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In an age when most business plans extend only to the next quarterly reporting period, the authors of this book propose an audaciously longer view of future planning. Reaching beyond the modern five or ten-year strategic plan, the authors take a cue from Kongo Gumi, a Japanese construction company launched in 578 AD that managed to thrive as a family-owned business for nearly 1500 years. With the 2010 publication of an international standard on social responsibility (ISO 26000), and increased attention to sustainability and sustainability reporting, many organizations today are heeding the call to operate with this standard in mind. However, once the guidelines are understood and the gaps measured, these same organizations often struggle during implementation. Leveraging many decades of combined experience in Quality Management and Product Development, the authors of this seminal book provide a proven solution to help you turn information into action. Defining exactly what social responsibility means, A Six Sigma Approach to Sustainability introduces SOFAIR, a six-step methodology for achieving sustainability through social responsibility performance improvement. This rigorous methodology uses Six Sigma, and other process improvement methods, as a basis for maximizing the efficiency and effectiveness of your organization's social responsibility performance improvement effort. The book explains and demonstrates the meaning of CISR® - continual improvement for social responsibility - and illustrates the six-step SOFAIR methodology with many examples. The authors explain how your existing organizational continual improvement efforts can be adapted to also focus on sustainability. Four case studies are provided that demonstrate the application of the methodology in manufacturing, healthcare, business processes, and everyday personal life. Finally, the authors provide 10 things you can do today as social responsibility action. Kongo Gumi represents the author's goal of sustainability, and prompts the question, "What will your organization look like, not in 5-10 years, but in fifteen centuries?" This book provides a way for you to take action to create a more sustainable environment where your customers, suppliers, employees, and communities are available for your organization for decades, and even centuries, to come. About the Book's Cover: The six hands of many colors encircling the globe represent the diversity of stakeholders engaged in the six-step SOFAIR Process, and the global impact of CISR®. CISR® is a registered trademark and can be used with permission for non-commercial use. Contact: www.SherpaBCorp.com

A new edition of a bestselling industrial and systems engineering reference, Handbook of Industrial and Systems Engineering, Second Edition provides students, researchers, and practitioners with easy access to a wide range of industrial engineering tools and techniques in a concise format. This edition expands the breadth and depth of coverage, emp

The first edition published in 2010. The response was encouraging and many people appreciated a book that was dedicated to quality management in construction projects. Since it published, ISO 9000: 2008 has been revised and ISO 9000: 2015 has published. The new edition will focus on risk-based thinking which must be considered from the beginning and throughout the project life cycle. There are quality-related topics such as Customer Relationship, Supplier Management, Risk Management, Quality Audits, Tools for Construction Projects, and Quality Management that were not covered in the first edition. Furthermore, some figures and tables needed to be updated to make the book more comprehensive.

The first handbook to focus exclusively on industrial engineering calculations with a correlation to applications, Handbook of Industrial Engineering Equations, Formulas, and Calculations contains a general collection of the mathematical equations often used in the practice of industrial engineering. Many books cover individual areas of engineering

The theory of concurrent engineering is based on the concept that the different phases of a product lifecycle should be conducted concurrently and initiated as early as possible within the product creation process. Concurrent engineering is important in many industries, including automotive, aerospace, shipbuilding, consumer goods and environmental engineering, as well as in the development of new services and service support. This book presents the proceedings of the 21st ISPE Inc. International Conference on Concurrent Engineering, held at Beijing Jiaotong University, China, in September 2014. It is the first volume of a new book series: 'Advances in Transdisciplinary Engineering'. The title of the CE2014 conference is: 'Moving Integrated Product Development to Service Clouds in the Global Economy', which reflects the variety of processes and methods which influence modern product creation. After an initial first section presenting the keynote papers, the remainder of the book is divided into 11 further sections with peer-reviewed papers: product lifecycle management (PLM); knowledge-based engineering (KBE); cloud approaches; 3-D printing applications; design methods; educational methods and achievements; simulation of complex systems; systems engineering; services as innovation and science; sustainability; and recent research on open innovation in concurrent engineering. The book will be of interest to CE researchers, practitioners from industry and public bodies, and

educators alike.

