

Software Engineering Economics

Process Engineering Economics Software Cost Estimation with COCOMO II Chemical Engineering Economics Software Process Dynamics and Agility Advanced Engineering Economics Performance-Based Project Management Software Engineering Chemical Process Engineering Analytical Methods in Software Engineering Economics Systems Life Cycle Costing Analytical Methods in Software Engineering Economics Petroleum Economics and Engineering Fundamentals of Economics for Applied Engineering Software Engineering Pioneers and Their Contributions to Software Engineering Software Pioneers Fuzzy Engineering Economics with Applications Risk Analysis in Engineering and Economics Value-Based Software Engineering Engineering Economics of Life Cycle Cost Analysis Software Engineering Foundations IEEE Computer Society Real-World Software Engineering Problems Purposeful Engineering Economics The Economics of Iterative Software Development Software Engineering Economics and Declining Budgets Software Engineering Economics The Economics of Software Quality Marine Engineering Economics and Cost Analysis Fundamentals of Engineering Economics and Decision Analysis Engineering Economics of Life Cycle Cost Analysis Engineering Economics The Economics of Information Systems and Software Engineering Economics for Aviation and Aerospace Encyclopedia of Software Engineering Three-Volume Set (Print) Return on Software Economic and Financial Analysis for Engineering and Project Management Principles of Engineering Economics with Applications Engineering Economics and Economic Design for Process Engineers Economics-Driven Software Architecture The Future of Software Engineering

Process Engineering Economics

Software Engineering Economics is a relatively new discipline that deals with all segments of the software life cycle. The discipline has received much visibility in recent years because of the size and cost considerations of many software development and maintenance efforts. This book places additional emphasis on the Federal Government's Information Resource Management initiative and deals with related issues such as Business Re-engineering, Functional Economic Analysis, Organizational Process Modelling and the Economics of Reuse.

Software Cost Estimation with COCOMO II

Engineers often find themselves tasked with the difficult challenge of developing a design that is both technically and economically feasible. A sharply focused, how-to book, *Engineering Economics and Economic Design for Process Engineers* provides the tools and methods to resolve design and economic issues. It helps you integrate technical and economic decision making, creating more profit and growth for your organization. The book puts methods that are simple, fast, and inexpensive within easy reach. Author Thane Brown sets the stage by explaining the engineer's role in the creation of economically feasible projects. He discusses the basic economics of projects — how they are funded, what kinds of investments they require, how revenues, expenses, profits, and risks are interrelated, and how cash flows into and out of a company. In the engineering economics section of the

book, Brown covers topics such as present and future values, annuities, interest rates, inflation, and inflation indices. He details how to create order-of-magnitude and study grade estimates for the investments in a project and how to make study grade production cost estimates. Against this backdrop, Brown explores a unique scheme for producing an Economic Design. He demonstrates how using the Economic Design Model brings increased economic thinking and rigor into the early parts of design, the time in a project's life when its cost structure is being set and when the engineer's impact on profit is greatest. The model emphasizes three powerful new tools that help you create a comprehensive design option list. When the model is used early in a project, it can drastically lower both capital and production costs. The book's uniquely industrial focus presents topics as they would happen in a real work situation. It shows you how to combine technical and economic decision making to create economically optimum designs and increase your impact on profit and growth, and, therefore, your importance to your organization. Using these time-tested techniques, you can design processes that cost less to build and operate, and improve your company's profit.

Chemical Engineering Economics

Return on Software: Maximizing the Return on Your Software Investment is about making choices: software technical choices in a business context. It helps software professionals appreciate the business consequences of the decisions they make. This primer will prove a valuable reference for making the important decisions the typical software organization faces both today and down the road. Each chapter contains a set of self-study questions designed to help you apply the featured concepts and techniques. An enhanced online index allows you to quickly and easily search the entire text for specific topics.

