Science And Technology Paper Topics

The term BRICS (Brazil, Russia, India, China and South Africa) is gaining global attention both in scholarly and popular discourse. BRICS countries are crucial in terms of their vast areas, huge population and have massive economic potential. These countries are also categorized as developing countries and are aspiring to be considered as developed countries. There is commonality among these countries in that they have similar issues and problems, which may require common solutions. Science, Technology and Innovation in BRICS Countries examines whether more emphasis on Science Technology and Innovation (STI) capability building could be the solution to these countries' economic upgradation and poverty reduction. This book is a collection of various Science Technology and Innovation (STI) issues of BRICS economics, and will be of interest to general readers, scholars working in this field, as well as policy makers all over the globe. The contributions come from various scholars across the globe who have published their BRICS economics research in a special issue of the African Journal of Science, Technology, Innovation and Development.

The rapid evolution of information technology (IT) is transforming our society and its institutions. For the most knowledge-intensive entities of all, research universities, profound IT-related challenges and opportunities will emerge in the next decade or so. Yet, there is a sense that some of the most significant issues are not well understood by academic administrators, faculty, and those who support or depend on the institutionâ€™s activities. This study identifies those information technologies likely to evolve in the near term (a decade or less) that could ultimately have a major impact on the research university. It also examines the possible implications of these technologies for the research universityâ€"its activities (learning, research, outreach) and its organization, management, and financingâ€"and for the broader higher education enterprise. The authoring committee urges research universities and their constituents to develop new strategies to ensure that they survive and thrive in the digital age.

This issue of ECS Transactions on Semiconductor Wafer Bonding will cover the state-of-the-art R&D results of the last 2 years in the field of semiconductor wafer bonding technology. Wafer Bonding is an Enabling Technology that can be used to create novel composite materials systems and devices that would otherwise be unattainable. Wafer Bonding today is rapidly expanding into new applications in such diverse fields as photonics, sensors, MEMS. X-ray optics, non-electronic microstructures, high performance CMOS platforms for high end servers, Si-Ge, strained SOI, Germanium-on-Insulator (GeOI) and Nanotechnologies.

What role does gender play in scientific research and the development of technologies? This book provides methodological expertise, research experiences and empirical findings in the dynamic field of Science and Technology Studies. The authors, coming from computer science, social sciences, or cultural studies of science, discuss how to ask questions about

gender and give examples for the application in interdisciplinary research, development and teaching. Topics range from the design of information and communication technologies, epistemologies of biology and chemistry to teaching mathematics and professional processes in engineering. Contributions by Anne Balsamo, Wendy Faulkner, Rebecca Jordan-Young, Barbara Orland, Els Rommes, and others.

Organizations in every industry from healthcare to finance rely on cybersecurity professionals to protect one of their most valuable assets, which is information. For those interested in both high-tech security and computer science, there are many roles and career opportunities from designing network security systems to conducting penetration testing to identifying security weaknesses. This book examines several of those careers, highlighting different jobs, educational requirements, and job search tips. By reading profiles of real jobs, readers will inspired by the success stories of people who blend a passion for computer science with an interest in high-tech security.

This issue of ECS Transactions covers state-of-the-art R&D results of the last 1.5 years in the field of semiconductor wafer bonding technology. Wafer Bonding Technology can be used to create novel composite materials systems and devices what would otherwise be unattainable. Wafer bonding today is rapidly expanding applications in such diverse fields as photonics, sensors, MEMS, X-ray optics, non-electronic microstructures, high performance CMOS platforms for high end servers, Si-Ge, strained SOI, Germanium-on-Insulator (GeOI), and Nanotechnologies.

In modern life, technology is everywhere. Yet as a concept, technology is a mess. In popular discourse, technology is little more than the latest digital innovations. Scholars do little better, offering up competing definitions that include everything from steelmaking to singing. In Technology: Critical History of a Concept, Eric Schatzberg explains why technology is so difficult to define by examining its three thousand year history, one shaped by persistent tensions between scholars and technical practitioners. Since the time of the ancient Greeks, scholars have tended to hold technicians in low esteem, defining technical practices as mere means toward ends defined by others. Technicians, in contrast, have repeatedly pushed back against this characterization, insisting on the dignity, creativity, and cultural worth of their work. ?The tension between scholars and technicians continued from Aristotle through Francis Bacon and into the nineteenth century. It was only in the twentieth century that modern meanings of technology arose: technology as the industrial arts, technology as applied science, and technology as technique. Schatzberg traces these three meanings to the present day, when discourse about technology has become pervasive, but confusion among the three principal meanings of technology remains common. He shows that only through a humanistic concept of technology can we understand the complex human choices embedded in our modern world.

