

ethical issues in complex project and engineering management

[#ethical challenges](#) [#project management ethics](#) [#engineering ethics](#) [#complex projects](#) [#ethical decision making](#)

Exploring the critical ethical challenges inherent in managing complex engineering and other large-scale projects is essential. These endeavors often involve intricate stakeholder relationships, significant resource allocation, and high-stakes decisions, making ethical considerations paramount. Effective engineering and project management requires navigating these moral dilemmas responsibly to ensure integrity, accountability, and successful outcomes in demanding environments.

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Principles of Engineering Management

This book presents a comprehensive overview of engineering management, giving readers a complete picture of this research field. Following an introduction, the book explores: • Engineering Management Ontology • Engineering Management Epistemology • Engineering Management Methodology • Engineering Management Decision Theory • Engineering Management Organization Theory • Engineering Management Value Theory • Engineering Management Innovation Theory • Engineering Management Environment Theory • Engineering Management Humanities • Engineering Management Ethics Theory. The book includes case studies that demonstrate how various concepts can be practically applied to resolve real-world problems. The book is a valuable read for professionals of engineering management, management and systems engineering.

Ethics for the Built Environment

Praise for Construction Project Management by Peter Fewings: "The complexity of the subject matter has at least been reinforced in an informative document with a large helping of common sense ... written in a comprehensive and well structured manner." Building Engineer Magazine Ethics are not an optional extra for the professional in the built environment sector. Whether you're a civil engineer, an architect or a construction project manager, an understanding of the ethical context of your work is an institutional requirement and a commercial demand, not to mention a matter of personal pride. Sometimes, as a construction professional you will be faced with complicated dilemmas, as commercial responsibilities clash with health and safety, environmental or competition concerns. Peter Fewings brings together practical construction project management experience with ethical theory to establish how best to deal with difficult issues.

Project Ethics

How relevant is ethics to project management? The book - which aims to demystify the field of ethics for project managers and managers in general - takes both a critical and a practical look at project management in terms of success criteria, and ethical opportunities and risks. The goal is to help the reader to use ethical theory to further identify opportunities and risks within their projects and thereby to advance more directly along the path of mature and sustainable managerial practice. Project Ethics opens with an investigation of the critical success factors in project management. It then illustrates how situations can arise within projects where values can compete, and looks at how ethical theories on virtue, utility, duty and rights can be used as competence eye-openers to evaluate projects. The reader is challenged to think of their project management experiences where questions of competing values surfaced, and mirror them in short vignettes taken from real practice from all round the globe. Finally, a new method is introduced, based on classical ethical theory, which can help project owners, project managers, project teams and stakeholders, to identify, estimate and evaluate ethical opportunities and risks in projects.

Engineering Ethics

How do engineers respond to ethical dilemmas that occur in practice? How do they view their individual and collective responsibilities? How do they make decisions before all the facts are in? Using the space shuttle program as its framework, this book examines the role of ethical decision making in the practice of engineering. In particular, the authors consider the design and development of the main engines of the space shuttle as a paradigm for how individual engineers perceive, articulate, and resolve ethical dilemmas in a large, complex organization. A series of in-depth case studies show engineers at work on various stages of the project as they balance budgets, deadlines, and risks. By documenting the historical development of a single system, the volume provides a unique opportunity to explore the complex interactions between political, organizational, and technical pressures and engineering and management decisions. The resulting book will appeal to everyone with an interest in engineering and the history of technology.

Software Project Management

Software Project Management (SPM) differs from the Traditional Project Management (PM) approaches in that Software Engineering requires multiple rounds of Software Testing, and Updating in accordance with their Testing results and their customer's feedback. Thus, SPM introduces unique life cycle processes. This book presents an introduction and a critical analysis of the main Software Project Management Frameworks, and offers the author's original approach to SPM as developed by him over years of professional and teaching experience in the Academia and the IT/Software Industry. It also provides Executive Summaries of the Project Management and Software Project Management Perspectives offered by the Project Management Institute (PMI), the IEEE-Computer Society (IEEE-CS), and the SCRUM Project Management Bodies such as the SCRUMstudy.

