

Bioprocess Engineering Principles

RIGHT HERE, WE HAVE COUNTLESS EBOOK **BIOPROCESS ENGINEERING PRINCIPLES** AND COLLECTIONS TO CHECK OUT. WE ADDITIONALLY GIVE VARIANT TYPES AND FURTHERMORE TYPE OF THE BOOKS TO BROWSE. THE AGREEABLE BOOK, FICTION, HISTORY, NOVEL, SCIENTIFIC RESEARCH, AS WELL AS VARIOUS SUPPLEMENTARY SORTS OF BOOKS ARE READILY CLEAR HERE.

AS THIS BIOPROCESS ENGINEERING PRINCIPLES, IT ENDS TAKING PLACE MAMMAL ONE OF THE FAVORED BOOK BIOPROCESS ENGINEERING PRINCIPLES COLLECTIONS THAT WE HAVE. THIS IS WHY YOU REMAIN IN THE BEST WEBSITE TO SEE THE UNBELIEVABLE BOOK TO HAVE.

PRINCIPLES OF BIOSEPARATIONS ENGINEERING - RAJA GHOSH
2006-10-23

BIOSEPARATIONS ENGINEERING DEALS WITH THE SCIENTIFIC AND ENGINEERING PRINCIPLES INVOLVED IN LARGE-SCALE SEPARATION AND PURIFICATION OF BIOLOGICAL PRODUCTS. IT IS A KEY COMPONENT OF MOST CHEMICAL ENGINEERING/BIOTECHNOLOGY/BIOPROCESS ENGINEERING PROGRAMMES. THIS BOOK DISCUSSES THE UNDERLYING PRINCIPLES OF BIOSEPARATIONS ENGINEERING WRITTEN FROM THE PERSPECTIVE OF AN UNDERGRADUATE COURSE. IT COVERS MEMBRANE BASED BIOSEPARATIONS IN MUCH MORE DETAIL THAN SOME OF THE OTHER BOOKS ON BIOSEPARATIONS

ENGINEERING. BASED LARGELY ON THE LECTURE NOTES THE AUTHOR DEVELOPED TO TEACH THE COURSE, THIS BOOK IS ESPECIALLY SUITABLE FOR USE AS AN UNDERGRADUATE LEVEL TEXTBOOK, AS MOST OTHER TEXTBOOKS ARE TARGETED AT GRADUATE STUDENTS.

FUNDAMENTAL BIOENGINEERING - JOHN VILLADSEN
2016-02-23

A THOROUGH INTRODUCTION TO THE BASICS OF BIOENGINEERING, WITH A FOCUS ON APPLICATIONS IN THE EMERGING "WHITE" BIOTECHNOLOGY INDUSTRY. AS SUCH, THIS LATEST VOLUME IN THE "ADVANCED BIOTECHNOLOGY" SERIES COVERS THE PRINCIPLES FOR THE DESIGN AND ANALYSIS

OF INDUSTRIAL BIOPROCESSES AS WELL AS THE DESIGN OF BIOREMEDIATION SYSTEMS, AND SEVERAL BIOMEDICAL APPLICATIONS. NO FEWER THAN SEVEN CHAPTERS INTRODUCE STOICHIOMETRY, KINETICS, THERMODYNAMICS AND THE DESIGN OF IDEAL AND REAL BIOREACTORS, ILLUSTRATED BY MORE THAN 50 PRACTICAL EXAMPLES. FURTHER CHAPTERS DEAL WITH THE TOOLS THAT ENABLE AN UNDERSTANDING OF THE BEHAVIOR OF CELL CULTURES AND ENZYMATICALLY CATALYZED REACTIONS, WHILE OTHERS DISCUSS THE ANALYSIS OF CULTURES AT THE LEVEL OF THE CELL, AS WELL AS STRUCTURAL FRAMEWORKS FOR THE SUCCESSFUL SCALE-UP OF BIOREACTIONS. IN ADDITION, A SHORT SURVEY OF DOWNSTREAM PROCESSING OPTIONS AND THE CONTROL OF BIOREACTIONS IS GIVEN. WITH CONTRIBUTIONS FROM LEADING EXPERTS IN INDUSTRY AND ACADEMIA, THIS IS A COMPREHENSIVE SOURCE OF INFORMATION PEER-REVIEWED BY EXPERTS IN THE FIELD.

BIOCHEMICAL ENGINEERING, SECOND EDITION - DOUGLAS S. CLARK 1997-02-14

THIS WORK PROVIDES COMPREHENSIVE COVERAGE OF MODERN BIOCHEMICAL ENGINEERING, DETAILING THE BASIC CONCEPTS UNDERLYING THE BEHAVIOUR OF BIOPROCESSES AS WELL AS ADVANCES IN BIOPROCESS AND BIOCHEMICAL ENGINEERING SCIENCE. IT INCLUDES DISCUSSIONS OF TOPICS SUCH AS ENZYME KINETICS AND BIOCATALYSIS, MICROBIAL GROWTH AND PRODUCT FORMATION, BIOREACTOR DESIGN, TRANSPORT

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IN BIOREACTORS, BIOPRODUCT RECOVERY AND BIOPROCESS ECONOMICS AND DESIGN. A SOLUTIONS MANUAL IS AVAILABLE TO INSTRUCTORS ONLY.

BIOPROCESS ENGINEERING - MICHAEL L. SHULER 2002

THIS CONCISE YET COMPREHENSIVE TEXT INTRODUCES THE ESSENTIAL CONCEPTS OF BIOPROCESSING - INTERNAL STRUCTURE AND FUNCTIONS OF DIFFERENT TYPES OF MICROORGANISMS, MAJOR METABOLIC PATHWAYS, ENZYMES, MICROBIAL GENETICS, KINETICS AND STOICHIOMETRY OF GROWTH AND PRODUCT INFORMATION - TO TRADITIONAL CHEMICAL ENGINEERS AND THOSE IN RELATED DISCIPLINES. IT EXPLORES THE ENGINEERING PRINCIPLES NECESSARY FOR BIOPROCESS SYNTHESIS AND DESIGN, AND ILLUSTRATES THE APPLICATION OF THESE PRINCIPLES TO MODERN BIOTECHNOLOGY FOR PRODUCTION OF PHARMACEUTICALS AND BIOLOGICS, SOLUTION OF ENVIRONMENTAL PROBLEMS, PRODUCTION OF COMMODITIES, AND MEDICAL APPLICATIONS.

BIOCHEMICAL ENGINEERING - SHIGEO KATOH 2015-02-02
COMPLETELY REVISED, UPDATED, AND ENLARGED, THIS SECOND EDITION NOW CONTAINS A SUBCHAPTER ON BIORECOGNITION ASSAYS, PLUS A CHAPTER ON BIOPROCESS CONTROL ADDED BY THE NEW CO-AUTHOR JUN-ICHI HORIUCHI, WHO IS ONE OF THE LEADING EXPERTS IN THE FIELD. THE CENTRAL THEME OF THE TEXTBOOK REMAINS THE APPLICATION OF CHEMICAL ENGINEERING PRINCIPLES TO BIOLOGICAL PROCESSES IN GENERAL, DEMONSTRATING HOW A CHEMICAL ENGINEER WOULD

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ADDRESS AND SOLVE PROBLEMS. TO CREATE A LOGICAL AND CLEAR STRUCTURE, THE BOOK IS DIVIDED INTO THREE PARTS. THE FIRST DEALS WITH THE BASIC CONCEPTS AND PRINCIPLES OF CHEMICAL ENGINEERING AND CAN BE READ BY THOSE STUDENTS WITH NO PRIOR KNOWLEDGE OF CHEMICAL ENGINEERING. THE SECOND PART FOCUSES ON PROCESS ASPECTS, SUCH AS HEAT AND MASS TRANSFER, BIOREACTORS, AND SEPARATION METHODS. FINALLY, THE THIRD SECTION DESCRIBES PRACTICAL ASPECTS, INCLUDING MEDICAL DEVICE PRODUCTION, DOWNSTREAM OPERATIONS, AND FERMENTER ENGINEERING. MORE THAN 40 EXEMPLARY SOLVED EXERCISES FACILITATE UNDERSTANDING OF THE COMPLEX ENGINEERING BACKGROUND, WHILE SELF-STUDY IS SUPPORTED BY THE INCLUSION OF OVER 80 EXERCISES AT THE END OF EACH CHAPTER, WHICH ARE SUPPLEMENTED BY THE CORRESPONDING SOLUTIONS. AN EXCELLENT, COMPREHENSIVE INTRODUCTION TO THE PRINCIPLES OF BIOCHEMICAL ENGINEERING.

