industries Provides a thorough overview of the subject and practical examples of applications through well researched case studies Offers insights and accounts of first-hand experiences to motivate further implementations of the key concepts of smart manufacturing

Measurement and Control Basics

From the Basics to the Applications

18th European Symposium on Computer Aided Process Engineering

Smarter Pattern Technology with the Mahalanobis-Taguchi System

Instrumentation Reference Book

Process Control Basics

PEM Fuel Cells: Fundamentals, Advanced Technologies, and Practical Application provides a comprehensive introduction to the principles of PEM fuel cell, their working condition and application, and the latest breakthroughs and challenges for fuel cell technology. Each chapter follows a systematic and consistent structure with clear illustrations and diagrams for easy understanding. The opening chapters address the basics of PEM technology; stacking and membrane electrode assembly for PEM, degradation mechanisms of electrocatalysts, platinum dissolution and redeposition, carbon-support corrosion, bipolar plates and carbon nanotubes for the PEM, and gas diffusion layers. Thermodynamics, operating conditions, and electrochemistry address fuel cell efficiency and the fundamental workings of the PEM. Instruments and techniques for testing and diagnosis are then presented alongside practical tests. Dedicated chapters explain how to use MATLAB and COMSOL to conduct simulation and modeling of catalysts, gas diffusion layers, assembly, and membrane. Degradation and failure modes are discussed in detail, providing strategies and protocols for mitigation. High-temperature PEMs are also examined, as are the fundamentals of EIS. Critically, the environmental impact and life cycle of the production and storage of hydrogen are addressed, as are the risk and durability issues of PEMFC technology. Dedicated chapters are presented on the economics and commercialization of PEMFCs, including discussion of installation costs, initial capital costs, and the regulatory frameworks; apart from this, there is a separate chapter on their application to the automotive industry. Finally, future challenges and applications are considered. PEM Fuel Cells: Fundamentals, Advanced Technologies, and Practical Application provides an in-depth and comprehensive reference on every aspect of PEM fuel cells fundamentals, ideal for researchers, graduates, and students. Presents the fundamentals of PEM fuel cell technology, electrolytes, membranes, modeling, conductivity, recent trends, and future applications Addresses commercialization, public policy, and the environmental impacts of PEMFC in dedicated chapters Presents state-of-the-art PEMFC research alongside the underlying concepts

Information Technology (IT) is an important element of plant floor operations and Dennis Brandl's monthly column on Manufacturing IT in Control Engineering magazine covers IT aspects that are critical to modern manufacturing. This book expands on the magazine's explanations of the concepts and tools needed to achieve higher manufacturing productivity and efficiencies. Written for manufacturing professionals, the book overviews the wide range of IT elements underlying the manufacturing IT environment. It provides you with the information to be conversant in IT elements and to effectively manage and participate in manufacturing IT projects. Each chapter of the book discusses an IT issue that is important to a manufacturing company, including practical programming, real-world design considerations, databases and master data management, knowledge management, tools and programming languages, cyber security, managing resource information and regulations. And because software engineering is a foundation for all IT elements, this book also provides important points about software engineering and software project management for non-software engineers who must manage or participate in IT projects. Familiarity with all these topics will help you facilitate cooperation between manufacturing and IT professionals to achieve more effective implementations of plant floor operations IT— resulting in increased production productivity and product quality.

This handbook provides a comprehensive but concise reference resource for the vast field of petroleum technology. Built on the successful book "Practical Advances in Petroleum Processing" published in 2006, it has been extensively revised and expanded to include upstream technologies. The book is divided into four parts: The first part on petroleum characterization offers an in-depth review of the chemical composition and physical properties of petroleum, which determine the possible uses and the quality of the products. The second part provides a brief overview of petroleum geology and upstream practices. The third part exhaustively discusses established and emerging refining technologies from a practical perspective, while the final part describes the production of various refining products, including fuels and lubricants, as well as petrochemicals, such as olefins and polymers. It also covers process automation and real-time refinery-wide process optimization. Two key chapters provide an integrated view of petroleum technology, including environmental and safety issues.Written by international experts from academia, industry and research institutions, including integrated oil companies, catalyst suppliers, licensors, and consultants, it is an invaluable resource for researchers and graduate students as well as practitioners and professionals.

Control System Migrations

15th Annual ESD/SMI International Programmable Controllers Conference & Exposition

Regulatory and Advanced Regulatory Control

Application Techniques

Advanced Regulatory Control

Process Control

Contains a library of information for the chemical industry. The 4th edition has undergone a complete revision, with the inclusion of many new subjects which reflect the growth in chemical technology through the 1990s. The book includes expanded coverage of biotechnology and materials science.

For nearly three decades, methadone hydrochloride has been the primary means of treating opiate addiction. Today, about 115,000 people receive such treatment, and thousands more have benefited from it in the past. Even though methadone's effectiveness has been well established, its use remains controversial, a fact reflected by the extensive regulation of its manufacturing, labeling, distribution, and use. The Food and Drug Administration regulates the safety and effectiveness of methadone, as it does for all drugs, and the Drug Enforcement Administration regulates it as a controlled substance. However, methadone is also subjected to a unique additional tier of regulation that prescribes how and under what circumstances it may be used to treat opiate addiction. Federal Regulation of Methadone Treatment examines current Department of Health and Human Services standards for narcotic addiction treatment and the regulation of methadone treatment programs pursuant to those standards. The book includes an evaluation of the effect of federal regulations on the provision of methadone treatment services and an exploration of options for modifying the regulations to allow optimal clinical practice. The volume also includes an assessment of alternatives to the existing regulations.

A Practical Project Management Handbook