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Holistic Engineering Education
Bulletin of the Society for the Promotion of Engineering Education
Engineering Education and Management
Journal of Engineering Education

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New Paradigm for Re-engineering Education CRC Press

This book presents selected papers from the 'World Engineering Education Forum & Global Engineering Deans Council,' held in November 2016 in Seoul, Korea. The massive changes currently underway in all areas of society, especially in engineering (and consequently in engineering education), call for new pedagogic qualifications and approaches. To face these current real-world challenges, higher

education has to find innovative ways to quickly respond to these new needs. The papers gathered here address three essential problems:- The main approach to engineering in the 21st century is collaboration - at many levels, within universities or colleges, between institutions, and on a global scale. At the same time, we need a new quality of collaboration between academia, industry, professional and governmental organizations. - The complexity of engineering projects and solutions is rapidly growing, and increasingly includes

non-technical aspects. - One of the key tasks for future engineers will be the development of a sustainable society, which is essential to keeping the global environment in balance.

The Journal of Engineering Education
Springer Science & Business Media
This two-volume set (CCIS 134 and CCIS 135) constitutes the refereed proceedings of the International Conference on Intelligent Computing and Information Science, ICICIS2011, held in Chongqing, China, in January 2011. The 226 revised full papers presented in both volumes,

CCIS 134 and CCIS 135, were carefully reviewed and selected from over 600 initial submissions. The papers provide the reader with a broad overview of the latest advances in the field of intelligent computing and information science.

Education Management and Management Science IGI Global

This book presents a collection of results from the interdisciplinary research project "ELLI" published by researchers at RWTH Aachen University, the TU Dortmund and Ruhr-Universität Bochum between 2011 and 2016. All contributions showcase essential research results, concepts and innovative teaching methods to improve engineering education. Further, they focus on a variety of areas, including virtual and remote teaching and learning environments, student mobility, support throughout the student lifecycle, and the cultivation of interdisciplinary skills.

Engineering Journal Springer

Holistic Engineering Education: Beyond Technology is a compilation of coordinated and focused essays from world leaders in the engineering profession who are dedicated to a transformation of engineering education and practice. The

contributors define a new and holistic approach to education and practice that captures the creativity, interdisciplinarity, complexity, and adaptability required for the profession to grow and truly serve global needs. With few exceptions today, engineering students and professionals continue to receive a traditional, technically-based education and training using curriculum models developed for early 20th century manufacturing and machining. While this educational paradigm has served engineering well, helping engineers create awe-inspiring machines and technologies for society, the coursework and expectations of most engineering programs eschew breadth and intellectual exploration to focus on consistent technological precision and study. Why this dichotomy? While engineering will always need precise technological skill, the 21st century innovation economy demands a new professional perspective that recognizes the value of complex systems thinking, cross-disciplinary collaborations, economic and environmental impacts (sustainability), and effective communication to global and community

leaders, thus enabling engineers to consider "the whole patient" of society's needs. The goal of this book is to inspire, lead, and guide this critically needed transformation of engineering education. "Holistic Engineering Education: Beyond Technology points the way to a transformation of engineering education and practice that will be sufficiently robust, flexible, and systems-oriented to meet the grand challenges of the 21st century with their ever-increasing scale, complexity, and transdisciplinary nature." -- Charles Vest, President, National Academy of Engineering; President Emeritus, MIT "This collection of essays provides compelling arguments for the need of an engineering education that prepares engineers for the problems of the 21st century. Following the National Academy's report on the Engineer of 2020, this book brings together experts who make the case for an engineering profession that looks beyond developing just cool technologies and more into creating solutions that can address important problems to benefit real people." -- Linda Katehi, Chancellor, University of California at Davis "This

superb volume offers a provocative portrait of the exciting future of engineering education...A dramatically new form of engineering education is needed that recognizes this field as a liberal art, as a profession that combines equal parts technical rigor and creative design...The authors challenge the next generation to engineering educators to imagine, think and act in new ways. " -- Lee S. Shulman, President Emeritus, The Carnegie Foundation for the Advancement of Teaching and Charles E. Ducommun Professor of Education Emeritus, Stanford University

Blended Learning in Engineering Education
Springer Science & Business Media

The college experience is increasingly positioned to demonstrate its value as a worthwhile return on investment. Specific, definable activities, such as research experience, first-year experience, and experiential learning, are marketed as delivering precise skill sets in the form of an individual educational package. Through ethnography-based analysis, the contributors to this volume explore how these commodified "experiences" have turned students into consumers and given

them the illusion that they are in control of their investment. They further reveal how the pressure to plan every move with a constant eye on a demonstrable return has supplanted traditional approaches to classroom education and profoundly altered the student experience.

