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**Engineering
Electromagnetics** - David
T. Thomas 1972

**Photocatalytic Hydrogen
Evolution** - Misook Kang
2020-06-17

Energy crises and global
warming pose serious

challenges to
researchers in their
attempt to develop a
sustainable society for
the future. Solar energy
conversion is a
remarkable, clean, and
sustainable way to
nullify the effects of

fossil fuels. The findings of photocatalytic hydrogen production (PCHP) by Fujishima and Honda propose that “water will be the coal for the future”. Hydrogen is a carbon-free clean fuel with a high specific energy of combustion. Titanium oxide (TiO₂), graphitic-carbon nitride (g-C₃N₄) and cadmium sulfide (CdS) are three pillars of water splitting photocatalysts owing to their superior electronic and optical properties. Tremendous research efforts have been made in recent years to fabricate visible or solar-light, active photocatalysts. The significant features of various oxide, sulfide, and carbon based photocatalysts for cost-effective hydrogen production are presented in this Special Issue. The insights of sacrificial agents on

the hydrogen production efficiency of catalysts are also presented in this issue.

Cyber Security R&d -
United States House of
Representatives
2019-09-22

Cyber security R&D:
hearing before the
Subcommittee on Research
and Science Education,
Committee on Science and
Technology, House of
Representatives, One
Hundred Eleventh
Congress, first session,
June 10, 2009.

*Data Science and
Analytics* - Usha Batra
2020-05-27

This two-volume set
(CCIS 1229 and CCIS
1230) constitutes the
refereed proceedings of
the 5th International
Conference on Recent
Developments in Science,
Engineering and
Technology, REDSET 2019,
held in Gurugram, India,
in November 2019. The 74
revised full papers
presented were carefully

reviewed and selected from total 353 submissions. The papers are organized in topical sections on data centric programming; next generation computing; social and web analytics; security in data science analytics; big data analytics. *Sustainable Downstream Processing of Microalgae for Industrial Application* - Kalyan Gayen 2019-09-05

Microalgae can be future resource for industrial biotechnology In current energy crisis era, microalgae are under tremendous research focus for the production of biodiesel due to their high photosynthetic efficiency, growth rate and high lipid content compared to territorial plants. However, the large-scale production of algal biomass and downstream processing of harvested algae towards

bio-fuels are facing several challenges from economic viability perspective. Apart from bio-fuels, the microalgae synthesize number of bio-molecules such as pigments (e.g., chlorophyll, carotenoid), protein (e.g., lectin, phycobiliprotein), and carbohydrates (e.g., agar, carrageenan, alginate, fucodian) which are available in the various forms of microalgal products. Therefore, developing a strategy for large-scale production and use of algal biomass for the co-production of these value-added macromolecules is thus imperative for the improvement of the economics of algal biorefinery. In the above context, this book covers three major areas (i) commercial-scale production of bio-molecules from

microalgae, (ii) sustainable approach for industrial-scale operation, and (iii) optimization of downstream processes. Each of these sections is composed of several chapters written by the renowned academicians/industry experts. Furthermore, in this book, a significant weightage is given to the industry experts (around 50%) to enrich the industrial perspectives. We hope that amalgamate of fundamental knowledge from academicians and applied research information from industry experts will be useful for forthcoming implementation of a sustainable integrated microalgal biorefinery. This book highlights following. Explores biomolecules from microalgae and their applications Discusses microalgae cultivations

and harvesting Examines downstream processing of biomolecules Explores sustainable integrated approaches for industrial scale operations Examines purification techniques specific for microalgal proteins, Omega 3 fatty Acids, carbohydrates, and pigments
Intelligent Computing Techniques for Smart Energy Systems -
Anshuman Tripathi
2022-06-13
This book compiles the best selected research papers presented during the 2nd International Conference on Intelligent Computing Techniques for Smart Energy Systems (ICTSES 2021), held at Manipal University, Jaipur, Rajasthan, India. It presents the diligent work of the research community where intelligent computing techniques are applied in allied fields of

engineering ranging from engineering materials to electrical engineering to electronics and communication engineering- to computer-related fields. The theoretical research concepts are supported with extensive reviews highlighting the trends in the possible and real-life applications of computational intelligence. The high-quality content with broad range of the topics is thoroughly peer-reviewed and published on suitable recommendations.

