

Engineering Science 31 March 2014 Question Paper

This collection focuses on employer engagement in education, how it is delivered and the differentiated impact it has on young people in their progression through schooling and higher education into the labour market. The focus is not narrowly on vocational or technical education or work-related learning, but on how employer engagement (eg, work experience, internships, careers education, workplace visits, mentoring, enterprise education etc) influences the experiences and outcomes of the broad range of young people across mainstream academic learning programmes. The essays explore the different ways in which education can support or constrain social mobility and, in particular, how employer engagement in education can have significant impact upon social mobility – both positive and negative. Leading international contributors examine issues surrounding employer engagement and social mobility: conceptualisations of employer engagement; trends in social mobility; employer engagement and social class; access and management of work experience; social capital and aspiration; access to employment. The book makes employer engagement an innovative focus in relation to the well established fields of social mobility and school to work transition. By examining what difference employer engagement makes, the essays raise questions about conventional models and show how research drawing on different fields and disciplines can be brought together to provide a more coherent and convincing account. Building on new theorisations and combining existing and new data, the collection offers a systematic exploration of the influence of socio-economic status on school-to-work transitions, and addresses how educational policy can shape more efficient labour market outcomes. In doing so, it draws on, and speaks to, existing literature which has considered such questions from the perspectives of gender, ethnicity and social disadvantage.

This proceeding present the outcome of the 6th. European Conference on the Use of Modern Information and Communication Technologies. The ECUMICT 2014 was hold in Gent in March 2014 and presented recent research, that has a close relationship with practical implementation of Security for mobile communications and data access Interface technology for mobile devices Application development for mobile devices Positioning and localization, asset tracking and tracing Design and applications of RFID systems Developments in the framework of IoT and M2M communications Design and applications of WSNs Embedded programming for WSNs New developments and applications of WPAN/WLAN standards Mobile multimedia systems Wireless telecommunication networks and mobile services Optimization techniques in wireless networks Developments in ad-hoc and mesh networks Applications of digital signal processing for mobile applications Applications of MEMs in WSNs

The proceedings of the 2nd International Congress on Energy Efficiency and Energy Related Materials include 73 peer-reviewed technical papers, submitted by leading academic and research institutions from over 20 countries and representing some of the most cutting-edge research available. The 73 papers are grouped into the following sections: - General Issues - Wind Energy - Solar Energy - Nuclear Energy - Biofuels and Bioenergy - Fossil Energy - Hydropower - Energy Storage, Conservation and Efficiency - Environmental Issues - Carbon Capture and Storage - Bio-Assessment and Toxicology - Air Pollution from Mobile and Stationary Sources - Transport of Air

Pollutants - Environmentally Friendly Construction and Development - Energy Management Systems - Materials for Sustainable Energy - Materials for Renewable Energy Storage and Conversion - Fuel Cells - Hydrogen Storage - Photovoltaics and Solar Cells - Hydrogen Production and Fuel Generation from Renewables (Catalysis) - Carbon Dioxide Sequestration and Conversion - Energy-Saving Materials - Thermoelectrics - Saving Energy in Buildings - Modeling and Theoretical Aspects in Energy-Related Materials

Embracing the reality of biophysical limits to growth, this volume uses the technical tools from ecological economics to recast the Sustainable Development Goals (SDGs) as Ecological Livelihood Goals – policy agendas and trajectories that seek to reconcile the social and spatial mobility and liberty of individuals, with both material security and ecological integrity. Since the 1970s, mainstream approaches to sustainable development have sought to reconcile ecological constraints with modernization through much vaunted and seldom demonstrated strategies of ‘decoupling’ and ‘dematerialization’. In this context, the UN SDGs have become the orchestrating drivers of sustainability governance. However, biophysical limits are not so easily sidestepped. Building on an ecological- economic critique of mainstream economics and a historical- sociological understanding of state formation, this book explores the implications of ecological limits for modern progressive politics. Each chapter outlines leverage points for municipal engagement in local and regional contexts. Systems theory and community development perspectives are used to explore under-appreciated avenues for the kind of social and cultural change that would be necessary for any accommodation between modernity and ecological limits. Drawing on ideas from H.T. Odum, Herman Daly, Zigmunt Bauman, and many others, this book provides guiding research for a convergence between North and South that is bottom-up, household-centred, and predicated on a re- emerging domain of Livelihood. In each chapter, the authors provide recommendations for reconfiguring the UN’s SDGs as Ecological Livelihood Goals – a framework for sustainable development in an era of limits. This book will be of great interest to students and scholars of ecological economics, socio- ecological systems, political economy, international and community development, global governance, and sustainable development.

This book presents an experimental and computational account of the applications of biopolymers in the field of medicine. Biopolymers are macromolecules produced by living systems, such as proteins, polypeptides, nucleic acids, and polysaccharides. Their advantages over polymers produced using synthetic chemistry include: diversity, abundance, relatively low cost, and sustainability. This book explains techniques for the production of different biodevices, such as scaffolds, hydrogels, functional nanoparticles, microcapsules, and nanocapsules. Furthermore, developments in nanodrug delivery, gene therapy, and tissue engineering are described.

