

Ethical Issues Electrical Engineering

"This book traces the emergence of the new interdisciplinary field of technoethics by exploring its conceptual development, important issues, and key areas of current research. Compiling 50 authoritative articles from leading researchers on the ethical dimensions of new technologies"--Provided by publisher.

For most professions, a code of ethics exists to promote positive behavior among practitioners in order to enrich others within the field as well as the communities they serve. Similar to the medical, law, and business fields, the engineering discipline also instills a code of ethical conduct. Contemporary Ethical Issues in Engineering highlights a modern approach to the topic of engineering ethics and the current moral dilemmas facing practitioners in the field. Focusing on key issues, theoretical foundations, and the best methods for promoting engineering ethics from the pre-practitioner to the managerial level, this timely publication is ideally designed for use by engineering students, active professionals, and academics, as well as researchers in all disciplines of engineering.

Bridging the gap between theory and practice, ENGINEERING ETHICS, Fifth Edition, will help you quickly understand the importance of your conduct as a professional and how your actions can affect the health, safety, and welfare of the public. ENGINEERING ETHICS, Fifth Edition, provides dozens of diverse engineering cases and a proven and structured method for analyzing them; practical application of the Engineering Code of Ethics; focus on critical moral reasoning as well as effective organizational communication; and in-depth treatment of issues such as sustainability, acceptable risk, whistle-blowing, and globalized standards for engineering. Additionally, a new companion website offers study questions, self-tests, and additional case studies. Available with InfoTrac Student Collections <http://gocengage.com/infotrac>. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

"This scholarly examination of the ethical issues in information technology management covers basic details such as improving user education and developing security requirements as well as more complicated and far-reaching problems such as protecting infrastructure against information warfare. Social responsibility is analyzed with global examples and applications, including knowledge-based society in Latin America, socioeconomic factors of technology in the United States, and system ethics in the Arab world."

Present Your Research to the World! The World Congress 2009 on Medical Physics and Biomedical Engineering – the triennial scientific meeting of the IUPESM - is the world's leading forum for presenting the results of current scientific work in health-related physics and technologies to an international audience. With more than 2,800 presentations it will be the biggest conference in the fields of Medical Physics and Biomedical Engineering in 2009! Medical physics, biomedical engineering and bioengineering have been driving forces of innovation and progress in medicine and healthcare over the past two decades. As new key technologies arise with significant potential to open new options in diagnostics and therapeutics, it is a multidisciplinary task to evaluate their benefit for medicine and healthcare with respect to the quality of performance and therapeutic output. Covering key aspects such as information and communication technologies, micro- and nanosystems, optics and biotechnology, the congress will serve as an inter- and multidisciplinary platform that brings together people from basic research, R&D, industry and medical application to discuss these issues. As a major event for science, medicine and technology the congress provides a comprehensive overview and in-depth, first-hand information on new developments, advanced technologies and current and future applications. With this Final Program we would like to give you an overview of the dimension of the congress and invite you to join us in Munich! Olaf Dössel Congress President Wolfgang C.

This Fourth Edition of Medical Assisting Exam Review for CMA, RMA & CMAS Certification focuses on the critical most current components of the MA and MAS curricula, making it an indispensable tool for recent graduates, practicing medical assistants, medical administrative specialists and medical administrative assistants preparing to sit for any recognized national certification exams.

This book aims to cover all aspects of teaching engineering and other technical subjects. It presents both practical matters and educational theories in a format that will be useful for both new and experienced teachers.

The rise of classic Euro-American philosophy of technology in the 1950s originally emphasized the importance of technologies as material entities and their mediating influence within human experience. Recent decades, however, have witnessed a subtle shift toward reflection on the activity from which these distinctly modern artifacts emerge and through which they are engaged and managed, that is, on engineering. What is engineering? What is the meaning of engineering? How is engineering related to other aspects of human existence? Such basic questions readily engage all major branches of philosophy --- ontology, epistemology, ethics, political philosophy, and aesthetics --- although not always to the same degree. The historico-philosophical and critical reflections collected here record a series of halting steps to think through engineering and the engineered way of life that we all increasingly live in what has been called the Anthropocene. The aim is not to promote an ideology for engineering but to stimulate deeper reflection among engineers and non-engineers alike about some basic challenges of our engineered and engineering lifeworld.