Software Process Dynamics and Agility

This volume contains papers presented at the International Conference on Software Process (ICSP 2007) held in Minneapolis, USA, May 19-20, 2007. ICSP 2007 comprised two successful series of process-related workshops, the International Workshop on Software Process Simulation and Modeling (ProSim) and the Software Process Workshop (SPW). The theme of ICSP 2007 was "Coping with Software Process Dynamics and Agility." Software developers work in a dynamic context of frequently changing technologies and limited resources. Globally distributed development teams are under ever-increasing pressure to deliver their products more quickly and with higher levels of quality. At the same time, global competition is forcing software development organizations to cut costs by rationalizing processes, outsourcing part or all of their activities, reusing existing software in new or modified applications and evolving existing systems to meet new needs, while still minimizing the risk of projects failing to deliver. To address these difficulties, new or modified processes are emerging, including agile methods and plan-based product line development. Open source, COTS and community-developed software are becoming more popular. Outsourcing coupled with 24/7 development demand well-defined processes to support the coordination of organizationally and geographically separated teams. The increasing challenges faced by the software industry combine to increase demands on software processes. ICSP 2007 was a continuation of two successful series of process-

related workshops, ProSim (Software Process Simulation and Modeling Workshop) and SPW (Software Process Workshop).

Advanced Engineering Economics

Results-Based Software Management: Achieve Better Outcomes with Finite Resources Effective software development is no longer merely an IT concern: today, it is crucial to the entire enterprise. However, most businesspeople are not ready to make informed decisions about software initiatives. The **Economics of Iterative Software Development: Steering Toward Better Business Results** will prepare them. Drawing on decades of software development and business experience, the authors demonstrate how to utilize practical, economics-based techniques to plan and manage software projects for maximum return on technology investments. The authors begin by dispelling widespread myths about software costs, explaining why traditional, "engineering-based" software management introduces unacceptable inefficiencies in today's development environments. Next, they show business and technical managers how to combine the principles of economics and iterative development to achieve optimal results with limited resources. Using their techniques, readers will learn how to build systems that enable maximum business innovation and process improvement—and implement software processes that allow them to do so consistently. Highlights include How to repeatedly quantify the value a project is delivering and quickly adjust course as needed How to reduce software project size, complexity, and other "project killers" How to identify and eliminate software development processes that don't work How to improve development processes, reduce rework, mitigate risk, and identify inefficiencies How to create more proficient teams by improving individual skills, team interactions, and organizational capability Where to use integrated, automated tools to improve effectiveness What to measure, and when: specific metrics for project inception, elaboration, construction, and transition The **Economics of Iterative Software Development: Steering Toward Better Business Results** will help both business and technical managers make better decisions throughout the software development process—and it will help team and project leaders keep any project or initiative on track, so they can deliver more value faster.

Performance-Based Project Management

This is the most authoritative archive of Barry Boehm's contributions to software engineering. Featuring 42 reprinted articles, along with an introduction and chapter summaries to provide context, it serves as a "how-to" reference manual for software engineering best practices. It provides convenient access to Boehm's landmark work on product development and management processes. The book concludes with an insightful look to the future by Dr. Boehm.

Software Engineering

This book provides a straightforward approach to explaining engineering economics that is appropriate for members of all of the major engineering disciplines. It includes real world engineering economic analysis examples, and

provides the basic knowledge required for engineers to be able to perform engineering economic analyses for different potential alternative equipment, products, services, and projects in both the public and private sectors. It focuses on mastering the basic engineering economics formulas and their use on different types of engineering and construction projects, and includes numerous example problems and real world case studies.

Chemical Process Engineering

Projects fail to meet goals for many reasons: poor time and budget performance, failure to deal with complexity, uncontrolled changes in scope. Even the most experienced project managers can be caught off guard in the presence of these forces. Performance-Based Project Management shows readers how they can increase the probability of project success, detailing a straightforward plan for avoiding surprises, forecasting performance, identifying risk, and taking corrective action to keep a project a success. Based on the "Five Immutable Principles of Project Success," this book shows project leaders how to assess the business capabilities needed for a project; plan and schedule the work; determine the resources required to complete on time and on budget; identify and manage risks to success; and measure performance in units meaningful to decision makers. Project managers will learn the core practices for each principle, as well as associated processes, so that they can lay the foundation for project success from the start. They'll discover how each process produces "artifacts," which provide feedback as to whether everything is going well-and if not, when and how it will be fixed. Each practice is illustrated through examples and tailored for different levels of complexity and risk to help project managers ensure that project aren't just done-they're done right.