The Self: A History explores the ways in which the concept of an 'I' or a 'self' has been developed and deployed at different times in the history of Western Philosophy. It also offers a striking contrast case, the 'interconnected' self, who appears in some expressions of African Philosophy. The I or self seems engulfed in paradoxes. We are selves and we seem to be conscious of ourselves, yet it is very difficult to say what a self is. Although we refer to ourselves, when we try to find or locate ourselves, the I seems elusive. We can find human bodies, but we do not refer to ourselves by referring

to our bodies: we do not know that we are raising our hands or thinking hard by looking at our arms or catching a glimpse of our furrowed brows in a mirror. The essays in this volume engage many philosophical resources--metaphysics, epistemology, phenomenology, philosophy of psychology and philosophy of language--to try to shed needed light on these puzzles.

Aimed at undergraduates, this is the first textbook to offer a full introduction to sustainable management, covering all subject areas relevant to business students. The book includes chapters and seminars on subjects such as: Corporate Sustainable Strategy; Sustainable Marketing; Sustainability Reporting; Supply Chain Management; Human Resources Management: Supporting Sustainable Business; Environmental Economics; Sustainable Operations Management; Greenhouse Gas Management and System Thinking in Sustainable Management. The book contains nearly 30 ready-made seminars employing various teaching methods. Each chapter follows the same, easy-to-use format. This book provides a true treasure chest of materials to support staff wanting to integrate sustainability into their teaching and provides support to effectively embed sustainability in the curriculum. The chapters also offer a starting point in developing teaching units for Masters and MBA students. The material is not just useful to people in business schools, but to those involved in wider scale curriculum change, and those looking to make links between different disciplines.

The companion book to an upcoming museum exhibition of the same name, Places of Invention seeks to answer timely questions about the nature of invention and innovation: What is it about some places that sparks invention and innovation? Is it simply being at the right place at the right time, or is it more than that? How does "place"—whether physical, social, or cultural—support, constrain, and shape innovation? Why does invention flourish in one spot but struggle in another, even very similar location? In short: Why there? Why then? Places of Invention frames current and historic conversation on the relationship between place and creativity, citing extensive scholarship in the area and two decades of investigation and study from the National Museum of American History's Lemelson Center for the Study of Invention and Innovation. The book is built around six place case studies: Hartford, CT, late 1800s; Hollywood, CA, 1930s; Medical Alley, MN, 1950s; Bronx, NY, 1970s; Silicon Valley, CA, 1970s–1980s; and Fort Collins, CO, 2010s. Interspersed with these case studies are dispatches from three "learning labs" detailing Smithsonian Affiliate museums' work using Places of Invention as a model for documenting local invention and innovation. Written by exhibition curators, each part of the book focuses on the central thesis that invention is everywhere and fueled by unique combinations of creative people, ready resources, and inspiring surroundings. Like the locations it explores, Places of Invention shows how the history of invention can be a transformative lens for understanding local history and cultivating creativity on scales of place ranging from the personal to the national and beyond.

Stability and Vibrations of Thin-Walled Composite Structures presents engineering and academic knowledge on the stability (buckling and post buckling) and vibrations of thin walled composite structures like columns, plates, and stringer stiffened plates and shells, which form the basic structures of the aeronautical and space sectors. Currently, this knowledge is dispersed in several books and manuscripts, covering all aspects of composite materials. The book enables both engineers and academics to locate valuable, up-to-date knowledge on buckling and vibrations, be it analytical or experimental, and use it for calculations or

comparisons. The book is also useful as a textbook for advanced-level graduate courses. Presents a unified, systematic, detailed and comprehensive overview of the topic Contains contributions from leading experts in the field Includes a dedicated section on testing and experimental results

In this remarkable and original book, Sean Redmond examines the issues and themes that are repeatedly found across a range of contemporary science fiction films and television programmes. He argues that they reveal the profound effects the digital age has had on our social lives. Through narratives that feature the 'post-human', genetic engineering and cloning, surveillance and data mining, space and time travel, artificial intelligence, online dating cultures and visions of catastrophe, they portray a world in which the material, and the stable, are being lost to the ever-more volatile and ephemeral idea of 'liquid space'. Redmond examines a wide selection of popular films and TV series such as Gravity, Under the Skin, The Lobster, Children of Men and Doctor Who, to locate how traditional values are being erased in favour of a new liquid modernity. Drawing on an eclectic range of approaches from phenomenology to critical race theory, and from close textual analysis to the revelations of eye-tracking technology, this book is an illuminating account of the digital age through the lens of science fiction.

Owing to climate change related uncertainties and anticipated population growth, different parts of the developing and the developed world (particularly urban areas) are experiencing water shortages or flooding and security of fit-for-purpose supplies is becoming a major issue. The emphasis on decentralized alternative water supply systems has increased considerably. Most of the information on such systems is either scattered or focuses on large scale reuse with little consideration given to decentralized small to medium scale systems. Alternative Water Supply Systems brings together recent research into the available and innovative options and additionally shares experiences from a wide range of contexts from both developed and developing countries. Alternative Water Supply Systems covers technical, social, financial and institutional aspects associated with decentralized alternative water supply systems. These include systems for greywater recycling, rainwater harvesting, recovery of water through condensation and sewer mining. A number of case studies from the UK, the USA, Australia and the developing world are presented to discuss associated environmental and health implications. The book provides insights into a range of aspects associated with alternative water supply systems and an evidence base (through case studies) on potential water savings and trade-offs. The information organized in the book is aimed at facilitating wider uptake of context specific alternatives at a decentralized scale mainly in urban areas. This book is a key reference for postgraduate level students and researchers interested in environmental engineering, water resources management, urban planning and resource efficiency, water demand management, building service engineering and sustainable architecture. It provides practical insights for water professionals such as systems designers, operators, and decision makers responsible for planning and delivering sustainable water management in urban areas through the implementation of decentralized water recycling. Authors: Fayyaz Ali Memon, Centre for Water Systems, University of Exeter, UK and Sarah Ward, Centre for Water Systems, University of Exeter, UK