Large Scale Computations, Embedded Systems and Computer Security - Fedor Komarov
2010

This book discusses the programmability and reconfigurability of modern full featured embedded systems along with current trends in interfacing methods. This book also

introduces tools that allow embedded system developers to easily program for their specific embedded system hierarchy and deal with multiple levels of complexity using the C language, while exposing the feature rich functionality of embedded operating systems. Furthermore, this book considers the cost of developing software that is built with the specific intension of being fault-tolerant. In the past, cost has rarely attracted the attention of the fault tolerance and dependable computing research communities. Thus, finding a way to produce fault-tolerant, safety-critical systems in a cost-efficient manner should allow many of these necessary software systems to be built. Other chapters in this book examine the development of embedded

control systems for automotive applications, the methods for reliability evaluation of communication network systems, the static and dynamic configurable ASIP architectures, and the communication infrastructures which are vital in handling the design of such systems.

Intelligent Computing Techniques for Smart Energy Systems - Akhtar Kalam 2019-12-16

The book compiles the research works related to smart solutions concept in context to smart energy systems, maintaining electrical grid discipline and resiliency, computational collective intelligence consisted of interaction between smart devices, smart environments and smart interactions, as well as information technology support for such areas. It includes high-quality

papers presented in the International Conference on Intelligent Computing Techniques for Smart Energy Systems organized by Manipal University Jaipur. This book will motivate scholars to work in these areas. The book also prophesies their approach to be used for the business and the humanitarian technology development as research proposal to various government organizations for funding approval.

Plasma Jet Technology - P. R. Dennis 1965

Green Photocatalytic Semiconductors - Seema Garg 2021-09-20

This book comprises a detailed overview on the role of photocatalysts for environmental remediation, hydrogen production and carbon dioxide reduction. Effective ways to enhance the photocatalytic activity

of the material via doping, hybrid material, laser light and nanocomposites have been discussed in this book. The book also further elaborates the role of metal nanoparticles, rare earth doping, sensitizers, surface oxygen vacancy, interface engineering and band gap engineering for enhancing the photocatalytic activity. An approach to recover the photocatalytic material via immobilization is also presented. This book brings to light much of the recent research in the development of such semiconductor photocatalytic systems. The book will thus be of relevance to researchers in the field of: material science, environmental science & technology, photocatalytic applications, newer methods of energy

generation & conversion and industrial applications.

ENGINEERING GRAPHICS FOR DEGREE - K. C. JOHN

2009-04-13

This book provides a detailed study of geometrical drawing through simple and well-explained worked-out examples. It is designed for first-year engineering students of all branches. The book is divided into seven modules. A topic is introduced in each chapter of a module with brief explanations and necessary pictorial views. Then it is discussed in detail through a number of worked-out examples, which are explained using step-by-step procedure and illustrating drawings. Module A covers the fundamentals of manual drafting, lettering, freehand sketching and dimensioning of views.

Module B describes two-dimensional drawings like geometrical constructions, conics, miscellaneous curves and scales. Three-dimensional drawings, such as projections of points, lines, plane lamina, geometrical solids and sections of them are well explained in Module C. Module D deals with intersection of surfaces and their developments. Drawing of pictorial views is illustrated in Module E, which includes isometric projection, oblique projection and perspective projections. Module F covers the fundamentals of machine drawing. Finally, in Module G the book introduces computer-aided drafting (CAD) to make the readers familiar with the state-of-the-art techniques of drafting. Key Features : Follows the International Standard

Organization (ISO) code of practice for drawing. Includes a large number of dimensioned illustrations, worked-out examples, and university questions and answers to explain the geometrical drawing process. Contains chapter-end exercises to help students develop their drawing skills.