The Engineering-Business Nexus Springer Science & Business Media

Educating the Engineer of 2020 is grounded by the observations, questions, and conclusions presented in the best-selling book *The Engineer of 2020: Visions of Engineering in the New Century*. This new book offers recommendations on how to enrich and broaden engineering education so graduates are better prepared to work in a constantly changing global economy. It notes the importance of improving recruitment and retention of students and making the learning experience more meaningful to them. It also discusses the value of considering changes in engineering education in the broader context of enhancing the status of the engineering profession and improving the public understanding of engineering. Although certain basics of engineering will not change in the future, the explosion of

knowledge, the global economy, and the way engineers work will reflect an ongoing evolution. If the United States is to maintain its economic leadership and be able to sustain its share of high-technology jobs, it must prepare for this wave of change.

Engineering News-record Springer Science & Business Media

Fascinating and compelling in equal measure this volume presents a critical examination of the multilayered relationships between engineering and business. In so doing the study also stimulates ethical reflection on how these relationships either enhance or inhibit strategies to address vital issues of our time. In the context of geopolitical, economic, and environmental tendencies the authors explore the world that we should want to create and the role of the engineer and the business manager in this endeavor. Throughout this volume the authors identify periods of alignment and periods of tension between engineering and business. They look at focal points of the engineering-business nexus related to the development of capitalism. The book explores past and present movements to

reshape, reform, or reject this nexus. The volume is informed by questions of importance for industry as well as for higher education. These are: What kinds of conflict arise for engineers in their attempts to straddle both professional and organizational commitments? How should professionals be managed to avoid a clash of managerial and professional cultures? How do engineers create value in firms and corporations? What kinds of tension exist between higher education and industry? What challenges does the neoliberal entrepreneurial university pose for management, faculty, students, society, and industry? Should engineering graduates be ready for work, and can they possibly be? What kinds of business issues are reflected in engineering education curricula, and for what purpose? Is there a limit to the degree of business hybridization in engineering degree programs, and if so, what would be the criterion for its definition? Is there a place in engineering education curricula for reflective critique of assumptions related to business and economic thinking? One ideal of management and control comes to the fore as the Anthropocene - the world

transformed into an engineered artefact which includes human existence. The volume raises the question as to how engineering and business together should be considered, given the fact that the current engineering-business nexus remains embedded within an economic model of continual growth. By addressing macro-level issues such as energy policy, sustainable development, globalization, and social justice this study will both help create awareness and stimulate development of self-knowledge among practitioners, educators, and students thereby ultimately addressing the need for better informed citizens to safeguard planet Earth as a human life supporting system.

Proceedings of the Annual Convention CRC Press

While vols. III/29 A, B (published in 1992 and 1993, respectively) contains the low frequency properties of dielectric crystals, in vol. III/30 the high frequency or optical properties are compiled. While the first subvolume 30 A contains piezooptic and elastooptic constants, linear and quadratic electrooptic constants and their temperature coefficients, and relevant

refractive indices, the present subvolume 30 B covers second and third order nonlinear optical susceptibilities. For the reader's convenience an alphabetical formula index and an alphabetical index of chemical, mineralogical and technical names for all substances of volumes 29 A, B and 30 A, B are included.

Engineering Education IGI Global
Global engineering offers the seductive image of engineers figuring out how to optimize work through collaboration and mobility. Its biggest challenge to engineers, however, is more fundamental and difficult: to better understand what they know and value qua engineers and why. This volume reports an experimental effort to help sixteen engineering educators produce "personal geographies" describing what led them to make risky career commitments to international and global engineering education. The contents of their diverse trajectories stand out in extending far beyond the narrower image of producing globally-competent engineers. Their personal geographies repeatedly highlight experiences of incongruence beyond home countries that provoked them to see

themselves and understand their knowledge differently. The experiences were sufficiently profound to motivate them to design educational experiences that could challenge engineering students in similar ways. For nine engineers, gaining new international knowledge challenged assumptions that engineering work and life are limited to purely technical practices, compelling explicit attention to broader value commitments. For five non-engineers and two hybrids, gaining new international knowledge fueled ambitions to help engineering students better recognize and critically examine the broader value commitments in their work. A background chapter examines the historical emergence of international engineering education in the United States, and an epilogue explores what it might take to integrate practices of critical self-analysis more systematically in the education and training of engineers. Two appendices and two online supplements describe the unique research process that generated these personal geographies, especially the workshop at the U.S. National Academy of Engineering in which authors were prohibited from