Manufacturing companies work endlessly to make process improvements, yet they are often hard to implement and even harder to sustain. The reason: companies often stumble when communicating why the methodologies are being used and how to sustain the improvements. Communication for Continuous Improvement Projects demonstrates how to communicate change, create confidence in the new processes, and empower employees. It shows how to be an effective change agent by utilizing tools that make sense while being competitive in the business market. The book explores how the proper tools, communication, and management make the Lean Six Sigma methodologies work. It includes a Continuous Improvement Toolkit that is an easy reference for what tool to use and when and how to effectively teach the tools to employees who are not necessarily engineers. Communicating these tools is the most difficult part of using the tools. The author details the implementation of the actual tools that create confidence and explains Lean Six Sigma in a way that will make employees want to jump on board. Result-driven decisions can be made from the methodologies described in this book, making processes quantifiably better with sustainable results. Extensive and informative, the book takes the guesswork out of the art of continuous improvement through communication.

As the world becomes increasingly globalized, today's companies expect to hire engineers who are effective in a global business environment. Although you can find many books covering globalization, most of them are aimed at business, management, or social sciences. Developed with engineers in mind, Global Engineering: Design, Decision Making, and Communication covers the theory, models, and decision making tools for incorporating globalization into engineering work. Written by a multidisciplinary team of experts in industrial, mechanical, and manufacturing engineering and organizational communications, this book is a primer on how to improve designs, make better decisions, and communicate more effectively in an international working environment. The contents of the book reflect the authors' multidisciplinary perspective and their experience in working on projects around the world. The book presents globalization as a phenomenon affecting the way companies operate and their engineering functions. It uses a case study format based on system improvement projects and real industrial projects, ranging from design to supply chain and logistics problems. This case study format allows for a natural presentation of critical technical and non-technical concepts and their complex interactions. The challenge that engineers face in a global environment results from the need to be aware of interdependencies and to be able to determine which ones are most important in each situation. Unique in its focus on engineering, this book provides a framework for how to better design, make decisions, and communicate in the new era of global competition.

Developed in the early 70s in Japan, the Kansei Engineering (KE) method gives you the tools to develop profitable and well-received products and services. Written by the founder of KE, MitsuoNagamachi, and co-authored by one of his proteges, Anitawati Mohd Lokman, Kansei Innovation: Practical Design Applications for Product and Service Development shows you how to nurture Kansei, develop the skill in observing people, and apply that skill to the development and design of products. In this book, Nagamachi shares his 50 years of experiences in enterprise guidance and product development, including examples of exceptional service innovation at companies such as Nissan Motor, Mazda, Toyota, Volvo, Fuji Heavy Industries, Mitsubishi Electric, Tenmaya Department Stores, Seibu Department Stores, Suntory, NEC, Sharp, Komatsu, Wacoal Corporation, Matsushita Electric Works (now Panasonic Electric Works), Boeing, and many more. These stories may surprise you when you learn about the new development of certain products that you already use. The book includes coverage of ergonomic and KE methods for studying human Kansei in product development and job improvement as well as discussion of how to use these methods for innovation in work improvement and activate KE for product development. It gives you a reliable instrument for predicting the reception of a product on the market before the development costs become too large. And, in the end, you will understand how Kansei—a seemingly dubious presence—is processed scientifically and able to have multilateral applications.

During the past several decades, the manufacturing and service industries significantly increased their levels of productivity, quality, and profitability through the application of process improvement techniques and information technology. Unfortunately, the construction industry lags far behind in the application of performance improvement and optimization techniques, as well as its overall competitiveness. Written by Lincoln H. Forbes and Syed M. Ahmed, both highly regarded for leadership and innovation, Modern Construction: Lean Project Delivery and Integrated Practices offers cutting-edge lean tools and other productive strategies for the management of people and processes in the construction industry. Drs. Forbes and Ahmed focus mainly on lean construction methodologies, such as The Last Planner(R) System, The Lean Project Delivery System (TM), and Integrated Project Delivery(TM). The tools and strategies offered draw on the success of the world-renowned Toyota Production System (TPS) adapted to the construction environment by construction professionals and researchers involved in developing and advocating lean construction methods. The book also discusses why true lean construction can best occur when all the construction stakeholders, owners, designers, constructors, and material suppliers are committed to the concept of optimizing the flow of activities holistically while de-emphasizing their self-interest. The authors also reintroduce process improvement approaches such as TQM and Six Sigma as a foundation for the adoption of lean methodologies, and demonstrate how these methods can improve projects in a so-called traditional environment. The book integrates these methods with emerging interest in "green construction" and the use of information technology and Building Information Modeling (BIM), while recognizing the human element in relation to motivation, safety, and environmental stresses. Written specifically for professionals in an industry that desperately needs to play catch up, the book delineates cutting-edge approaches with the benefit of successful cases and explains how their deployment can improve construction performance and competitiveness.