Oncologic Breast Surgery

- Carlo Mariotti

2014-03-14

This book presents the most recent developments in oncologic breast surgery and takes full account of diagnostic, pathologic, and radiologic inputs. It is divided into three parts, the first of which discusses the premises underlying the modern surgical approach to breast cancer. The second part is devoted to what might be termed the conservative program, i.e., breast conservation and

oncological surgery, conservative mastectomy, and sentinel node biopsy and axillary dissection. The final part of the book covers different forms of surgery and other treatments in particular settings. Topics include plastic and reconstructive surgery, DCIS surgery, radio-guided surgery, adjuvant systemic therapy, intraoperative radiotherapy, and the role of surgery in locally advanced and metastatic disease. The detailed descriptions of techniques are accompanied by numerous high-quality illustrations. This book will be of value to both experienced practitioners and surgical trainees. □

Emerging Carbon-Based Nanocomposites for Environmental Applications

- Ajay Kumar Mishra 2020-10-28
The 12 chapters

comprehensively cover the development and advances on emerging carbon-based nanocomposites for wastewater applications and discuss the following topics: The emerging carbon-based nanocomposites for remediation of heavy metals and organic pollutants from wastewater; Functional green carbon nanocomposites for heavy-metal treatment in water; Green nanocomposites and their applications in environmentally-friendly carbon nanomaterials; Carbon-based nanocomposites as heterogeneous catalysts for organic reactions in environment-friendly solvents; Carbonaceous nanomaterials for arsenic and chromium removal from waste water; Biochar-based adsorbents for the removal of organic

pollutants from aqueous systems; Describes carbon nanomaterials based green nanocomposites; The removal of trihalomethanes from water using nanofiltration membranes and The transformation of wide bandgap semiconductors for visible-light photocatalytic degradation of organic dyes; Nanocomposite materials as electrode materials in microbial fuel cells for the removal of water pollutants; Plasmonic smart nanosensors for the determination of environmental pollutants.

Dynamic Secrets in Communication Security -

Sheng Xiao 2013-08-13

Dynamic secrets are constantly generated and updated from messages exchanged between two communication users. When dynamic secrets are

used as a complement to existing secure communication systems, a stolen key or password can be quickly and automatically reverted to its secret status without disrupting communication. "Dynamic Secrets in Communication Security" presents unique security properties and application studies for this technology.

Password theft and key theft no longer pose serious security threats when parties frequently use dynamic secrets.

This book also illustrates that a dynamic secret based security scheme guarantees impersonation attacks are detected even if an adversary steals a user's password or their key is lost.

Practitioners and researchers working in network security or wireless communications will find this book a

must-have reference. "Dynamic Secrets in Communication Security" is also a valuable secondary text for advanced-level students in computer science and electrical engineering. **Electromagnetics** - John D. Kraus 1992

Solar Astrophysics - Peter V. Foukal
2008-09-26
This revised edition of *Solar Astrophysics* describes our current understanding of the sun - from its deepest interior, via the layers of the directly observable atmosphere to the solar wind, right out to its farthest extension into interstellar space. It includes a comprehensive account of the history of solar astrophysics, along with an overview of the key instruments throughout the various periods. In contrast to other books on this

topic, the choice of material deals evenhandedly with the entire scope of important topics covered in solar research. The authors make the advances in our understanding of the sun accessible to students and non-specialists by way of careful use of relatively simple physical concepts. The book offers an incisive, reliable, and well-planned look at all that is fascinating and new in studies of the sun. **Electromagnetic Field Theory and Transmission Lines** - Raju, G. S. N. *Electromagnetic Field Theory and Transmission Lines* is ideal for a single semester, first course on *Electromagnetic Field Theory (EMFT)* at the undergraduate level. This book uses diagrammatic representations and real life examples to explain

the fu

**Advances in VLSI,
Communication, and
Signal Processing -**

Debashis Dutta
2019-12-03

This book comprises select proceedings of the International Conference on VLSI, Communication and Signal processing (VCAS 2018). It looks at latest research findings in VLSI design and applications. The book covers a wide range of topics in electronics and communication engineering, especially in the area of microelectronics and VLSI design, communication systems and networks, and image and signal processing. The contents of this book will be useful to researchers and professionals alike.

*Principles Of
Electromagnetics, 4Th
Edition, International
Version* - Matthew N. O.