Engineering Ethics in Practice

On the evidence of the authors of *Advances in Project Management: Narrated Journeys in Uncharted Territory*, there is a sea change coming. That change will affect the way projects are perceived, lead and governed, particularly in the context of the wider organisation to which they belong; whether that is in the public, private or not-for-profit sectors. Many organisations have struggled to apply the traditional models of project management to their new projects in the global environment. Anecdotal and evidence-based research confirms that projects continue to fail at an alarming rate. A major part of the build-up to failure is often the lack of adequate project management knowledge and experience. *Advances in Project Management* covers key areas of improvement in understanding and project capability further up the management chain; amongst strategy and senior decision makers and amongst professional project and programme managers. This collection, drawn from some of the world's leading practitioners and researchers and compiled by Professor Darren Dalcher of the National Centre for Project Management, provides those people and organisations who are involved with the developments in project management with the kind of structured information, new approaches and novel perspectives that will inform their thinking and their practice and improve their decisions.

Advances in Project Management

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.

Contemporary Ethical Issues in Engineering

This compact reference succinctly explains the engineering profession's codes of ethics using case studies drawn from decisions of the National Society of Professional Engineers' (NSPE) Board of Ethical Review, examining ethical challenges in engineering, construction, and project management. It includes study questions to supplement general engineering survey courses and a list of references to aid practicing engineers in exploring topics in depth. Concentrating primarily on situations engineers encounter on a daily basis and offering pragmatic answers to ethical questions, What Every Engineer Should Know About Ethics discusses recent headline-making disasters such as the Challenger explosion, the Chernobyl nuclear catastrophe, and the Hyatt-Regency Hotel collapse; considers the merits and drawbacks of professional codes of ethics; covers the application of the "committee approach" to specific cases; compares and contrasts ethical codes and personal values with alternative approaches to morality; defines professional licensing and registration and enumerates their prerequisites; outlines legal standards for liability; emphasizes the importance of communication, coordination, and documentation; includes a discussion of "whistleblowing;" defines the engineer's primary ethical responsibility; and more.

What Every Engineer Should Know about Ethics

Ethics plays a critical role in project management, but all too often, its importance is overlooked. This benign neglect can result in serious consequences to individuals and organizations, ranging from tarnished reputations to civil and criminal liability. Ethics and Project Management demonstrates the importance of making ethics a key consideration in managing projects and describes the impacts that occur when ethical transgressions arise. Providing the tools necessary for project managers to avoid an ethical lapse that can put themselves and their organization at risk, this volume: Defines ethics and places it within the project management context Discusses the contents of the Project Management Institute's code of ethics Enables project managers to recognize the trends that precipitate ethical dilemmas on a project Demonstrates how ethical concerns permeate the entire project life cycle Provides tips on establishing a governance protocol to ensure ethical compliance Explores legal issues that arise from unethical behavior Examines how ethical concerns on a project can have global implications, and how to operate in international settings with cultural differences Each chapter ends with a Getting Started Checklist, facilitating immediate application of the concepts discussed and making it easy for project managers to determine whether they are in compliance with ethical standards. Providing a solid roadmap for the ethical health of a project, this volume is essential reading for all those concerned with avoiding the disastrous consequences of a cavalier approach to ethics. Praise for the book: ... a great desktop reference for any project manager. It is a must-have title to complete any project management library and I recommend it to both new and highly experienced project managers. —Gregg D. Richie, PMP, MCTS, CNP, Managing Principal, P8, LLC

Ethics and Project Management

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.

The Engineering-Business Nexus

Ethical practice in engineering is critical for ensuring public trust in the field and in its practitioners, especially as engineers increasingly tackle international and socially complex problems that combine technical and ethical challenges. This report aims to raise awareness of the variety of exceptional programs and strategies for improving engineers' understanding of ethical and social issues and provides a resource for those who seek to improve ethical development of engineers at their own institutions. This publication presents 25 activities and programs that are exemplary in their approach to infusing ethics into the development of engineering students. It is intended to serve as a resource for institutions of higher education seeking to enhance their efforts in this area.