Are projects a problem for you? Do your projects cost too much, take too long, or are just not quite right? If so, Project Management Simplified: A Step-by-Step Process is the book for you. It applies well-defined processes for managing projects to managing change in our lives. It describes an approach modeled on a process used successfully in busi

This book presents a set of tools that will aid in deciding whether a project should go ahead, be improved, or abandoned altogether by pinpointing its vulnerabilities. It offers a review of project feasibility analysis, and more critically, psychodynamic aspects that are often neglected, including how stakeholders interact. It provides a complement to the common techniques used for analyzing technical, financial, and marketing feasibility. The goal is to identify "hidden truths" and eliminate those gray areas that jeopardize the success of a given project. The focus is on uncovering points of vulnerabilities in four key aspects of a project: People, Power, Processes, and Plan.

In a market place flooded with consumer goods, the modern consumer has become incredibly savvy. They have developed to a point where they consider such things as what makes them look beautiful, what improves their character, and how a product

enhances the value of life. If future product developers do not strategize the market-in concept, consumers will very likely turn their backs on those products. Written by Mitsuo Nagamachi, the founder of the technology, Innovations of Kansei Engineering elucidates Kansei Engineering, a unique product development technology based on the customer's feelings, wants, and needs. It defines the technology, its methods, and the developmental process related to designing a product. The book discusses how to: Break down the design into separate elements Interpret the Kansei of each element Design the overall product The text details how to construct the intelligent computer system to support new product development using the neural network model and fuzzy logic. It also addresses product quality control management and presents statistical methods of design. Using this innovative technique, you can turn your vision into a shape that can then be transformed into consumer goods that stand out.

Project management for oil and gas projects comes with a unique set of challenges that include the management of science, technology, and engineering aspects. Underlining the specific issues involved in projects in this field, Project Management for the Oil and Gas Industry: A World System Approach presents step-by-step application of project management techniques. Using the Project Management Body of Knowledge (PMBOK®) framework from the Project Management Institute (PMI) as the platform, the book provides an integrated approach that covers the concepts, tools, and techniques for managing oil and gas projects. The authors discuss specialized tools such as plan, do, check, act (PDCA); define, measure, analyze, improve, control (DMAIC); suppliers, inputs, process, outputs, customers (SIPOC); design, evaluate, justify, integrate (DEJI); quality function deployment (QFD); affinity diagrams; flowcharts; Pareto charts; and histograms. They also discuss the major activities in oil and gas risk assessment, such as feasibility studies, design, transportation, utility, survey works, construction, permanent structure works, mechanical and electrical installations, and maintenance. Strongly advocating a world systems approach to managing oil and gas projects and programs, the book covers quantitative and qualitative techniques. It addresses technical and managerial aspects of projects and illustrates the concepts with case examples of applications of project management tools and techniques to real-life project scenarios that can serve as lessons learned for best practices. An in-depth examination of project management for oil and gas projects, the book is a handbook for professionals in the field, a guidebook for technical consultants, and a resource for students.

With stock market swings due to unethical behavior, fuel price escalation due to increased demand, and climate disasters due to global warming, operating in a socially responsible manner is quickly moving from the realm of a nice idea to a business imperative. Taking a continuous improvement approach to social responsibility, Social Respo

Although an integral part of the corporate world, the development and execution of a successful Environmental Safety and Health (ES&H) program in today's profit-driven business climate is challenging and complex. Add to that the scarcity of resources available to assist managers in successfully designing and implementing these programs and you've got a perfect storm of regulatory and contractual agreements imposed on businesses. Guide to Environment Safety and Health Management: Developing, Implementing, and Maintaining a Continuous Improvement Program guides you through the challenges of developing and maintaining an effective ES&H program for any organization. A strategic ES&H program that follows project management concepts can add to the bottom line in many ways; however, the exact financial gain cannot oftentimes be quantified in the near term and in hard dollars. Written by two experts with more than 50 years of combined experience, this book covers the primary areas of ES&H and key elements that should be considered in developing, managing, and implementing an effective, compliant, and cost-effective program. Presenting information from a practical experience view, the book covers: Organizational structure and succession planning Fundamental understanding of EH&S functional areas Training Approach and measurement of continuous organizational improvement Project management of EH&S Application of technology Culture and trust in the workplace Regulatory applicability depends on the type of business, product produced, and potential impacts to employees, the public, and the environment. Additionally, the perception exists with some business owners and executives that the "rules and regulations" imposed or enforced do not directly add to the bottom line. Giving you practical, from-the-trenches knowledge, the book outlines techniques and provides guidance for addressing the challenges involved in setting up EH&S programs. It shows you how your ES&H program can ensure regulatory compliance and contribute to the success of your company both monetarily as well as in shaping public perception.