PUTTING BIOTECHNOLOGY TO WORK - NATIONAL RESEARCH COUNCIL 1992-02-01

THE ABILITY OF THE UNITED STATES TO SUSTAIN A DOMINANT GLOBAL POSITION IN BIOTECHNOLOGY LIES IN MAINTAINING ITS PRIMACY IN BASIC LIFE-SCIENCE RESEARCH AND DEVELOPING A STRONG RESOURCE BASE FOR BIOPROCESS ENGINEERING AND BIOPRODUCT MANUFACTURING. THIS BOOK EXAMINES THE STATUS OF BIOPROCESSING AND BIOTECHNOLOGY IN THE UNITED STATES; CURRENT

BIOPROCESS TECHNOLOGY, PRODUCTS, AND OPPORTUNITIES; AND CHALLENGES OF THE FUTURE AND WHAT MUST BE DONE TO MEET THOSE CHALLENGES. IT GIVES RECOMMENDATIONS FOR ACTION TO PROVIDE SUITABLE INCENTIVES TO ESTABLISH A NATIONAL PROGRAM IN BIOPROCESS-ENGINEERING RESEARCH, DEVELOPMENT, EDUCATION, AND TECHNOLOGY TRANSFER.

BIOTRANSFORMATIONS AND BIOPROCESSES - MUKESH DOBLE
2004-03-24

FROM THE LABORATORY TO FULL-SCALE COMMERCIAL PRODUCTION, THIS REFERENCE PROVIDES A CLEAR AND IN-DEPTH ANALYSIS OF BIOREACTOR DESIGN AND OPERATION AND ENCOMPASSES CRITICAL ASPECTS OF THE BIOCATALYTIC MANUFACTURING PROCESS. IT CLARIFIES PRINCIPLES IN REACTION AND BIOCHEMICAL ENGINEERING, SYNTHETIC AND BIOTRANSFORMATION CHEMISTRY, AND BIOCELL AND ENZY

BIOSYSTEMS ENGINEERING II - CHRISTIANA CORDES
2010-09-02

BIOSYSTEMS ENGINEERING I EXPLORES ALL ASPECTS OF BIOTECHNOLOGY, WHICH BLENDS ASPECTS OF CHEMISTRY, BIOCHEMISTRY, MICROBIOLOGY, GENETICS, CHEMICAL ENGINEERING AND COMPUTER SCIENCES. TOPICS INCLUDE THE SYSTEMS BIOLOGY OF INDUSTRIAL MICROORGANISMS, MODELING LANGUAGES FOR BIOCHEMICAL NETWORK SIMULATION, AND MORE.

BIOPROCESS ENGINEERING PRINCIPLES - PAULINE M. DORAN
2010

ESSENTIALS IN FERMENTATION TECHNOLOGY - AYDIN BERENJIAN 2019-07-15

THIS TEXTBOOK TEACHES THE PRINCIPLES AND APPLICATIONS OF FERMENTATION TECHNOLOGY, BIOREACTORS, BIOPROCESS VARIABLES AND THEIR MEASUREMENT, KEY PRODUCT SEPARATION AND PURIFICATION TECHNIQUES AS WELL AS BIOPROCESS ECONOMICS IN AN EASY TO UNDERSTAND WAY. THE MULTIDISCIPLINARY SCIENCE OF FERMENTATION APPLIES SCIENTIFIC AND ENGINEERING PRINCIPLES TO LIVING ORGANISMS OR THEIR USEFUL COMPONENTS TO PRODUCE PRODUCTS AND SERVICES BENEFICIAL FOR OUR SOCIETY. SUCCESSFUL EXPLOITATION OF FERMENTATION TECHNOLOGY INVOLVES KNOWLEDGE OF MICROBIOLOGY AND ENGINEERING. THUS THE BOOK SERVES AS A MUST-HAVE GUIDE FOR UNDERGRADUATES AND GRADUATE STUDENTS INTERESTED IN BIOCHEMICAL ENGINEERING AND MICROBIAL BIOTECHNOLOGY

INTEGRATED BIOPROCESS ENGINEERING - CLEMENS POSTEN 2018-04-09

BIOPROCESS ENGINEERING EMPLOYS MICROORGANISMS TO PRODUCE BIOLOGICAL PRODUCTS FOR MEDICAL AND INDUSTRIAL APPLICATIONS. THE BOOK COVERS ENGINEERING TASKS AROUND THE CULTIVATION PROCESS IN BIOREACTORS INCLUDING TOPICS LIKE MEDIA DESIGN, FEEDING STRATEGIES, OR CELL HARVESTING. ALL ASPECTS ARE DESCRIBED FROM CONCEPTUAL CONSIDERATIONS TO TECHNICAL REALIZATION. IT GIVES INSIGHT TO STUDENTS OF TECHNICAL BIOLOGY,

BIOENGINEERING, AND BIOTECHNOLOGY BY DETAILED EXPLANATIONS, DRAWINGS, FORMULAS, AND EXAMPLE PROCESSES. IN BIOPROCESS ENGINEERING UPSTREAM, BIOREACTION, AND DOWNSTREAM STAGES ARE CLOSELY LINKED TO EACH OTHER. FROM A BIOLOGICAL POINT OF VIEW PHOTO-BIOTECHNOLOGY IS IN THE CENTRE OF INTEREST AS WELL AS PROCESSES, WHERE THE PARTICULATE PROPERTIES PLAY AN IMPORTANT ROLE. THE MAIN TECHNICAL MEANS ARE FERMENTATION UNDER HIGHLY CONTROLLED CONDITIONS, MATHEMATICAL MODELLING OF BIOPROCESSES INCLUDING MEASUREMENT OF INTRACELLULAR COMPOUNDS, AS WELL AS MECHANICAL SEPARATION METHODS ARISING FROM DOWNSTREAM PROCESSING.

SOLUTIONS MANUAL - PAULINE M. DORAN 1997

CELL CULTURE BIOPROCESS ENGINEERING, SECOND EDITION - WEI-SHOU HU 2020-03-06

THIS BOOK IS THE CULMINATION OF THREE DECADES OF ACCUMULATED EXPERIENCE IN TEACHING BIOTECHNOLOGY PROFESSIONALS. IT DISTILLS THE FUNDAMENTAL PRINCIPLES AND ESSENTIAL KNOWLEDGE OF CELL CULTURE PROCESSES FROM ACROSS MANY DIFFERENT DISCIPLINES AND PRESENTS THEM IN A SERIES OF EASY-TO-FOLLOW, COMPREHENSIVE CHAPTERS. PRACTICALITY, INCLUDING TECHNOLOGICAL ADVANCES AND BEST PRACTICES, IS EMPHASIZED. THIS SECOND EDITION CONSISTS OF MAJOR UPDATES TO ALL RELEVANT

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TOPICS CONTAINED WITHIN THIS WORK. THE PREVIOUS EDITION HAS BEEN SUCCESSFULLY USED IN TRAINING COURSES ON CELL CULTURE BIOPROCESSING OVER THE PAST SEVEN YEARS. THE FORMAT OF THE BOOK IS WELL-SUITED TO FAST-PACED LEARNING, SUCH AS IS FOUND IN THE INTENSIVE SHORT COURSE, SINCE THE KEY TAKE-HOME MESSAGES ARE PROMINENTLY HIGHLIGHTED IN PANELS. THE BOOK IS ALSO WELL-SUITED TO ACT AS A REFERENCE GUIDE FOR EXPERIENCED INDUSTRIAL PRACTITIONERS OF MAMMALIAN CELL CULTIVATION FOR THE PRODUCTION OF BIOLOGICS.

BIOPROCESS ENGINEERING - KIM GAIL CLARKE 2013-10-31
BIOTECHNOLOGY IS AN EXPANSIVE FIELD INCORPORATING EXPERTISE IN BOTH THE LIFE SCIENCE AND ENGINEERING DISCIPLINES. IN BIOTECHNOLOGY, THE SCIENTIST IS CONCERNED WITH DEVELOPING THE MOST FAVOURABLE BIOCATALYSTS, WHILE THE ENGINEER IS DIRECTED TOWARDS PROCESS PERFORMANCE, DEFINING CONDITIONS AND STRATEGIES THAT WILL MAXIMIZE THE PRODUCTION POTENTIAL OF THE BIOCATALYST. INCREASINGLY, THE SYNERGISTIC EFFECT OF THE CONTRIBUTIONS OF ENGINEERING AND LIFE SCIENCES IS RECOGNISED AS KEY TO THE TRANSLATION OF NEW BIOPRODUCTS FROM THE LABORATORY BENCH TO COMMERCIAL BIOPROCESS. FUNDAMENTAL TO THE SUCCESSFUL REALIZATION OF THE BIOPROCESS IS A NEED FOR PROCESS ENGINEERS AND LIFE SCIENTISTS COMPETENT IN EVALUATING BIOLOGICAL SYSTEMS FROM A CROSS-DISCIPLINARY

