Ebook free Solved examples in chemical engineering roy (2023)

Reaction Engineering Principles Chemical Process Equipment Chemical Process Equipment - Selection and Design (Revised 2nd Edition) Computer-Aided Design of Fluid Mixing Equipment Chemical Process Safety The Language of Chemical Engineering in English Coulson and Richardson's Chemical Engineering The Chemical Process Industries Infrastructure Pre-treatment Methods of Lignocellulosic Biomass for Biofuel Production Advances in Chemical Propulsion Material Engineering And Science Chemical Process Safety EBook Collection Surface Engineering for Enhanced Performance against Wear Rheology for Chemists Fluid Mechanics and Heat Transfer Careers in Chemical and Biomolecular Engineering Nanotechnology in Industrial Wastewater Treatment Issues in Chemical Engineering and other Chemistry Specialties: 2011 Edition Methodologies and Applications for Chemoinformatics and Chemical Engineering Transport in Porous Catalysts Chemical Education in the Seventies One Hundred Years of Chemical Engineering Chemical Engineering at the University of Arkansas Interim Design Assessment for the Blue Grass Chemical Agent Destruction Pilot Plant Makers of Jadavpur: A Technological Perspective Chemical Engineering Study Guide for Chemistry Recent Advances in Chemical Engineering Chemical Engineering Volume 2 Chemical Engineering Progress Green Sustainable Process for Chemical and Environmental Engineering and Science Journal of the Institution of Engineers (India). World Guide to Universities - Internationales Universitäts-Handbuch University of Michigan Official Publication Chemical Process Equipment Chemical Engineering Primer with Computer Applications Nuclear Corrosion Modeling Chemistry Chemistry and Technology of Lubricants

Reaction Engineering Principles 2018-09-03 chemical reaction engineering is at the core of chemical engineering education unfortunately the subject can be intimidating to students because it requires a heavy dose of mathematics these mathematics unless suitably explained in the context of the physical phenomenon can confuse rather than enlighten students bearing this in mind reaction engineering principles is written primarily from a student s perspective it is the culmination of the author s more than twenty years of experience teaching chemical reaction engineering the textbook begins by covering the basic building blocks of the subject stoichiometry kinetics and thermodynamics ensuring students gain a good grasp of the essential concepts before venturing into the world of reactors the design and performance evaluation of reactors are conveniently grouped into chapters based on an increasing degree of difficulty accordingly isothermal reactors batch and ideal flow types are addressed first followed by non isothermal reactor operation non ideal flow in reactors and some special reactor types for better comprehension detailed derivations are provided for all important mathematical equations narrative of the physical context in which the formulae work adds to the clarity of thought the use of mathematical formulae is elaborated upon in the form of problem solving steps followed by worked examples effects of parameters changing trends and comparisons between different situations are presented graphically self practice exercises are included at the end of each chapter

Chemical Process Equipment 2012-09-19 first published chemical process equipment stanley m walas 1988

Chemical Process Equipment - Selection and Design (Revised 2nd Edition) 2009-08-11 a facility is only as efficient and profitable as the equipment that is in it this highly influential book is a powerful resource for chemical process or plant engineers who need to select design or configures plant successfully and profitably it includes updated information on design methods for all standard equipment with an emphasis on real world process design and performance the comprehensive and influential guide to the selection and design of a wide range of chemical process equipment used by engineers globally copious examples of successful applications with supporting schematics and data to illustrate the functioning and performance of equipment revised edition new material includes updated equipment cost data liquid solid and solid systems and the latest information on membrane separation technology provides equipment rating forms and manufacturers data worked examples valuable shortcut methods rules of thumb and equipment rating forms to demonstrate and support the design process heavily illustrated with many line drawings and schematics to aid understanding graphs and tables to illustrate performance data

