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EDUCATIONAL RESEARCH AND INNOVATION OPEN EDUCATIONAL RESOURCES A CATALYST FOR INNOVATION

A CATALYST FOR INNOVATION

OECD Publishing **Education is the key to economic, social and environmental progress, and governments around the world are looking to improve their education systems.**

AIRPODS: THE NEXT STEP IN HEADPHONES

Van Helostein **Apple has again topped the list by producing an almost magical solution to the tangled headphone problem. There are many wireless Bluetooth devices in the market that effectively replace the wired headphones but none offer the ease and simplicity of AirPods by Apple. It has Apple’s distinctive sleek white look and with an improved SIRI, you can control everything with your voice without moving a finger.**

CONSTRUCTING ARCHITECTURE

MATERIALS, PROCESSES, STRUCTURES

Springer Science & Business Media **Now in its second edition: the trailblazing introduction and textbook on construction includes a new section on translucent materials and an article on the use of glass.**

GUIDELINES ON THE DEVELOPMENT OF OPEN EDUCATIONAL RESOURCES POLICIES

UNESCO Publishing

INTRODUCTION TO CRYPTOGRAPHY AND NETWORK SECURITY

"A textbook for beginners in security. In this new first edition, well-known author Behrouz Forouzan uses his accessible writing style and visual approach to simplify the difficult concepts of cryptography and network security. This edition also provides a website that includes Powerpoint files as well as instructor and students solutions manuals. Forouzan presents difficult security topics from the ground up. A gentle introduction to the fundamentals of number theory is provided in the opening chapters, paving the way for the student to move on to more complex security and cryptography topics. Difficult math concepts are organized in appendices at the end of each chapter so that students can first learn the principles, then apply the technical background. Hundreds of examples, as well as fully coded programs, round out a practical, hands-on approach which encourages students to test the material they are learning."--Publisher's website.

DIGITISING THE INDUSTRY - INTERNET OF THINGS CONNECTING THE PHYSICAL, DIGITAL AND VIRTUAL WORLDS

River Publishers **This book provides an overview of the current Internet of Things (IoT) landscape, ranging from the research, innovation and development priorities to enabling technologies in a global context. A successful deployment of IoT technologies requires integration on all layers, be it cognitive and semantic aspects, middleware components, services, edge devices/machines and infrastructures. It is intended to be a standalone book in a series that covers the Internet of Things activities of the IERC - Internet of Things European Research Cluster from research to technological innovation, validation and deployment. The book builds on the ideas put forward by the European Research Cluster and the IoT European Platform Initiative (IoT-EPI) and presents global views and state of the art results on the challenges facing the research, innovation, development and deployment of IoT in the next years. The IoT is bridging the physical world with virtual world and requires sound information processing capabilities for the "digital shadows" of these real things. The research and innovation in nanoelectronics, semiconductor, sensors/actuators, communication, analytics technologies, cyber-physical systems, software, swarm intelligent and deep learning systems are essential for the successful deployment of IoT applications. The emergence of IoT platforms with multiple functionalities enables rapid development and lower costs by offering standardised components that can be shared across multiple solutions in many industry verticals. The IoT applications will gradually move from vertical, single purpose solutions to multi-purpose and collaborative applications interacting across industry verticals, organisations and people, being one of the essential paradigms of the digital economy. Many of those applications still have to be identified and involvement of end-users including the creative sector in**

this innovation is crucial. The IoT applications and deployments as integrated building blocks of the new digital economy are part of the accompanying IoT policy framework to address issues of horizontal nature and common interest (i.e. privacy, end-to-end security, user acceptance, societal, ethical aspects and legal issues) for providing trusted IoT solutions in a coordinated and consolidated manner across the IoT activities and pilots. In this, context IoT ecosystems offer solutions beyond a platform and solve important technical challenges in the different verticals and across verticals. These IoT technology ecosystems are instrumental for the deployment of large pilots and can easily be connected to or build upon the core IoT solutions for different applications in order to expand the system of use and allow new and even unanticipated IoT end uses. Technical topics discussed in the book include: IntroductionDigitising industry and IoT as key enabler in the new era of Digital EconomyIoT Strategic Research and Innovation Agenda IoT in the digital industrial context: Digital Single MarketIntegration of heterogeneous systems and bridging the virtual, digital and physical worldsFederated IoT platforms and interoperabilityEvolution from intelligent devices to connected systems of systems by adding new layers of cognitive behaviour, artificial intelligence and user interfaces. Innovation through IoT ecosystemsTrust-based IoT end-to-end security, privacy framework User acceptance, societal, ethical aspects and legal issuesInternet of Things Applications