Infusing Ethics into the Development of Engineers

Project Management: A Managerial Approach, 11th Edition delivers a practical exploration of proven project management techniques and strategies. With a strong emphasis on real-world application and implementation, the book is perfect for managers and business students seeking an instructive leadership resource. Detailed and accessible chapters offer expert guidance on managing common organizational, economic, interpersonal, and technical disruptions.

Project Management

The Engineering Management discipline remains complex and multidisciplinary, and has progressed and broadened in scope significantly over the last 10–20 years. Previously, the discipline has been fragmented and not aligned with the purposes of economic development, mega-project delivery, and technological progress. Digital engineering has revolutionized the field of engineering by introducing digital tools and technologies to the design, creation, operation, and maintenance of physical systems, products, and services. It has enabled more efficient, effective, and sustainable solutions, and has the potential to drive significant innovation and improve the way we design, build, and operate physical systems. This handbook addresses new content of complexity by offering new engineering concepts such as simple, complicated, and complex, which have never been included in this discipline before and will generate interest from higher education, financial institutions, and technology companies. Handbook of Engineering Management: The Digital Economy focuses on multidisciplinary integration and complex evolving systems. It discusses the incorporation of a system of systems along with engineering economic strategies for sustainable economic growth. This handbook highlights functional leadership as the main part of an engineering manager's competency and discusses how to form alliances strategically. In addition, it presents a comprehensive guide for the implementation of an environmental management system and shows how environmental and social impacts can be assessed in an organization applying digital tools. This handbook also brings together the three important areas of Engineering Management: Knowledge Management, the Digital Economy, and Digital Manufacturing. In addition, this handbook provides a comprehensive guide to implementing an environmental management system and shows how environmental and social impacts in an organization can be assessed using digital tools. Based on the authors' practical experience, it describes various management approaches and explains how such a system can be used to prioritize actions and resources, increase efficiency, minimize costs, and lead to better, more informed decision making. It is essential to follow a

systematic approach and to ask the right questions, whether the system is managed and implemented by humans, AI, or a combination of both. This handbook is laid out in a series of simple steps and dispels the jargon and myths surrounding this important management tool. This handbook is an ideal read for engineering managers, project managers, industrial and systems engineers, supply chain engineers, professionals who want to advance their knowledge, and graduate students.

Handbook of Engineering Management

Engineers encounter difficult ethical problems in their practice and in research. In many ways, these problems are like design problems: they are complex, often ill-defined; resolving them involves an iterative process of analysis and synthesis; and there can be more than one acceptable solution. This book offers a real-world, problem-centered approach to engineering ethics, using a rich collection of open-ended scenarios and case studies to develop skill in recognizing and addressing ethical issues.

Ethics in Engineering Practice and Research

Value is added to projects through the relationships surrounding the client; the focus of this book is therefore the client as project, rather than the building on the ground. It shows how to create and maintain effective relationships between the client and the project team, as well as intra-coalition relationships. Students, academics and practitioners need to understand the changing nature of reforms from successive calls for change by the industry's various clients and client groups. Project team network relationships are a function of mindsets, behaviour and competencies of individuals and The Management of Complex Projects: a relationship approach: • Explores the relationship at the project interface: client-design team-contractor, stakeholders and supply chain relations • Examines different concepts to the development and management of relationships; formation and maintenance issues • Highlights some of the key issues that require development, both academically and through applied research. Most project management books cover tools and techniques; this one covers the softer skills and shows how crucial good relationships are to the successful management of projects.

The Management of Complex Projects

Until now, there has only been a shallow understanding of how the leadership actions of project managers interact with ethics and social responsibility. Empirical research into this subject has been sparse. Responsible Leadership, by Nicholas Clarke, Alessia D'Amato, Malcolm Higgs, and Ramesh Vahidi is the first study to investigate how the relationships among managers, team members, and other stakeholders can bring about personal and ethical conflicts that impact decision making. In this groundbreaking book, the authors explore how those who serve as leaders on projects can exercise their roles in ways that respond to the ever-increasing need for ethical decision making. They examine the factors that enable and constrain responsible leadership, looking at the issues faced by project managers as they interact with team members and other stakeholders. Responsible Leadership also provides new insights into how project managers view the moral implications of conflicts that occur as they conduct their work and is a valuable addition to the project management toolkit.