There is often a deep disconnect between the project team's goals and those of the organization. Senior management wants "profitable" projects, but is only able to quantify its wishes in terms of the traditional project management elements: schedule and cost. To operate smoothly, the entire organization must be driven by the single goal of project profitability. Total Project Control presents valuable enhancements to the traditional project management approach, introducing new metrics and techniques for assessing the performance and profitability of projects. Demonstrating how to maximize the business value of a project, this book discusses new profitability-based data metrics, such as expected monetary value (EMV), expected project profit (EPP), Devaux's Index of Project Performance (DIPP), critical path drag, drag cost, and the cost of leveling with unresolved bottlenecks (CLUB). The impact of implementing these metrics can be far reaching. Not only will good management decisions, at both the project and executive levels, be supported by quantitative data, but bad decisions will become harder to justify. This book shows how to compute and use the new metrics to rightsize staffing levels for projects, programs, and organizations. It also explains what every project manager needs to know about earned value tracking: its uses, abuses, value, distortions, and potential fixes. The book then extends these metrics into techniques for indexing, tracking, progressing, and improving the business value of projects. See What's New in the Second Edition: Includes new diagrams and new ways of computing critical path drag in complex networks Introduces DIPP Performance Index tracking Offers new exercises in how to compute critical path drag and drag cost and use them to maximize project value Focuses on topics senior management needs to be assured the project team is using to maximize project profitability

The book is developed to provide significant information and guidelines to construction and project management professionals (owners, designers, consultants, construction managers, project managers, supervisors, contractors, builders, developers, and many others from the construction-related industry) involved in construction projects (mainly civil construction projects, commercial-A/E projects) and construction-related industries. It covers the importance of construction management principles, procedures, concepts, methods, and tools, and their applications to various activities/components/subsystems of different phases of the life cycle of a construction project. These applications will improve the construction process in order to conveniently manage the project and make the project most qualitative, competitive, and economical. It also discuss the interaction and/or combination among some of the activities/elements of management functions, management processes, and their effective implementation and applications that are essential throughout the life cycle of project to conveniently manage the project. This handbook will: Focus on the construction management system to manage construction projects Include a number of figures and tables which will enhance reader comprehension Provide all related topics/areas of construction management Be of interest to all those involved in construction management and project management Provide information about Building Information

Modeling (BIM), and ISO Certification in Construction Industry Offer a chapter on Lean construction The construction project life cycle phases and its activities/elements/subsystems are comprehensively developed and take into consideration Henri Fayol's Management Function concept which was subsequently modified by Koontz and O'Donnel and Management Processes Knowledge Areas described in PMBOK® published by Project Management Institute (PMI). The information available in the book will also prove valuable for academics/instructors to provide construction management/project management students with in-depth knowledge and guidelines followed in the construction projects and familiarize them with construction management practices.

Graduate research is a complicated process, which many undergraduate students aspire to undertake. The complexity of the process can lead to failures for even the most brilliant students. Success at the graduate research level requires not only a high level of intellectual ability but also a high level of project management skills. Unfortunately, many graduate students have trouble planning and implementing their research. Project Management for Research: A Guide for Graduate Students reflects the needs of today's graduate students. All graduate students need mentoring and management guidance that has little to do with their actual classroom performance. Graduate students do a better job with their research programs if a self-paced guide is available to them. This book provides such a guide. It covers topics ranging from how to select an appropriate research problem to how to schedule and execute research tasks. The authors take a project management approach to planning and implementing graduate research in any discipline. They use a conversational tone to address the individual graduate student. This book helps graduate students and advisors answer most of the basic questions of conducting and presenting graduate research, thereby alleviating frustration on the part of both student and advisor. It presents specific guidelines and examples throughout the text along with more detailed examples in reader-friendly appendices at the end. By being more organized and prepared to handle basic research management functions, graduate students, along with their advisors, will have more time for actual intellectual mentoring and knowledge transfer, resulting in a more rewarding research experience.

