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Research and Innovation Open Educational Resources A Catalyst for Innovation ARTIFICIAL
INTELLIGENCE WITH PYTHON

Fundamentals of Materials Engineering- A Basic Guide

2021-02-22

fundamentals of materials engineering a basic guide is a helpful textbook for readers learning the basics of materials science this book covers important topics and fundamental concepts of materials engineering including crystal structure imperfections mechanical properties of materials polymers powder metallurgy corrosion and composites the authors have explained the concepts in an effective way and by using simple language for the benefit of a broad range of readers this book is also beneficial to the students in engineering courses at b sc m sc and m tech levels

New Age Education Models

2022-06-13

rethinking redesigning and restructuring of higher education is the need of the hour this book intends to enlighten its readers about the 21st century education models for 21st century learners such models would include skill oriented and technology based teaching and learning this book suggests various routes for student entrepreneurs to access resources throughout their college life to ultimately achieve their goals it also talks about the effectiveness of e learning tools in education emerging teaching techniques and methodologies by understanding the education models of different countries and benchmarking the best practices the book also highlights the importance and advantage of open source learning mobile learning and the role of creativity and its relevance with technology

Metallic Glass-Based Nanocomposites

2019-09-23

metallic glass based nanocomposites molecular dynamics study of properties provides readers with an overview of the most commonly used tools for md simulation of metallic glass composites and

provides all the basic steps necessary for simulating any material on materials studio after reading this book readers will be able to model their own problems on this tool for predicting the properties of metallic glass composites this book provides an introduction to metallic glasses with definitions and classifications provides detailed explanations of various types of composites reinforcements and matrices and explores the basic mechanisms of reinforcement mg interaction during mechanical loading it explains various models for calculating the thermal conductivity of metallic glass composites and provides examples of molecular dynamics simulations aimed at students and researchers this book caters to the needs of those working in the field of molecular dynamics md simulation of metallic glass composites

Carbon Materials: Science And Applications

2019-01-18

elemental carbon materials take numerous forms including graphite carbon fiber carbon nanotube graphene carbon black activated carbon fullerene and diamond these forms differ greatly in the structure properties fabrication method and applications the applications of these carbon forms include electronic electromagnetic electrochemical environmental and biomedical applications carbon materials are a subject of intense research with strong relevance to both science and technology this book provides a tutorial style and up to date coverage of the carbon forms in addition to an introductory chapter on carbon materials the book includes chapters on graphite graphene carbon black activated carbon carbon fibers and carbon nanofibers nanotubes for example the chapter on graphite covers various materials in the graphite family including polycrystalline graphite pyrolytic graphite turbostratic carbon intercalated graphite graphite oxide exfoliated graphite and flexible graphite in addition to their electronic and mechanical properties this book is suitable for use as a textbook for undergraduate and graduate students in science and engineering and as a reference book for professionals it is dedicated to the memory of the author s phd thesis advisor professor m s dresselhaus 1930 2017 of massachusetts institute of technology

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1997

Annual Report

2014

the primary goal of this book is to address the issues faced by teachers in the adoption of digital tools into their teaching and their students learning this book also addresses the issues confronting educators in the integration of digital technologies into their teaching and their students learning such issues include a skepticism of the added value of technology to educational learning outcomes the perception of the requirement to keep up with the fast pace of technological innovation a lack of knowledge of affordable educational digital tools and a lack of understanding of pedagogical strategies to embrace digital technologies in their teaching this book presents theoretical perspectives of learning and teaching today s digital students with technology and proposes a pragmatic and sustainable framework for teachers professional learning to embed digital technologies into their repertoire of teaching strategies in a systematic coherent and comfortable manner so that technology integration becomes an almost effortless pedagogy in their day to day teaching some of the objectives are given below shares valuable insights into the influence of technology on teaching and learning in higher education provides deeper insights on higher education and sustainability interact studies innovations from various perspectives investigates how the educators and students apply the unique innovative and emotional dimensions in modern age of learning provides a timely overview of changes in education reforms and policy research globally evaluates the problematic relationship between globalization the state and education reforms