Responsible Leadership in Projects

This book will provide an overview of the rehabilitation engineering field, including key concepts that are required to provide a solid foundation about the discipline. It will present these concepts through a mix of basic and applied knowledge from rehabilitation engineering research and practice. It's written as an introductory text in order to provide access to the field by those without previous experience or background in the field. These concepts will include those related to engineering and health that are necessary to understand the application of rehabilitation engineering to support human function.

Rehabilitation Engineering

Traditional project management approaches assume that project contexts are unchanging and key factors, though complicated, are reducible to unambiguous elements for management and control. Whilst this assumption has simplified the task for writers and educators, it is increasingly being recognised that these techniques do not work in projects which may be described as complex (due to their size, technical difficulties, conflicting environmental and political constraints or poorly understood or shared goals). Tools for Complex Projects draws on research in the areas of project management, complexity theory and systems thinking to provide a ready reference for understanding and managing

the increasing complexity of projects and programmes. The main part of the book provides a series of fourteen project tools. Some of these tools may be used at the level of the whole project life-cycle. Others may be applied ad hoc at any time. In each case, the authors provide: detailed guidelines for using the tool, information on its purpose and the types of complexity for which it is most appropriate, the theoretical background to the tool, a practical example of its use, and any necessary words of caution. This is an example of advanced project management at work; sophisticated tools that require a level of project and management expertise and offer rigorous and highly practical methods for understanding, structuring and managing the most complex of projects.

Tools for Complex Projects

THE PROJECT MANAGEMENT CLASSIC-REVISED AND EXPANDED Now Includes Downloadable Forms and Worksheets Projects are becoming the heart of business. This comprehensive revision of the bestselling guide to project management explains the processes, practices, and management techniques you need to implement a successful project culture within your team and enterprise. Visualizing Project Management simplifies the challenge of managing complex projects with powerful, visual models that have been adopted by more than 100 leading government and private organizations. In this new Third Edition, the authors-leading thinkers and practitioners in the field-keep you on the cutting edge with a sophisticated approach that integrates project management, systems engineering, and process improvement. This advanced content can help take your career and your organization well beyond the fundamentals. New, downloadable forms, templates, and worksheets make it easy to implement powerful project techniques and tools. Includes references to the Project Management Institute Body of Knowledge and the INCOSE Handbook to help you pass: The Project Management Professional Certification Exam The INCOSE Systems Engineer Certification Exam (CSEP) "I recommend this book to all those who aspire to project management [and] those who must supervise it." —Norman R. Augustine, former chairman and CEO Lockheed Martin Corporation "The importance of this excellent book, able to encompass these two key disciplines [systems engineering and project management], cannot be overemphasized." —Heinz Stoewer, President, INCOSE

Visualizing Project Management

Projects are ubiquitous to modern society, yet, concerns around successful delivery, value realisation, resilience and making change stick force a significant re-evaluation of the scope and extent of the 'normal' project discourse. The common thread for all of this is around capabilities, skills, attitudes, values and perspectives that are needed for successful delivery and the sustained realisation of interest, relationships, benefit, value and impact. The chapters collated in this volume bring together leading authorities on topics that are relevant to the management, leadership, governance and delivery of projects. Topics include people, communication, ethics, change management, value realisation, benefits, complexity, decision-making, project assurance, communication, knowledge management, big data, project requirements, business architecture, stakeholder engagement, strategy, users, systems thinking and resilience. The main aims of the collection are to reflect on the state of practice within the discipline to propose new extensions and additions to good practice; to offer new insights and perspectives; to distil new knowledge and to provide a way of sampling a range of the most promising ideas, perspectives and styles of writing from some of the leading thinkers and practitioners in the discipline.