participating in discussions of their manuscripts. Table of Contents: The Border Crossers: Personal Geographies of International and Global Engineering Educators (Gary Lee Downey) / From Diplomacy and Development to Competitiveness and Globalization: Historical Perspectives on the Internationalization of Engineering Education (Brent Jesiek and Kacey Beddoes) / Crossing Borders: My Journey at WPI (Rick Vaz) / Education of Global Engineers and Global Citizens (E. Dan Hirleman) / In Search of Something More: My Path Towards International Service-Learning in Engineering Education (Margaret F. Pinnell) / International Engineering Education: The Transition from Engineering Faculty Member to True Believer (D. Joseph Mook) / Finding and Educating Self and Others Across Multiple Domains: Crossing Cultures, Disciplines, Research Modalities, and Scales (Anu Ramaswami) / If You Don't Go, You Don't Know (Linda D. Phillips) / A Lifetime of Touches of an Elusive "Virtual Elephant": Global Engineering Education (Lester A. Gerhardt) / Developing Global Awareness in a College of Engineering (Alan

Parkinson) / The Right Thing to Do: Graduate Education and Research in a Global and Human Context (James R. Mihelcic) / Author Biographies
Blended Learning. Education in a Smart Learning Environment Springer Science & Business Media
 Rapid advances in computer technology and the internet have created new opportunities for delivering instruction and revolutionizing the learning environment. This development has been accelerated by the significant reduction in cost of the Internet infrastructure and the easy accessibility of the World Wide Web. This book evaluates the usefulness of advanced learning systems in delivering instructions in a virtual academic environment for different engineering sectors. It aims at providing a deep probe into the most relevant issues in engineering education and digital learning and offers a survey of how digital engineering education has developed, where it stands now, how research in this area has progressed, and what the prospects are for the future.
The Best Test Preparation & Review Course FE/EIT Fundamentals of

Engineering/engineering-in-training

Springer Nature

In response to the challenges of globalization and local development, educational reforms are inevitably becoming one of the major trends in the Asia-Pacific Region or other parts of the world. Based on the most recent research and international observations, this book aims to present a new paradigm including various new concepts, frameworks and theories for reengineering education. This book has 21 chapters in three sections. Section I "New Paradigm of Educational Reform" containing eight chapters, illustrates the new paradigm and frameworks of reengineering education, fostering human development and analysing reform policies and also discusses the trends and challenges of educational reforms in the Asia-Pacific Region. Section II "New Paradigm of Educational Leadership" with five chapters aims to elaborate how the nature, role and practice of school leadership can be transformed towards a new paradigm and respond to the three waves of education reforms. Section III "Reengineering School Management for Effectiveness" with eight

chapters aims to provide various practical frameworks for reengineering school management processes and implementing changes in school practices.

NASA Conference Publication National Academies Press

Proceedings of the International Conference on Cybernetics and Informatics (ICCI 2012) covers the hybridization in control, computer, information, communications and applications. ICCI 2012 held on September 21-23, 2012, in Chongqing, China, is organized by Chongqing Normal University, Chongqing University, Nanyang Technological University, Shanghai Jiao Tong University, Hunan Institute of Engineering, Beijing University, and sponsored by National Natural Science Foundation of China (NSFC). This two volume publication includes selected papers from the ICCI 2012. Covering the latest research advances in the area of computer, informatics, cybernetics and applications, which mainly includes the computer, information, control, communications technologies and applications.

Proceedings ... Papers, Reports,

Discussions, Etc., Printed in the Journal of Engineering Education Springer Science & Business Media

As the most influential activity for social and economic development of individuals and societies, education is a powerful means of shaping the future. The emergence of physical and digital technologies requires an overhaul that would affect not only the way engineering is approached but also the way education is delivered and designed. Therefore, designing and developing curricula focusing on the competencies and abilities of new generation engineers will be a necessity for sustainable success. Engineering Education Trends in the Digital Era is a critical scholarly resource that examines more digitized ways of designing and delivering learning and teaching processes and discusses and acts upon developing innovative engineering education within global, societal, economic, and environmental contexts. Highlighting a wide range of topics such as academic integrity, gamification, and professional development, this book is essential for teachers, researchers, educational policymakers, curriculum

designers, educational software developers, administrators, and academicians.

Software Engineering Education

DEStech Publications, Inc

This book constitutes the refereed proceedings of the 13th International Conference on Blended Learning, ICBL 2020, held in Bangkok, in August 2020. The 33 papers presented were carefully reviewed and selected from 70 submissions. The conference theme of ICBL 2020 is Blended Learning : Education in a Smart Learning Environment. The papers are organized in topical sections named: Blended Learning, Hybrid Learning, Online Learning, Enriched and Smart Learning, Learning Management System and Content and Instructional Design.