Analytical Methods in Software Engineering Economics

Software Engineering Economics is an invaluable guide to determining software costs, applying the fundamental concepts of microeconomics to software engineering, and utilizing economic analysis in software engineering decision making.

Systems Life Cycle Costing

Covering detailed discussion of fundamental concepts of economics, the textbook commences with comprehensive explanation of theory of consumer behavior, utility maximization and optimal choice, profit function, cost minimization and cost function. The textbook covers methods including present worth method, future worth method, annual worth method, internal rate of return method, explicit re-investment rate of return method and payout method useful for studying economic studies. A chapter on value engineering discusses important topics such as function analysis systems techniques, the value index, value measurement techniques, innovative phase and constraints analysis in depth. It facilitates the understanding of the concepts through illustrations and solved problems. This text is the ideal resource for Indian undergraduate engineering students in the fields of mechanical engineering, computer science and engineering and electronics

engineering for a course on engineering economics/engineering economy.

Analytical Methods in Software Engineering Economics

This volume presents a selection of the presentations from the first annual conference on Analytical Methods in Software Engineering Economics held at The MITRE Corporation in McLean, Virginia. The papers are representative of the issues that are of interest to researchers in the economics of information systems and software engineering economics. The 1990s are presenting software economists with a particularly difficult set of challenges. Because of budget considerations, the number of large new software development efforts is declining. The primary focus has shifted to issues relating to upgrading and migrating existing systems. In this environment, productivity enhancing methodologies and tools are of primary interest. The MITRE Software Engineering Analysis Conference was designed to address some of the new and difficult challenges that face our profession. The primary objective of the conference was to address new theoretical and applications directions in Software Engineering Economics, a relatively new discipline that deals with the management and control of all segments of the software life-cycle. The discipline has received much visibility in the last twenty-five years because of the size and cost considerations of many software development and maintenance efforts, particularly in the Federal Government. We thank everyone who helped make this conference a success, especially those who graciously allowed us to include their work in this volume.

Petroleum Economics and Engineering

Key problems for the IEEE Computer Society Certified Software Development Professional (CSDP) Certification Program IEEE Computer Society Real-World Software Engineering Problems helps prepare software engineering professionals for the IEEE Computer Society Certified Software Development Professional (CSDP) Certification Program. The book offers workable, real-world sample problems with solutions to help readers solve common problems. In addition to its role as the definitive preparation guide for the IEEE Computer Society Certified Software Development Professional (CSDP) Certification Program, this resource also serves as an appropriate guide for graduate-level courses in software engineering or for professionals interested in sharpening or refreshing their skills. The book includes a comprehensive collection of sample problems, each of which includes the problem's statement, the solution, an explanation, and references. Topics covered include: * Engineering economics * Test * Ethics * Maintenance * Professional practice * Software configuration * Standards * Quality assurance * Requirements * Metrics * Software design * Tools and methods * Coding * SQA and V & V IEEE Computer Society Real-World Software Engineering Problems offers an invaluable guide to preparing for the IEEE Computer Society Certified Software Development Professional (CSDP) Certification Program for software professionals, as well as providing students with a practical resource for coursework or general study.

Fundamentals of Economics for Applied Engineering

An easy-to-follow contemporary engineering economics text that helps making

sound economic decisions without advanced mathematics. This one-semester introduction to the fundamentals of engineering economics provides an overview of the basic theory and mathematics underlying operational business decisions that engineering technology, engineering, and industrial technology students will face in the workplace. A basic knowledge of economics empowers a manager to balance costs with production. This new edition of Fundamentals of Economics for Engineering Technologists and Engineers is written in plain language. Concepts have been simplified and kept straightforward with an emphasis on "how to apply" economic principles. Practical examples as a tool for managing business data and giving detailed analysis of business operations. throughout the text make good use of Microsoft Excel templates, provided on the book's companion website, for students. Chapter-end exercises provide discussion and multiple-choice questions along with numerical problems, and a solutions manual and instructor resources is given for adopting instructors.