Further Advances in Project Management

An exploration of the ethics of practical engineering through analyses of eighteen rich case studies The Ethical Engineer explores ethical issues that arise in engineering practice, from technology transfer to privacy protection to whistle-blowing. Presenting key ethics concepts and real-life examples of engineering work, Robert McGinn illuminates the ethical dimension of engineering practice and helps students and professionals determine engineers' context-specific ethical responsibilities. McGinn highlights the "ethics gap" in contemporary engineering--the disconnect between the meager exposure to ethical issues in engineering education and the ethical challenges frequently faced by engineers. He elaborates four "fundamental ethical responsibilities of engineers" (FEREs) and uses them to shed light on the ethical dimensions of diverse case studies, including ones from emerging engineering fields. The cases range from the Union Carbide pesticide plant disaster in India to the Google Street View project. After examining the extent to which the actions of engineers in the cases align with the FEREs, McGinn recapitulates key ideas used in analyzing the cases and spells out the main lessons

they suggest. He identifies technical, social, and personal factors that induce or press engineers to engage in misconduct and discusses organizational, legal, and individual resources available to those interested in ethically responsible engineering practice. Combining probing analysis and nuanced ethical evaluation of engineering conduct in its social and technical contexts, *The Ethical Engineer* will be invaluable to engineering students and professionals. Meets the need for engineering-related ethics study. Elaborates four fundamental ethical responsibilities of engineers. Discusses diverse, global cases of ethical issues in established and emerging engineering fields. Identifies resources and options for ethically responsible engineering practice. Provides discussion questions for each case.

The Ethical Engineer

Engineering is a vital profession that has shaped the modern world and transformed countless aspects of our lives. From bridges to skyscrapers, from medical devices to digital technologies, engineers have been at the forefront of innovation and progress. Yet with this great power comes great responsibility. As engineers, we have an ethical obligation to use our skills and knowledge for the public good, and to behave in a manner that is consistent with the highest principles of integrity, honesty, and accountability. This book is intended as a comprehensive guide to the principles and practices of professional ethics for engineering graduate students. It is designed to provide a strong foundation for understanding the ethical challenges that engineers face, and to develop the skills and knowledge needed to navigate these challenges effectively. The book is structured around several key themes, including an overview of professional ethics, ethical decision-making frameworks, central responsibilities of engineers, and intellectual property rights and ethics. In each chapter, we explore the essential concepts and principles of professional ethics in engineering, drawing on real-world case studies and examples to illustrate the application of these principles in practice. We also provide exercises and worksheets to encourage students to reflect on and apply ethical principles to their own work. The goal of this book is not to provide a set of hard and fast rules, but rather to encourage critical thinking, reflection, and ethical awareness. We believe that ethical decision-making is a process that requires careful consideration of a range of factors, and that there are often no easy answers or simple solutions. By equipping students with the skills and knowledge needed to navigate these challenges, we hope to contribute to the development of a new generation of engineers who are committed to ethical conduct and the public good. We would like to express our gratitude to the many colleagues, students, and professionals who have provided valuable feedback and insights throughout the development of this book. We hope that it will serve as a valuable resource for engineering graduate students and others seeking to understand and navigate the complex ethical challenges of the engineering profession.

Professional Ethics for Engineers

This second edition of *Professional Ethics for the Construction Industry* empowers a new generation of built environment professionals to navigate the ethical challenges confronting them at every stage of a project, from the initial bid to its completion and beyond. Authored by a pair of veteran educators and industry professionals, this textbook introduces ethical dilemmas aspiring construction professionals will face on the job—and the critical thinking skills to reason their way out of them. Written to meet curriculum requirements for all levels of construction education, this book explores ethics specific to the construction industry, illustrated by detailed and realistic case studies. All-new chapters on privacy, cutting-edge technologies, and pandemic-era worker protections complement chapters on perennial ethical issues surrounding the environment, client relationships, and more. Features include: Completely revised and updated to reflect changes in construction technology, workforce composition, and working environments. Updated to include new chapters on social media, privacy and technology, and construction during a disease outbreak or natural disaster. Ideal reading for courses in professional ethics, leadership, construction law, workforce readiness, and continuing education. Downloadable instructor's manual with commentary on scenarios provided at the end of each chapter. As vital on the jobsite as in the classroom, *Professional Ethics for the Construction Industry* guides aspiring design and construction professionals through the thorniest on-the-job conundrums.