A Firsthand Look at the Role of the Industrial Engineer The industrial engineer helps decide how best to utilize an organization's resources to achieve company goals and objectives. Introduction to Industrial Engineering, Second Edition offers an in-depth analysis of the industrial engineering profession. While also providing a historical perspective chronicling the development of the profession, this book describes the standard duties performed, the tools and terminologies used, and the required methods and processes needed to complete the tasks at hand. It also defines the industrial engineer's main areas of operation, introduces the topic of information systems, and discusses their importance in the work of the industrial engineer. The authors explain the information system concept, and the need for integrated processes, supported by modern information systems. They also discuss classical organizational structures (functional organization, project organization, and matrix organization), along with the advantages and disadvantages of their use. The book includes the technological aspects (data collection technologies, databases, and decision-support areas of information systems), the logical aspects (forecasting models and their use), and aspects of principles taken from psychology, sociology, and ergonomics that are commonly used in the industry. What's New in this Edition: The second edition introduces fields that are now becoming a part of the industrial engineering profession, alongside conventional areas (operations management, project management, quality management, work measurement, and operations research). In addition, the book: Provides an understanding of current pathways for professional development Helps students decide which area to specialize in during the advanced stages of their studies Exposes students to ergonomics used in the context of workspace design Presents key factors in human resource management Describes frequently used methods of teaching in the field Covers basic issues relative to ergonomics and human–machine interface Introduces the five basic processes that exist in many organizations Introduction to Industrial Engineering, Second Edition establishes industrial engineering as the organization of people and resources, describes the development and nature of the profession, and is easily accessible to anyone needing to learn the basics of industrial engineering. The book is an indispensable resource for students and industry professionals.

Global Manufacturing Technology Transfer: Africa-USA Strategies, Adaptations, and Management presents practical strategies for developing and sustaining manufacturing technology transfers. It is particularly useful for helping developing nations achieve and sustain a solid footing of economic development through manufacturing. The book examines Afr

This book deals with the improvement of suppliers in order to increase a company's top and bottom-line. The enhancement of suppliers can be accomplished in a series of steps when conditions warrant intervention. They can also be generated through direct quality mentoring when the supplier does not have the basic skills or abilities to adequately address impending problems. Also included are guideline activities which will aid in achieving and attaining improved profitability and competitiveness in the world market. Packed with examples, problems, and forms to allow easy establishment of systems, makes the information presented more easily understood, interesting, and useful.

Issues such as logistics, the coordination of different teams, and automatic control of machinery become more difficult when dealing with large, complex projects. Yet all these activities have common elements and can be represented by mathematics. Linking theory to practice, Industrial Control Systems: Mathematical and Statistical Models and Techni

Dealing with such a multi-layered and fungible intangible as quality during the design and construction process is difficult for all parties involved. To the architect, quality means an appealing and enduring design, but to the builder, it means understandable documents that, when acted upon, lead to an enduring, well-made structure. To the owner,

Despite preemptive preparations, disasters can and do occur. Whether natural disasters, catastrophic accidents, or terrorist attacks, the risk cannot be completely eliminated. A carefully prepared response is your best defense. Handbook of Emergency Response: A Human Factors and Systems Engineering Approach presents practical advice and guidelines on how to plan the coordinated execution of emergency response. A useful tool to mitigate logistical problems that often follow disasters or extreme events, the core of this guide is the role of human factors in emergency response project management. The handbook provides a systematic structure for communication, cooperation, and coordination. It highlights what must be done and when, and how to identify the resources required for each effort. The book tackles cutting-edge research in topics such as evacuation planning, chemical agent sensor placement, and riverflow prediction. It offers strategies for establishing an effective training program for first responders and insightful advice in managing waste associated with disasters. Managing a project in the wake of a tragedy is complicated and involves various emotional, sentimental, reactive, and chaotic responses. This is the time that a

structured communication model is most needed. Having a guiding model for emergency response can help put things in proper focus. This book provides that model. It guides you through planning for and responding to various emergencies and in overcoming the challenges in these tasks.