Edutech Enabled Teaching

2022-09-02

this book covers topics related to structural composite materials such as processing characterization applications and challenges the book presents ways of processing composites where different types of composites can be processed depending on the type of reinforcement and matrix it also outlines the evaluation of mechanical properties of a few processed composites and discusses the potential applications of composites and machining challenges faced in processing

polymer and ceramic composites the book caters to material scientists industrial practitioners researchers and students working on structural composite materials

Structural Composite Materials

2023-12-01

this book covers micro and macro aspects of toughened composites covering polymer matrix metal matrix ceramic matrix and nanomatrix it gives the reader understanding of composite fabrication construction and lightweight yet high crack resistance performance macroscopic testing supported by microscopic bonding and debonding features models of stress transfer and commercial features of developing cheaper yet high quality materials features focuses on micro and macro aspects of toughening methods and principles of composite materials includes all types of composites including polymer matrix metal matrix ceramic matrix and nanomatrix covers corrosion resistance and oxidation resistance as well as solubility resistance discusses the use of recycled materials provides a good balance of long fibre short fibre nanoparticle and particulate modifiers this book aims at researchers and professionals in materials science composite materials fracture mechanics materials characterization and testing properties and mechanics nanomaterials aerospace and automotive engineering and structural engineering

Toughened Composites

2022-12-09

the book provides an introduction to the topic of magnesium materials for biomedical applications additional to the background on magnesium s physical chemical and mechanical properties areas of use related diseases and pathways for biodegradation will be discussed also an outlook of the future of magnesium material applications will be provided

Magnesium Materials

2021-02-08

this book provides a detailed overview of high entropy materials and alloys discussing their structure the processing of bulk and nanostructured alloys as well as their mechanical and functional properties and applications it covers the exponential growth in research which has occurred over the last decade discussing novel processing techniques estimation of mechanical functional and physical properties and utility of these novel materials for various applications given the expanding scope of heas in ceramics polymers thin films and coating this book will be of interest to material scientists and engineers alike

High Entropy Materials

2022-11-22

edited by a leading expert in the field with contributions from experienced researchers in fibers and textiles this handbook reviews the current state of fibrous materials and provides a broad overview of their use in research and development volume one focuses on the classes of fibers their production and characterization while the second volume concentrates on their applications including emerging ones in the areas of energy environmental science and healthcare unparalleled knowledge of high relevance to academia and industry

Handbook of Fibrous Materials, 2 Volumes

2020-03-18

better understand the connection between microbiology and the inorganic worldmicrobiology for minerals metals materials and the environment links chemical metallurgical and other metal inherent systems with microbes and analyzes the interdependence between them specifically intended to underscore the importance of microbes in environmental re

Microbiology for Minerals, Metals, Materials and the Environment

2015-02-25

with the perpetual advancements of technology library and information science professionals are tasked with understanding these technologies and providing accurate and comprehensive information to other potential users these professionals must develop best practices for understanding these technologies in order to best serve other users the handbook of research on emerging trends and technologies in library and information science is a critical research book that examines advancing technologies and new innovations and their influences on library and information sciences for improved best practices featuring an array of topics such as digital libraries distance education and information literacy this publication is essential for librarians knowledge managers information retrieval specialists library and information science professionals information scientists researchers web librarians academicians educators it specialists and managers

Handbook of Research on Emerging Trends and Technologies in Library and Information Science

2019-11-22

education badly needs effective innovations that can help produce high quality learning outcomes across the system the primary focus of educational innovations should be on teaching and learning theory and practice as well as on the learner parent community society and culture technology applications need a solid theoretical foundation based on purposeful systemic research and a sound pedagogy theoretical and practical approaches to innovation in higher education is an essential scholarly publication that outlines the classification of innovations discusses the hurdles to innovation and offers ways to increase the scale and rate of innovation based transformations in the education system the publication argues that raising the quality and scale of innovations in education will positively affect education itself and benefit society highlighting topics such as academic integrity e learning and learner engagement this book is vital for higher education professionals academicians educators librarians course designers

researchers and students

Theoretical and Practical Approaches to Innovation in Higher Education

2019-12-27

this new volume focuses on different aspects of composite systems that are associated with research and development helping to bridge the gap between classical analysis and modern real life applications the chapters look at the experimental and theoretical aspects of composite materials regarding preparation processing design properties and practical implications it also presents recent advancements research and development prospects of advanced composite materials that provide new solutions for advanced technologies