Professional Ethics for the Construction Industry

Engineering frequently needs to face up to conflicting ethical considerations. The social benefits of a particular project may need to be balanced against the environmental cost, or the short & long-term impacts of a project might differ widely. This book helps to set out the ethical responsibilities of engineers.

Engineering, Business and Professional Ethics

Although it remains one of the most significant challenges in recent years, companies are beginning to integrate the ideas of sustainability into organized projects such as marketing, corporate communications, and annual reports. In this case, sustainability remains an important influence on the initiation of project management. Sustainability Integration for Effective Project Management provides a comprehensive understanding of the most important issues, concepts, trends, methodologies, and good practices in sustainability to project management. The research and concepts discussed in this publication are developed by professionals and academics aiming to provide the latest knowledge related to sustainability principles for prospective professionals, academics, and researchers in this area of expertise.

Sustainability Integration for Effective Project Management

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.

Emerging Technologies and Ethical Issues in Engineering

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ECMLG2012-Proceedings of the 8th European Conference on Management, Leadership and Governance

Managing Difficult Projects pulls together the principles and practice of project management and presents useful diagnostic approaches, tools and structures in a clear and practical way. The book focuses on the diagnosis and resolution of "difficult" problems whether in large or small complex projects. The intent is to help corporate executives and project management practitioners apply proven processes, methodologies, systems, structures and tools to rally the information and the resources required for better decisions, faster delivery and improved results. This essential book shows how to plan effectively and to reduce risk at every step of project delivery, particularly vital during project implementation when 90% of project funding is spent. It covers new ground by proposing the use of the project management process as an integral part of setting and updating corporate strategy. In projects, context is everything! The text is amply illustrated with international case studies, charts, photos, graphs and data tables.

Managing Difficult Projects

This open access book offers a timely snapshot of Augmented Reality (AR) technology, with an emphasis on its application within the mechanical and manufacturing engineering domains, for both educational and industrial purposes. Reporting on the experience of the authors, the book introduces readers to the principles of product design, with an emphasis on modern strategies and approaches for user-centered design, creativity, and design for manufacturing and sustainability. It guides to the application augmented reality and visualization techniques in the design process. In turn, it describes an AR mobile application developed by the authors to transform 2D drawings into dynamic 3D objects. The book also includes exercises. All in all, this book offers a practice-oriented guide to Augmented Reality applications in mechanical engineering and education, addressing advanced undergraduate students, lecturers, and professionals in the engineering field. This is an open access book.

Augmented Reality for Engineering Graphics

Corporations have a social responsibility to assist in the overall well-being of their communities through the compliance of moral business standards and practices. However, many societies still face serious issues related to unethical business practices. *Business Ethics and Diversity in the Modern Workplace* investigates the ethical frameworks within modern corporations and their impact on the communities they serve. With a focus on autonomous decision making in complex quandaries, this book is an all-inclusive reference source for students, researchers, practitioners, and managers who are concerned with the various ethical dilemmas within businesses, as well as evaluating moral issues impacting societal welfare.

Business Ethics and Diversity in the Modern Workplace

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.

Ethical Engineering for International Development and Environmental Sustainability

Ethics is rarely a topic in project management research, despite its increasing popularity in the general management literature in recent years. Many of the recent scandals are traced back to questionable ethical behaviors of individuals or organizations. The work of these individuals and organizations is done to a large extent in projects. Thus, a better understanding of ethics and its implications in the context of projects helps building awareness about ethics within the project management community and helps preparing project managers to tackle ethical issues when they arise. Ethics - the justification of actions and practices in specific situations - is a reasoning process, a philosophical reflection on the moral life and the principles embedded in that life and their application to a given situation. The moral life and its principles develop from the traditions or beliefs that have evolved over several years or even centuries in societies concerning right and wrong conduct (Buchholz & Rosenthal, 1996). Thus, the moral principles is what we bring with us to projects, and their application to project situations constitute the ethical reasoning process.