Anthology from the year 2014 in the subject Medicine - Biomedical Engineering, University Lübeck, course: Studierendentagung, language: English, abstract: The Student Conference on Medical Engineering Science is an annual event at the BioMedTec Science Campus Luebeck. The Student Congress is organized by the University of Lübeck and Medisert and is supported by NORGENTA, the life science cluster agency in north Germany. Master students of programs related to medical engineering science present results of their recent research projects. Die Studierendentagung Medizintechnik findet jährlich auf dem BioMedTec Wissenschaftscampus Lübeck statt. Der Kongress wird von der Universität zu Lübeck und Medisert organisiert und von der norddeutschen Life-Science-Clusteragentur NORGENTA

unterstützt. Studierende in Masterprogrammen der Medizintechnik und der Lebenswissenschaften präsentieren die Ergebnisse ihrer jüngsten Forschungsprojekte. Recoded City examines alternative urban design, planning and architecture for the other 90%: namely the practice of participatory placemaking, a burgeoning practice that co-author Thomas Ermacora terms 'recoding'. In combining bottom-up and top-down means of regenerating and rebalancing neighbourhoods affected by declining welfare or struck by disaster, this growing movement brings greater resilience. Recoded City sheds light on a new epoch in the relationship between cities and civil society by presenting an emerging range of collaborative solutions and distributed governance models. The authors draw on their own fresh research of global pioneers forging localist design strategies, public-realm interventions and new stakeholder dynamics. As the world becomes increasingly digital and virtual, a myriad of online tools and technological options is becoming available. These give unprecedented co-creation opportunities to communities and professionals alike, yielding the benefits of a more open – DIY – society. Because of its close engagement with people, place and local identity, the field of participatory placemaking has huge untapped potential. Responding to the challenges of the Anthropocene era, Recoded City is for decision-makers, developers and practitioners working globally to make better and more liveable cities.

In recent years, there has been considerable debate on the future of management but less attention on the changing role of managers in the workplace. This book considers the ways in which managers themselves are being managed. In so doing, the contributors reflect upon the research conducted to date and the potential research pathways. With contributions from experts in the field, the book explores the ways organisations manage their managers and how this continues to evolve globally. Themes discussed include talent management, evidence-based management, the nature of managerial work, management learning, and education and development as well as women in management and cross-cultural issues. Academics, researchers, analysts and students will find this an important Handbook to aid in their understanding of the contemporary world of managers.

International Science Congress Association organized 3rd International Science Congress (ISC-2013), with "Innovation with Global Responsibility" as its Focal Theme. ISC-2013 is divided in 20 sections. A total number of 900 Research Papers and 1000 registrations from 36 countries all over the world have been received. They are mainly from India, Iran, Sudan, Iraq, South Africa, Phillipines, Pakistan, Nighana, Erode, Czech Republic, Bangladesh, Swaziland, Jordan, USA, Thailand, Japan, Malaysia, Kazakhstan, UK, Colombia, Nepal, Italy, Bulgariya, Cameroun, France, Greece, Kazakhstan, Korea, Lithuania, Nigeria, Poland, Romania, Slovakiya, Ukraine, Venezuela and Turkey.

A detailed, practical review of state-of-the-art implementations of memory in IoT hardware As the Internet of Things (IoT) technology continues to evolve and become increasingly common across an array of specialized and consumer product applications, the demand on engineers to design new generations of flexible, low-cost, low power embedded memories into IoT hardware becomes ever greater. This book helps them meet that demand. Coauthored by a leading international expert and multiple patent holder, this book gets engineers up to speed on state-of-the-art implementations of memory in IoT hardware. Memories for the Intelligent Internet of Things covers an array of common and cutting-edge IoT embedded memory implementations. Ultra-low-power memories for IoT devices-including plastic and polymer circuitry for specialized applications, such as medical electronics-are described. The authors explore microcontrollers with embedded memory used for smart control of a multitude of Internet devices. They also consider neuromorphic memories made in Ferroelectric RAM (FeRAM), Resistance RAM (ReRAM), and Magnetic RAM (MRAM) technologies to implement artificial intelligence (AI) for the collection, processing, and presentation of large quantities of data generated by IoT hardware. Throughout the focus is on memory technologies which are

complementary metal oxide semiconductor (CMOS) compatible, including embedded floating gate and charge trapping EEPROM/Flash along with FeRAMs, FeFETs, MRAMs and ReRAMs. Provides a timely, highly practical look at state-of-the-art IoT memory implementations for an array of product applications Synthesizes basic science with original analysis of memory technologies for Internet of Things (IoT) based on the authors' extensive experience in the field Focuses on practical and timely applications throughout Features numerous illustrations, tables, application requirements, and photographs Considers memory related security issues in IoT devices Memories for the Intelligent Internet of Things is a valuable working resource for electrical engineers and engineering managers working in the electronics system and semiconductor industries. It is also an indispensable reference/text for graduate and advanced undergraduate students interested in the latest developments in integrated circuit devices and systems.