The purpose of this book is to establish a broader context for rethinking science

learning and teaching by using cultural historical activity theoretic approach. Activity theory already steps in its third generation and only a few works have been done on its applications to science education, especially in Europe. The context takes into account more recent developments in activity theory applications in US, Canada, Australia and Europe. The chapters articulate new ways of thinking about learning and teaching science i.e., new theoretical perspectives and some case studies of teaching important scientific topics in/for compulsory education. The ultimate purpose of each chapter and the collective book as a whole is to prepare the ground upon which a new pedagogy in science education can be emerged to provide more encompassing theoretical frameworks that allow us to capture the complexity of science learning and teaching as it occurs in and out-of schools. The book captures the dialogic and interactive nature of the transferring the activity theory to both formal and informal science education. It also contributes to the development of innovative curricula, school science textbooks, educational programs and ICT's materials. As a whole, the book moves theorizing and practicing of science education into new face and uncharted terrain. It is recommended to new scholars and researchers as well as teachers/researchers.

Discover the inventions that have made our world what it is today A great invention opens the door to a new era in human history. The stone axe, for example, invented some 2 million years ago in East Africa, enabled us to enter the human path of endless improvements through inventions. The taming of fire enabled us to cook food as well as leave the warmth of Africa and move to the frigid lands of the North. From the stone axe to the computer and the Internet, this book provides a fascinating tour of the most important inventions and inventors throughout history. You'll discover the landmark achievements and the men and women that made the world what it is today. Great Inventions That Changed the World is written by Professor James Wei, a renowned educator and engineer who holds several patents for his own inventions. Following an introductory chapter examining the role of inventors and inventions in fueling innovation and global advancement, the book is organized to show how inventions are spurred by human needs and desires, including: Work Food, clothing, and housing Health and reproduction Security As you progress through the book, you'll not only learn about inventions and inventors, but also the impact they have had on our lives and the society and environment in which we live today. Inventions solve problems, but as this book so expertly demonstrates, they can also directly or indirectly create new problems as well, from pollution to global warming to bioterrorism. By enabling us to understand the impact of inventions throughout history, this book can help guide the next generation of citizens, decision makers, and inventors.

This book constitutes the refereed proceedings of the International Conference on Theory and Practice of Digital Libraries, TPDL 2013 (formerly European Conference on Research and Advanced Technology for Digital Libraries, ECDL)

held in Valletta, Malta, in September 2013. The 24 full papers, 13 short papers, 22 posters and 8 demonstrations presented in this volume were carefully reviewed and selected from 158 submissions. The papers cover a wide range of research topics, clustered in four broader areas: foundation, infrastructures, content, and services. They have been organized in topical sections on conceptual models and formal issues, aggregation and archiving, user behavior, digital curation, mining and extraction, architectures and interoperability, interfaces to digital libraries, semantic web, information retrieval and browsing, and preservation. Also included are 6 tutorials and 2 panels.

In a world where advanced knowledge is widespread and low-cost labor is readily available, U.S. advantages in the marketplace and in science and technology have begun to erode. A comprehensive and coordinated federal effort is urgently needed to bolster U.S. competitiveness and pre-eminence in these areas. This congressionally requested report by a pre-eminent committee makes four recommendations along with 20 implementation actions that federal policy-makers should take to create high-quality jobs and focus new science and technology efforts on meeting the nation's needs, especially in the area of clean, affordable energy: 1) Increase America's talent pool by vastly improving K-12 mathematics and science education; 2) Sustain and strengthen the nation's commitment to long-term basic research; 3) Develop, recruit, and retain top students, scientists, and engineers from both the U.S. and abroad; and 4) Ensure that the United States is the premier place in the world for innovation. Some actions will involve changing existing laws, while others will require financial support that would come from reallocating existing budgets or increasing them. Rising Above the Gathering Storm will be of great interest to federal and state government agencies, educators and schools, public decision makers, research sponsors, regulatory analysts, and scholars.

"A collection of articles addressing a variety of aspects related to IT standards and the setting of standards"--Provided by publisher.