Sadiku 2009-07-16

**FUNDAMENTALS OF
ELECTRICAL AND
ELECTRONICS ENGINEERING**

- SMARAJIT GHOSH
2007-09-13

This second edition, extensively revised and updated, continues to offer sound, practically-oriented, modularized coverage of the full spectrum of fundamental topics in each of the several major areas of electrical and electronics engineering. Circuit Theory
Electrical Measurements and Measuring Instruments
Electric Machines
Electric Power Systems
Control Systems
Signals and Systems
Analog and Digital Electronics including introduction to microcomputers
The book conforms to the syllabi of Basic Electrical and Electronic Sciences prescribed for the

first-year engineering students. It is also an ideal text for students pursuing diploma programmes in Electrical Engineering. Written in a straightforward style with a strong emphasis on primary principles, the main objective of the book is to bring an understanding of the subject within the reach of all engineering students. What is New to This Edition :

Fundamentals of Control Systems (Chapter 24)
Fundamentals of Signals and Systems (Chapter 25)
Introduction to Microcomputers (Chapter 32)
Substantial revisions to chapters on Transformer, Semiconductor Diodes and Transistors, and Field Effect Transistors
Laplace Transform (Appendix B)
Applications of Laplace Transform (Appendix C)
PSpice (Appendix E) key Features : Numerous

solved examples for sound conceptual understanding End-of-chapter review questions and numerical problems for rigorous practice by students Answers to all end-of-chapter numerical problems An objective type Questions Bank with answers to hone the technical skills of students for viva voce and preparation for competitive examinations.

Data Science and Analytics - Brajendra Panda 2018-03-07

This book constitutes the refereed proceedings of the 4th International Conference on Recent Developments in Science, Engineering and Technology, REDSET 2017, held in Gurgaon, India, in October 2017. The 66 revised full papers presented were carefully reviewed and selected from 329 submissions. The papers are organized in topical sections on

big data analysis, data centric programming, next generation computing, social and web analytics, security in data science analytics.

Microstrip Antenna

Design - K. C. Gupta
1988

Vibrational Properties of Solids - Gideon Gilat 2012-12-02

Methods in Computational Physics, Volume 15: Vibrational Properties of Solids explores the application of computational methods to delineate microscopic vibrational behavior. This book is composed of nine chapters that further illustrate the utility of these methods to ordered lattices, quantum solids, impurity modes, surface modes, and amorphous solids. The opening chapters present the basic theoretical models and their computational

aspects for different solids of diverse chemical nature, together with some methods of automation and computation in the highly sophisticated experiments in inelastic scattering of neutrons. These topics are followed by a discussion on how group theoretical methods treated by computers can yield the proper symmetry assignments of phonon eigenvalues and eigenstates. Considerable chapters are devoted to the different applications of traditional lattice dynamics, each having its own computational ramification. Other chapters survey the properties of solids that mostly involve integrations over the Brillouin zone. The last chapter concerns the dynamic or time-dependent aspect of lattice dynamics,

namely, the calculation of thermal and electric conductivities in some models of solids. This book is of great benefit to geoscientists, physicists, and mathematicians.

Nanotechnology and Advanced Materials -

Guohui Yang 2012

Presents the proceedings of the International Conference on Nanotechnology

Technology and Advanced Materials (ICNTAM 2012), held on 12-13th April 2012 in Hong Kong.

INSTANT NOTES FOR BIOPROCESS TECHNOLOGY -
Dr. L. KRISHNASAMY
2022-03-03

Bioprocess Technology combines concepts and ideas from biology, engineering, materials science, and clinical processes. The industrial use of biological processes utilising living cells or their components to achieve desired

substrate transformations is known as bioprocess technology. Bioprocesses provide several benefits over standard chemical processes, including the need for moderate reaction conditions, increased specificity and efficiency, and the production of renewable by-products (biomass). Bioprocesses' potential has been broadened and extended thanks to the introduction of recombinant DNA technology. Bioprocesses are now widely employed in a variety of commercial biotechnology disciplines, including the synthesis of enzymes (used in food processing and waste management, for example) and antibiotics. Bioprocesses may find applications in other sectors where chemical processes are now applied as methodologies and equipment improve.

Many of biotechnology's potential applications are created through laboratory processes that yield very modest quantities of valuable chemicals. As bioprocess technology advances, particularly separation and purification techniques, commercial firms will be able to produce these substances in large quantities at a low cost, allowing them to be used in medical research, food processing, agriculture, pharmaceutical development, waste management, and a variety of other fields of science and industry.

Professional Ethics and Human Values - A.