VIEWPOINT. BIOPROCESS ENGINEERING AIMS TO GENERATE CORE COMPETENCIES THROUGH AN UNDERSTANDING OF THE COMPLEMENTARY BIOTECHNOLOGY DISCIPLINES AND THEIR INTERDEPENDENCE, AND AN APPRECIATION OF THE CHALLENGES ASSOCIATED WITH THE APPLICATION OF ENGINEERING PRINCIPLES IN A LIFE SCIENCE CONTEXT. INITIAL CHAPTERS FOCUS ON THE MICROBIOLOGY, BIOCHEMISTRY AND MOLECULAR BIOLOGY THAT UNDERPIN BIOCATALYST POTENTIAL FOR PRODUCT ACCUMULATION. THE FOLLOWING CHAPTERS DEVELOP KINETIC AND MASS TRANSFER PRINCIPLES THAT QUANTIFY OPTIMUM PROCESS PERFORMANCE AND SCALE UP. THE TEXT IS WIDE IN SCOPE, RELATING TO BIOPROCESSES USING BACTERIAL, FUNGAL AND ENZYMIC BIOCATALYSTS, BATCH, FED-BATCH AND CONTINUOUS STRATEGIES AND FREE AND IMMOBILISED CONFIGURATIONS. DETAILS THE APPLICATION OF CHEMICAL ENGINEERING PRINCIPLES FOR THE DEVELOPMENT, DESIGN, OPERATION AND SCALE UP OF BIOPROCESSES DETAILS THE KNOWLEDGE IN MICROBIOLOGY, BIOCHEMISTRY AND MOLECULAR BIOLOGY RELEVANT TO BIOPROCESS DESIGN, OPERATION AND SCALE UP DISCUSSES THE SIGNIFICANCE OF THESE LIFE SCIENCES IN DEFINING OPTIMUM BIOPROCESS PERFORMANCE

BIOPHARMACEUTICAL PROCESSING - GUNTER JAGSCHIES
2018-01-18

BIOPHARMACEUTICAL PROCESSING: DEVELOPMENT, DESIGN, AND IMPLEMENTATION OF MANUFACTURING PROCESSES

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COVERS BIOPROCESSING FROM CELL LINE DEVELOPMENT TO BULK DRUG SUBSTANCES. THE METHODS AND STRATEGIES DESCRIBED ARE ESSENTIAL LEARNING FOR EVERY SCIENTIST, ENGINEER OR MANAGER IN THE BIOPHARMACEUTICAL AND VACCINES INDUSTRY. THE INTEGRITY OF THE BIOPROCESS ULTIMATELY DETERMINES THE QUALITY OF THE PRODUCT IN THE BIOTHERAPEUTICS ARENA, AND THIS BOOK COVERS EVERY STAGE INCLUDING ALL TECHNOLOGIES RELATED TO DOWNSTREAM PURIFICATION AND UPSTREAM PROCESSING FIELDS. ECONOMIC CONSIDERATIONS ARE INCLUDED THROUGHOUT, WITH RECOMMENDATIONS FOR LOWERING COSTS AND IMPROVING EFFICIENCIES. DESIGNED FOR QUICK REFERENCE AND EASY ACCESSIBILITY OF FACTS, CALCULATIONS AND GUIDELINES, THIS BOOK IS AN ESSENTIAL TOOL FOR INDUSTRIAL SCIENTISTS AND MANAGERS IN THE BIOPHARMACEUTICAL INDUSTRY. OFFERS A COMPREHENSIVE, GO-TO REFERENCE FOR DAILY WORK DECISIONS COVERS BOTH UPSTREAM AND DOWNSTREAM PROCESSES INCLUDES CASE STUDIES THAT EMPHASIZE FINANCIAL OUTCOMES PRESENTS SUMMARIES, DECISION GRIDS, GRAPHS AND OVERVIEWS FOR QUICK REFERENCE

BIOREACTION ENGINEERING PRINCIPLES - JENS NIELSEN
2013-04-17

INTEGRATING RECENT RESEARCH ON THE PHYSIOLOGY AND MODELLING OF BIOREACTIONS AND BIOREACTORS, THE AUTHORS PRESENT A COMPREHENSIVE, UNIFIED INTRODUCTION

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TO THE PRINCIPLES AND PRACTICES OF THE FIELD. THE WORK FEATURES NEARLY 100 DETAILED DESIGN EXAMPLES AND PROBLEMS, MANY OF WHICH ARE SUITABLE FOR HANDS-ON DEMONSTRATIONS ON A PERSONAL COMPUTER OR FOR EXPANDED RESEARCH. THE TEXT WILL SERVE AS A HIGHLY INSTRUCTIVE GUIDE FOR STUDENTS IN BIOENGINEERING AND BIOTECHNOLOGY, AS WELL AS BIOCHEMICAL, CHEMICAL, AND ENVIRONMENTAL ENGINEERING.

BIOCHEMICAL ENGINEERING - MUKESH DOBLE
2007-01-21

THIS TEXT IS INTENDED TO PROVIDE STUDENTS WITH A SOLID GROUNDING IN BASIC PRINCIPLES OF BIOCHEMICAL ENGINEERING. BEGINNING WITH A HISTORICAL REVIEW AND ESSENTIAL CONCEPTS OF BIOCHEMICAL ENGINEERING IN PART I, THE NEXT THREE PARTS ARE DEVOTED TO A COMPREHENSIVE DISCUSSION OF VARIOUS TOPICS IN THE AREAS OF LIFE SCIENCES, KINETICS OF BIOLOGICAL REACTIONS AND ENGINEERING PRINCIPLES. HAVING DESCRIBED THE DIFFERENT BUILDING BLOCKS OF LIFE, MICROBES, METABOLISM AND BIOENERGETICS, THE BOOK PROCEEDS TO EXPLAIN ENZYMATIC KINETICS AND KINETICS OF CELL GROWTH AND PRODUCT FORMATION. THE ENGINEERING PRINCIPLES COVER TRANSPORT PHENOMENA IN BIOPROCESS SYSTEMS AND VARIOUS BIOREACTORS, DOWNSTREAM PROCESSING AND ENVIRONMENTAL TECHNOLOGY. FINALLY, THE BOOK CONCLUDES WITH AN INTRODUCTION TO RECOMBINANT DNA TECHNOLOGY. THIS TEXTBOOK IS DESIGNED FOR B.TECH.

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COURSES IN BIOTECHNOLOGY, B.TECH. COURSES IN CHEMICAL ENGINEERING AND OTHER ALLIED DISCIPLINES, AND M.Sc.

COURSES IN BIOTECHNOLOGY.

BIOCHEMICAL ENGINEERING AND BIOTECHNOLOGY - GHASEM NAJAFPOUR 2015-02-24

BIOCHEMICAL ENGINEERING AND BIOTECHNOLOGY, 2ND EDITION, OUTLINES THE PRINCIPLES OF BIOCHEMICAL PROCESSES AND EXPLAINS THEIR USE IN THE MANUFACTURING OF EVERY DAY PRODUCTS. THE AUTHOR USES A DIRECT APPROACH THAT SHOULD BE VERY USEFUL FOR STUDENTS IN FOLLOWING THE CONCEPTS AND PRACTICAL APPLICATIONS. THIS BOOK IS UNIQUE IN HAVING MANY SOLVED PROBLEMS, CASE STUDIES, EXAMPLES AND DEMONSTRATIONS OF DETAILED EXPERIMENTS, WITH SIMPLE DESIGN EQUATIONS AND REQUIRED CALCULATIONS. COVERS MAJOR CONCEPTS OF BIOCHEMICAL ENGINEERING AND BIOTECHNOLOGY, INCLUDING APPLICATIONS IN BIOPROCESSES, FERMENTATION TECHNOLOGIES, ENZYMATIC PROCESSES, AND MEMBRANE SEPARATIONS, AMONGST OTHERS ACCESSIBLE TO CHEMICAL ENGINEERING STUDENTS WHO NEED TO BOTH LEARN, AND APPLY, BIOLOGICAL KNOWLEDGE IN ENGINEERING PRINCIPALS INCLUDES SOLVED PROBLEMS, EXAMPLES, AND DEMONSTRATIONS OF DETAILED EXPERIMENTS WITH SIMPLE DESIGN EQUATIONS AND ALL REQUIRED CALCULATIONS OFFERS MANY GRAPHS THAT PRESENT ACTUAL EXPERIMENTAL DATA, FIGURES, AND TABLES, ALONG WITH EXPLANATIONS

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BIOPROCESS ENGINEERING PRINCIPLES - PAULINE M. DORAN 2023-10-01

BIOPROCESS ENGINEERING PRINCIPLES, THIRD EDITION PROVIDES A SOLID INTRODUCTION TO BIOPROCESS ENGINEERING FOR STUDENTS WITH A LIMITED ENGINEERING BACKGROUND. IT EXPLAINS PROCESS ANALYSIS FROM AN ENGINEERING PERSPECTIVE, USING WORKED EXAMPLES AND PROBLEMS THAT RELATE TO BIOLOGICAL SYSTEMS. APPLICATION OF ENGINEERING CONCEPTS IS ILLUSTRATED IN AREAS OF MODERN BIOTECHNOLOGY, SUCH AS RECOMBINANT PROTEIN PRODUCTION, BIOREMEDIATION, BIOFUELS, DRUG DEVELOPMENT, AND TISSUE ENGINEERING, AS WELL AS MICROBIAL FERMENTATION. WITH NEW AND EXPANDED MATERIAL, DORAN REMAINS THE BOOK OF CHOICE FOR STUDENTS SEEKING TO MOVE INTO BIOPROCESS ENGINEERING