Two large international conferences on Advances in Engineering Sciences were held in Hong Kong, March 12–14, 2014, under the International MultiConference of Engineers and Computer Scientists (IMECS 2014), and in London, UK, 2–4 July, 2014, under the World Congress on Engineering 2014 (WCE 2014) respectively. This volume contains 37 revised and extended research articles written by prominent researchers participating in the conferences. Topics covered include engineering mathematics, computer science, electrical engineering, manufacturing engineering, industrial engineering, and industrial applications. The book offers tremendous state-of-the-art advances in engineering sciences and also serves as an excellent reference work for researchers and graduate students working with/on engineering sciences.

Contents: Switching Boundaries for Flexible Management of Natural Resource Investment under Uncertainty (T Tarnopolskaya, W Chen and C Bao) Using Exotic Option Prices as Control Variates in Monte Carlo Pricing Under a Local-Stochastic Volatility Model (Geoffrey Lee, Zili Zhu and Yu Tian) Multi-period Dynamic Portfolio Optimization through Least Squares Learning (C Bao, Z Zhu, N Langrené and G Lee) On General Solution of Incompressible and Isotropic Newtonian Fluid Equations (A A Maknickas) On the Inversion of Vandermonde Matrix via Partial Fraction Decomposition (Yiu Kwong Man) Fractal Fourier Coefficients with Application to Identification Protocols (Nadia M G Al-Saidi, Arkan J Mohammed, Elisha A Ogada and Adil M Ahmed) Scheduling Algorithm with Inserted Idle Time for Problem $P|prec|C_{max}$ (N S Grigoreva) Iterative Scheme for a Common Solutions of Equilibrium Problems, Variational Inequality Problems and Fixed Point Problems (Wichan Khongtham) Three-steps Iterative Method for Common Fixed Points, Variational Inclusions, and Equilibrium Problems (Yaowaluck Khongtham) Euler's Constant: A Proof of its Irrationality and Transcendence by means of Minus One Factorial (Okoh Ufuoma) Solution of Problem on Heat and Mass Transfer with Chemical Reaction over an Exponentially Accelerated Infinite Vertical Plate (A Ahmed, M N Sarki and M Ahmad) Improving Human Resource Security of a Data Centre: Case Study of a Hong Kong Wines and Spirits Distribution Company (Hon Keung Yau and Alison Lai Fong Cheng) Model to Measure University's Readiness for Establishing Spin-offs: Comparison Study (Wahyudi Sutopo, Rina Wiji Astuti, Yuniaristanto, Agus Purwanto and Muhammad Nizam) Preliminary Study of Solar Electricity using Comparative Analysis (Wahyudi Sutopo, Dwi Indah Maryanie, Agus Purwanto and Muhammad Nizam) Tactile Memory for Different Shapes: Implications for Shape Coding in Man-machine Interfaces (Annie W Y Ng and Alan H S Chan) Ergonomics Recommendations

for Control Station Work with Head Rotation (Steven N H Tsang, Stefanie X Q Kang and Alan H S Chan)A Methodological Approach to Affective Design (Youngil Cho and Sukyoung Kim)Data Analysis by Diminishing Rates of Change and $\frac{1}{2}$ Approximation (I C Demetriou and S S Papakonstantinou)Comparing Naïve-Bayes Network Structures over Multiple Dataset (Haruna Chiroma, Abdulsalam Ya'u Gital, Adamu I Abubakar, Sanah Abdullahi Muaz, Jaafar Z Maitama and Tutut Herawan)Route Recommendation Method Based on Driver's Estimated Intention Considering Route Selection with Car Navigation (Keisuke Hamada, Shinsuke Nakajima, Daisuke Kitayama and Kazutoshi Sumiya)Adaption of the Inertia Weight using a Novel Sine-based Chaotic Map for Particle Swarm Optimization (Yu-Huei Cheng)Fast Characterization of Intravascular Tissue by Subspace Method using Target Tissue's Neighborhood Information (Shota Furukawa, Eiji Uchino, Shinichi Miwa and Noriaki Suetake)Swarm Intelligent Control Object's Movement Simulation in Net-centric Environment using Neural Networks (Viacheslav Abrosimov)The Concept of Project Time Management with the Fuzzy Buffers Approach (B?aszczyk Pawe? and B?aszczyk Tomasz)Data Driven Methods for Adaptation of ASR Systems (Akella Amarendra Babu, Yellasiri Ramadevi and Akepogu Ananda Rao)Semantic Web Improved by Including Class Information with the TFIDF Algorithm (Jyoti Gautam and Ela Kumar)Urban Drainage in the Metropolitan Region of Belém, Brazil: An Urbanistic Study (Juliano Pamplona Ximenes Ponte and Ana Júlia Domingues Das Neves Brandão)Finger Based Techniques for Nonvisual Touchscreen Text Entry (Mohammed Fakrudeen, Sufian Yousef, Mahdi H Miraz and Abdelrahman Hamza Hussein)LTE Downlink and Uplink Physical Layer (Temitope O Takpor and Francis E Idachaba)New Dielectric Modulated Graphene (DMG) FET-Based Sensor for High-performance Biomolecule Sensing Applications (Faycal Djeflal, Abdelhamid Benhaya, Khalil Tamersit and Mohamed Meguellati)Modelling and Optimization of Avalanche Photodiode Electrical Parameters using Multiobjective Genetic Algorithm (Toufik Bendib, Lucio Pancheri, Faycal Djeflal and Gian-Franco Dalla Betta)Experimental Study of Impact of Ship Electric Power Plant Configuration and Load Variation on Power Quality in the Ship Power Systems (Tomasz Tarasiuk, Andrzej Pilat, Mariusz Szweda, Mariusz Gorniak and Zenon Troka)Studying of Electroencephalographic Signal Changes Induced by Odor Exposure (Rita Jorge Cerqueira Pinto, Isabel Patrícia Pinheiro Peixoto Xavier, Maria Do Rosário Alves Calado and Sílvia José Pinto Simões Mariano)DC Motor Speed Control using FPGA (Ahmed Telba)Pellistor Gas Sensor Performance: Interface Circuitry Analysis (Hauwa Talatu Abdulkarim)Extended Research on Prefilter Bandwidth Effects in Asynchronous Sequential Symbol Synchronizers based on Pulse Comparison by both Transitions at Half Bit Rate (Antonio D Reis, Jose F Rocha, Atilio S Gameiro and Jose P Carvalho)Models of Organizational Change for Modernizing Pollution Warning Services (Anca Daniela Ionita and Mariana Mocanu) Readership: Professionals, academics and graduate students in electrical & electronic engineering, computer engineering, industrial engineering and mathematics. Key Features:This volume contains revised and extended research articles written by prominent researchers participating in the conferencesThe book offers the state of art of tremendous advances in engineering sciencesThe book can also serve as an excellent reference work for researchers and graduate students working with/on engineering sciencesKeywords:Engineering Mathematics;Computer Science;Electrical Engineering;Manufacturing