A guide to understanding and resolving the knotty ethical issues confronting today's engineering professional Little in an engineer's formal training offers adequate preparation for navigating the murky waters of professional ethics. Engineering and Environmental Ethics fills this critical gap, providing you with a reliable compass to help steer a safe course through the welter of governing laws and regulations, while balancing personal and professional obligations with the more global concerns of the environment and society. This book offers the opportunity to learn directly from your colleagues' experiences through more than 100 absorbing case studies that typify common ethical problems encountered by engineers. Taking a neutral viewpoint for each case, the authors supply helpful commentaries in which they address underlying philosophical issues, weigh the various pros and cons of possible responses, and offer expert opinions on how the problem could have been resolved better or differently. The cases are organized both by engineering specialty (chemical, civil, electrical, and mechanical) and by environmental concerns (air, water, solid waste, domestic, and safety and accident management). Engineering and Environmental Ethics is a valuable professional resource for practitioners in all engineering specialties, as well as corporate policymakers and environmental managers. It can also serve as an excellent primary or secondary text for engineering students enrolled in professional ethics courses.

We all live our daily lives surrounded by the products of technology that make what we do simpler, faster, and more efficient. These are benefits we often just take for granted. But at the same time, as these products disburden us of unwanted tasks that consumed much time and effort in earlier eras, many of them also leave us more disengaged from our natural and even human surroundings. It is the task of what Gene Moriarty calls focal engineering to create products that will achieve a balance between disburdenment and engagement: &"How much disburdenment will be appropriate while still permitting an engagement that enriches one's life, elevates the spirit, and calls forth a good life in a convivial society?&" One of his examples of a focally engineered structure is the Golden Gate Bridge, which &"draws people to it, enlivens and elevates the human spirit, and resonates with the world of its congenial setting. Humans, bridge, and world are in tune.&" These values of engagement, enlivenment, and resonance are key to the normative approach Moriarty brings to the profession of engineering, which traditionally has focused mainly on technical measures of evaluation such as efficiency, productivity, objectivity, and precision. These measures, while important, look at the engineered product in a local and limited sense. But &"from a broader perspective, what is locally benign may present serious moral problems,&" undermining &"social justice, environmental sustainability, and health and safety of affected parties.&" It is this broader perspective that is championed by focal engineering, the subject of Part III of the book, which Moriarty contrasts

with “modern” engineering in Part I and “pre-modern” engineering in Part II.

Science and Technology Ethics re-examines the ethics by which we live and asks the question: do we have in place the ethical guidelines through which we can incorporate these developments with the minimum of disruption and disaffection? It assesses the ethical systems in place and proposes new approaches to our scientific and engineering processes and products, our social contacts, biology and informatics, the military industry and our environmental responsibilities. The volume is multidisciplinary and reflects the aim of the book to promote a state of the art assessment of these issues. Science and Technology Ethics is a much-needed discussion of the scientific developments that have major effects on the way we live. It will be of interest to all students of science and technology and all professionals involved with administering laws in these fields.

Ethical Issues in Biomedical Engineering Contemporary Ethical Issues in Engineering IGI Global
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This anthology focuses on ethical issues confronting individual engineers and the entire engineering profession.

Most people intuitively understand the nature of morality; this tends to belie the fact that morality is more complex, controversial and interesting than generally appreciated. This book provides a comprehensive overview of morality from various disciplines and perspectives. These include ethics and evolution, moral psychology, morality and culture, morality and religion and morality and the law. A chapter on evil illustrates the vulnerability of morality. The book also provides a description and critique of various ethical theories, the difference between a moral obligation and a moral ideal and the views of venerable moral philosophers who argue over issues such as whether objective moral truth exists. A number of practical ethical dilemmas are discussed. The book is written in language accessible to the general reader and will be of interest to members of organizational, governmental, and professional ethics committees, students in ethics fellowships or ethics degree programs, philosophers, and others who want to learn more about morality.

This volume, the result of an ongoing bridge building effort among engineers and humanists, addresses a variety of philosophical, ethical, and policy issues emanating from engineering and technology. Interwoven through its chapters are two themes, often held in tension with one another: “Exploring Boundaries” and “Expanding Connections.” “Expanding Connections” highlights contributions that look to philosophy for insight into some of the challenges engineers face in working with policy makers, lay designers, and other members of the public. It also speaks to reflections included in this volume on the connections between fact and value, reason and emotion, engineering practice and the social good, and, of course, between engineering and philosophy. “Exploring Boundaries” highlights contributions that focus on some type of demarcation. Public policy sets a boundary between what is regulated from what is not, academic disciplines delimit themselves by their subjects and methods of inquiry, and professions approach problems with unique goals and by using concepts and language in particular ways that create potential obstacles to collaboration with other fields. These and other forms of boundary setting are also addressed in this volume.

Contributors explore these two themes in a variety of specific contexts, including engineering epistemology, engineers’ social responsibilities, engineering and public policy-making, engineering innovation, and the affective dimensions of engineering work. The book also includes analyses of social and ethical issues with emerging technologies such as 3-D printing and its use in medical applications, as well as social robots. Initial versions of the invited papers included in this book were first presented at the 2014 meeting of the Forum on Philosophy, Engineering, and Technology (fPET), held at Virginia Tech in Blacksburg, Virginia, USA. The volume furthers fPET’s intent of extending and developing the philosophy of engineering as an academic field, and encouraging conversation, promoting a sense of shared enterprise, and building community among philosophers and engineers across a diversity of cultural backgrounds and approaches to inquiry.