Alavudeen 2008

Ethics in Engineering -

Mike W. Martin 1996

This text has been revised to coincide with the directive by ABET (the Accrediting Board for Engineering and

Technology) to expand the ethics for engineering course.

Other topics new to this edition include computer ethics, environmental ethics, corporate loyalty and collegiality.

Nanostructured Materials for Environmental Applications -

Subramanian Balakumar

2021-08-25

This book discusses how nanostructured materials play a key role in helping address environmental challenges. Employing nanostructured materials in catalysis can increase the efficient decomposition of toxic pollutants in air, water, and soil. This multidisciplinary book discusses the most promising nanostructured materials made-up of metals, metal oxides, metal chalcogenides, multi-metal oxides, carbon nanostructures,

and hybrid materials that can address environmental remediation. It provides a well-referenced introduction to newcomers from allied disciplines and will be valuable to researchers in academia, industry, and government working on solutions to environmental problems.

Soft Computing: Theories and Applications -

Millie Pant 2020-08-14
This book focuses on soft computing and how it can be applied to solve real-world problems arising in various domains, ranging from medicine and healthcare, to supply chain management, image processing and cryptanalysis. It gathers high-quality papers presented at the International Conference on Soft Computing: Theories and Applications (SoCTA 2019), organized by the

National Institute of Technology Patna, India. Offering valuable insights into soft computing for teachers and researchers alike, the book will inspire further research in this dynamic field.

Workshop Technology (Manufacturing Process)

- S. K. Garg 2009-05-01
This textbook includes exposure to plant & shop layout, industrial safety, engineering materials and their heat treatment, bench work and fitting, smithy and forging, sheet metal work, wood and wood working, foundry, welding, mechanical working and machine shop practices. A greater stress has been laid on pictorial representation of various hand tools, operators and machine tools rather than giving exhaustive write up on various topics. The matter has been presented in a

structured manner and in an easy to understand language, which can be mastered easily by students of various disciplines. Attention has also been paid to the fact that the text as well as the diagrams can be easily reproduced by the students in theory examinations. The book will be useful for the students of engineering, supervisors, tool room personnel and operators working in manufacturing and other industries.

Next-Generation Antennas

- Prashant Ranjan

2021-08-03

NEXT-GENERATION

ANTENNAS: ADVANCES AND

CHALLENGES The first book in this exciting new series, written and edited by a group of international experts in the field, this exciting new volume covers the latest advances and challenges in the next generation of antennas.

Antenna design and wireless communication has recently witnessed their fastest growth period ever in history, and these trends are likely to continue for the foreseeable future. Due to recent advances in industrial applications as well as antenna, wireless communication, and 5G technology, we are witnessing a variety of developing and expanding new technologies.

Compact and low-cost antennas are increasing the demand for ultra-wide bandwidth in next-generation (5G) wireless communication systems and the Internet of Things (IoT). Enabling the next generation of high-frequency communication, various methods have been introduced to achieve reliable high data rate communication links and enhance the directivity of planar antennas. 5G

technology can be used in many applications, such as in smart city applications and in smartphones. This technology can satisfy the fast rise in user and traffic capacity in mobile broadband communications. Therefore, different planar antennas with intelligent beamforming capability play an important role in these areas. The purpose of this book is to present the advanced technology, developments, and challenges in antennas for next-generation antenna communication systems. This book covers advances in next-generation antenna design and application domain in all related areas. It is a detailed overview of cutting-edge developments and other emerging topics and their applications in all areas of engineering that have achieved great

accuracy and performance with the help of the advancement and challenges in next-generation antennas. This outstanding new volume: Covers all the latest developments and future aspects of antenna communication Is concisely written, lucid, and comprehensive, practical application-based, with many informative graphics and schematics Will help students, researchers, as well as systems designers to understand fundamental antenna design and wireless communication Compares different approaches in antenna design
Advanced Informatics for Computing Research -
Dharm Singh 2017-07-21
This book constitutes the refereed proceedings of the First International Conference on Advanced Informatics for Computing Research ,

ICAICR 2017, held in Jalandhar, India, in March 2017. The 32 revised full papers presented were carefully reviewed and selected from 312 submissions. The papers are organized in topical sections on computing methodologies, information systems, security and privacy, network services.