NEURAL NETWORKS IN BIOPROCESSING AND CHEMICAL ENGINEERING - D. R. BAUGHMAN 2014-06-28

NEURAL NETWORKS HAVE RECEIVED A GREAT DEAL OF ATTENTION AMONG SCIENTISTS AND ENGINEERS. IN CHEMICAL ENGINEERING, NEURAL COMPUTING HAS MOVED FROM PIONEERING PROJECTS TOWARD MAINSTREAM INDUSTRIAL APPLICATIONS. THIS BOOK INTRODUCES THE FUNDAMENTAL PRINCIPLES OF NEURAL COMPUTING, AND IS THE FIRST TO FOCUS ON ITS PRACTICAL APPLICATIONS IN BIOPROCESSING AND CHEMICAL ENGINEERING. EXAMPLES, PROBLEMS, AND 10 DETAILED CASE STUDIES DEMONSTRATE HOW TO DEVELOP, TRAIN, AND APPLY

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NEURAL NETWORKS. A DISK CONTAINING INPUT DATA FILES FOR ALL ILLUSTRATIVE EXAMPLES, CASE STUDIES, AND PRACTICE PROBLEMS PROVIDES THE OPPORTUNITY FOR HANDS-ON EXPERIENCE. AN IMPORTANT GOAL OF THE BOOK IS TO HELP THE STUDENT OR PRACTITIONER LEARN AND IMPLEMENT NEURAL NETWORKS QUICKLY AND INEXPENSIVELY USING COMMERCIALY AVAILABLE, PC-BASED SOFTWARE TOOLS. DETAILED NETWORK SPECIFICATIONS AND TRAINING PROCEDURES ARE INCLUDED FOR ALL NEURAL NETWORK EXAMPLES DISCUSSED IN THE BOOK. EACH CHAPTER CONTAINS AN INTRODUCTION, CHAPTER SUMMARY, REFERENCES TO FURTHER READING, PRACTICE PROBLEMS, AND A SECTION ON NOMENCLATURE INCLUDES A PC-COMPATIBLE DISK CONTAINING INPUT DATA FILES FOR EXAMPLES, CASE STUDIES, AND PRACTICE PROBLEMS PRESENTS 10 DETAILED CASE STUDIES CONTAINS AN EXTENSIVE GLOSSARY, EXPLAINING TERMINOLOGY USED IN NEURAL NETWORK APPLICATIONS IN SCIENCE AND ENGINEERING PROVIDES EXAMPLES, PROBLEMS, AND TEN DETAILED CASE STUDIES OF NEURAL COMPUTING APPLICATIONS, INCLUDING: PROCESS FAULT-DIAGNOSIS OF A CHEMICAL REACTOR LEONARD KRAMER FAULT-CLASSIFICATION PROBLEM PROCESS FAULT-DIAGNOSIS FOR AN UNSTEADY-STATE CONTINUOUS STIRRED-TANK REACTOR SYSTEM CLASSIFICATION OF PROTEIN SECONDARY-STRUCTURE CATEGORIES QUANTITATIVE PREDICTION AND REGRESSION ANALYSIS OF COMPLEX CHEMICAL KINETICS SOFTWARE-BASED

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SENSORS FOR QUANTITATIVE PREDICTIONS OF PRODUCT COMPOSITIONS FROM FLOURESCENT SPECTRA IN BIOPROCESSING QUALITY CONTROL AND OPTIMIZATION OF AN AUTOCLAVE CURING PROCESS FOR MANUFACTURING COMPOSITE MATERIALS PREDICTIVE MODELING OF AN EXPERIMENTAL BATCH FERMENTATION PROCESS SUPERVISORY CONTROL OF THE TENNESSEE EASTMAN PLANTWIDE CONTROL PROBLEM PREDICTIVE MODELING AND OPTIMAL DESIGN OF EXTRACTIVE BIOSEPARATION IN AQUEOUS TWO-PHASE SYSTEMS

PRINCIPLES OF BIOSEPARATIONS ENGINEERING - RAJA GHOSH 2006

BIOPROCESS ENGINEERING PRINCIPLES 2/E - DORAN 2015-03-06

BIOPROCESS ENGINEERING - PAU LOKE SHOW 2019-05-24
BIOPROCESS ENGINEERING: DOWNSTREAM PROCESSING IS THE FIRST BOOK TO PRESENT THE PRINCIPLES OF BIOPROCESS ENGINEERING, FOCUSING ON DOWNSTREAM BIOPROCESSING. IT AIMS TO PROVIDE THE LATEST BIOPROCESS TECHNOLOGY AND EXPLAIN PROCESS ANALYSIS FROM AN ENGINEERING POINT OF VIEW, USING WORKED EXAMPLES RELATED TO BIOLOGICAL SYSTEMS. THIS BOOK INTRODUCES THE COMMONLY USED TECHNOLOGIES FOR DOWNSTREAM PROCESSING OF BIOBASED PRODUCTS. THE COVERED TOPICS INCLUDE CENTRIFUGATION,

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FILTRATION, MEMBRANE SEPARATION, REVERSE OSMOSIS, CHROMATOGRAPHY, BIOSORPTION, LIQUID-LIQUID SEPARATION, AND DRYING. THE BASIC PRINCIPLES AND MECHANISM OF SEPARATION ARE COVERED IN EACH OF THE TOPICS, WHEREIN THE ENGINEERING CONCEPT AND DESIGN ARE EMPHASIZED. THIS BOOK IS AIMED AT BIOPROCESS ENGINEERS AND PROFESSIONALS WHO WISH TO PERFORM DOWNSTREAM PROCESSING FOR THEIR FEEDSTOCK, AS WELL AS STUDENTS.

BIOCHEMICAL ENGINEERING - SYED TANVEER AHMED
INAMDAR 2012-09-05

THE BOOK, NOW IN ITS THIRD EDITION, CONTINUES TO OFFER THE BASIC CONCEPTS AND PRINCIPLES OF BIOCHEMICAL ENGINEERING. IT COVERS THE CURRICULUM FOR A FIRST-COURSE IN BIOCHEMICAL ENGINEERING AT THE UNDERGRADUATE LEVEL OF CHEMICAL ENGINEERING DISCIPLINE AND ALSO CATERES TO THE REQUIREMENTS OF BTECH BIOTECHNOLOGY AND BSC BIOTECHNOLOGY OFFERED BY VARIOUS UNIVERSITIES. THE TEXT FIRST EXPLAINS THE BASICS OF MICROBIOLOGY AND BIOCHEMISTRY BEFORE MOVING ON TO EXPLORE THE SIGNIFICANCE OF ENZYMES, THEIR PROPERTIES, TYPES, KINETICS, INDUSTRIAL APPLICATIONS, PRODUCTION AND FORMULATION AND THE METHODS OF THEIR IMMOBILIZATION. IT ALSO DEALS WITH CELL GROWTH AND ITS KINETIC ASPECTS AND DISCUSSES VARIOUS TYPES OF BIOLOGICAL REACTORS WITH AN EMPHASIS ON KEY ENGINEERING PRACTICES RELATED TO FERMENTATION PROCESSES AND PRODUCTS, BIOREACTOR

DESIGN AND OPERATION. IT OFFERS A COMPLETE DESCRIPTION ON DOWNSTREAM PROCESSING AND CONTROL OF MICROORGANISMS. BESIDES, IT ALSO COVERS IN THE APPENDICES SOME IMPORTANT TOPICS SUCH AS PROCESS KINETICS AND REACTOR ANALYSIS, BIOENERGETICS, AND ENVIRONMENTAL MICROBIOLOGY TO JUSTIFY THEIR RELEVANCE IN BIOCHEMICAL ENGINEERING. NEW TO THIS EDITION :

OFFERS A COMPLETE DESCRIPTION WITH APPLICATIONS AND CONFIGURATIONS OF MEMBRANE BIOREACTORS (CHAPTER 7). PRESENTS A FACELIFT OF DOWNSTREAM PROCESSES IN THE TOPICS, VIZ. DISRUPTION OF CELLS SUPPORTED WITH FLOW SHEET, FREEZE DRYING, FORMULATION, ETC. ALONG WITH A TOTAL REVAMPING OF THE DISCUSSION ON SUPERCRITICAL FLUID EXTRACTION AND INDUCTION OF BIOFOULING (CHAPTER 9). PROVIDES A NEW APPENDIX—APPENDIX D—ON SELF-ASSESSMENT EXERCISES, WHICH INCORPORATES QUESTIONS IN THE FORM OF MULTIPLE CHOICE, TRUE/FALSE AND FILL IN THE BLANKS IN ORDER TO ASSESS THE LEVEL OF UNDERSTANDING.

BIOREACTION ENGINEERING - K. SCHERL 2012-12-06

ALONGSIDE PRESENTING THE FUNDAMENTALS, THIS BOOK REVIEWS THE STATE OF THE ART OF MATHEMATICAL MODELING AND CONTROL OF BIOPROCESSES, WHILE DEMONSTRATING THE APPLICATION IN VARIOUS BIOLOGICAL SYSTEMS IMPORTANT TO INDUSTRY. AT THE SAME TIME, THE APPLICATION OF DIFFERENT TYPES OF MODELS AND CONTROL STRATEGIES ARE ILLUSTRATED, TAKING INTO ACCOUNT THE

RECENT DEVELOPMENTS IN REACTOR MODELING. IN ADDITION TO MODELING AND CONTROL, THE METABOLIC FLUX ANALYSIS AND THE METABOLIC DESIGN AND THEIR APPLICATION TO BIOPROCESSES ARE CONSIDERED.