Many scientists and engineers consider themselves poor writers or find the writing process difficult. The good news is that you do not have to be a talented writer to produce a good scientific paper, but you do have to be a careful writer. In particular, writing for a peer-reviewed scientific or engineering journal requires learning and executing a specific formula for presenting scientific work. This book is all about teaching the style and conventions of writing for a peer-reviewed scientific journal. From structure to style, titles to tables, abstracts to author lists, this book gives practical advice about the process of writing a paper and getting it published.

Science, engineering, and technology permeate nearly every facet of modern life and hold the key to solving many of humanity's most pressing current and future challenges. The United States' position in the global economy is declining, in part because U.S. workers lack fundamental knowledge in these fields. To address the critical issues of U.S. competitiveness and to better prepare the workforce, A Framework for K-12 Science Education proposes a new approach to K-12 science education that will capture students' interest and provide them with the necessary foundational knowledge in the field. A Framework for K-12 Science Education outlines a broad set of expectations for students in science and engineering in grades K-12.

These expectations will inform the development of new standards for K-12 science education and, subsequently, revisions to curriculum, instruction, assessment, and professional development for educators. This book identifies three dimensions that convey the core ideas and practices around which science and engineering education in these grades should be built. These three dimensions are: crosscutting concepts that unify the study of science through their common application across science and engineering; scientific and engineering practices; and disciplinary core ideas in the physical sciences, life sciences, and earth and space sciences and for engineering, technology, and the applications of science. The overarching goal is for all high school graduates to have sufficient knowledge of science and engineering to engage in public discussions on science-related issues, be careful consumers of scientific and technical information, and enter the careers of their choice. A Framework for K-12 Science Education is the first step in a process that can inform state-level decisions and achieve a research-grounded basis for improving science instruction and learning across the country. The book will guide standards developers, teachers, curriculum designers, assessment developers, state and district science administrators, and educators who teach science in informal environments.
The scale and complexity of research and practices of open innovation mandate a correspondingly sophisticated form of decision making. Strategic Planning Decisions brings together a number of tools that ease the decision process in technology companies, providing both conceptual frameworks and practical applications. Innovative approaches are presented such as an ontology-based model where all the relevant aspects of a potential technology are interrelated to provide a comprehensive and logically connected data pool for decision makers. Divided into two sections, Strategic Planning Decisions describe both strategic approaches using the decision tools, and tactical approaches. Some of these tools are expanded while some others are embedded in a model that will lay the ground for practical application. These include: bibliometric analysis, ontology, roadmapping, lead user, six sigma, and multi-actor & multi-objective decision making methods Recent research and relevant theory are balanced with up–to–date practical applications and hands–on techniques making Strategic Planning Decisions ideal for engineers who wish to keep up–to–date with current ideas in the field of TM. It also provides workable methods for practising managers from all levels who wish to apply a more rigorous approach in their work and consultants concerned with technology assessment and its management.
TRB Special Report 306: Naval Engineering in the 21st Century: The Science and Technology Foundation for Future Naval Fleets examines the state of basic and applied research in the scientific fields that support naval engineering and explores whether Office of Naval Research (ONR) activities, under its National Naval Responsibility for Naval Engineering (NNR-NE) initiative, have been effective in sustaining these fields. The committee developed a series of conclusions and recommendations in five areas--the value of the NNR-NE, the state of science and technology supporting naval engineering, the wholeness of the NNR-NE research portfolio, opportunities for enhancement of research and education, and the effectiveness of the NNR-NE initiative. The report's recommendations are addressed to the administrators of the NNR-NE initiative and of ONR.
Written by prominent scholars in the field, this is an account of the Japanese firm and its sources of success. Containing both theoretical and empirical work, the book ranges across labour and information economics, finance, organizational theory, and others.
The integrity of knowledge that emerges from research is based on individual and collective adherence to core values of objectivity, honesty, openness, fairness, accountability, and stewardship. Integrity in science means that the organizations in which research is conducted encourage those involved to exemplify these values in every step of the research process. Understanding the dynamics that support â€" or distort â€" practices that uphold the integrity of research by all participants ensures that the research enterprise advances knowledge. The

1992 report Responsible Science: Ensuring the Integrity of the Research Process evaluated issues related to scientific responsibility and the conduct of research. It provided a valuable service in describing and analyzing a very complicated set of issues, and has served as a crucial basis for thinking about research integrity for more than two decades. However, as experience has accumulated with various forms of research misconduct, detrimental research practices, and other forms of misconduct, as subsequent empirical research has revealed more about the nature of scientific misconduct, and because technological and social changes have altered the environment in which science is conducted, it is clear that the framework established more than two decades ago needs to be updated. Responsible Science served as a valuable benchmark to set the context for this most recent analysis and to help guide the committee's thought process. Fostering Integrity in Research identifies best practices in research and recommends practical options for discouraging and addressing research misconduct and detrimental research practices.