International Multiconference of Engineers and Computer Scientists - 2007

Antenna Handbook - Y.T. Lo 2013-06-29

Techniques based on the method of modal expansions, the Rayleigh-Stevenson expansion in inverse powers of the wavelength, and also the method of moments solution of integral equations are essentially restricted to the analysis of electromagnetic radiating structures

which are small in terms of the wavelength. It therefore becomes necessary to employ approximations based on "high-frequency techniques" for performing an efficient analysis of electromagnetic radiating systems that are large in terms of the wavelength. One of the most versatile and useful high-frequency techniques is the geometrical theory of diffraction (GTD), which was developed around 1951 by J. B. Keller [1,2,3]. A class of diffracted rays are introduced systematically in the GTD via a generalization of the concepts of classical geometrical optics (GO). According to the GTD these diffracted rays exist in addition to the usual incident, reflected, and transmitted rays of GO. The diffracted rays in

the GTD originate from certain "localized" regions on the surface of a radiating structure, such as at discontinuities in the geometrical and electrical properties of a surface, and at points of grazing incidence on a smooth convex surface as illustrated in Fig. 1. In particular, the diffracted rays can enter into the GO shadow as well as the lit regions. Consequently, the diffracted rays entirely account for the fields in the shadow region where the GO rays cannot exist.

Basic Electrical and Electronics Engineering:

- S.K. Bhattacharya
Basic Electrical and Electronics Engineering provides an overview of the basics of electrical and electronic engineering that are required at the undergraduate level. The book allows students

outside electrical and electronics engineering to easily

Smart Antennas - Praveen Kumar Malik 2022-02-03

This book presents the latest techniques for the design of antenna, focusing specifically on the microstrip antenna. The authors discuss antenna structure, defected ground, MIMO, and fractal design. The book provides the design of microstrip antenna in terms of latest applications and uses in areas like IoT and device-to-device communication. The book also provides the current methods and techniques used for the enhancement of the performance parameters of the microstrip antenna. Chapters enhance the knowledge and skills of students and researchers in the latest in the communications world like IoT, D2D,

satellite, wearable devices etc. The authors discuss applications such as microwave imaging, medical implants, hyperthermia treatments, and wireless wellness monitoring and how a decrease in size of antenna help facilitate application potential. Provides the latest techniques used for the design of antenna in terms of its structure, defected ground, MIMO and fractal design; Outlines steps to resolve issues with designing antenna, including the latest design and design parameters for microstrip antenna; Presents the design of conformal and miniaturized antenna structures for various applications.

Fundamentals of Engineering

Electromagnetics - Sunil Bhooshan 2012-07-12
Fundamentals of

Engineering

Electromagnetics is designed for an undergraduate course in electromagnetism for students of electrical and electronics and communication engineering. The book aims to provide students with understanding of the fundamentals of electromagnetic fields and their applications in electrical engineering and related domains.

Programming with ANSI and Turbo C - Ashok Kamthane 2006-07-30

Dielectric Resonator Antennas - Kwai Man Luk 2003

The use of dielectric resonator as a resonant antenna was proposed in 1983. Due to the absence of metallic loss, the dielectric resonator antenna (DRA) is highly efficient when operated at millimetre wave frequencies. With the

use of high dielectric constant material, the DRA can also be used as a small and low profile antenna operated at low microwave frequencies. Low cost dielectric materials are now easily available commercially, encouraging more antenna engineers to design communication systems with DRAs.

Control of Synchronous Motors - Jean-Paul Louis 2013-02-07

Synchronous motors are indubitably the most effective device to drive industrial production systems and robots with precision and rapidity. Their control law is thus critical for combining at the same time high productivity to reduced energy consumption. As far as possible, the control algorithms must exploit the properties

of these actuators. Therefore, this work draws on well adapted models resulting from the Park's transformation, for both the most traditional machines with sinusoidal field distribution and for machines with non-sinusoidal field distribution which are more and more used in industry. Both, conventional control strategies like vector control (either in the synchronous reference frame or in the rotor frame) and advanced control theories like direct control and predictive control are thoroughly presented. In this context, a significant place is reserved to sensorless control which is an important and critical issue in tomorrow's motors.