Software Engineering

Software legend Capers Jones reveals the tight links between software quality, ROI, and TCO, and help you optimize all three • •Strong empirical evidence that high quality generates strongly positive ROI and reduced TCO. •Practical ways to prevent defects, and remove them in pre-test, test, and postrelease. •Easy checklists for assessing and improving practice, plus insights into the costs/benefits of intervention. •By renowned software consultant Capers Jones. In this book, world-renowned software management expert Capers Jones and software quality guru Jitendra Subramanyam help development leaders and practitioners quantify and optimize the economic impact of quality throughout the software lifecycle - and then choose the highest value interventions to improve it. The authors introduce powerful empirical and field data on the ability of inspection, static analysis, and test methods to reduce up to 95% of defects, and discuss the business value of improvements of this magnitude. The Economics of Software Quality is based on proven best quality practices in IT departments and at world-leading integrators, embedded software companies, and systems software groups. Jones and Curtis bring together crucial new information on: • •Identifying and fixing the root causes of short- and long-term software cost inefficiencies. •Predicting and measuring software defects and their quality impacts. •Assessing current practices and identifying the best interventions. •Calculating the ROI of quality during development and maintenance. •Comparing and choosing methods of defect prevention. •Selecting methods of defect removal, such as inspections and static analysis. •Understanding and evaluating more than 20 kinds of software testing. •Best practices for postrelease defect reporting and repair. •Recognizing 'hazardous' metrics and their problems

Pioneers and Their Contributions to Software Engineering

For all engineers and practitioners, it is essential to have a fundamental understanding of cost structure, estimating cash flows, and evaluating alternative projects and designs on an economic basis. Engineering Economics for Aviation and Aerospace provides the tools and techniques necessary for engineers to economically evaluate their projects and choices. The focus of this book is on a comprehensive understanding of the theory and practical applications of

engineering economics. It explains and demonstrates the principles and techniques of engineering economics and financial analysis as applied to the aviation and aerospace industries. Time value of money, interest factors, and spreadsheet functions are used to evaluate the cash flows associated with a single project or multiple projects. The alternative engineering economics tools and techniques are utilized in separate chapters to evaluate the attractiveness of a single project or to select the best of multiple alternatives. Most of the engineering economics and financial mathematics books available in the market take either a pure theoretical approach or offer limited applications. This book incorporates both approaches, providing students of aviation and industrial economics, as well as practitioners, with the necessary mathematical knowledge to evaluate alternatives on an economic basis.

Software Pioneers

Although technology and productivity has changed much of engineering, many topics are still taught in very similarly to how they were taught in the 70s. Using a new approach to engineering economics, *Systems Life Cycle Costing: Economic Analysis, Estimation, and Management* presents the material that a modern engineer must understand to work as a practicing engineer conducting economic analysis. Organized around a product development process that provides a framework for the material, the book presents techniques such as engineering economics and simulation-based costing (SBC), with a focus on total life cycle understanding and perspective and introduces techniques for detailed analysis of modern complex systems. The author includes rules of thumb for estimation grouped with the methods, processes, and tools (MPTs) for conducting a detailed engineering buildup for costing. He presents the estimating costing of complex systems and software and then explores concepts such as design to cost (DTC), cost as an independent variable (CAIV), the role of commercial off-the-shelf technology, cost of quality, and the role of project management in LCC management. No product or services are immune from cost, performance, schedule, quality, risks, and tradeoffs. Yet engineers spend most of their formal education focused on performance and most of their professional careers worrying about resources and schedule. Too often, the design stage becomes about the technical performance without considering the downstream costs that contribute to the total life cycle costs (LCC) of a system. This text presents the methods, processes, and tools needed for the economic analysis, estimation, and management that bring these costs in line with the goals of pleasing the customer and staying within budget.

Fuzzy Engineering Economics with Applications

This is the most authoritative archive of Barry Boehm's contributions to software engineering. Featuring 42 reprinted articles, along with an introduction and chapter summaries to provide context, it serves as a "how-to" reference manual for software engineering best practices. It provides convenient access to Boehm's landmark work on product development and management processes. The book concludes with an insightful look to the future by Dr. Boehm.