FOUNDATIONS OF HUMAN RESOURCE DEVELOPMENT

EASYREAD COMFORT EDITION

ReadHowYouWant.com

INTELLECTUAL PROPERTY COMMERCIALIZATION

POLICY OPTIONS AND PRACTICAL INSTRUMENTS

United Nations Publications **"A major substantive contribution to the publication by Gail E. Evans"--P. [iv].**

DIVE INTO DEEP LEARNING

TOOLS FOR ENGAGEMENT

Corwin Press **The leading experts in system change and learning, with their school-based partners around the world, have created this essential companion to their runaway best-seller, Deep Learning: Engage the World Change the World. This hands-on guide provides a roadmap for building capacity in teachers, schools, districts, and systems to design deep learning, measure progress, and assess conditions needed to activate and sustain innovation. Dive Into Deep Learning: Tools for Engagement is rich with resources educators need to construct and drive meaningful deep**

learning experiences in order to develop the kind of mindset and know-how that is crucial to becoming a problem-solving change agent in our global society. Designed in full color, this easy-to-use guide is loaded with tools, tips, protocols, and real-world examples. It includes: • A framework for deep learning that provides a pathway to develop the six global competencies needed to flourish in a complex world — character, citizenship, collaboration, communication, creativity, and critical thinking. • Learning progressions to help educators analyze student work and measure progress. • Learning design rubrics, templates and examples for incorporating the four elements of learning design: learning partnerships, pedagogical practices, learning environments, and leveraging digital. • Conditions rubrics, teacher self-assessment tools, and planning guides to help educators build, mobilize, and sustain deep learning in schools and districts. Learn about, improve, and expand your world of learning. Put the joy back into learning for students and adults alike. Dive into deep learning to create learning experiences that give purpose, unleash student potential, and transform not only learning, but life itself.

OPEN EDUCATIONAL RESOURCES: POLICY, COSTS, TRANSFORMATION

UNESCO Publishing

ADVANCES IN MANUFACTURING AND INDUSTRIAL ENGINEERING

SELECT PROCEEDINGS OF ICAPIE 2019

Springer Nature **This book presents selected peer reviewed papers from the International Conference on Advanced Production and Industrial Engineering (ICAPIE 2019). It covers a wide range of topics and latest research in mechanical systems engineering, materials engineering, micro-machining, renewable energy, industrial and production engineering, and additive manufacturing. Given the range of topics discussed, this book will be useful for students and researchers primarily working in mechanical and industrial engineering, and energy technologies.**

CHEMICAL PROCESS DESIGN AND INTEGRATION

John Wiley & Sons **Written by a highly regarded author with industrial and academic experience, this new edition of an established bestselling book provides practical guidance for students, researchers, and those in chemical engineering. The book includes a new section on sustainable energy, with sections on carbon capture and sequestration, as a result of increasing environmental awareness; and a companion website that includes problems, worked solutions, and Excel spreadsheets to enable students to carry out complex calculations.**

INNOVATIVE DATA COMMUNICATION TECHNOLOGIES AND

APPLICATION

PROCEEDINGS OF ICIDCA 2020

Springer **This book presents the latest research in the fields of computational intelligence, ubiquitous computing models, communication intelligence, communication security, machine learning, informatics, mobile computing, cloud computing and big data analytics. The best selected papers, presented at the International Conference on Innovative Data Communication Technologies and Application (ICIDCA 2020), are included in the book. The book focuses on the theory, design, analysis, implementation and applications of distributed systems and networks.**