Computer-Aided Design of Fluid Mixing Equipment 2021-08-21 computer aided design of fluid mixing equipment a guide and tool for practicing engineers helps practicing design and operations engineers in solving their agitation and mixing problems the book provides the practicing engineer with the tools necessary to evaluate the performance of existing agitation and mixing equipment along with tactics on how to design new equipment using computerized rating and design methods the most appropriate design techniques are also included in computer programs for solving mixing problems for the practicing engineer excel solutions are available through the web for 40 example problems in the book web based general purpose calcedge design programs are also available the tk6 source codes are also available provides the practicing engineer with the tools necessary to evaluate the performance of existing equipment and to design new equipment using computerized rating and design methods explains the principles required to understand and use recommended design methods implements design methods that are readily available and easy to use presents sufficient worked examples using provided canned programs to guide the user in analyzing and designing mixing equipment

Chemical Process Safety 1999 full text engineering e book

The Language of Chemical Engineering in English 1979 coulson and richardson's chemical engineering has been fully revised and updated to provide practitioners with an overview of chemical engineering each reference book provides clear explanations of theory and thorough coverage of practical applications supported by case studies a worldwide team of editors and contributors have pooled their experience in adding new content and revising the old the authoritative style of the original volumes 1 to 3 has been retained but the content has been brought up to date and altered to be more useful to practicing engineers this complete reference to chemical engineering will support you throughout your career as it covers every key chemical engineering topic coulson and richardson's chemical engineering volume 1b heat and mass transfer fundamentals and applications seventh edition covers two of the main transport processes of interest to chemical engineers heat transfer and mass transfer and the relationships among them covers two of the three main transport processes of interest to chemical engineers heat transfer and mass transfer and the relationships between them includes reference material

converted from textbooks explores topics from foundational through technical includes emerging applications numerical methods and computational tools Coulson and Richardson's Chemical Engineering 2017-11-28 coulson and richardson's chemical engineering has been fully revised and updated to provide practitioners with an overview of chemical engineering each reference book provides clear explanations of theory and thorough coverage of practical applications supported by case studies a worldwide team of editors and contributors have pooled their experience in adding new content and revising the old the authoritative style of the original volumes 1 to 3 has been retained but the content has been brought up to date and altered to be more useful to practicing engineers this complete reference to chemical engineering will support you throughout your career as it covers every key chemical engineering topic coulson and richardson's chemical engineering volume 1a fluid flow fundamentals and applications seventh edition covers momentum transfer fluid flow which is one of the three main transport processes of interest to chemical engineers covers momentum transfer fluid flow which is one of the three main transport processes of interest to chemical engineers includes reference material converted from textbooks explores topics from foundational through technical includes emerging applications numerical methods and computational tools

Coulson and Richardson's Chemical Engineering 2017-11-28 covers global and domestic competition marketing strategies operating expenses and environmental and safety regulations for chemical professionals at all levels contains up to date mergers and acquisitions of chemical companies

The Chemical Process Industries Infrastructure 2000-11-08 bioconversion of lignocellulosic biomass to biofuel is materially obstructed by the compositional and chemical complexity of biomaterials resulting in a challenge in using these as raw materials for the biofuel production process this book explains various lignocellulosic biomass pre treatment methods with emphasis on concepts practicability mechanisms of action and advantages and disadvantages and potential for industrial applications it also highlights the main challenges and suggests possible ways to make these pre treatment technologies feasible for the biofuel industry features presents different pre treatment technologies available for lignocellulosic biomass in a concise manner covers use of different pre treatment methods in laboratory to industrial scales includes combined pre treatment and deep eutectic solvents methods discusses problems related to industrial adaptation and corresponding economics of different techniques explores significant fuels and chemicals derived from lignocellulosic biomass this book is aimed at graduate students and researchers working on biomass conversion characterization cellulose hemicellulose lignin microbial enzymes fermentation technology and industrial biotechnology