Proceedings of the 2012 International Conference on Cybernetics and Informatics

Springer Science & Business Media

This test prep book includes two full-length practice tests with explanations for every answer. Detailed review chapters provide sample problems and solutions, as well as an overview of the test subjects. Designed

to assess students' knowledge of engineering subjects ranging from chemistry to thermodynamics. A thorough preparation for students taking the FE: PM General exam.

Education and Educational Technology

Springer
Blended Learning combines the conventional face-to-face course delivery with an online component. The synergetic effect of the two modalities has proved to be of superior didactic value to each modality on its own. The highly improved interaction it offers to students, as well as direct accessibility to the lecturer, adds to the hitherto unparalleled learning outcomes. "Blended Learning in Engineering Education: Recent Developments in Curriculum, Assessment and Practice" highlights current trends in Engineering Education involving face-to-face and online curriculum delivery. This book will be especially useful to lecturers and postgraduate/undergraduate students as well as university administrators who would like to not only get an up-to-date overview of contemporary developments in this field, but also help enhance academic performance at all levels.

Engineering Education

Springer
This is the proceedings of the selected papers presented at 2011 International Conference on Engineering Education and Management (ICEEM2011) held in Guangzhou, China, during November 18-20, 2011. ICEEM2011 is one of the most important conferences in the field of Engineering Education and Management and is co-organized by Guangzhou University, The University of New South Wales, Zhejiang University and Xi'an Jiaotong University. The conference aims to provide a high-level international forum for scientists, engineers, and students to present their new advances and research results in the field of Engineering Education and Management. This volume comprises 121 papers selected from over 400 papers originally submitted by universities and industrial concerns all over the world. The papers specifically cover the topics of Management Science and Engineering, Engineering Education and Training, Project/Engineering Management, and Other related topics. All of the papers were peer-reviewed by selected experts. The papers have been selected for this volume because of their

quality and their relevancy to the topic. This volume will provide readers with a broad overview of the latest advances in the field of Engineering Education and Management. It will also constitute a valuable reference work for researchers in the fields of Engineering Education and Management.

The Experience of Neoliberal Education
Springer

This book provides a collection of the latest advances in engineering education in the Middle East and North Africa (MENA) region and sheds insights for future development. It is one of the first books to address the lack of comprehensive literature on undergraduate engineering curricula, and stimulates intellectual and critical discourse on the next wave of engineering innovation and education in the MENA region. The authors look at recent innovations through the lens of four topics: learning and teaching, curriculum development, assessment and accreditation, and challenges and sustainability. They also include analyses of pedagogical innovations, models for transforming engineering education, and methods for using technological

innovations to enhance active learning. Engineering education topics on issues such as construction, health and safety, urban design, and environmental engineering in the context of the MENA region are covered in further detail. The book concludes with practical recommendations for implementations in engineering education. This is an ideal book for engineering education academics, engineering curriculum developers and accreditation specialists, and deans and leaders in engineering education.

Engineering Education 4.0 Berghahn Books

This proceedings volume contains selected papers presented at the 2014 International Conference on Education Management and Management Science (ICEMMS 2014), held August 7-8, 2014, in Tianjin, China. The objective of ICEMMS2014 is to provide a platform for researchers, engineers, academicians as well as industrial professionals from all over the wo

Educating the Engineer of 2020 Springer Nature

2013 International Conference on Complex

Science Management and Education Science, will be held in Kunming, China on 23rd-24th Nov. 2013. This conference is sponsored by Advanced Science Research Center, some universities and some Enterprises. 2013 International Conference on Complex Science Management and Education Science (CSMES2013) will provide an excellent international forum for sharing knowledge and results in theory, methodology and applications of Complex Science Management and Education Science . The conference looks for significant contributions to all major fields of the modern Complex Science Management and Education Science in theoretical and practical aspects. The aim of the conference is to provide a platform to the researchers and practitioners from both academia as well as industry to meet and share cutting-edge development in the field. 2013 International Conference on Complex Science Management and Education Science (CSMES2013) will be published by DEStech Publications. DEStech will have the CDROM indexed in ISI (Institute of Scientific Information) and Google Book Search. DEStech will submit the CDROM to ISTP and EI for worldwide

online citation of qualified papers. We would like to extend our appreciation to all participants in the conference for their great contribution to the success of

csmes2013. We would like to thank the keynote and individual speakers and all participating authors for their hard work and time. We also sincerely appreciate technical program committee and all

reviewers, whose contributions make this conference possible. Finally, I would like to thank the great support from DEStech Publications, Inc. Prof. Haiyan