POWER SYSTEM PROTECTION AND SWITCHGEAR

New Age International

SUSTAINABLE INDUSTRIAL DESIGN AND WASTE MANAGEMENT

CRADLE-TO-CRADLE FOR SUSTAINABLE DEVELOPMENT

Academic Press **Sustainable Industrial Design and Waste Management was inspired by the need to have a text that enveloped awareness and solutions to the ongoing issues and concerns of waste generated from industry. The development of science and technology has increased human capacity to extract resources from nature and it is only recently that industries are being held accountable for the detrimental effects the waste they produce has on the environment. Increased governmental research, regulation and corporate accountability are digging up issues pertaining to pollution control and waste treatment and environmental protection. The traditional approach for clinical waste, agricultural waste, industrial waste, and municipal waste are depleting our natural resources. The main objective of this book is to conserve the natural resources by approaching 100 % full utilization of all types of wastes by cradle – to - cradle concepts, using Industrial Ecology methodology documented with case studies. Sustainable development and environmental protection cannot be achieved without establishing the concept of industrial ecology. The main tools necessary for establishing Industrial Ecology and sustainable development will be covered in the book. The concept of “industrial ecology will help the industrial system to be managed and operated more or less like a natural ecosystem hence causing as less damage as possible to the surrounding environment. Numerous case studies allow the reader to adapt concepts according to personal interest/field Reveals innovative technologies for the conservation of natural resources The only book which provides an integrated approach for sustainable development including tools, methodology, and indicators for sustainable development**

UNIT OPERATIONS OF PARTICULATE SOLIDS

THEORY AND PRACTICE

CRC Press **Suitable for practicing engineers and engineers in training, this book covers the most important operations involving particulate solids. Through clear explanations of theoretical principles and practical laboratory exercises, the text provides an understanding of the behavior of powders and pulverized systems. It also helps readers develop skills for operating, optimizing, and innovating particle processing technologies and machinery in order to carry out industrial operations. The author explores common bulk solids processing operations, including milling, agglomeration, fluidization, mixing, and solid-fluid separation.**

HANDBOOK OF WIRELESS SENSOR NETWORKS: ISSUES AND CHALLENGES IN CURRENT SCENARIO'S

Springer Nature **This book explores various challenging problems and applications areas of wireless sensor networks (WSNs), and identifies the current issues and future research challenges. Discussing the latest developments and advances, it covers all aspects of in WSNs, from architecture to protocols design, and from algorithm development to synchronization issues. As such the book is an essential reference resource for undergraduate and postgraduate students as well as scholars and academics working in the field.**

NEXT GENERATION SEQUENCING

ADVANCES, APPLICATIONS AND CHALLENGES

BoD – Books on Demand **Next generation sequencing (NGS) has surpassed the traditional Sanger sequencing method to become the main choice for large-scale, genome-wide sequencing studies with ultra-high-throughput production and a huge reduction in costs. The NGS technologies have had enormous impact on the studies of structural and functional genomics in all the life sciences. In this book, Next Generation Sequencing Advances, Applications and Challenges, the sixteen chapters written by experts cover various aspects of NGS including genomics, transcriptomics and methylomics, the sequencing platforms, and the bioinformatics challenges in processing and analysing huge amounts of sequencing data. Following an overview of the evolution of NGS in the brave new world of omics, the book examines the advances and challenges of NGS applications in basic and applied research on microorganisms, agricultural plants and humans. This book is of value to all who are interested in DNA sequencing and bioinformatics across all fields of the life sciences.**