Engineering;Industrial Engineering;Industrial Applications

Have you ever wondered what it is like to work on a nuclear power plant? Robert Dutch worked in the UK's nuclear industry for many years as a scientist and then as a tutor at a nuclear training center. He also holds degrees in theology. Drawing upon his qualifications and experience Robert addresses the controversial issue of nuclear power from a Christian perspective. In contrast to a negative nuclear narrative often portrayed, he presents a positive nuclear narrative alongside other ways of generating electricity. Be prepared to be challenged to think seriously about nuclear's merits in providing clean, low-carbon electricity.

This is a reprint in book form of the Energies MDPI Journal Special Issue , entitled "Energy Storage Systems and Power Conversion Electronics for E-Transportation and Smart Grid". The Special Issue was managed by two Guest Editors from Italy and Norway: Professor Sergio Saponara from the University of Pisa and Professor Lucian MIHET-POPA from Østfold University College, in close cooperation with the Editors from Energies. The papers published in this SI are related to the emerging trends in energy storage and power conversion electronic circuits and systems, with a specific focus on transportation electrification, and on the evolution from the electric grid to a smart grid. An extensive exploitation of renewable energy sources is foreseen for the smart grid, as well as a close integration with the energy storage and recharging systems of the electrified transportation era. Innovations at the levels of both algorithmic and hardware (i.e., power converters, electric drives, electronic control units (ECU), energy storage modules and charging stations) are proposed. Research and technology transfer activities in energy storage systems, such as batteries and super/ultra-capacitors, are essential for the success of electric transportation, and to foster the use of renewable energy sources. Energy storage systems are the key technology to solve these issues, and to increase the adoption of renewable energy sources in the smart grid.

An Observer Book of the Year A Times Science Book of the Year A New Statesman Book of the Year A Financial Times Science Book of the Year 'It is hard to imagine a more timely book ... much of the modern world will make more sense having read it.' The Times A deadly virus suddenly explodes into the population. A political movement gathers pace, and then quickly vanishes. An idea takes off like wildfire, changing our world forever. We live in a world that's more interconnected than ever before. Our lives are shaped by outbreaks - of disease, of misinformation, even of violence - that appear, spread and fade away with bewildering speed. To understand them, we need to learn the hidden laws that govern them. From 'superspreaders' who might spark a pandemic or bring down a financial system to the social dynamics that make loneliness catch on, The Rules of Contagion offers compelling insights into human behaviour and explains how we can get better at predicting what happens next. Along the way, Adam Kucharski explores how innovations spread through friendship networks, what links computer viruses with folk stories - and why the most useful predictions aren't necessarily the ones that come true.

This book is a printed edition of the Special Issue "Advanced Energy Storage Technologies and Their Applications (AESAs)" that was published in Energies A guide to the important chemical engineering concepts for the development of new drugs, revised second edition The revised and updated second edition of Chemical