Pre-treatment Methods of Lignocellulosic Biomass for Biofuel Production 2021-08-31 complex vast and multidisciplinary chemical propulsion has been the subject of extensive investigation over the past few decades under the leadership of gabriel roy this has been particularly true at the office of naval research onr where his team has focused on the three primary goals of combustion research improving the efficiency increasing the range and speed and reducing the emissions and signatures of combustion systems advances in chemical propulsion science to technology reports on the progress achieved by the outstanding team of scientists and engineers participating in the onr propulsion program its chapters each written by the scientists who performed the research cover all aspects of the combustion process from chemical synthesis to reaction pathways of the fuel from combustor performance to the reduction of emissions from the sooting problem to thrust vectoring and from diagnostics to control they discuss the relevant issues describe the approach used and the results obtained and show how the findings can be extended to practical applications richly illustrated and carefully edited for clarity uniformity and readability advances in chemical propulsion offers a comprehensive survey of the field from pre to post combustion it suggests directions for new research efforts and reflects the state of the art technologies and issues that have a direct impact on combustion systems both present and future Advances in Chemical Propulsion 2001-10-25 the book provides a concise but comprehensive analysis of the subject matter in a way that is easy to understand and enjoyable to read it does this by evaluating systematically and logically the underlying concepts and the way they are employed which makes it simpler for students to comprehend the subject matter the first section of the book offers a condensed overview of some of the most basic ideas in chemistry such as the structure of atoms the chemical bonds that bind them together chemical equilibrium or kinetics this all encompassing and introductory book provides the fundamental background information that is required to comprehend the science of framework relationships additionally it will address the engineering issues of material choice in design handling materials into beneficial materials and also how materials degrade and fail while in service specific subjects covered include mechanical electrical magnetic or optical characteristics degradation failure and dependability thermodynamics kinetics processing and physical and electronic structure the book provides treatment of electrical optical or magnetic materials that is superior to that

provided by rival texts the major purpose of these books is to provide readers with fundamental information about engineering materials the course covers all topics beginning with the kinetics thermodynamics and crystallographic facets of engineering components the atomic structures as well as bonding throughout solids elaborates also on the framework of crystalline solids and the thermodynamics of solids comprises a discussion on the composition and structure of phase diagrams as well as the strengthening of materials

Material Engineering And Science 2022-11-21 chemical process safety ebook collection contains 5 of our best selling titles providing the ultimate reference for every process safety engineer s library get access to over 2500 pages of reference material at a fraction of the price of the hard copy books this cd contains the complete ebooks of the following 5 butterworth heinemann titles vince major accidents to the environment 9780750683890 sanders chemical process safety 9780750677493 kletz learning from accidents 9780750648837 stranks human factors and behavioural safety 9780750681551 tweeddale managing risk and reliability of process plants 9780750677349 five fully searchable titles on one cd providing instant access to the ultimate library of engineering materials for process safety professionals 2500 pages of practical and theoretical process safety information in one portable package incredible value at a fraction of the cost of the print books

Chemical Process Safety EBook Collection 2008-07-22 surface engineering constitutes a variety of processes and sub processes each chapter of this work covers specific processes by experts working in the area included for each topic are tribological performances for each process as well as results of recent research the reader also will benefit from in depth studies of diffusion coatings nanocomposite films for wear resistance surfaces for biotribological applications thin film wear tribology of thermal sprayed coatings hardfacing plating for tribology and high energy beam surface modifications material scientists as well as engineers working with surface engineering for tribology will be particularly interested in this work

Surface Engineering for Enhanced Performance against Wear 2013-04-04 rheology is primarily concerned with materials scientific engineering and everyday products whose mechanical behaviour cannot be described using classical theories from biological to geological systems the key to understanding the viscous and elastic behaviour firmly rests in the relationship between the interactions between atoms and molecules and how this controls the structure and ultimately the physical and mechanical properties rheology for chemists an introduction takes the reader through the range of rheological ideas without the use of the complex mathematics the book gives particular emphasis on the temporal behaviour and microstructural aspects of materials and is detailed in scope of reference an excellent introduction to the newer scientific areas of soft matter and complex fluid research the second edition also refers to system dimension and the maturing of the instrumentation market this book is a valuable resource for practitioners working in the field and offers a comprehensive introduction for graduate and post graduates extracts from reviews of 1st edition well suited for self study by research workers and technologists who confronted with technical problems in this area would like a straightforward introduction to the subject of rheology chemical educator full of valuable insights and up to date information chemistry world