BIOPROCESS ENGINEERING PRINCIPLES - BIOPROCESS ENGINEERING PRINCIPLES 2009-01-01

BIOPROCESS ENGINEERING PRINCIPLES - PAULINE M. DORAN 1995-04-03

THE EMERGENCE AND REFINEMENT OF TECHNIQUES IN MOLECULAR BIOLOGY HAS CHANGED OUR PERCEPTIONS OF MEDICINE, AGRICULTURE AND ENVIRONMENTAL MANAGEMENT. SCIENTIFIC BREAKTHROUGHS IN GENE EXPRESSION, PROTEIN ENGINEERING AND CELL FUSION ARE BEING TRANSLATED BY A STRENGTHENING BIOTECHNOLOGY INDUSTRY INTO REVOLUTIONARY NEW PRODUCTS AND SERVICES. MANY A STUDENT HAS BEEN ENTICED BY THE PROMISE OF BIOTECHNOLOGY AND THE EXCITEMENT OF BEING NEAR THE CUTTING EDGE OF SCIENTIFIC ADVANCEMENT. HOWEVER, GRADUATES TRAINED IN MOLECULAR BIOLOGY AND CELL MANIPULATION SOON REALISE THAT THESE TECHNIQUES ARE ONLY PART OF THE PICTURE. REAPING THE FULL BENEFITS OF BIOTECHNOLOGY REQUIRES MANUFACTURING CAPABILITY INVOLVING THE LARGE-SCALE PROCESSING OF BIOLOGICAL MATERIAL. INCREASINGLY, BIOTECHNOLOGISTS ARE BEING EMPLOYED BY COMPANIES TO WORK IN CO-OPERATION WITH

CHEMICAL ENGINEERS TO ACHIEVE PRAGMATIC COMMERCIAL GOALS. FOR MANY YEARS ASPECTS OF BIOCHEMISTRY AND MOLECULAR GENETICS HAVE BEEN INCLUDED IN CHEMICAL ENGINEERING CURRICULA, YET THERE HAS BEEN LITTLE ATTEMPT UNTIL RECENTLY TO TEACH ASPECTS OF ENGINEERING APPLICABLE TO PROCESS DESIGN TO BIOTECHNOLOGISTS. THIS TEXTBOOK IS THE FIRST TO PRESENT THE PRINCIPLES OF BIOPROCESS ENGINEERING IN A WAY THAT IS ACCESSIBLE TO BIOLOGICAL SCIENTISTS. OTHER TEXTS ON BIOPROCESS ENGINEERING CURRENTLY AVAILABLE ASSUME THAT THE READER ALREADY HAS ENGINEERING TRAINING. ON THE OTHER HAND, CHEMICAL ENGINEERING TEXTBOOKS DO NOT CONSIDER EXAMPLES FROM BIOPROCESSING, AND ARE WRITTEN ALMOST EXCLUSIVELY WITH THE PETROLEUM AND CHEMICAL INDUSTRIES IN MIND. THIS PUBLICATION EXPLAINS PROCESS ANALYSIS FROM AN ENGINEERING POINT OF VIEW, BUT REFERS EXCLUSIVELY TO THE TREATMENT OF BIOLOGICAL SYSTEMS. OVER 170 PROBLEMS AND WORKED EXAMPLES ENCOMPASS A WIDE RANGE OF APPLICATIONS, INCLUDING RECOMBINANT CELLS, PLANT AND ANIMAL CELL CULTURES, IMMOBILISED CATALYSTS AS WELL AS TRADITIONAL FERMENTATION SYSTEMS. * * FIRST BOOK TO PRESENT THE PRINCIPLES OF BIOPROCESS ENGINEERING IN A WAY THAT IS ACCESSIBLE TO BIOLOGICAL SCIENTISTS * EXPLAINS PROCESS ANALYSIS FROM AN ENGINEERING POINT OF VIEW, BUT USES WORKED EXAMPLES RELATING TO BIOLOGICAL SYSTEMS *

COMPREHENSIVE, SINGLE-AUTHORED * 170 PROBLEMS AND WORKED EXAMPLES ENCOMPASS A WIDE RANGE OF APPLICATIONS, INVOLVING RECOMBINANT PLANT AND ANIMAL CELL CULTURES, IMMOBILIZED CATALYSTS, AND TRADITIONAL FERMENTATION SYSTEMS * 13 CHAPTERS, ORGANIZED ACCORDING TO ENGINEERING SUB-DISCIPLINES, ARE GROUPEL IN FOUR SECTIONS - INTRODUCTION, MATERIAL AND ENERGY BALANCES, PHYSICAL PROCESSES, AND REACTIONS AND REACTORS * EACH CHAPTER INCLUDES A SET OF PROBLEMS AND EXERCISES FOR THE STUDENT, KEY REFERENCES, AND A LIST OF SUGGESTIONS FOR FURTHER READING * INCLUDES USEFUL APPENDICES, DETAILING CONVERSION FACTORS, PHYSICAL AND CHEMICAL PROPERTY DATA, STEAM TABLES, MATHEMATICAL RULES, AND A LIST OF SYMBOLS USED * SUITABLE FOR COURSE ADOPTION - FOLLOWS CLOSELY CURRICULA USED ON MOST BIOPROCESSING AND PROCESS BIOTECHNOLOGY COURSES AT SENIOR UNDERGRADUATE AND GRADUATE LEVELS.

EXPERIMENTAL METHODS IN WASTEWATER TREATMENT -

MARK C. M. VAN LOOSDRECHT 2016-05-15

OVER THE PAST TWENTY YEARS, THE KNOWLEDGE AND UNDERSTANDING OF WASTEWATER TREATMENT HAS ADVANCED EXTENSIVELY AND MOVED AWAY FROM EMPIRICALLY BASED APPROACHES TO A FUNDAMENTALLY-BASED FIRST PRINCIPLES APPROACH EMBRACING CHEMISTRY, MICROBIOLOGY, AND PHYSICAL AND BIOPROCESS ENGINEERING,

OFTEN INVOLVING EXPERIMENTAL LABORATORY WORK AND TECHNIQUES. MANY OF THESE EXPERIMENTAL METHODS AND TECHNIQUES HAVE MATURED TO THE DEGREE THAT THEY HAVE BEEN ACCEPTED AS RELIABLE TOOLS IN WASTEWATER TREATMENT RESEARCH AND PRACTICE. FOR SECTOR PROFESSIONALS, ESPECIALLY A NEW GENERATION OF YOUNG SCIENTISTS AND ENGINEERS ENTERING THE WASTEWATER TREATMENT PROFESSION, THE QUANTITY, COMPLEXITY AND DIVERSITY OF THESE NEW DEVELOPMENTS CAN BE OVERWHELMING, PARTICULARLY IN DEVELOPING COUNTRIES WHERE ACCESS TO ADVANCED LEVEL LABORATORY COURSES IN WASTEWATER TREATMENT IS NOT READILY AVAILABLE. IN ADDITION, INFORMATION ON INNOVATIVE EXPERIMENTAL METHODS IS SCATTERED ACROSS SCIENTIFIC LITERATURE AND ONLY PARTIALLY AVAILABLE IN THE FORM OF TEXTBOOKS OR GUIDELINES. THIS BOOK SEEKS TO ADDRESS THESE DEFICIENCIES. IT ASSEMBLES AND INTEGRATES THE INNOVATIVE EXPERIMENTAL METHODS DEVELOPED BY RESEARCH GROUPS AND PRACTITIONERS AROUND THE WORLD. EXPERIMENTAL METHODS IN WASTEWATER TREATMENT FORMS PART OF THE INTERNET-BASED CURRICULUM IN WASTEWATER TREATMENT AT UNESCO-IHE AND, AS SUCH, MAY ALSO BE USED TOGETHER WITH VIDEO RECORDS OF EXPERIMENTAL METHODS PERFORMED AND NARRATED BY THE AUTHORS INCLUDING GUIDELINES ON WHAT TO DO AND WHAT NOT TO DO. THE BOOK IS WRITTEN FOR UNDERGRADUATE AND POSTGRADUATE

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STUDENTS, RESEARCHERS, LABORATORY STAFF, PLANT OPERATORS, CONSULTANTS, AND OTHER SECTOR PROFESSIONALS.