Engineering in the Pharmaceutical Industry offers a guide to the experimental and computational methods related to drug product design and development. The second edition has been greatly expanded and covers a range of topics related to formulation design and process development of drug products. The authors review basic analytics for quantitation of drug product quality attributes, such as potency, purity, content uniformity, and dissolution, that are addressed with consideration of the applied statistics, process analytical technology, and process control. The 2nd Edition is divided into two separate books: 1) Active Pharmaceutical Ingredients (API's) and 2) Drug Product Design, Development and Modeling. The contributors explore technology transfer and scale-up of batch processes that are exemplified experimentally and computationally. Written for engineers working in the field, the book examines in-silico process modeling tools that streamline experimental screening approaches. In addition, the authors discuss the emerging field of continuous drug product manufacturing. This revised second edition: Contains 21 new or revised chapters, including chapters on quality by design, computational approaches for drug product modeling, process design with PAT and process control, engineering challenges and solutions Covers chemistry and engineering activities related to dosage form design, and process development, and scale-up Offers analytical methods and applied statistics that highlight drug product quality attributes as design features Presents updated and new example calculations and associated solutions Includes contributions from leading experts in the field Written for pharmaceutical engineers, chemical engineers, undergraduate and graduation students, and professionals in the field of pharmaceutical sciences and manufacturing, Chemical Engineering in the Pharmaceutical Industry, Second Edition contains information designed to be of use from the engineer's perspective and spans information from solid to semi-solid to lyophilized drug products.

This book is a printed edition of the Special Issue "Remote Sensing of Atmospheric Pollution" that was published in Remote Sensing

Experiments in geoengineering – intentionally manipulating the Earth's climate to reduce global warming – have become the focus of a vital debate about responsible science and innovation. Drawing on three years of sociological research working with scientists on one of the world's first major geoengineering projects, this book examines the politics of experimentation. Geoengineering provides a test case for rethinking the responsibilities of scientists and asking how science can take better care of the futures that it helps bring about. This book gives students, researchers and the general reader interested in the place of science in contemporary society a compelling framework for future thinking and discussion.

This essential handbook and ready reference offers a detailed overview of the existing and currently researched technologies available for the control of mercury in coal-derived gas streams and that are viable for meeting the strict standards set by environmental protection agencies. Written by an internationally acclaimed author team from government agencies, academia and industry, it details US, EU, Asia-Pacific and other international perspectives, regulations and guidelines.

Enterprise Level Security 2: Advanced Topics in an Uncertain World follows on from the authors' first book on Enterprise Level Security (ELS), which covered the basic concepts of ELS and the discoveries made during the first eight years of its development. This book follows on from this to give a discussion of advanced topics

and solutions, derived from 16 years of research, pilots, and operational trials in putting an enterprise system together. The chapters cover specific advanced topics derived from painful mistakes and numerous revisions of processes. This book covers many of the topics omitted from the first book including multi-factor authentication, cloud key management, enterprise change management, entity veracity, homomorphic computing, device management, mobile ad hoc, big data, mediation, and several other topics. The ELS model of enterprise security is endorsed by the Secretary of the Air Force for Air Force computing systems and is a candidate for DoD systems under the Joint Information Environment Program. The book is intended for enterprise IT architecture developers, application developers, and IT security professionals. This is a unique approach to end-to-end security and fills a niche in the market.

3D printing (or, more correctly, additive manufacturing) is the general term for those software-driven technologies that create physical objects by successive layering of materials. Due to recent advances in the quality of objects produced and to lower processing costs, the increasing dispersion and availability of these technologies have major implications not only for manufacturers and distributors but also for users and consumers, raising unprecedented challenges for intellectual property protection and enforcement. This is the first and only book to discuss 3D printing technology from a multidisciplinary perspective that encompasses law, economics, engineering, technology, and policy. Originating in a collaborative study spearheaded by the Hanken School of Economics, the Aalto University and the University of Helsinki in Finland and engaging an international consortium of legal, design and production engineering experts, with substantial contributions from industrial partners, the book fully exposes and examines the fundamental questions related to the nexus of intellectual property law, emerging technologies, 3D printing, business innovation, and policy issues. Twenty-five legal, technical, and business experts contribute sixteen peer-reviewed chapters, each focusing on a specific area, that collectively evaluate the tensions created by 3D printing technology in the context of the global economy. The topics covered include: • current and future business models for 3D printing applications; • intellectual property rights in 3D printing; • essential patents and technical standards in additive manufacturing; • patent and bioprinting; • private use and 3D printing; • copyright licences on the user-generated content (UGC) in 3D printing; • copyright implications of 3D scanning; and • non-traditional trademark infringement in the 3D printing context. Specific industrial applications – including aeronautics, automotive industries, construction equipment, toy and jewellery making, medical devices, tissue engineering, and regenerative medicine – are all touched upon in the course of analyses. In a legal context, the central focus is on the technology's implications for US and European intellectual property law, anchored in a comparison of relevant laws and cases in several legal systems. This work is a matchless resource for patent, copyright, and trademark attorneys and other corporate counsel, innovation economists, industrial designers and engineers, and academics and policymakers concerned with this complex topic.

The world's population is expected to reach the eight billion mark very soon. As a result, there is a need for increased industrial and agricultural production to ensure human wellbeing. This in turn generates huge amounts of waste. Current waste treatment solutions are effective, but usually require huge capital investment, are labour

intensive and potentially lead to hazardous by-products. This book presents the latest non-biological approaches to address issues related to the abundance of waste, offering insights into best practices in various regions around the globe. It highlights techniques such as chemical extraction, pyrolysis and ultrasonics, and a number of chapters include individual case studies to further enhance readers' understanding. This comprehensive reference resource is intended for graduate students, researchers and scientists, and is also a valuable addition to all agriculture and biotechnology libraries.