This book defines STS--science, technology, and society--education and discusses current thinking about its conceptual evolution. It synthesizes a broad range of research and thought in the history and philosophy of science and technology, STS studies, and education as they are informed by the the dual perspectives of cognitive and social psychology. A model for STS curriculum development in science, social studies, or technology education is presented with well-chosen examples. The book includes an extensive and invaluable bibliography that will enable students, teachers, and researchers to explore the richness of this emerging field.

Science and technology are embedded in virtually every aspect of modern life. As a result, people face an increasing need to integrate information from science with their personal values and other considerations as they make important life decisions about medical care, the safety of foods, what to do about climate change, and many other issues. Communicating science effectively, however, is a complex task and an acquired skill. Moreover, the approaches to communicating science that will be most effective for specific audiences and circumstances are not obvious. Fortunately, there is an expanding science base from diverse disciplines that can support science communicators in making these determinations. Communicating Science Effectively offers a research agenda for science communicators and researchers seeking to apply this research and fill gaps in knowledge about how to communicate effectively about science, focusing in particular on issues that are contentious in the public sphere. To inform this research agenda, this publication identifies important influences â€" psychological, economic, political, social, cultural, and media-related â€" on how science related to such issues is understood, perceived, and used.

Remediation of Contaminated Environments summarises - amongst other things - what happened to the people and environment around Chernobyl (and other nuclear sites) and what measures need to be taken in future in the event of nuclear accidents etc. plus it has a very important and currently topical use in detailing what to do in the event of a terrorist dirty bomb attack on a city. Remediation, including characterization of contaminated sites; safety requirements; remediation planning; effectiveness of individual measures in

different environments; social, ethical and economic considerations; application of modern decision aiding technologies Applicable to different categories of contaminated environments and contaminants, comprising areas contaminated by radiation accidents and incidents, nuclear weapon tests, natural radionuclides associated with nuclear fuel cycle, fossil material mining and gas and oil production Associated side effects (environmental and social) and human based remediation measures, comprising perception of this activity by the population; with particular regard to stakeholders and population involvement in making decisions on environmental safety and remediation of contaminated sites

Next Generation Science Standards identifies the science all K-12 students should know. These new standards are based on the National Research Council's A Framework for K-12 Science Education. The National Research Council, the National Science Teachers Association, the American Association for the Advancement of Science, and Achieve have partnered to create standards through a collaborative state-led process. The standards are rich in content and practice and arranged in a coherent manner across disciplines and grades to provide all students an internationally benchmarked science education. The print version of Next Generation Science Standards complements the nextgenscience.org website and: Provides an authoritative offline reference to the standards when creating lesson plans Arranged by grade level and by core discipline, making information quick and easy to find Printed in full color with a lay-flat spiral binding Allows for bookmarking, highlighting, and annotating

An Introduction to Science and Technology Studies, Second Edition reflects the latest advances in the field while continuing to provide students with a road map to the complex interdisciplinary terrain of science and technology studies. Distinctive in its attention to both the underlying philosophical and sociological aspects of science and technology Explores core topics such as realism and social construction, discourse and rhetoric, objectivity, and the public understanding of science Includes numerous empirical studies and illustrative examples to elucidate the topics discussed Now includes new material on political economies of scientific and technological knowledge, and democratizing technical decisions Other features of the new edition include improved readability, updated references, chapter reorganization, and more material on medicine and technology

Presents a history of the scientific understanding of animals, discussing such topics as classification, animal behavior, menageries and zoos, genetics, and mythology.

The 5-year Outlook on Science and TechnologyAn Introduction to Science and Technology StudiesJohn Wiley & Sons

"This set of books represents a detailed compendium of authoritative, research-based entries that define the contemporary state of knowledge on technology"--Provided by publisher.