Rheology for Chemists 2008 this practical book provides instruction on how to conduct several hands on experiments for laboratory demonstration in the teaching of heat transfer and fluid dynamics it is an ideal resource for chemical engineering mechanical engineering and engineering technology professors and instructors starting a new laboratory or in need of cost effective and easy to replicate demonstrations the book details the equipment required to perform each experiment much of which is made up of materials readily available is most laboratories along with the required experimental protocol and safety precautions background theory is presented for each experiment as well as sample data collected by students and a complete analysis and treatment of the data using correlations from the literature

Fluid Mechanics and Heat Transfer 2018-01-31 the scope of opportunities in chemical and biomolecular engineering has grown tremendously in recent years careers in chemical and biomolecular engineering conveys the breadth and depth of today s chemical and biomolecular engineering practice and describes the intellectually enriching socially conscious and financially lucrative opportunities available for such graduates in an ever widening array of industries and applications this book aims to help students interested in studying chemical engineering and biomolecular engineering to understand the many potential career pathways that are available in these dynamic fields and is an indispensable resource for the parents teachers advisors and guidance counselors who support them in addition to 10 chapters that discuss the roles such graduates play in many diverse industries this book also features 25 profile articles that share in depth first person insight from industry leading chemical and biomolecular engineers these technical professionals discuss their

work and educational experiences in terms of both triumphs and challenges and share wisdom and recommendations for students pursuing these two dynamic engineering disciplines

Careers in Chemical and Biomolecular Engineering 2018-09-03 nanotechnology in industrial wastewater treatment is a state of the art reference book the book is particularly useful for wastewater technology development laboratories and organizations all professional and academic areas connected with environmental engineering nanotechnology based wastewater treatment and related product design are incorporated and provide an essential resource the book describes the application and synthesis of ca based and magnetic nano materials and their potential application for removal treatment of heavy metals from wastewater nanotechnology in industrial wastewater treatment discusses the rapid wastewater treatment methods using ca based nanomaterials and magnetic nanomaterials this is an emerging area of new science and technology in wastewater treatment the main audiences for the book are water industry professionals research scholars and students in the area of environmental engineering and nanotechnology authors dr arup roy department of mining engineering geo environmental lab indian institute of technology kharagpur india and professor jayanta bhattacharya department of mining engineering geo environmental lab indian institute of technology kharagpur india

Nanotechnology in Industrial Wastewater Treatment 2015-01-15 issues in chemical engineering and other chemistry specialties 2011 edition is a scholarlyeditions ebook that delivers timely authoritative and comprehensive information about chemical engineering and other chemistry specialties the editors have built issues in chemical engineering and other chemistry specialties 2011 edition on the vast information databases of scholarlynews you can expect the information about chemical engineering and other chemistry specialties in this ebook to be deeper than what you can access anywhere else as well as consistently reliable authoritative informed and relevant the content of issues in chemical engineering and other chemistry specialties 2011 edition has been produced by the world's leading scientists engineers analysts research institutions and companies all of the content is from peer reviewed sources and all of it is written assembled and edited by the editors at scholarlyeditions and available exclusively from us you now have a source you can cite with authority confidence and credibility more information is available at scholarlyeditions com

Issues in Chemical Engineering and other Chemistry Specialties: 2011 Edition 2012-01-09 in recent years significant advances have been made in the development of chemistry and computer science integration into the fields of biomedical and chemical engineering applying quantum principles to practical macro world science methodologies and applications for chemoinformatics and chemical engineering brings together innovative research new concepts and novel developments in the application of informatics tools for applied chemistry and computer science this book is essential amongst chemists engineers and researchers in providing mutual communication between academics and industry professionals around the world

Methodologies and Applications for Chemoinformatics and Chemical Engineering 2013-05-31 chemical education in the seventies discusses the major innovations and programs in chemical education from various countries the book provides a discourse regarding the aspects of chemistry curriculum of primary secondary and college level which includes laboratory work examination reforms and training of teachers the text also discusses information regarding interactions between chemistry and society such as contributions made by the chemical industry for the education of students at the primary secondary and tertiary levels the selection will appeal to a wide variety of readers particularly to teachers of general science and chemistry in industrialized and developing countries