This book contains the proceedings of the seventh in a series of biennial conferences on the topic of sustainable regional development that began in 2003. Organised by the Wessex Institute, the conference series provides a common forum for all scientists specialising in the range of subjects included within sustainable development and planning. In order to ensure that planning and development can meet our present needs without compromising future generations, planners, environmentalists, architects, engineers, policy makers, and economists must work together. The use of modern technologies in planning gives us new potential to monitor and prevent environmental degradation. In recent years, in many countries an increase in spatial problems has led to planning crises. Planning problems are often associated with uneven development, deterioration of the quality of urban life, and destruction of the environment. The increasing urbanisation of the world, coupled with the global issues of environmental pollution, resource shortage, and economic restructuring, demand that we ensure a decent quality of life for our cities. Other environments, such as rural areas, forests, coastal regions, and mountains, face their own problems that urgently require solutions in order to avoid irreversible damage. Effective strategies for management should consider planning and regional development, two closely related disciplines, and emphasise the demand to handle these matters in an integrated way. The papers in the book cover such topics as: Regional Planning; City Planning; Sustainability and the Built Environment; Cultural Heritage; Environmental Management; Environmental Policies and Planning; Sustainable Tourism; Resources Management; Social and Political Issues; Rural Developments; Sustainable Solutions in Emerging Countries; Transportation; Energy Resources; Environmental Economics; Sustainable Assessment; Sustainable Development Indicators; Sustainability Modelling; Governance; Resilience; Community Planning; Planning for Equality; Quality of Life. Over 7,300 total pages ... Just a sample of the contents: Title : Multifunctional Nanotechnology Research Descriptive Note : Technical Report, 01 Jan 2015, 31 Jan 2016 Title : Preparation of Solvent-Dispersible Graphene and its Application to Nanocomposites Descriptive Note : Technical Report Title : Improvements To Micro Contact Performance And Reliability Descriptive Note : Technical Report Title : Delivery of Nanotethered Therapies to Brain Metastases of Primary Breast Cancer Using a Cellular Trojan Horse Descriptive Note : Technical Report, 15 Sep 2013, 14 Sep 2016 Title : Nanotechnology-Based Detection of Novel microRNAs for Early Diagnosis of Prostate Cancer Descriptive Note : Technical Report, 15 Jul 2016, 14 Jul 2017 Title : A Federal Vision for Future Computing: A Nanotechnology-Inspired Grand Challenge Descriptive Note : Technical Report Title : Quantifying Nanoparticle Release from Nanotechnology: Scientific Operating Procedure Series: SOP C 3 Descriptive Note : Technical Report Title : Synthesis, Characterization And Modeling Of Functionally

Graded Multifunctional Hybrid Composites For Extreme Environments Descriptive Note : Technical Report,15 Sep 2009,14 Mar 2015 Title : Equilibrium Structures and Absorption Spectra for SixOy Molecular Clusters using Density Functional Theory Descriptive Note : Technical Report Title : Nanotechnology for the Solid Waste Reduction of Military Food Packaging Descriptive Note : Technical Report,01 Apr 2008,01 Jan 2015 Title : Magneto-Electric Conversion of Optical Energy to Electricity Descriptive Note : Final performance rept. 1 Apr 2012-31 Mar 2015 Title : Surface Area Analysis Using the Brunauer-Emmett-Teller (BET) Method: Standard Operating Procedure Series: SOP-C Descriptive Note : Technical Report,30 Sep 2015,30 Sep 2016 Title : Stabilizing Protein Effects on the Pressure Sensitivity of Fluorescent Gold Nanoclusters Descriptive Note : Technical Report Title : Theory-Guided Innovation of Noncarbon Two-Dimensional Nanomaterials Descriptive Note : Technical Report,14 Feb 2012,14 Feb 2016 Title : Deterring Emergent Technologies Descriptive Note : Journal Article Title : The Human Domain and the Future of Army Warfare: Present as Prelude to 2050 Descriptive Note : Technical Report Title : Drone Swarms Descriptive Note : Technical Report,06 Jul 2016,25 May 2017 Title : OFFSETTING TOMORROW'S ADVERSARY IN A CONTESTED ENVIRONMENT: DEFENDING EXPEDITIONARY ADVANCE BASES IN 2025 AND BEYOND Descriptive Note : Technical Report Title : A Self Sustaining Solar-Bio-Nano Based Wastewater Treatment System for Forward Operating Bases Descriptive Note : Technical Report,01 Feb 2012,31 Aug 2017 Title : Radiation Hard and Self Healing Substrate Agnostic Nanocrystalline ZnO Thin Film Electronics Descriptive Note : Technical Report,26 Sep 2011,25 Sep 2015 Title : Modeling and Experiments with Carbon Nanotubes for Applications in High Performance Circuits Descriptive Note : Technical Report Title : Radiation Hard and Self Healing Substrate Agnostic Nanocrystalline ZnO Thin Film Electronics (Per5 E) Descriptive Note : Technical Report,01 Oct 2011,28 Jun 2017 Title : High Thermal Conductivity Carbon Nanomaterials for Improved Thermal Management in Armament Composites Descriptive Note : Technical Report Title : Emerging Science and Technology Trends: 2017-2047 Descriptive Note : Technical Report Title : Catalysts for Lightweight Solar Fuels Generation Descriptive Note : Technical Report,01 Feb 2013,31 Jan 2017 Title : Integrated Real-Time Control and Imaging System for Microbiorobotics and Nanobiostructures Descriptive Note : Technical Report,01 Aug 2013,31 Jul 2014

This textbook covers the processing of advanced composites and their various technologies, with special emphasis on the distinct characteristics of processability. The book covers the impact of different processing techniques on the performance and characteristics of the final product. Written with a didactic approach, the volume contains extensive illustrations and pedagogic features (including examples and exercises) to help the reader assess and correlate existing technologies. The book will be useful as a text in graduate courses in processing of polymers and composites and can additionally be used as a professional reference.