MODERN ELECTRIC, HYBRID ELECTRIC, AND FUEL CELL VEHICLES

CRC Press **"This book is an introduction to automotive technology, with**

specic reference to battery electric, hybrid electric, and fuel cell electric vehicles. It could serve electrical engineers who need to know more about automobiles or automotive engineers who need to know about electrical propulsion systems. For example, this reviewer, who is a specialist in electric machinery, could use this book to better understand the automobiles for which the reviewer is designing electric drive motors. An automotive engineer, on the other hand, might use it to better understand the nature of motors and electric storage systems for application in automobiles, trucks or motorcycles. The early chapters of the book are accessible to technically literate people who need to know something about cars. While the rst chapter is historical in nature, the second chapter is a good introduction to automobiles, including dynamics of propulsion and braking. The third chapter discusses, in some detail, spark ignition and compression ignition (Diesel) engines. The fourth chapter discusses the nature of transmission systems." —James Kirtley, Massachusetts Institute of Technology, USA "The third edition covers extensive topics in modern electric, hybrid electric, and fuel cell vehicles, in which the profound knowledge, mathematical modeling, simulations, and control are clearly presented. Featured with design of various vehicle drivetrains, as well as a multi-objective optimization software, it is an estimable work to meet the needs of automotive industry." —Haiyan Henry Zhang, Purdue University, USA "The extensive combined experience of the authors have produced an extensive volume covering a broad range but detailed topics on the principles, design and architectures of Modern Electric, Hybrid Electric, and Fuel Cell Vehicles in a well-structured, clear and concise manner. The volume offers a complete overview of technologies, their selection, integration & control, as well as an interesting Technical Overview of the Toyota Prius. The technical chapters are complemented with example problems and user guides to assist the reader in practical calculations through the use of common scientic computing packages. It will be of interest mainly to research postgraduates working in this eld as well as established academic researchers, industrial R&D engineers and allied professionals." —Christopher Donaghy-Sparg, Durham University, United Kingdom The book deals with the fundamentals, theoretical bases, and design methodologies of conventional internal combustion engine (ICE) vehicles, electric vehicles (EVs), hybrid electric vehicles (HEVs), and fuel cell vehicles (FCVs). The design methodology is described in mathematical terms, step-by-step, and the topics are approached from the overall drive train system, not just individual components. Furthermore, in explaining the design methodology of each drive train, design examples are presented with simulation results. All the chapters have been updated, and two new chapters on Mild Hybrids and Optimal Sizing and Dimensioning and Control are also included • Chapters updated throughout the text. • New homework problems, solutions, and examples. • Includes two new chapters. • Features accompanying MATLABTM software.

INTERNET OF THINGS AND ANALYTICS FOR AGRICULTURE, VOLUME 3

Springer Nature **The book discusses one of the major challenges in agriculture which is delivery of cultivate produce to the end consumers with best possible price and quality. Currently all over the world, it is found that around 50% of the farm produce never reaches the end consumer due to wastage and suboptimal prices. The authors present solutions to reduce the transport cost, predictability of prices on the past data analytics and the current market conditions, and number of middle hops and agents between the farmer and the end consumer using IoT-based solutions. Again, the demand by consumption of agricultural products could be predicted quantitatively; however, the variation of harvest and production by the change of farm's cultivated area, weather change, disease and insect damage, etc., could be difficult to be predicted, so that the supply and demand of agricultural products has not been controlled properly. To overcome, this edited book designed the IoT-based monitoring system to analyze crop environment and the method to improve the efficiency of decision making by analyzing harvest statistics. The book is also useful for academicians working in the areas of climate changes.**

CAM DESIGN HANDBOOK

McGraw-Hill Professional Publishing **The cam, used to translate rotary motion into linear motion, is an integral part of many classes of machines, such as printing presses, textile machinery, gear-cutting machines, and screw machines. Emphasizing computer-aided design and manufacturing techniques, as well as sophisticated numerical control methods, this handbook allows engineers and technicians to utilize cutting edge design tools. It will decrease time spent on the drawing board and increase productivity and machine accuracy. * Cam design, manufacture, and dynamics of cams * The latest computer-aided design and manufacturing techniques * New cam mechanisms including robotic and prosthetic applications**