Although most agree that Lean Six Sigma is here to stay, they also agree that learning how to sustain the results seems problematic at best and unattainable at worst. Reverting to the old way of doing things is inevitable if sustainability measures are not a part of the methodology. Currently there are no standard resource on how to be sustainable

Winner of the IIE Book of the Month for June 2012 A project can be simple or complex. In each case, proven project management processes must be followed. In all cases of project management implementation, control must be exercised in order to assure that project objectives are achieved. Statistical Techniques for Project Control seamlessly integrates qualitative and quantitative tools and techniques for project control. It fills the void that exists in the application of statistical techniques to project control. The book begins by defining the fundamentals of project management then explores how to temper quantitative analysis with qualitative human judgment that makes project control nebulous but also offers opportunities to innovate and be creative in achieving control. The authors then discuss the three factors (time, budget, and performance) that form the basis of the operating characteristics of a project that also help determine the basis for project control. They then focus on computational network techniques for project schedule (time) control. Although designed as a practical guide for project management professionals, the book also appeals to students, researchers, and instructors.

Theoretical and practical interests in additive manufacturing (3D printing) are growing rapidly. Engineers and engineering companies now use 3D printing to make prototypes of products before going for full production. In an educational setting faculty, researchers, and students leverage 3D printing to enhance project-related products. Additive Manufacturing Handbook focuses on product design for the defense industry, which affects virtually every other industry. Thus, the handbook provides a wide range of benefits to all segments of business, industry, and government. Manufacturing has undergone a major advancement and technology shift in recent years.

Work is all around us and permeates everything we do and everyday activities. Not all work is justified, not all work is properly designed, or evaluated accurately, or integrated. A systems model will make work more achievable through better management. Work is defined as a process of performing a defined task or activity, such as research, development, operations, maintenance, repair, assembly, production, and so on. Very little is written on how to design, evaluate, justify, and integrate work. Using a comprehensive systems approach, this book facilitates a better understanding of work for the purpose of making it more effective and rewarding.

Planning, measuring, and paying attention to details form the basis for all successful engineering operations. Measurements pervade everything we do and must be viewed from a systems perspective. A comprehensive all-encompassing guide to measurements, Handbook of Measurements: Benchmarks for Systems Accuracy and Precision focuses on high-level engineering computations essential for benchmarks and technical innovation. The book uses a systems framework and a technically rigorous approach to systems linking of measurements—an approach that sets it apart from other handbooks. The popular saying "measure twice and cut once" bears out the importance of measurements in human endeavors. This handbook covers both qualitative and quantitative topics of measurement. It opens with a chapter on the fundamentals of measurement and includes coverage of human-centric measurements, such as measurement of personnel productivity and contractor performance. It concludes with three appendices on measurement, references, conversion factors, equations, formulas, and statistics for measurement. It is well understood that humans cannot manage anything that cannot be measured. All elements involved in our day-to-day decision making involve some form of measurement, whether in the kitchen, retail, sports, service operations, geographical exploration, health care delivery, worker productivity, clothing design, engineering product design, or space craft launching. Measuring an attribute of a system and then analyzing it against some standard, some specification, some best practice, or some benchmark empower a decision maker to take appropriate and timely actions. This book gives you a guide for sustainable practices to ensure accurate measurements, helping you make decisions backed by metrics.

As organizations realize the benefits of PM, the need to develop effective management tools rises with the increasing complexity of new technologies and processes. Taking a systems approach to accomplishing goals and objectives, Project Management: Systems, Principles, and Applications covers contemporary tools and techniques of PM from an established pedagogical perspective. A project can be simple or complex. In each case, proven PM processes must be followed with a world systems view of the project environment. While on-the-job training is possible for many of the PM requirements, rigorous and formal training must be used. Consequently, PM resources are of high utility. This text fills the void that exists in the availability of PM resources. Although individual books dealing with management principles, optimization models, and computer tools are available, there are few guidelines for the integration of these three areas for PM purposes. This book integrates these areas into a comprehensive guide to PM. It introduces the triad approach to improve the effectiveness of PM with respect to schedule, cost, and performance constraints within the context of systems modeling. It provides details on an integrated systems PM approach that can help diminish the adverse impacts of these issues through good project planning, organizing, scheduling, and control. CRC Press Authors Speak Adedeji B. Baduri speaks about his book. Watch the video

In the past, company success was typically measured by financial indicators. Lately though, non-financial measures such as employee morale have become popular. Although there are approaches that look into quantitative and qualitative performance measures affecting company success, none of them characterize it in a holistic way, combining all the critical performance measures. This book presents a multifaceted approach that prepares engineers and future organizational leaders/managers to measure, monitor, and predict company success in a more meaningful way.