Ethics in Project Management

In today's globalized world, failure to implement projects can cause companies to struggle in trying to achieve their mission and vision. To ensure a company's success, the implementation of project management maturity and an increase in project complexity have become vital components in the modern engineering field. *Measuring Maturity in Complex Engineering Projects* is a collection of innovative research on the methods and applications of project management and complex projects with an embracing vision of the maturity model genesis. Highlighting a range of topics such as knowledge management, project classification, and maturity analysis in the mining, energy, and civil construction sectors, this book is ideally designed for project coordinators and managers, business executives, business professionals, academicians, researchers, and graduate-level students seeking current research on project management maturity in engineering.

Measuring Maturity in Complex Engineering Projects

Dear Corporate Leaders and Executives, We are excited to introduce to you the latest best-seller book that is taking the corporate world by storm! "Engineering Combatant Skills 2 Success for Corporate Leaders and Leadership Lessons Learned" is a book that provides practical strategies and resources for corporate leaders to succeed in their roles. Are you looking for ways to enhance your leadership skills

and take your organization to the next level? Look no further than Adolphus Bethune's interactive storytelling presentation on how his experience as an Engineering Combatant can inspire and guide your leadership journey. With his practical and technical abilities developed through hands-on experience in engineering projects, Adolphus has valuable insights and strategies to share. His book "Engineering Combatant Skills 2 Success for Corporate Leaders" is a comprehensive resource that covers a wide range of competencies, including technical proficiency, project management, communication, and collaboration. In addition to the technical component, the book also focuses on leadership development, with lessons on effective decision-making, delegation, conflict resolution, and team building. And the best part? The book is designed to cater to different learning styles, with a variety of formats including text, illustrations, case studies, and interactive elements. But don't just take our word for it – within only three weeks of being on Amazon, the book has already become a best seller in Architecture Project Planning & Management and Education Theory Books. So if you're ready to take your leadership skills to the next level, visit our website or buy "Engineering Combatant Skills 2 Success for Corporate Leaders" on Amazon now. And join a community of leaders who are committed to learning and growing to achieve success. Adolphus Bethune's interactive storytelling presentation is a unique and engaging way for corporate leaders and executives to learn valuable leadership lessons. As a former Operation Iraqi Freedom (OIF) US Army Combat Engineer and United States Army Corps Engineers (USACE) Construction Officer, Adolphus has faced numerous challenges and obstacles in his career, and has developed a wealth of knowledge and experience. In his presentation, Adolphus shares his personal stories and insights, illustrating how his engineering combatant skills can translate to success in the business world. He emphasizes the importance of technical proficiency, project management, communication, collaboration, and leadership development, and provides concrete strategies that leaders can apply to their own roles. Adolphus' approach is not just informative, but also interactive. His presentation includes case studies, discussions, and other interactive elements that engage participants and help them to apply the lessons they are learning to real-world scenarios. The book "Engineering Combatant Skills 2 Success for Corporate Leaders" is a more comprehensive resource, providing in-depth information and practical strategies on a range of topics related to leadership and technical proficiency. The book is designed to cater to different learning styles, with a variety of formats including text, illustrations, case studies, and interactive elements. Through both his presentation and his book, Adolphus aims to help corporate leaders and executives develop the skills they need to succeed in their roles, and to build a community of support and learning. Whether you're an experienced leader looking to enhance your skills or a new leader looking to develop a strong foundation, Adolphus' insights and strategies can help you achieve success. So don't wait any longer, visit our website or buy now on Amazon to get your hands on this valuable resource that will help you succeed as a corporate leader in the engineering industry. Get inspired and learn how to overcome obstacles and lead your team to success with "Engineering Combatant Skills 2 Success for Corporate Leaders and Leadership Lessons Learned." Visit our website or buy now on Amazon : <https://www.amazon.com/dp/B0BW2K9DTS>

How an Engineering Combatant inspires business & corporate executives by sharing his leadership lesson learned through an interactive storytelling presentation