This authored monograph provides in-depth analysis and methods for aligning electricity demand of manufacturing systems to VRE supply. The book broaches both long-term system changes and real-time manufacturing execution and control, and the author presents a concept with different options for improved energy flexibility including battery, compressed air and embodied energy storage. The reader will also find a

detailed application procedure as well as an implementation into a simulation prototype software. The book concludes with two case studies. The target audience primarily comprises research experts in the field of green manufacturing systems.

How do you build a scientifically and technologically strong modern nation with limited means and resources? Indian scientists faced this challenge seven decades ago when the country became independent and confronted a world rapidly advancing in science and technology. In the years that followed, they battled poor funding and archaic regulations to build India's science infrastructure from scratch. This fascinating narrative captures the story of the struggles and triumphs of these leaders of science and the world-class institutions they founded. From the cosmic-ray experiments at the Kolar Gold Fields to ISRO's stunning space observatory built under severe constraints, from the construction of one of the world's largest radio telescopes in Ooty to the development of structural biology at IISc and, most recently, the significant contributions of the country's scientific institutions towards tackling a global pandemic - Space. Life. Matter. brings to readers the path-breaking advances made by India's scientists to original research and what they mean to the nation's progress. Deeply informed, enlightening and inspiring, this singular, comprehensive account of the pride of place that Indian science occupies in the world is essential reading for all.

The US shale boom and efforts by other countries to exploit their shale resources could reshape energy and environmental landscapes across the world. But how might those landscapes change? Will countries with significant physical reserves try to exploit them? Will they protect or harm local communities and the global climate? Will the benefits be shared or retained by powerful interests? And how will these decisions be made? The Shale Dilemma brings together experts working at the forefront of shale gas issues on four continents to explain how countries reach their decisions on shale development. Using a common analytical framework, the authors identify both local factors and transnational patterns in the decision-making process. Eight case studies reveal the trade-offs each country makes as it decides whether to pursue, delay, or block development. Those outcomes in turn reflect the nature of a country's political process and the power of interest groups on both sides of the issue. The contributors also ask whether the economic arguments made by the shale industry and its government supporters have overshadowed the concerns of local communities for information on the effects of shale operations, and for tax policies and regulations to ensure broad-based economic development and environmental protection. As an informative and even-handed account, The Shale Dilemma recommends practical steps to help countries reach better, more transparent, and more far-sighted decisions.

This volume contains revised and extended research articles written by prominent researchers who participated in the international conference on Advances in Engineering Technologies, which was held in Hong Kong, 12-14 March, 2014. Topics covered include engineering physics, engineering mathematics, scientific computing, control theory, artificial intelligence, electrical engineering, communications systems, and industrial applications. The book offers the state of art of tremendous advances in engineering technologies and physical science and applications, and also serves as an excellent reference work for researchers and graduate students working with/on engineering technologies and physical science and applications. Fifty years ago, the National Academy of Engineering (NAE) was founded by the stroke of a pen when the National Academy of Sciences Council approved the NAE's articles of organization. Making a World of Difference commemorates the NAE anniversary with a collection of essays that highlight the prodigious changes in people's lives that have been created by engineering over the past half century and consider how the future will be similarly shaped. Over the past 50 years, engineering has transformed our lives literally every day, and it will continue to do so going forward, utilizing new capabilities, creating new applications, and providing ever-expanding services to people. The essays of Making a World of Difference

discuss the seamless integration of engineering into both our society and our daily lives, and present a vision of what engineering may deliver in the next half century.

Intelligent prediction and decision support systems are based on signal processing, computer vision (CV), machine learning (ML), software engineering (SE), knowledge based systems (KBS), data mining, artificial intelligence (AI) and include several systems developed from the study of expert systems (ES), genetic algorithms (GA), artificial neural networks (ANN) and fuzzy-logic systems. The use of automatic decision support systems in design and manufacturing industry, healthcare and commercial software development systems has the following benefits: Cost savings in companies, due to employment of expert system technology. Fast decision making, completion of projects in time and development of new products. Improvement in decision making capability and quality. Usage of Knowledge database and Preservation of expertise of individuals Eases complex decision problems. Ex: Diagnosis in Healthcare To address the issues and challenges related to development, implementation and application of automatic and intelligent prediction and decision support systems in domains such as manufacturing, healthcare and software product design, development and optimization, this book aims to collect and publish wide ranges of quality articles such as original research contributions, methodological reviews, survey papers, case studies and/or reports covering intelligent systems, expert prediction systems, evaluation models, decision support systems and Computer Aided Diagnosis (CAD).

Advanced Aerospace Materials is intended for engineers and students of aerospace, materials, and mechanical engineering. It covers the transition from aluminum to composite materials for aerospace structures and will include essential and advanced analyses used in today's aerospace industries. Various aspects of design, failure and monitoring of structural components will be derived and presented accompanied by relevant formulas and analyses.

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