Transport in Porous Catalysts 1977 one hundred years ago in september 1888 professor lewis mills norton 1855 1893 of the chemistry department of the massachusetts institute of technology introduced to the curriculum a course on industrial chemical practice this was the first structured course in chemical engineer ing taught in a university ten years later norton's successor frank history published the first textbook in chemical engineering entitled outlines of industrial chemistry over the years chemical engineering developed from a simple industrial chemical analysis of processes into a mature field the volume presented here includes most of the commissioned and contributed papers presented at the american chemical society symposium celebrating the centenary of chemical engineering the contributions are presented in a logical way starting first with the history of chemical engineering followed by analyses of various fields of chemical engineering and concluding with the history of various us and european departments of chemical engineering i wish to thank the authors of the contributions chapters of this volume for their enthusiastic response to my idea of publishing this volume and drigianni astarita of the university of naples italy for his encouragement during the initial stages of this project

Chemical Education in the Seventies 2013-10-22 because of concerns about incineration the department of defense plans to use alternative means to destroy the chemical agent stockpiles at the pueblo and blue grass facilities the dod contracted with bechtel parsons to design and operate pilot plants for this purpose as part of the nrc efforts to assist the dod with its chemical demilitarization efforts the department requested a review and assessment of the bechtel designs for both plants an earlier report presented an assessment of the pueblo design this report provides a review of the blue grass chemical agent destruction pilot plant based on review of data and information about the initial design and some intermediate design data among other topics the report presents technical risk assessment issues an analysis of delivery and disassembly operations and of agent destruction core processes and an examination of waste treatment

One Hundred Years of Chemical Engineering 2012-12-06 this volume is authored by rajat k baisya alumnus of the department of food technology and biochemical engineering and a distinguished scholar author and management consultant the foundations of jadavpur university and its origins as a technological institution imagined in a nationalist mould established as a counter to the colonial british education and as a part of the movement for independence are relatively well known what is less explored is the journey that the national council of education underwent to transform itself into the jadavpur university as a premier institution of higher learning in india at the present time jadavpur university has a number of stalwart professors to thank for its worldwide reputation this book covers the biographies of twenty two such professors of the faculty of engineering and technology written from the technological perspective the book attempts to trace a form of history of jadavpur university through the microhistories of the individuals responsible for its beginnings and subsequent growth

Chemical Engineering at the University of Arkansas 2002-01-01 the book introduces the outcomes of latest research in the field of chemical engineering the book also illustrates the application of chemical engineering principles to provide innovative and state of the art solutions to problems associated with chemical industries it covers a wide spectrum of topics in the area of chemical engineering such as transfer operations novel separation processes adsorption photooxidation process control modelling and simulation the book provides timely contribution towards implementation of recent approaches and methods in chemical engineering research it presents chapters focussed on several chemical engineering principles and methodologies of wide multidisciplinary applicability the intended audience of this book will mainly consist of researchers research students and practitioners in chemical engineering and allied fields the book can also serve researchers and students involved in multidisciplinary research

Interim Design Assessment for the Blue Grass Chemical Agent Destruction Pilot Plant 2005-10-25 chemical engineering volume 2 covers the properties of particulate systems including the character of individual particles and their behaviour in fluids sedimentation of particles both singly and at high concentrations flow in packed and fluidised beads and filtration are then examined the latter part of the book deals with separation processes such as distillation and gas absorption which illustrate applications of the fundamental principles of mass transfer introduced in chemical engineering volume 1 in conclusion several techniques of growing importance adsorption ion exchange chromatographic and membrane separations and process intensification are described a logical progression of chemical engineering concepts volume 2 builds on fundamental principles contained in chemical engineering volume 1 and these volumes are fully cross referenced reflects the growth in complexity and stature of chemical engineering over the last few years supported with further reading at the end of each chapter and graded problems at the end of the book