This book covers Preliminary Engineering Studies course for Year 11 students in NSW.

This is the first textbook to comprehensively cover the experimental methods used in biomechanics. Designed for graduate students and researchers studying human biomechanics at the whole-body level, the book introduces readers to the theory behind the primary data collection methods and primary methods of data processing and analysis used in biomechanics. Each individual chapter covers a different aspect of data collection or data processing, presenting an overview of the topic at hand and explaining the math required for understanding the topic. A series of appendices provide the specific math that is required for understanding the chapter contents. Each chapter leads readers through the techniques used for data collection and processing, providing sufficient theoretical background to understand both the how and why of these techniques. Chapters end with a set of review questions, and then a bibliography which is divided into three sections (cited references, specific references, and useful references). Provides a comprehensive and in depth presentation on methods in whole-body human biomechanics; First textbook to cover both collection and processing in a single volume; Appendices provide the math needed for the main chapters. .

ESourcePrentice Hall's Engineering Sourceprovides a comprehensive, customizable introductory engineering and computing library. Featuring over 25 modules and growing, ESource allows users to fully customize their books through the ESource website. Using the ESource online BookBuild system at www.prenhall.com/esource, users can view and select book chapters, change the sequence, instantly calculate the book's net (bookstore) price, request a free examination copy, and generate an ISBN for placing a bookstore order. Engineering professionalism; Ethical theories; Ethical problem solving techniques; Applications; and Codes of ethics of major engineering societies. For professionals in General Engineering or Computer Science fields.

Human information and communication technology (ICT) implants have developed for many years in a medical context. Such applications have become increasingly advanced, in some cases modifying fundamental brain function. Today, comparatively low-tech implants are being increasingly employed in non-therapeutic contexts, with applications ranging from the use of ICT implants for VIP entry into nightclubs, automated payments for goods, access to secure facilities and for those with a high risk of being kidnapped. Commercialisation and growing potential of human ICT implants have generated debate over the ethical, legal and social aspects of the technology, its products and application. Despite stakeholders calling for greater policy and legal certainty within this area, gaps have already begun to emerge between the commercial reality of human ICT implants and the current legal frameworks designed to regulate these products. This book focuses on the latest technological developments and on the legal, social and ethical implications of the use and further application of these technologies.

Engineers and ethicists participated in a workshop to discuss the responsible development of new technologies. Presenters examined four areas of engineering--sustainability, nanotechnology, neurotechnology, and energy--in terms of the ethical issues they present to engineers in particular and society as a whole. Approaches to ethical issues include: analyzing the factual, conceptual, application, and moral aspects of an issue; evaluating the risks and responsibilities of a particular course of action;

and using theories of ethics or codes of ethics developed by engineering societies as a basis for decision making. Ethics can be built into the education of engineering students and professionals, either as an aspect of courses already being taught or as a component of engineering projects to be examined along with research findings. Engineering practice workshops can also be effective, particularly when they include discussions with experienced engineers. This volume includes papers on all of these topics by experts in many fields. The consensus among workshop participants is that material on ethics should be an ongoing part of engineering education and engineering practice.

Ensuring that their work has a positive influence on society is a responsibility and a privilege for engineers, but also a considerable challenge. This book addresses the ways in which engineers meet this challenge, working from the assumption that for a project to be truly ethical both the undertaking itself and its implementation must be ethically sound. The contributors discuss varied topics from an international and interdisciplinary perspective, including I robot ethics; I outer space; I international development; I internet privacy and security; I green branding; I arms conversion; I green employment; and I deliberate misinformation about climate change Important questions are answered, such as I what is meant by engineering ethics and its practical implications; I how decisions made by engineers in their working lives make an impact at the global as well as the local level; and I what ethics-related questions should be asked before making such decisions. Ethical Engineering for International Development and Environmental Sustainability will be a valuable resource for practising and student engineers as well as all who are interested in professional ethics, especially as it relates to engineering. Researchers and policy makers concerned with the effects of engineering decisions on environmental sustainability and international stability will find this book to be of special interest.

"This book provides a collection of successful designs, defined as communicative relation-building solutions, for individuals and collectives of interlocutors. It includes a longitudinal perspective of past mistakes, current trends and future opportunities, and is a must-have for beginners in the field as well as qualified professionals exploring the full potential of human interactions"--Provided by publisher.