RESEARCH AND TECHNOLOGY MANAGEMENT IN THE ELECTRICITY INDUSTRY

METHODS, TOOLS AND CASE STUDIES

Springer Science & Business Media **Technologies such as renewable energy alternatives including wind, solar and biomass, storage technologies and electric engines are creating a different landscape for the electricity industry. Using sources and ideas from technologies such as renewable energy alternatives, Research and Technology Management in the Electricity Industry explores a different landscape for this industry and applies it to the electric industry supported by real industry cases. Divided into three sections, Research and Technology Management in the Electricity Industry introduces a range of methods and tools including**

technology assessment, forecasting, roadmapping, research and development portfolio management and technology transfer. These tools are the applied to emerging technologies in this industry with case studies including data from various organizations including Bonneville Power Administration and Energy Trust of Oregon, from sectors including lighting and wind energy. The final section considers innovation through these technologies. A product result of a collaboration between Bonneville Power Administration and Portland State University, Research and Technology Management in the Electricity Industry is a comprehensive collection of methods, tools, examples and pathways for future innovation in the electricity industry.

ADVANCED WELDING PROCESSES

Elsevier **Advanced welding processes provides an excellent introductory review of the range of welding technologies available to the structural and mechanical engineer. The book begins by discussing general topics such power sources, filler materials and gases used in advanced welding. A central group of chapters then assesses the main welding techniques: gas tungsten arc welding (GTAW), gas metal arc welding (GMAW), high energy density processes and narrow-gap welding techniques. Two final chapters review process control, automation and robotics. Advanced welding processes is an invaluable guide to selecting the best welding technology for mechanical and structural engineers. An essential guide to selecting the best welding technology for mechanical and structural engineers Provides an excellent introductory review of welding technologies Topics include gas metal arc welding, laser welding and narrow gap welding methods**

THE INNOVATOR'S DILEMMA

WHEN NEW TECHNOLOGIES CAUSE GREAT FIRMS TO FAIL

PREPARING UNIVERSITIES FOR AN ERA OF CHANGE

Economica Limited **Over the past decade, the Glion Colloquium has established itself as an influential resource in addressing the challenges, roles, and responsibilities of the world's research universities. In this book, university leaders from around the world consider how their institutions should respond to the challenge of profound economic, technological, social, and political change. It was developed from topics discussed at the IX Glion Colloquium in 2012. The book discusses not only how research universities are adapting to major changes, but also how they can develop new curricula, student experiences, research paradigms, social engagement, and international alliances to better address the many challenges these changes create.**

CHEMICAL PROCESS DESIGN

COMPUTER-AIDED CASE STUDIES

John Wiley & Sons **This practical how-to-do book deals with the design of sustainable chemical processes by means of systematic methods aided by computer simulation. Ample case studies illustrate generic creative issues, as well as the efficient use of simulation techniques, with each one standing for an important issue taken from practice. The didactic approach guides readers from basic knowledge to mastering complex flow-sheets, starting with chemistry and thermodynamics, via process synthesis, efficient use of energy and waste minimization, right up to plant-wide control and process dynamics. The simulation results are compared with flow-sheets and performance indices of actual industrial licensed processes, while the complete input data for all the case studies is also provided, allowing readers to reproduce the results with their own simulators. For everyone interested in the design of innovative chemical processes.**

OPEN EDUCATIONAL RESOURCES

CONVERSATIONS IN CYBERSPACE

United Nations Educational **Education systems today face two major challenges: expanding the reach of education and improving its quality. Traditional solutions will not suffice, especially in the context of today's knowledge-intensive societies. The Open Educational Resources movement offers one solution for extending the reach of education and expanding learning opportunities. The goal of the movement is to equalise access to knowledge worldwide through openly and freely available online high-quality content. UNESCO has contributed to building global awareness about Open Educational Resources, through facilitating an extended conversation in cyberspace. Over the course of two years, a large and diverse international community came together in a series of online discussion forums to discuss the concept of Open Educational Resources and its potential. In making the background papers and reports from those discussions available for the first time in print, this publication seeks to share even more widely the contributions made by so many. It is intended for all who may be intrigued by the Open Educational Resources movement - its promise and its progress.**

EXPERIENCES IN VISUAL THINKING

Cengage Learning **An experiential approach to the development of new thinking skills investigates the kinds of visual images that are the primary vehicles of visual thinking, materials, and environmental conditions conductive to visual thinking, and the significance of ide**