FUNDAMENTALS OF MODERN BIOPROCESSING - SARFARAZ K. NIAZI 2017-07-27

BIOLOGICAL DRUG AND VACCINE MANUFACTURING HAS QUICKLY BECOME ONE OF THE HIGHEST-VALUE FIELDS OF BIOPROCESS ENGINEERING, AND MANY BIOPROCESS ENGINEERS ARE NOW FINDING JOB OPPORTUNITIES THAT HAVE TRADITIONALLY GONE TO CHEMICAL ENGINEERS. FUNDAMENTALS OF MODERN BIOPROCESSING ADDRESSES THIS GROWING DEMAND. WRITTEN BY EXPERTS WELL-ESTABLISHED IN THE FIELD, THIS BOOK CONNECTS THE PRINCIPLES AND APPLICATIONS OF BIOPROCESSING ENGINEERING TO HEALTHCARE PRODUCT MANUFACTURING AND EXPANDS ON AREAS OF OPPORTUNITY FOR QUALIFIED BIOPROCESS ENGINEERS AND STUDENTS. THE BOOK IS DIVIDED INTO TWO SECTIONS: THE FIRST HALF CENTERS ON THE ENGINEERING FUNDAMENTALS OF BIOPROCESSING; WHILE THE SECOND HALF SERVES AS A HANDBOOK OFFERING ADVICE AND PRACTICAL APPLICATIONS. FOCUSED ON THE FUNDAMENTAL PRINCIPLES AT THE CORE OF THIS DISCIPLINE, THIS WORK OUTLINES EVERY FACET OF DESIGN, COMPONENT SELECTION, AND REGULATORY CONCERNS. IT DISCUSSES THE PURPOSE OF BIOPROCESSING (TO PRODUCE PRODUCTS SUITABLE FOR HUMAN USE), DESCRIBES THE MANUFACTURING TECHNOLOGIES RELATED TO

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BIOPROCESSING, AND EXPLORES THE RAPID EXPANSION OF BIOPROCESS ENGINEERING APPLICATIONS RELEVANT TO HEALTH CARE PRODUCT MANUFACTURING. IT ALSO CONSIDERS THE FUTURE OF BIOPROCESSING—THE USE OF DISPOSABLE COMPONENTS (WHICH IS THE FASTEST GROWING AREA IN THE FIELD OF BIOPROCESSING) TO REPLACE TRADITIONAL STAINLESS STEEL. IN ADDITION, THIS TEXT: DISCUSSES THE MANY TYPES OF GENETICALLY MODIFIED ORGANISMS OUTLINES LABORATORY TECHNIQUES INCLUDES THE MOST RECENT DEVELOPMENTS SERVES AS A REFERENCE AND CONTAINS AN EXTENSIVE BIBLIOGRAPHY EMPHASIZES BIOLOGICAL MANUFACTURING USING RECOMBINANT PROCESSING, WHICH BEGINS WITH CREATING A GENETICALLY MODIFIED ORGANISM USING RECOMBINANT TECHNIQUES FUNDAMENTALS OF MODERN BIOPROCESSING OUTLINES BOTH THE PRINCIPLES AND APPLICATIONS OF BIOPROCESSING ENGINEERING RELATED TO HEALTHCARE PRODUCT MANUFACTURING. IT LAYS OUT THE BASIC CONCEPTS, DEFINITIONS, METHODS AND APPLICATIONS OF BIOPROCESSING. A SINGLE VOLUME COMPREHENSIVE REFERENCE DEVELOPED TO MEET THE NEEDS OF STUDENTS WITH A BIOPROCESSING BACKGROUND; IT CAN ALSO BE USED AS A SOURCE FOR PROFESSIONALS IN THE FIELD.

BIOREACTION ENGINEERING PRINCIPLES - JENS NIELSEN 2012-12-06

THIS IS THE SECOND EDITION OF THE TEXT "BIOREACTION ENGINEERING PRINCIPLES" BY JENS NIELSEN AND JOHN

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VILLADSEN, ORIGINALLY PUBLISHED IN 1994 BY PLENUM PRESS (NOW PART OF KLUWER). TIME RUNS FAST IN BIOTECHNOLOGY, AND WHEN KLUWER PLENUM STOPPED REPRINTING THE FIRST EDITION AND ASKED US TO MAKE A SECOND, REVISED EDITION WE HAPPILY ACCEPTED. A TEXT ON BIOREACTIONS WRITTEN IN THE EARLY 1990'S WILL NOT REFLECT THE ENORMOUS DEVELOPMENT OF EXPERIMENTAL AS WELL AS THEORETICAL ASPECTS OF CELLULAR REACTIONS DURING THE PAST DECADE. IN THE PREFACE TO THE FIRST EDITION WE ADMITTED TO BE NEWCOMERS IN THE FIELD. ONE OF US (JV) HAS HAD 10 MORE YEARS OF JOB TRAINING IN BIOTECHNOLOGY, AND THE YOUNGER AUTHOR (IN) HAS NOW RECEIVED INTERNATIONAL RECOGNITION FOR HIS WORK WITH THE HOTTEST TOPICS OF "MODERN" BIOTECHNOLOGY. FURTHERMORE WE ARE HAPPY TO HAVE INDUCED GUNNAR LIDEN, PROFESSOR OF CHEMICAL REACTION ENGINEERING AT OUR SISTER UNIVERSITY IN LUND, SWEDEN TO JOIN US AS CO-AUTHOR OF THE SECOND EDITION. HIS CONTRIBUTION, ESPECIALLY ON THE CHEMICAL ENGINEERING ASPECTS OF "REAL" BIOREACTORS HAS BEEN OF THE GREATEST VALUE. CHAPTER 8 OF THE PRESENT EDITION IS LARGELY UNCHANGED FROM THE FIRST EDITION. WE WISH TO THANK PROFESSOR MARTIN HJORTSO FROM LSU FOR HIS SUBSTANTIAL HELP WITH THIS CHAPTER.

BIOPROCESS ENGINEERING - MICHAEL L. SHULER 1992
TEXTBOOK FOR JUNIOR AND SENIOR LEVEL MAJORS IN

CHEMICAL ENGINEERING COVERING THE FIELD OF BIOCHEMICAL ENGINEERING.

BIOPROCESSING FOR VALUE-ADDED PRODUCTS FROM RENEWABLE RESOURCES - SHANG-TIAN YANG 2011-08-11

BIOPROCESSING FOR VALUE-ADDED PRODUCTS FROM RENEWABLE RESOURCES PROVIDES A TIMELY REVIEW OF NEW AND UNCONVENTIONAL TECHNIQUES FOR MANUFACTURING HIGH-VALUE PRODUCTS BASED ON SIMPLE BIOLOGICAL MATERIAL. THE BOOK DISCUSSES THE PRINCIPLES UNDERPINNING MODERN INDUSTRIAL BIOTECHNOLOGY AND DESCRIBES A UNIQUE COLLECTION OF NOVEL BIOPROCESSES FOR A SUSTAINABLE FUTURE. THIS BOOK BEGINS IN A VERY STRUCTURED WAY. IT FIRST LOOKS AT THE MODERN TECHNOLOGIES THAT FORM THE BASIS FOR CREATING A BIO-BASED INDUSTRY BEFORE DESCRIBING THE VARIOUS ORGANISMS THAT ARE SUITABLE FOR BIOPROCESSING - FROM BACTERIA TO ALGAE - AS WELL AS THEIR UNIQUE CHARACTERISTICS. THIS IS FOLLOWED BY A DISCUSSION OF NOVEL, EXPERIMENTAL BIOPROCESSES, SUCH AS THE PRODUCTION OF MEDICINAL CHEMICALS, THE PRODUCTION OF CHIRAL COMPOUNDS AND THE DESIGN OF BIOFUEL CELLS. THE BOOK CONCLUDES WITH EXAMPLES WHERE BIOLOGICAL, RENEWABLE RESOURCES BECOME AN IMPORTANT FEEDSTOCK FOR LARGE-SCALE INDUSTRIAL PRODUCTION. THIS BOOK IS SUITABLE FOR RESEARCHERS, PRACTITIONERS, STUDENTS, AND CONSULTANTS IN THE BIOPROCESS AND BIOTECHNOLOGY

FIELDS, AND FOR OTHERS WHO ARE INTERESTED IN BIOTECHNOLOGY, ENGINEERING, INDUSTRIAL MICROBIOLOGY AND CHEMICAL ENGINEERING. •REVIEWS THE PRINCIPLES UNDERPINNING MODERN INDUSTRIAL BIOTECHNOLOGY •PROVIDES A UNIQUE COLLECTION OF NOVEL BIOPROCESSES FOR A SUSTAINABLE FUTURE •GIVES EXAMPLES OF ECONOMICAL USE OF RENEWABLE RESOURCES AS FEEDSTOCKS •SUITABLE FOR BOTH NON-EXPERTS AND EXPERTS IN THE BIOPRODUCT INDUSTRY

BIOPROCESS ENGINEERING - MICHAEL L. SHULER 2014
FOR SENIOR-LEVEL AND GRADUATE COURSES IN BIOCHEMICAL ENGINEERING, AND FOR PROGRAMS IN AGRICULTURAL AND BIOLOGICAL ENGINEERING OR BIOENGINEERING. THIS CONCISE YET COMPREHENSIVE TEXT INTRODUCES THE ESSENTIAL CONCEPTS OF BIOPROCESSING-INTERNAL STRUCTURE AND FUNCTIONS OF DIFFERENT TYPES OF MICROORGANISMS, MAJOR METABOLIC PATHWAYS, ENZYMES, MICROBIAL GENETICS, KINETICS AND STOICHIOMETRY OF GROWTH AND PRODUCT INFORMATION-TO TRADITIONAL CHEMICAL ENGINEERS AND THOSE IN RELATED DISCIPLINES. IT EXPLORES THE ENGINEERING PRINCIPLES NECESSARY FOR BIOPROCESS SYNTHESIS AND DESIGN, AND ILLUSTRATES THE APPLICATION OF THESE PRINCIPLES TO MODERN BIOTECHNOLOGY FOR PRODUCTION OF PHARMACEUTICALS AND BIOLOGICS, SOLUTION OF ENVIRONMENTAL PROBLEMS, PRODUCTION OF COMMODITIES, AND MEDICAL APPLICATIONS.