Composite Materials for Industry, Electronics, and the Environment

2019-06-03

advanced materials for emerging applications is a monograph on emerging materials materials that have observable differences in physical properties and manufacturing requirements when compared to existing materials and industrial processes the volume aims to showcase novel materials that can be used in advanced technology and innovative products the editors have compiled 17 chapters grouped into 3 sections 1 metals and alloys 2 composite materials and 3 other materials chapters 1 5 discuss recent advances in friction stir welding suitability of nickel base shape memory alloys thermal cycling studies of nickel based shape memory alloys nitrogen additions to stainless steel and the evolution of zirconium alloy chapters 6 11 cover topics such as additive manufacturing of metal matrix composites composite materials for biomedical applications aluminum and magnesium metal matrix composites aluminum nanocomposites for automobile applications enhancing the strength of aluminum boron carbide composites and sisal fibers reinforced composites lastly chapters 13 17 explore smart hydrogels engineered iron oxide nanomaterials for

magnetic hyperthermia emerging sustainable material technology for fire safety recent advances in unconventional machining of smart alloys and critical parameters influencing high strain rate deformation of materials this monograph provides information for a broad readership including material and manufacturing engineers researchers students at undergraduate levels or above and entrepreneurs interested in manufacturing new products

Advanced Materials for Emerging Applications (Innovations, Improvements, Inclusion and Impact)

2024-05-17

the proceeding focuses on the adoption and use of information and communication technology that have resulted in the globalization of information and knowledge resources in modern libraries the diverse set of technological tools and resources to create communicate disseminate store and manage information have been discussed other topics include semantic tools and techniques collection development data and content management in digital era the role of the digital librarian and the next generation library management ethics for professionals licensing issues information access repository projects for organizations the book covers information management problems and prospects of digitization in scientific institutes emerging technologies in e library technology enhanced e learning ethics for library professionals users in the digital environment technology enhanced services in digital environment

Proceedings of International Seminar on Application of Communication and Information Technology in Library

2014-07-09

this book discusses the concept of single polymer composites spcs their preparation and properties and the main factors which affect the manufacturing of this class of composites it deals with the leading classes of polymers chapter wise which have been majorly explored for manufacturing spcs polyolefins polyesters polyamides and lcps includes a case study on

manufacturing of spcs and devotes three chapters to detailed analyses of research on all cellulose composites addressing the concerns of the researchers it also answers intriguing questions in the field of spcs with pointers to the right references key features presents a summary of single polymer composites based on various polymers includes mechanical and thermal properties of single polymer composites reviews detailed view of eco friendly approaches to composites offers a special focus on all cellulose composites supports concepts with figures schemes and tables

Concepts of openness and open access

2015-04-27

as technology advances it is imperative to stay current in the newest developments made within the engineering industry and within material sciences trends in manufacturing such as 3d printing casting welding surface modification computer numerical control cnc non traditional industry 4 0 ergonomics and hybrid machining methods must be closely examined to utilize these important resources for the betterment of society advanced manufacturing techniques for engineering and engineered materials provides a unified and complete overview about the recent and emerging trends developments and associated technology with scope for the commercialization of techniques specific to manufacturing materials this book also reviews the various machining methods for difficult to cut materials and novel materials including matrix composites covering topics such as agro waste conventional machining and material performance this book is an essential resource for researchers engineers technologists students and professors of higher education industry workers entrepreneurs researchers and academicians

Single-Polymer Composites

2018-09-21

this book presents select proceedings of the 2nd international conference on recent advancements of mechanical engineering icrame 2021 which was held during 7th to 9th february 2021 at national institute of technology silchar the book entails the recent developments in a range of areas

related to mechanical engineering it examines the state of the art researches in the areas of thermal engineering engineering design manufacturing production engineering and surface engineering various topics covered include advanced energy sources bio thermal applications techniques in fluid flow computing in applied mechanics and product design dynamics and control of structures systems fracture and failure mechanics solid mechanics casting welding brazing soldering jit mrp supply chain management and logistics the book will be useful for researchers and professionals working in the areas of mechanical engineering