HANDBOOK OF FOOD PRESERVATION

CRC Press **The processing of food is no longer simple or straightforward, but is now a highly inter-disciplinary science. A number of new techniques have developed to extend shelf-life, minimize risk, protect the environment, and improve functional, sensory, and nutritional properties. The ever-increasing number of food products and preservation techniques cr**

RECOMMENDER SYSTEMS HANDBOOK

Springer **This second edition of a well-received text, with 20 new chapters, presents a coherent and unified repository of recommender systems' major concepts, theories, methodologies, trends, and challenges. A variety of real-world applications and detailed case studies are included. In addition to wholesale revision of the existing chapters, this edition includes new topics including: decision making and recommender systems, reciprocal recommender systems, recommender systems in social networks, mobile recommender systems, explanations for recommender systems, music recommender systems, cross-domain recommendations, privacy in recommender systems, and semantic-based recommender systems. This multi-disciplinary handbook involves world-wide experts from diverse fields such as artificial intelligence, human-computer interaction, information retrieval, data mining, mathematics, statistics, adaptive user interfaces, decision support systems, psychology, marketing, and consumer behavior. Theoreticians and practitioners from these fields will find this reference to be an invaluable source of ideas, methods and techniques for developing more efficient, cost-effective and accurate recommender systems.**

E-WASTE IN TRANSITION

FROM POLLUTION TO RESOURCE

BoD – Books on Demand **E-waste management is a serious challenge across developed, transition, and developing countries because of the consumer society and the globalization process. E-waste is a fast-growing waste stream which needs more attention of international organizations, governments, and local authorities in order to improve the current waste management practices. The book reveals the pollution side of this waste stream with critical implications on the environment and public health, and also it points out the resource side which must be further developed under the circular economy framework with respect to safety regulations. In this context, complicated patterns at the global scale emerge under legal and illegal e-waste trades. The linkages between developed and developing countries and key issues of e-waste management sector are further examined in the book.**

AN INTRODUCTION TO ELECTRICAL ENGINEERING MATERIALS

S. Chand Publishing **A Textbook for the students of B.Sc.(Engg.), B.E.,**

B.Tech., AMIE and Diploma Courses. A new chapter on ""Semiconductor Fabrication Technology and Miscellaneous Semiconductor Devices"" had been included and additional self-assessment questions with answers and additional worked examples had been provided at the end of the BOOK.

THE ETHICS OF SCIENTIFIC RESEARCH

A GUIDEBOOK FOR COURSE DEVELOPMENT

BIOSENSORS

FUNDAMENTALS AND APPLICATIONS

Oxford University Press, USA **The first comprehensive book to be published in this field. It has many contributors, chosen to reflect the spread of disciplines from which the new techniques have emerged.**

TEXTILE INDUSTRY AND ENVIRONMENT

BoD – Books on Demand **In this book, the relationship between the textile industry and the environment is examined from four different viewpoints. Recycling of spinning mill wastes, ozone usage that provides less chemical and water utilization, reuse of treated water in the dyeing processes, and approaches in the treatment of wastewaters of dyeing plants and finishing factories are solutions offered to reduce environmental pollution arising from textile production processes. Apart from this, energy management is also a subject that can be associated with the environment, and as a consequence, the possibility of utilizing textile materials to which phase change materials are applied, not only for comfort purposes but also as energy storage materials, means that technical textiles could be a solution for energy storage.**

TEACHING SCIENCE, TECHNOLOGY, AND SOCIETY

This text describes an area which has increasingly generated classroom materials, and educational polemic, without any proper discussion of its rationale or aims. Different approaches to the teaching and implementation of STS are used to explore different facets of its nature.