A systematic approach to improving production and quality systems, total productive maintenance (TPM) involves all employees through a moderate investment in maintenance. Therefore, a successful TPM implementation requires support of all employees from C-level on down. Total Productive Maintenance: Strategies and Implementation Guide highlights the

Every project is an investment; however, traditional project management methodologies do not support assessment of the business value that enables senior management to maximize decision making. The next evolution in project management, therefore, will be to manage projects as investments. Managing Projects as Investments: Earned Value to Business Value provides tools and metrics to enable planning, measuring, evaluating, and optimizing projects. This book shifts the paradigm. It builds on traditional scope-cost-schedule tools, adding a critical new focus on the expected value of projects and programs. The enhancements in processes and metrics allow senior management and PMOs to guide the entire organization on the basis of business benefits, and to ensure that decisions ranging from project selection to resource assignment facilitate those goals. The author shows how framing projects as investments enables significant improvement in project performance. He provides metrics that allow you and your team to track and maximize performance based on ROI. Demonstrating the importance of recognizing an enabler project in a program, and why its value and cost of time are so great, the book provides the tools to determine right-sized staffing levels for project-driven organizations. It includes a comprehensive but easy-to-understand explanation of both basic and advanced earned value metrics, their shortcomings, and how they can be improved and shows you how to optimize contract terms on projects in a way that can avoid misaligned customer/contractor goals.

The negative impacts of carbon emissions from human activities continue to dramatically reshape the environmental, political, and social landscape. These impacts coupled with cap and trade schemes iterate the importance and need to properly measure and reduce greenhouse gas emissions. Carbon Footprint Analysis: Concepts, Methods, Implementation, an

Culture and Trust in Technology-Driven Organizations provides insight into the important role that culture and trust can play in the success of high-technology organizations. This book reviews the literature and results of an empirical study that investigated the relationship between mechanistic and organic cultures and the level of trust in technology-based organizations. The book outlines the literature on organizational trust and culture and the role theorists believe they play in the success of a changing domestic and global business environment. It identifies ways of defining culture and trust as well as the survey instruments used to measure them. The book then examines the results of two studies that demonstrate the connection between organizational culture and trust. The two studies were conducted at separate times using data collected from several companies within a three-hour radius of each other. These companies are highly dependent upon the ability to identify, hire, and retain highly skilled knowledge workers. These workers are critical for the companies to successfully compete within the scope of their business and expand into their current and other markets. The book provides a practitioner's guide—based on the literature review and the results of the studies examined—that can be used to assess, diagnose, and improve employees' perception of their work culture and improve trust found in organizations. This guide provides management with actions and activities that should be considered when handling the day-to-day business of the organization. If followed, these activities can be instrumental in designing a culture that leads to success and ease of operation for the organization and its members.

Innovation is the lifeline of national development. This handbook is a collection of chapters that provide techniques and methodologies for achieving the transfer of defense-targeted science and technology development for general industrial applications. The handbook shows how to translate theory and ideas into practical applications. Experts from national defense institutions, government laboratories, business, and industry contributed chapters to this handbook. The handbook also serves as an archival guide for nations, communities, and businesses expecting to embark upon science and technology transfer to industry. Included are several domestic and international case examples of practical innovation. Since the dawn of history, nations have engrossed themselves in developing new tools, techniques, and methodologies to protect their geographical boundaries. From the crude implements used by prehistorical people to very modern technologies, the end game has been the same. That is, to protect the homeland. Even in times of peace, efforts must be made to develop new machinery, equipment, processes, and devices targeted for the protection of the nation. The emergence of organized nations and structured communities facilitated even more innovative techniques of national defense. Evolution, revolution, and innovation have defined human existence for millennia. From the Ice Age to the Stone Age, the Bronze Age, the Iron Age, and to the modern age, innovation, rudimentary as it may be in many cases, has determined how humans move from one stage to the next. This comprehensive handbook provides a clear guide on the nuances of initiating and actualizing innovation. Both the qualitative and quantitative aspects of innovation are covered in the handbook. Features: Uses a systems framework to zero in on science and technology transfer Focuses on leveraging technical developments in defense organizations for general societal applications Coalesces the transfer strategies collated from various sources and practical applications Represents a world-class diverse collection of science and technology development, utilization, and transfer Highlights a strategy for government, academia, and industry partnerships