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METABOLIC ENGINEERING - JENS NIELSEN 2003-07-03
METABOLIC ENGINEERING IS A RAPIDLY EVOLVING FIELD THAT IS BEING APPLIED FOR THE OPTIMIZATION OF MANY DIFFERENT INDUSTRIAL PROCESSES. IN THIS ISSUE OF ADVANCES IN BIOCHEMICAL ENGINEERING/BIOTECHNOLOGY, DEVELOPMENTS IN DIFFERENT AREAS OF METABOLIC ENGINEERING ARE REVIEWED. THE CONTRIBUTIONS DISCUSS THE APPLICATION OF METABOLIC ENGINEERING IN THE IMPROVEMENT OF YIELD AND PRODUCTIVITY - ILLUSTRATED BY AMINO ACID PRODUCTION AND THE PRODUCTION OF NOVEL COMPOUNDS - IN THE PRODUCTION OF POLYKETIDES AND EXTENSION OF THE SUBSTRATE RANGE - AND IN THE ENGINEERING OF *S. CEREVISIAE* FOR XYLOSE METABOLISM, AND THE IMPROVEMENT OF A COMPLEX BIOTRANSFORMATION PROCESS.

ENGINEERING PRINCIPLES IN BIOTECHNOLOGY - WEI-SHOU HU
2017-11-13

THIS BOOK IS A SHORT INTRODUCTION TO THE ENGINEERING PRINCIPLES OF HARNESSING THE VAST POTENTIAL OF MICROORGANISMS, AND ANIMAL AND PLANT CELLS IN MAKING BIOCHEMICAL PRODUCTS. IT WAS WRITTEN FOR SCIENTISTS WHO HAVE NO BACKGROUND IN ENGINEERING, AND FOR ENGINEERS WITH MINIMAL BACKGROUND IN BIOLOGY. THE OVERALL SUBJECT DEALT WITH IS PROCESS. BUT THE COVERAGE GOES BEYOND THE PROCESS OF BIOMANUFACTURING IN THE BIOREACTOR, AND EXTENDS TO THE FACTORY OF CELL'S BIOSYNTHETIC MACHINERY. STARTING

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WITH AN OVERVIEW OF BIOTECHNOLOGY AND ORGANISM, ENGINEERS ARE EASED INTO BIOCHEMICAL REACTIONS AND LIFE SCIENTISTS ARE EXPOSED TO THE TECHNOLOGY OF PRODUCTION USING CELLS. SUBSEQUENT CHAPTERS ALLOW ENGINEERS TO BE ACQUAINTED WITH BIOCHEMICAL PATHWAYS, WHILE LIFE SCIENTIST LEARN ABOUT STOICHIOMETRIC AND KINETIC PRINCIPLES OF REACTIONS AND CELL GROWTH. THIS LEADS TO THE COVERAGE OF REACTORS, OXYGEN TRANSFER AND SCALE UP. FOLLOWING THREE CHAPTERS ON BIOMANUFACTURING OF CURRENT AND FUTURE IMPORTANCE, I.E. CELL CULTURE, STEM CELLS AND SYNTHETIC BIOLOGY, THE TOPIC SWITCHES TO PRODUCT PURIFICATION, FIRST WITH A CONCEPTUAL COVERAGE OF OPERATIONS USED IN BIOSEPARATION, AND THEN A MORE DETAILED ANALYSIS TO PROVIDE A CONCEPTUAL UNDERSTANDING OF CHROMATOGRAPHY, THE MODERN WORKHORSE OF BIOSEPARATION. DRAWING ON PRINCIPLES FROM ENGINEERING AND LIFE SCIENCES, THIS BOOK IS FOR PRACTITIONERS IN BIOTECHNOLOGY AND BIOENGINEERING. THE AUTHOR HAS USED THE BOOK FOR A COURSE FOR ADVANCED STUDENTS IN BOTH ENGINEERING AND LIFE SCIENCES. TO THIS END, PROBLEMS ARE PROVIDED AT THE END OF EACH CHAPTER.

BIOPROCESS ENGINEERING PRINCIPLES - PAULINE M. DORAN
2013

THIS WELCOME NEW EDITION COVERS BIOPROCESS ENGINEERING PRINCIPLES FOR THE READER WITH A LIMITED ENGINEERING

BACKGROUND. IT EXPLAINS PROCESS ANALYSIS FROM AN ENGINEERING POINT OF VIEW, USING WORKED EXAMPLES AND PROBLEMS THAT RELATE TO BIOLOGICAL SYSTEMS. APPLICATION OF ENGINEERING CONCEPTS IS ILLUSTRATED IN AREAS OF MODERN BIOTECHNOLOGY SUCH AS RECOMBINANT PROTEIN PRODUCTION, BIOREMEDIATION, BIOFUELS, DRUG DEVELOPMENT, AND TISSUE ENGINEERING, AS WELL AS MICROBIAL FERMENTATION. THE MAIN SUB-DISCIPLINES WITHIN THE ENGINEERING CURRICULUM ARE ALL COVERED; MATERIAL AND ENERGY BALANCES, TRANSPORT PROCESSES, REACTIONS AND REACTOR ENGINEERING. WITH NEW AND EXPANDED MATERIAL, DORAN'S TEXTBOOK REMAINS THE BOOK OF CHOICE FOR STUDENTS SEEKING TO MOVE INTO BIOPROCESS ENGINEERING. NEW TO THIS EDITION: ALL CHAPTERS THOROUGHLY REVISED FOR CURRENT DEVELOPMENTS, WITH OVER 200 PGS OF NEW MATERIAL, INCLUDING SIGNIFICANT NEW CONTENT IN: METABOLIC ENGINEERING SUSTAINABLE BIOPROCESSING MEMBRANE FILTRATION TURBULENCE AND IMPELLER DESIGN DOWNSTREAM PROCESSING OXYGEN TRANSFER SYSTEMS OVER 150 NEW PROBLEMS AND WORKED EXAMPLES MORE THAN 100 NEW ILLUSTRATIONS NEW TO THIS EDITION: ALL CHAPTERS THOROUGHLY REVISED FOR CURRENT DEVELOPMENTS, WITH OVER 200 PGS OF NEW MATERIAL, INCLUDING SIGNIFICANT NEW CONTENT IN: METABOLIC ENGINEERING SUSTAINABLE BIOPROCESSING MEMBRANE FILTRATION TURBULENCE AND IMPELLER DESIGN

DOWNSTREAM PROCESSING OXYGEN TRANSFER SYSTEMS
OVER 150 NEW PROBLEMS AND WORKED EXAMPLES MORE
THAN 100 NEW ILLUSTRATIONS

CHEMICAL AND BIOPROCESS ENGINEERING - RICARDO SIMPSON
2013-12-04

THE GOAL OF THIS TEXTBOOK IS TO PROVIDE FIRST-YEAR ENGINEERING STUDENTS WITH A FIRM GROUNDING IN THE FUNDAMENTALS OF CHEMICAL AND BIOPROCESS ENGINEERING. HOWEVER, INSTEAD OF BEING A GENERAL OVERVIEW OF THE TWO TOPICS, FUNDAMENTALS OF CHEMICAL AND BIOPROCESS ENGINEERING WILL IDENTIFY AND FOCUS ON SPECIFIC AREAS IN WHICH ATTAINING A SOLID COMPETENCY IS DESIRED. THIS STRATEGY IS THE DIRECT RESULT OF STUDIES SHOWING THAT BROAD-BASED COURSES AT THE FRESHMAN LEVEL OFTEN LEAVE STUDENTS GRAPPLING WITH A LOT OF MATERIAL, WHICH RESULTS IN A LOW RATE OF RETENTION. SPECIFICALLY, STRONG EMPHASIS WILL BE PLACED ON THE TOPIC OF MATERIAL BALANCES, WITH THE INTENT THAT STUDENTS EXITING A COURSE BASED UPON THIS TEXTBOOK WILL BE SIGNIFICANTLY HIGHER ON BLOOM'S TAXONOMY (KNOWLEDGE, COMPREHENSION, APPLICATION, ANALYSIS AND SYNTHESIS, EVALUATION, CREATION) RELATING TO MATERIAL BALANCES. IN ADDITION, THIS BOOK ALSO PROVIDES STUDENTS WITH A HIGHLY DEVELOPED ABILITY TO ANALYZE PROBLEMS FROM THE MATERIAL BALANCES PERSPECTIVE, WHICH LEAVES THEM WITH IMPORTANT SKILLS FOR THE FUTURE. THE TEXTBOOK

CONSISTS OF NUMEROUS EXERCISES AND THEIR SOLUTIONS. PROBLEMS ARE CLASSIFIED BY THEIR LEVEL OF DIFFICULTY. EACH CHAPTER HAS REFERENCES AND SELECTED WEB PAGES TO VIVIDLY ILLUSTRATE EACH EXAMPLE. IN ADDITION, TO ENGAGE STUDENTS AND INCREASE THEIR COMPREHENSION AND RATE OF RETENTION, MANY EXAMPLES INVOLVE REAL-WORLD SITUATIONS.