Though project management can be traced back thousands of years, it is only recently that organizations have begun to apply systematic and scientific tools and techniques to manage complex projects. Recently, researchers and practitioners have adapted different academic disciplines to contribute to the body of knowledge in project management. Such disciplines as network scheduling techniques, decision-making tools, resource allocations and optimization approaches come from the Management Science discipline. Organizational dynamics theories provide insight and recognize the benefits of project driven organizations. Supply chain management and business process outsourcing have also impacted organizational effectiveness and attitude on managing projects. Project management is greatly affected by allied disciplines and in return, it influences them. Therefore, innovative theories, trends and challenges discovered through investigating allied disciplines of project management have important implications and allocations in the future of project management. Impact on Project Management of Allied Disciplines is a collection of academic studies related to trends in allied disciplines of project management and how they might significantly impact project management in the future. Table of Contents: I.IntroductionII.Project Management Research Trends of Allied DisciplinesIII.Analyzing Project Management Research Trends from Eight Allied DisciplinesIV.The Future of Project Management and Allied DisciplinesV.ReferencesVI.Appendices

Impact on Project Management of Allied Disciplines

This book examines the problems involved in making engineering decisions that affect the quality of life of large numbers of people worldwide and presents the individual, family, community and global contexts within which the engineer has to make such decisions. Engineering ethics are examined in this context - decisions are not reactive, but involve concepts of duty and responsibility. Engineers need to understand the decisions that they are required to make, and which decisions are likely to produce the most favourable results in the short and longer terms.

The Decision Makers

Following a brief introduction to the engineering profession, this text focuses on the different concepts of engineering management, in areas such as quality, personnel, communications, finance and legal concerns. Topics such as professional liability and ethics are discussed at length.

The Management of Engineering

This research-based book takes an organization-wide perspective to describe the governance and governmentality for projects in organizations. Governance of projects defines and directs the ways managers of projects, programs, and project portfolios carry out their work. Governmentality is the way the managers of these managers present themselves to those they lead. Governance and Governmentality for Projects starts with introducing existing theories, models and paradigms for governance and governmentality. It then develops a chronological framework of the ways governance and governmentality for projects is enabled in organizations, how it subsequently unfolds in organizations of different types and sectors, and the consequences of different governance approaches for project results, trust, control, and ethical issues in projects. Special emphasis is given to the link between corporate governance and the governance of project, programs and project portfolios. Three real-life case studies exemplify the research findings described in the book. Through its structure this book describes the development of governance and governmentality in the realm of projects from its organizational origins, via observable practices, to expected consequences of different implementations. Aimed at academics, post-graduate students in business and management, reflective practitioners, standards or policy developers, those in governance roles and others in need of a detailed knowledge of the spectrum of project related governance in organizations, this book will help develop a comprehensive understanding of the theoretical and practical underpinnings of the subject, their interaction, and implications for implementation. This allows for understanding and developing of both generic and idiosyncratic governance structures, such as those needed in project-based organizations.

Governance and Governmentality for Projects

Explore the moral and ethical issues which arise at the intersection of novel technology and engineering In *Ethics, Technology, and Engineering: An Introduction*, a team of distinguished researchers delivers an insightful and thought-provoking exploration of some of the toughest ethical questions found at the crossroads of engineering and technology. The book demonstrates the skills necessary to effectively grapple with ethical issues that arise from the practice of engineering. The authors introduce the "ethical cycle," a unique and systematic approach to dealing with ethical problems. They utilize numerous real-life case studies from the United States, Europe, and elsewhere to shed important light on the ethical issues that arise in the daily work of practicing engineers. They also provide a comprehensive overview of various ethical frameworks used in engineering, including utilitarianism, deontological ethics, virtue ethics, Ubuntu, and Confucianism. Readers will also find: A thorough introduction to a practice-oriented approach to ethical decision-making in engineering Comprehensive explorations of the "ethical cycle," an approach that encourages students to consider a diversity of ethical viewpoints and come to reasoned and justified judgments Practical discussions of ethical issues in engineering design, technological risks, and moral responsibility Treatments of sustainability and how it affects professionals working in engineering, as well as responsible innovation Perfect for engineers, technologists, and entrepreneurs, *Ethics, Technology, and Engineering: An Introduction* will also benefit businesspeople and founders interested in the ethical implications of a variety of fascinating new technologies.

Ethics, Technology, and Engineering