Advanced Manufacturing Techniques for Engineering and Engineered Materials

2022-03-11

higher education institutions must urgently overcome the difficulty of negotiating the complex web of international accreditation standards in a rapidly globalized world academic researchers teachers and administrators struggle with the intricacy of making sure their programs adhere to strict standards while still attempting to maintain their competitiveness on a global level these organizations run the risk of stagnation and missing out on possibilities for advancement and recognition if there is no clear path forward evaluating global accreditation standards for higher education is a comprehensive guide for overcoming the modern accreditation conundrum this invaluable resource equips academic scholars and professionals with the tools and knowledge they need to successfully navigate the accreditation process at both local and international levels from program criteria and curriculum development to faculty professional development and alumni engagement this book offers a roadmap to excellence by following the expert guidance within these pages institutions can unlock their potential achieve accreditation and gain the recognition they deserve

Recent Advancements in Mechanical Engineering

2022-09-20

this book serves as a handbook reference on news media for school and graduation students it

covers fundamental to intermediate concepts in journalism providing a comprehensive understanding suitable for educational purposes

Evaluating Global Accreditation Standards for Higher Education

2024-04-22

this book presents select proceedings of the international conference on science technology and engineering icste 2023 related to recent advances in civil engineering the book provides a comprehensive collection of cutting edge research that covers the areas of building construction and design construction materials construction management remote sensing geographical information systems environmental engineering etc the book is useful for researchers and professionals in civil engineering

News & Media Handbook

2024-06-23

advanced steel design of structures examines the design principles of steel members under special loads and covers special geometric forms and conditions not typically presented in standard design books it explains advanced concepts in a simple manner using numerous illustrative examples and matlab codes features provides analysis of members under unsymmetrical bending includes coverage of structures with special geometry and their use in offshore applications for ultra deep water oil and gas exploration presents numerical modeling and analysis of steel members under fire conditions impact and blast loads includes matlab examples that will aid in the capacity building of civil engineering students approaching this complex subject written for a broad audience the presentation of design concepts of steel members will be suitable for upper level undergraduate students the advanced design theories for offshore structures under special loads will be an attractive feature for post graduate students and researchers practicing engineers will also find the book useful as it includes numerous solved examples and practical tutorials

Recent Advances in Civil Engineering

2023-08-21

this book provides a comprehensive overview of the field of functional finishing of textiles describing the state of the art research and well established techniques applied in the textile industry and covering all areas of textile dyeing and finishing it is intended for academic researchers and professionals in related scientific and engineering fields including textile engineering chemistry nanotechnology material science biotechnology and environmental science the book also provides reference material for stakeholders looking for innovative technologies and insights into the environmental and sustainability issues in the development of functional textiles and related products

Advanced Steel Design of Structures

2019-11-01

this book presents select proceedings of the international conference on science technology and engineering icste 2023 related to electrical and electronic engineering various topics covered include neural network classification text detection from natural scene images speech processing systems wi fi intrusion detection machine learning wireless sensor network image retrieval automatic speech recognition device physics power transfer photovoltaics antenna for ultra wideband applications electric vehicles etc the book is useful for researchers and professionals whose work involves electrical and electronics and computer science fields

Advances in Functional Finishing of Textiles

2020-06-10

this is essentially a book which belongs to the genre of anthology of autobiographical narratives of some of the finest products of iit madras who have come together of their own accord at the invitation of their former teacher on the eve of his 80th birthday within its covers one can find

situations of common occurrence and interest and different ways in which they are handled by different people their collective experiences have resulted in a cross sectional view of current indian society looked at from different perspectives they are presented in a semi popular style which holds the attention of the readers riveted to these issues and their solutions the presentation is fluid and conversational rather than serious and technical as such it is bound to interest a large number of people who are engaged in various professions and belong to many different strata of indian society