Makers of Jadavpur: A Technological Perspective 2021-04-02 green sustainable process for chemical and environmental engineering and science methods for producing smart packaging covers the latest advances in the development and production of smart packaging the book addresses issues related to the production of smart packaging including marketing and environmental impacts of these new products the book demonstrates how modern packaging goes beyond protecting food against physical chemical and biological damage and that scientific advances now enable producing functional packaging that prolongs product quality preserves physical and chemical properties produces greater protection against transportation shocks and makes food more compact and easily recycled examines methods for producing smart packaging assesses the global impact of the use of smart packaging describes varied properties of active packaging features content written by experienced researchers evaluated by experienced referees in the field Chemical Engineering 2003 list of examples rules of thumb introduction flowsheets process control drivers for moving equipment transfer of solids flow of fluids fluid transport equipment heat transfer and heat exchangers dryers and cooling towers mixing and agitation solid liquid separation disintegration

agglomeration and size separation of particulate solids distillation and gas absorption extraction and leaching adsorption and ion exchange crystallization from solutions and melts chemical reactors process vessels other topics costs of individual equipment appendices index

Study Guide for Chemistry 2014-05-08 taking a highly pragmatic approach to presenting the principles and applications of chemical engineering this companion text for students and working professionals offers an easily accessible guide to solving problems using computers the primer covers the core concepts of chemical engineering from conservation laws all the way up to chemical kinetics without heavy stress on theory and is designed to accompany traditional larger core texts the book presents the basic principles and techniques of chemical engineering processes and helps readers identify typical problems and how to solve them focus is on the use of systematic algorithms that employ numerical methods to solve different chemical engineering problems by describing and transforming the information problems are assigned for each chapter ranging from simple to difficult allowing readers to gradually build their skills and tackle a broad range of problems matlab and excel are used to solve many examples and the more than 70 real examples throughout the book include computer or hand solutions or in many cases both the book also includes a variety of case studies to illustrate the concepts and a downloadable file containing fully worked solutions to the book s problems on the publisher s website introduces the reader to chemical engineering computation without the distractions caused by the contents found in many texts provides the principles underlying all of the major processes a chemical engineer may encounter as well as offers insight into their analysis which is essential for design calculations shows how to solve chemical engineering problems using computers that require numerical methods using standard algorithms such as matlab and excel contains selective solved examples of many problems within the chemical process industry to demonstrate how to solve them using the techniques presented in the text includes a variety of case studies to illustrate the concepts and a downloadable file containing fully worked solutions to problems on the publisher s website offers non chemical engineers who are expected to work with chemical engineers on projects scale ups and process evaluations a solid understanding of basic concepts of chemical engineering analysis design and calculations

Recent Advances in Chemical Engineering 2016-10-12 corrosion in nuclear power plants cause reductions in efficiency and increases in deposit build up on plant surfaces making for expensive maintentance and potential radiological health hazards this book guides studies to predict and minimize corrosion thus making nuclear power safer and more cost effective too often reliance on empirical models and on site testing of existing plants makes study and prediction of corrosive effects in nuclear reactors into a pricey and lengthy process introducing the experimental procedures set up sample preparation and computer modeling suggested in this book will save precious time and resources in a field where the significant time and expense to get and keep plants on line are two of the chief concerns preventing broader commerical viability the only book to focus exclusively on preventing nuclear corrosion uses computer modelling to tie together chemical engineering civil engineering corrosion science and nuclear engineering into a cohesive solution to a vexing nuclear problem includes all fundamental equations example data sets and experimental techniques

Chemical Engineering Volume 2 2013-10-22 chemistry human activity chemical reactivity is an integrated print digital resource package which presents chemistry as it is a contemporary engaging human endeavour not just old theories illustrated with facts this integrated resource presents chemistry as an integrated whole blending as far as possible organic physical and inorganic chemistry phenomena with thought provoking case studies vibrant illustrations and models that enable visualization and critical thinking without compromising scientific rigour

Chemical Engineering Progress 1955

Green Sustainable Process for Chemical and Environmental Engineering and Science 2023-01-14

Journal of the Institution of Engineers (India). 1983

World Guide to Universities - Internationales Universitäts-Handbuch 1976

University of Michigan Official Publication 1956

Chemical Process Equipment 2005-01-06

Chemical Engineering Primer with Computer Applications 2016-10-14

Nuclear Corrosion Modeling 2009

Chemistry 2011

Chemistry and Technology of Lubricants 2014-09-01

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