This inclusive cross-cultural study rethinks the nexus between engineering education and context. In so doing the book offers a reflection on contextual boundaries with an overall boundary crossing ambition and juxtaposes important cases of critical participation within engineering education with sophisticated scholarly reflection on both opportunities and discontents. Whether and in what way engineering education is or ought to be contextualized or de-contextualized is an object of heated debate among engineering educators. The uniqueness of this study is that this debate is given comprehensive coverage – presenting both instrumentally inclined as well as radical positions on transforming engineering education. In contextualizing engineering education, this book offers diverse commentary from a range of disciplinary, meta- and interdisciplinary perspectives on how cultural, professional, institutional and educational systems contexts shape histories, structural dynamics, ideologies and challenges as well as new pathways in engineering education. Topics addressed include examining engineering education in countries ranging from India to America, to racial and gender equity in engineering education and incorporating social awareness into the area. Using context as “bridge” this book confronts engineering education head on. Contending engineering ideologies and corresponding views on context are juxtaposed with contending discourses of reform. The uniqueness of the book is that it brings together scholars from the humanities, the social sciences and engineering from Europe – both East and West – with the United States, China, Brazil, India and Australia.

"This book introduces the reader to the key concepts and issues that comprise the emerging field of Technoethics, the interdisciplinary field concerned with all ethical aspects of technology within a society shaped by technology"--Provided by publisher.

Controlling Technology Ethics and the Responsible Engineer Second Edition This valuable guide provides an in-depth treatment of what constitutes ethical behavior on the part of engineers. It carefully examines the various conflicts faced by engineers and offers practical, proven advice on what to do in such situations. This revised and considerably expanded Second Edition examines the causes and consequences of technological disasters such as Bhopal, Chernobyl, Challenger, and the precursor of them all, the Titanic. It also describes such highly successful projects as the Panama Canal and the Shinkansen. All the major areas of engineering are covered with interesting case histories describing exemplary behavior of engineers placed in difficult situations. The way in which such ethical engineers can be supported by their professional societies and by the law is explored in depth. Controlling Technology: Ethics and the Responsible Engineer, Second Edition presents a practical and fascinating examination of the moral obligations, responsibilities, and challenges faced by engineers as they perform their professional duties. This invaluable guide is must reading for all engineers, graduate engineering students, and others interested in technology and society issues.

This compendium gives a comprehensive overview of the advances in fibrillation-defibrillation knowledge — recognition of fibrillation as a unique life threatening cardiac arrhythmia; discovery of the electric discharge in its double role of culprit and savior; and technological improved contributions. The book stands on the well-known philosophy of Education-Based on Problems (or EBP), that is, take fibrillation as a medical daily problem and search for that knowledge, technique or principle trying to solve it. The book is interdisciplinary, multidisciplinary and transdisciplinary. It addresses undergraduate and graduate biomedical engineering students, physicians going into cardiology, clinical engineers and clinical engineering technicians, nurses, paramedics and emergency medical personnel.

A synthesis of nearly 2,000 articles to help make engineers better educators While a significant body of knowledge has evolved in the field of engineering education over the years, much of the published information has been restricted to scholarly journals and has not found a broad audience. This publication rectifies that situation by reviewing the findings of nearly 2,000 scholarly articles to help engineers become better educators, devise more effective curricula, and be more effective leaders and advocates in curriculum and research development. The author's first objective is to provide an illustrative review of research and development in engineering education since 1960. His second objective is, with the examples given, to encourage the practice of classroom assessment and research, and his third objective is to promote the idea of curriculum leadership. The publication is divided into four main parts: Part I demonstrates how the underpinnings of education—history, philosophy, psychology, sociology—determine the aims and objectives of the curriculum and the curriculum's internal structure, which integrates assessment, content, teaching, and learning Part II focuses on the curriculum itself, considering such key issues as content organization, trends, and change. A chapter on interdisciplinary and integrated study and a chapter on project and problem-based models of curriculum are included Part III examines problem solving, creativity, and design Part IV delves into teaching, assessment, and evaluation, beginning with a chapter on the lecture, cooperative learning, and teamwork The book ends with a brief, insightful forecast of the future of engineering education. Because this is a practical tool and reference for engineers, each chapter is self-contained and may be read independently of the others. Unlike other works in engineering education, which are generally intended for educational researchers, this publication is written not only for researchers in the field of engineering education, but also for all engineers who teach. All readers acquire a host of practical skills and knowledge in the fields of learning, philosophy, sociology, and history as they specifically apply to the process of engineering curriculum improvement and evaluation.

Co-published with the Oxford Philosophy Trust, this third volume of collected papers focuses on the moral and ethical concerns and theological reflections encountered in professional training. Essential for those involved in the instruction and training of other professionals.

This book discusses essential approaches and methods in connection with engineering education for sustainable development. Prepared as a follow-up to the 2015 Engineering Education in Sustainable Development (EESD)