Recent Advances in Electrical and Electronic Engineering

2023-11-03

nanomaterials for sensing and optoelectronic applications explores recent trends in nanomaterials and devices for chemical and biosensing applications the synthesis properties and applications of metal oxide nanostructures as well as two dimensional layered materials are covered along with the fabrication of optoelectronic devices such as chemical sensors biosensors core shell nanostructures based surface enhanced raman spectroscopy sers substrates luminescent nanoparticles memory devices and thin film transistors aiming at researchers in these respective areas the fundamental principles and mechanisms of the optoelectronic phenomena behind every application mentioned are covered and comprehensively explored the book will be helpful in solving problems related to the synthesis and growth of various nanostructures the application of these materials for various devices and to understand how a specific synthesis route promotes a specific application outlines the fundamental principles and mechanisms behind chemical sensing bio sensing thin film transistor devices and memory devices offers a detailed description on the synthesis of 2d materials and oxide nanostructures with thin films included assesses the major properties of nanomaterials that make them good sensing agents

Festschrift

2024-05-09

the book includes peer reviewed papers of the international conference on sustainable technology

and advanced computing in electrical engineering icstace 2021 the main focus of the book is electrical engineering the conference aims to provide a global platform to the researchers for sharing and showcasing their discoveries findings innovations the book focuses on the areas related to sustainable development and includes research works from academicians and industry experts the book discusses new challenges and provides solutions at the interface of technology information complex systems and future research directions

Nanomaterials for Sensing and Optoelectronic Applications

2022-06-13

blockchain technology has been penetrating every aspect of information and communications technology ict and its use has been growing rapidly in recent years the interest and development of this technology has primarily been driven by the enormous value growth of cryptocurrencies and large investments of venture capital in blockchain start ups blockchain for smart systems computing technologies and applications is intended to clarify and define in simple terms the technology behind blockchain it provides a deep dive into the core fundamentals of blockchain hashing algorithm behind each block distributed technology smart contracts and private vs public blockchain features discusses fundamental theories of practical and sophisticated applications of blockchain technology includes case studies discusses the concepts with illustrations appropriate figures tables and simple language this book is primarily aimed at undergraduates graduates research scholars academicians and industry and technology enthusiasts working in various aspects of blockchain technology

Sustainable Technology and Advanced Computing in Electrical Engineering

2022-11-02

building structures are unique in the field of engineering as they pose challenges in the development and conceptualization of their design as more innovative structural forms are envisioned detailed analyses using computer tools are inevitable this book enables readers to

gain an overall understanding of computer aided analysis of various types of structural forms using advanced tools such as matlab detailed descriptions of the fundamentals are explained in a classroom style which will make the content more user friendly and easier to understand basic concepts are emphasized through simple illustrative examples and exercises and analysis methodologies and guidelines are explained through numerous example problems

UGC NET Paper-1 Study Material for Teaching & Research Aptitude with Higher education System

2020-02-04

this book presents selected proceedings of the international conference on production and industrial engineering cpie 2018 focusing on recent developments in the field of production and manufacturing engineering it provides solutions to wide ranging contemporary problems in manufacturing engineering and other allied areas using analytical models and the latest numerical approaches the topics covered in this book include conventional and non conventional machining casting welding materials and processing as such it is useful to academics researchers and practitioners working in the field of manufacturing and production engineering

Blockchain for Smart Systems

2022-07-06

advanced textile engineering materials is written to educate readers about the use of advanced materials in various textile applications in the first part the book addresses recent advances in chemical finishing and also highlights environmental issues in textile sectors in the second part the book provides a compilation of innovative fabrication strategies frequently adopted for the mechanical finishing of textiles the key topics are smart textiles functional modifications protective textiles conductive textiles coated laminated textiles antimicrobial textiles environmental aspects in textiles textile materials in composites 3 d woven preforms for composite reinforcement evolution of soft body armor

Advanced Structural Analysis with MATLAB®

2018-12-07

education is the key to economic social and environmental progress and governments around the world are looking to improve their education systems

Manufacturing Engineering

2019-03-05

the artificial intelligence with python book begins by teaching the basic ideas and ideas of ai giving beginners a strong foundation it strikes a mix between theory and practical application covering a variety of ai related topics such as machine learning deep learning natural language processing and computer vision making it appropriate for both beginning and intermediate practitioners it provides users with the resources and information needed to design create and implement ai powered solutions using python one of the industry s most well liked programming languages

Advanced Textile Engineering Materials

2018-08-15

Educational Research and Innovation Open Educational Resources A Catalyst for Innovation

2015-12-01

ARTIFICIAL INTELLIGENCE WITH PYTHON

2023-05-30

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