In today's business world, competitiveness defines the industrial leading edge. Organizations and businesses of all sizes are adopting Lean manufacturing practices to increase efficiency and address worries about their bottom lines. In a detailed review of this staple of Lean manufacturing, Cellular Manufacturing: Mitigating Risk and Uncertainty outlines how cellular manufacturing can do just that. It demonstrates how this approach can help you and your teams build a variety of products with as little waste as possible. The book begins by presenting a survey of the current state of existing methods that can best be used in the handling of the bottleneck machines and parts problem, which results from the cellular manufacturing system design. It then explores how decision making under risk is used to help the designer select the best cell arrangement in case of probabilistic production volume and maximize the profit imposed by resource capacity constraints. The author then presents a method for the system design of a manufacturing cell that aims for profit maximization over a certain period of time. He also discusses robust design, illustrated with a real application. Put simply, cellular manufacturing integrates machinery and a small team of staff, directed by a team leader, so all the work on a product or part can be accomplished in the same cell eliminating resources that do not add value to the product. A concise yet unique reference, this book incorporates decision making under risk into cellular manufacturing. The text makes the link that ties cellular manufacturing to the bottom line. It helps you recognize savings opportunities from elimination of downtime between operations, decreased material handling costs, decreased work-in-progress inventory and associated costs, reduced opportunity for handling errors, decreased downtime spent waiting for supplies or materials, and reduced losses from defective or obsolete products.

This book presents an integrated systems approach to manufacturing and business enterprise. Traditionally, these topics are treated as separate and independent subjects, but the practical fact is that the manufacturing and the business enterprises are intertwined. Currently, there is no book on the market that addresses both subjects from an integrated systems engineering approach with a manufacturing engineering foundation. Topics covered include engineering process, systems modeling, business enterprise, forecasting, inventory management, product design, and project management.

Imagine if we were using the same medical techniques today that were used during the Industrial Revolution, including the practice of bloodletting using leeches. Medicine has come a long way since then. So why do organizations and corporations cling to

management techniques that are just as obsolete as the bleed-and-leech model? In a global workplace that is more diverse and filled with entirely new challenges, now is the time for organizations to evolve to a more effective style of leadership and project management. A roadmap for leading projects and groups, Moving from Project Management to Project Leadership: A Practical Guide to Leading Groups covers the theory, strategy, and tactics that create high-performing teams and organizations. The first half of the book delineates the theories and practical knowledge required to be an extraordinarily effective leader. It defines what it is, exactly, that you need to do to be the best leader you can be. The second half of the book provides the tools and processes required to put that knowledge into place. The author explores the theory that it's all about the communication. By paying close attention to organizational clarity and the way messages are transmitted within your organization, you will find new ways of empowering people while increasing efficiency — something the old management style can rarely boast. If project leadership is the main thesis of this book, the power of effective top-down communication is the tune you'll be humming after putting this book down.

Since the success of products significantly depends on the quality of product performance, inadequate management of the product design process can lead to improper performance of products that can result in significant long-term business losses. Design for Profitability: Guidelines to Cost Effectively Manage the Development Process of Complex Products presents a design guideline for complex product design and development that enables you to cost-effectively improve the technical performance of your products and consequently improve your competitiveness in the marketplace as well as improve profitability. The book helps you improve the competitiveness of your organization in the market and eventually improve profitability. It presents a mobile robots design guideline based on an empirical study of the mobile robots design process. This is an unprecedented guideline based on the empirical investigation of the internal aspects of the design process of complex products for cost-effectively enhancing the competitiveness in the market. The book also presents a hybrid lean-agile design paradigm for mobile robots. In addition, it points out key approaches and risks to manage the product development process efficiently. In designing complex products and integrated systems, industrial designers face a dilemma of cost-effectively striking a balance between product development time and product performance attributes. This book shows how and when value is added in product design and development through identifying statistically the most and least correlated design activities and strategies to product performance attributes. Introducing a new paradigm in the field of engineering design, the book gives you key approaches to efficiently manage the product development process.