CHEMICAL ENGINEERING DESIGN - GAVIN TOWLER
2012-01-25

CHEMICAL ENGINEERING DESIGN, SECOND EDITION, DEALS WITH THE APPLICATION OF CHEMICAL ENGINEERING PRINCIPLES TO THE DESIGN OF CHEMICAL PROCESSES AND EQUIPMENT. REVISED THROUGHOUT, THIS EDITION HAS BEEN SPECIFICALLY DEVELOPED FOR THE U.S. MARKET. IT PROVIDES THE LATEST US CODES AND STANDARDS, INCLUDING API, ASME AND ISA DESIGN CODES AND ANSI STANDARDS. IT CONTAINS NEW DISCUSSIONS OF CONCEPTUAL PLANT DESIGN, FLOWSHEET DEVELOPMENT, AND REVAMP DESIGN; EXTENDED COVERAGE OF CAPITAL COST ESTIMATION, PROCESS COSTING, AND ECONOMICS; AND NEW CHAPTERS ON EQUIPMENT SELECTION, REACTOR DESIGN, AND SOLIDS HANDLING PROCESSES. A RIGOROUS PEDAGOGY ASSISTS LEARNING, WITH DETAILED WORKED EXAMPLES, END OF CHAPTER EXERCISES, PLUS SUPPORTING DATA, AND EXCEL SPREADSHEET CALCULATIONS, PLUS OVER 150 PATENT REFERENCES FOR DOWNLOADING FROM THE COMPANION WEBSITE. EXTENSIVE INSTRUCTOR

RESOURCES, INCLUDING 1170 LECTURE SLIDES AND A FULLY WORKED SOLUTIONS MANUAL ARE AVAILABLE TO ADOPTING INSTRUCTORS. THIS TEXT IS DESIGNED FOR CHEMICAL AND BIOCHEMICAL ENGINEERING STUDENTS (SENIOR UNDERGRADUATE YEAR, PLUS APPROPRIATE FOR CAPSTONE DESIGN COURSES WHERE TAKEN, PLUS GRADUATES) AND LECTURERS/TUTORS, AND PROFESSIONALS IN INDUSTRY (CHEMICAL PROCESS, BIOCHEMICAL, PHARMACEUTICAL, PETROCHEMICAL SECTORS). NEW TO THIS EDITION: REVISED ORGANIZATION INTO PART I: PROCESS DESIGN, AND PART II: PLANT DESIGN. THE BROAD THEMES OF PART I ARE FLOWSHEET DEVELOPMENT, ECONOMIC ANALYSIS, SAFETY AND ENVIRONMENTAL IMPACT AND OPTIMIZATION. PART II CONTAINS CHAPTERS ON EQUIPMENT DESIGN AND SELECTION THAT CAN BE USED AS SUPPLEMENTS TO A LECTURE COURSE OR AS ESSENTIAL REFERENCES FOR STUDENTS OR PRACTICING ENGINEERS WORKING ON DESIGN PROJECTS. NEW DISCUSSION OF CONCEPTUAL PLANT DESIGN, FLOWSHEET DEVELOPMENT AND REVAMP DESIGN SIGNIFICANTLY INCREASED COVERAGE OF CAPITAL COST ESTIMATION, PROCESS COSTING AND ECONOMICS NEW CHAPTERS ON EQUIPMENT SELECTION, REACTOR DESIGN AND SOLIDS HANDLING PROCESSES NEW SECTIONS ON FERMENTATION, ADSORPTION, MEMBRANE SEPARATIONS, ION EXCHANGE AND CHROMATOGRAPHY INCREASED COVERAGE OF BATCH PROCESSING, FOOD, PHARMACEUTICAL AND BIOLOGICAL PROCESSES ALL EQUIPMENT CHAPTERS IN PART II REVISED AND

UPDATED WITH CURRENT INFORMATION UPDATED THROUGHOUT FOR LATEST US CODES AND STANDARDS, INCLUDING API, ASME AND ISA DESIGN CODES AND ANSI STANDARDS ADDITIONAL WORKED EXAMPLES AND HOMEWORK PROBLEMS THE MOST COMPLETE AND UP TO DATE COVERAGE OF EQUIPMENT SELECTION 108 REALISTIC COMMERCIAL DESIGN PROJECTS FROM DIVERSE INDUSTRIES A RIGOROUS PEDAGOGY ASSISTS LEARNING, WITH DETAILED WORKED EXAMPLES, END OF CHAPTER EXERCISES, PLUS SUPPORTING DATA AND EXCEL SPREADSHEET CALCULATIONS PLUS OVER 150 PATENT REFERENCES, FOR DOWNLOADING FROM THE COMPANION WEBSITE EXTENSIVE INSTRUCTOR RESOURCES: 1170 LECTURE SLIDES PLUS FULLY WORKED SOLUTIONS MANUAL AVAILABLE TO ADOPTING INSTRUCTORS

CELL CULTURE BIOPROCESS ENGINEERING, SECOND EDITION -
Wei-Shou HU 2020-03-06

THIS BOOK IS THE CULMINATION OF THREE DECADES OF ACCUMULATED EXPERIENCE IN TEACHING BIOTECHNOLOGY PROFESSIONALS. IT DISTILLS THE FUNDAMENTAL PRINCIPLES AND ESSENTIAL KNOWLEDGE OF CELL CULTURE PROCESSES FROM ACROSS MANY DIFFERENT DISCIPLINES AND PRESENTS THEM IN A SERIES OF EASY-TO-FOLLOW, COMPREHENSIVE CHAPTERS. PRACTICALITY, INCLUDING TECHNOLOGICAL ADVANCES AND BEST PRACTICES, IS EMPHASIZED. THIS SECOND EDITION CONSISTS OF MAJOR UPDATES TO ALL RELEVANT TOPICS CONTAINED WITHIN THIS WORK. THE PREVIOUS

EDITION HAS BEEN SUCCESSFULLY USED IN TRAINING COURSES ON CELL CULTURE BIOPROCESSING OVER THE PAST SEVEN YEARS. THE FORMAT OF THE BOOK IS WELL-SUITED TO FAST-PACED LEARNING, SUCH AS IS FOUND IN THE INTENSIVE SHORT COURSE, SINCE THE KEY TAKE-HOME MESSAGES ARE PROMINENTLY HIGHLIGHTED IN PANELS. THE BOOK IS ALSO WELL-SUITED TO ACT AS A REFERENCE GUIDE FOR EXPERIENCED INDUSTRIAL PRACTITIONERS OF MAMMALIAN CELL CULTIVATION FOR THE PRODUCTION OF BIOLOGICS.

BIOPROCESS ENGINEERING - SHIJIE LIU 2012-11-21

BIOPROCESS ENGINEERING INVOLVES THE DESIGN AND DEVELOPMENT OF EQUIPMENT AND PROCESSES FOR THE MANUFACTURING OF PRODUCTS SUCH AS FOOD, FEED, PHARMACEUTICALS, NUTRACEUTICALS, CHEMICALS, AND POLYMERS AND PAPER FROM BIOLOGICAL MATERIALS. IT ALSO DEALS WITH STUDYING VARIOUS BIOTECHNOLOGICAL PROCESSES. "BIOPROCESS KINETICS AND SYSTEMS ENGINEERING" FIRST OF ITS KIND CONTAINS SYSTEMATIC AND COMPREHENSIVE CONTENT ON BIOPROCESS KINETICS, BIOPROCESS SYSTEMS, SUSTAINABILITY AND REACTION ENGINEERING. DR. SHIJIE LIU REVIEWS THE RELEVANT

FUNDAMENTALS OF CHEMICAL KINETICS-INCLUDING BATCH AND CONTINUOUS REACTORS, BIOCHEMISTRY, MICROBIOLOGY, MOLECULAR BIOLOGY, REACTION ENGINEERING, AND BIOPROCESS SYSTEMS ENGINEERING- INTRODUCING KEY PRINCIPLES THAT ENABLE BIOPROCESS ENGINEERS TO ENGAGE IN THE ANALYSIS, OPTIMIZATION, DESIGN AND CONSISTENT CONTROL OVER BIOLOGICAL AND CHEMICAL TRANSFORMATIONS. THE QUANTITATIVE TREATMENT OF BIOPROCESSES IS THE CENTRAL THEME OF THIS BOOK, WHILE MORE ADVANCED TECHNIQUES AND APPLICATIONS ARE COVERED WITH SOME DEPTH. MANY THEORETICAL DERIVATIONS AND SIMPLIFICATIONS ARE USED TO DEMONSTRATE HOW EMPIRICAL KINETIC MODELS ARE APPLICABLE TO COMPLICATED BIOPROCESS SYSTEMS. CONTAINS EXTENSIVE ILLUSTRATIVE DRAWINGS WHICH MAKE THE UNDERSTANDING OF THE SUBJECT EASY CONTAINS WORKED EXAMPLES OF THE VARIOUS PROCESS PARAMETERS, THEIR SIGNIFICANCE AND THEIR SPECIFIC PRACTICAL USE PROVIDES THE THEORY OF BIOPROCESS KINETICS FROM SIMPLE CONCEPTS TO COMPLEX METABOLIC PATHWAYS INCORPORATES SUSTAINABILITY CONCEPTS INTO THE VARIOUS BIOPROCESSES