GPS SATELLITE SURVEYING

John Wiley & Sons **Employ the latest satellite positioning tech with this extensiveguide GPS Satellite Surveying is the classic text on thesubject, providing the most comprehensive coverage of globalnavigation satellite systems applications for surveying. Fullyupdated and expanded to reflect the field's latest developments,this new edition contains new information on GNSS antennas, PrecisePoint Positioning, Real-time Relative Positioning, LatticeReduction, and much more. New contributors offer additional insightthat greatly expands the book's reach, providing readers withcomplete, in-depth coverage of geodetic surveying using**

satellitetechnologies. The newest, most cutting-edge tools, technologies,and applications are explored in-depth to help readers stay up todate on best practices and preferred methods, giving them theunderstanding they need to consistently produce more reliablemeasurement. Global navigation satellite systems have an array of uses inmilitary, civilian, and commercial applications. In surveying, GNSSreceivers are used to position survey markers, buildings, and roadconstruction as accurately as possible with less room for humanerror. GPS Satellite Surveying provides complete guidancetoward the practical aspects of the field, helping readers to: Get up to speed on the latest GPS/GNSS developments Understand how satellite technology is applied tosurveying Examine in-depth information on adjustments and geodesy Learn the fundamentals of positioning, lattice adjustment,antennas, and more The surveying field has seen quite an evolution of technology inthe decade since the last edition's publication. This new editioncovers it all, bringing the reader deep inside the latest tools andtechniques being used on the job. Surveyors, engineers, geologists,and anyone looking to employ satellite positioning will find GPSSatellite Surveying to be of significant assistance.

LIGHT-EMITTING DIODES

Cambridge University Press **Revised and fully updated, the second edition of this graduate textbook offers a comprehensive explanation of the technology and physics of LEDs such as infrared, visible-spectrum, ultraviolet, and white LEDs made from III-V semiconductors. Elementary properties such as electrical and optical characteristics are reviewed, followed by the analysis of advanced device structures. With nine additional chapters, the treatment of LEDs has been vastly expanded, including new material on device packaging, reflectors, UV LEDs, III-V nitride materials, solid-state sources for illumination applications, and junction temperature. Radiative and non-radiative recombination dynamics, methods for improving light extraction, high-efficiency and high-power device designs, white-light emitters with wavelength-converting phosphor materials, optical reflectors, and spontaneous recombination in resonant-cavity structures are discussed in detail. With exercises, solutions, and illustrative examples, this textbook will be of interest to scientists and engineers working on LEDs and graduate students in electrical engineering, applied physics, and materials science.**

POLYMER SCIENCE AND ENGINEERING

THE SHIFTING RESEARCH FRONTIERS

National Academies Press **Polymers are used in everything from nylon stockings to commercial aircraft to artificial heart valves, and they have a key role in addressing international competitiveness and other national**

issues. Polymer Science and Engineering explores the universe of polymers, describing their properties and wide-ranging potential, and presents the state of the science, with a hard look at downward trends in research support. Leading experts offer findings, recommendations, and research directions. Lively vignettes provide snapshots of polymers in everyday applications. The volume includes an overview of the use of polymers in such fields as medicine and biotechnology, information and communication, housing and construction, energy and transportation, national defense, and environmental protection. The committee looks at the various classes of polymersâ€"plastics, fibers, composites, and other materials, as well as polymers used as membranes and coatingsâ€"and how their composition and specific methods of processing result in unparalleled usefulness. The reader can also learn the science behind the technology, including efforts to model polymer synthesis after nature's methods, and breakthroughs in characterizing polymer properties needed for twenty-first-century applications. This informative volume will be important to chemists, engineers, materials scientists, researchers, industrialists, and policymakers interested in the role of polymers, as well as to science and engineering educators and students.

OPENING UP EDUCATION

THE COLLECTIVE ADVANCEMENT OF EDUCATION THROUGH OPEN TECHNOLOGY, OPEN CONTENT, AND OPEN KNOWLEDGE

MIT Press **Online version of MIT Press book has brief overview of book's content and provides links to open access PDF version of ebook, as well as an iPaper version and a link to the MIT Press store for buying the print version. In this collection of essays the authors who are leaders in open education, explore the potential of open education to transform the economics and ecology of education. The authors argue that we must develop not only the technical capability but also the intellectual capacity for transforming tacit pedagogical knowledge into commonly usable and visible knowledge by providing incentives for faculty to use (and contribute to) open education goods, and by looking beyond institutional boundaries to connect a variety of settings and open source entrepreneurs.**