Risk Analysis in Engineering and Economics

The authors cover two general topics: basic engineering economics and risk analysis in this text. Within the topic of engineering economics are discussions on the time value of money and interest relationships. These interest relationships are used to define certain project criteria that are used by engineers and project managers to select the best economic choice among several alternatives. Projects examined will include both income- and service-producing investments. The effects of escalation, inflation, and taxes on the economic analysis of alternatives are discussed. Risk analysis incorporates the concepts of probability and statistics in the evaluation of alternatives. This allows management to determine the probability of success or failure of the project. Two types of sensitivity analyses are presented. The first is referred to as the range approach while the second uses probabilistic concepts to determine a measure of the risk involved. The authors have designed the text to assist individuals to prepare to successfully complete the economics portions of the Fundamentals of Engineering Exam. Table of Contents: Introduction / Interest and the Time Value of Money / Project Evaluation Methods / Service Producing Investments / Income Producing Investments / Determination of Project Cash Flow / Financial Leverage / Basic Statistics and Probability / Sensitivity Analysis

Value-Based Software Engineering

Purposeful Engineering Economics stands as a unique and highly original complement to the traditional engineering economics curriculum. This primarily narrative text conveys the essence of an "Austrian" economic perspective on cash flow analysis and decision making in engineering without extensive tables and graphs and requires very little mathematics. The book's objective is to add a new perspective to the usual study of cash flow analysis and solely econometric engineering decision making. The author draws on the methodology of the Austrian Economists—a school of economic thought that bases its study of economic phenomena on the interpretation and analysis of the purposeful actions of individuals. The book includes an array of illustrative case studies examined in detail by the author and emphasizes the importance of market processes and price signals to coordinate engineering plans.

Engineering Economics of Life Cycle Cost Analysis

Economics-driven Software Architecture presents a guide for engineers and architects who need to understand the economic impact of architecture design decisions: the long term and strategic viability, cost-effectiveness, and sustainability of applications and systems. Economics-driven software development can increase quality, productivity, and profitability, but comprehensive knowledge is needed to understand the architectural challenges involved in dealing with the development of large, architecturally challenging systems in an economic way. This book covers how to apply economic considerations during the software architecting activities of a project. Architecture-centric approaches to development and systematic evolution, where managing complexity, cost reduction, risk mitigation, evolvability, strategic planning and long-term value creation are among

the major drivers for adopting such approaches. It assists the objective assessment of the lifetime costs and benefits of evolving systems, and the identification of legacy situations, where architecture or a component is indispensable but can no longer be evolved to meet changing needs at economic cost. Such consideration will form the scientific foundation for reasoning about the economics of nonfunctional requirements in the context of architectures and architecting. Familiarizes readers with essential considerations in economic-informed and value-driven software design and analysis Introduces techniques for making value-based software architecting decisions Provides readers a better understanding of the methods of economics-driven architecting

Software Engineering Foundations

This reference outlines the fundamental concepts and strategies for economic assessments for informed management decisions in industry. The book illustrates how to prepare capital cost and operating expense estimates, profitability analyses, and feasibility studies, and how to execute sensitivity and uncertainty assessments. From financial reports to opportunity costs and engineering trade-offs, Process Engineering Economics considers a wide range of alternatives for profitable investing and for projecting outcomes in various chemical and engineering fields. It also explains how to monitor costs, finances, and economic limitations at every stage of chemical project design, preparation, and evaluation.

IEEE Computer Society Real-World Software Engineering Problems

Economic and Financial Analysis for Engineering and Project Management is for engineers and others who must analyze the financial and economic ramifications of producing and sustaining capital projects. Unlike other books in the field, it offers straightforward and lucid explanations of all main formulas needed to carry out financial analyses. The math is kept simple and is fully explained, making the book accessible to non-technical personnel. Numerous sample problems are provided, and can be worked on standard spreadsheet programs, as well as using interest rate tables. The book shows how to link quantitative data to management decisions and to standard reporting forms and has been designed for practicing engineers and students alike. Economic and Financial Analysis for Engineering and Project Management is a "must have" for graduate students in engineering management departments; graduate and undergraduates taking courses in project management, engineering economics, and engineering finance. Practicing engineers will find this book THE handy reference for any project involving financial analyses.

Purposeful Engineering Economics

BASIC CONCEPTS AND TECHNIQUES IN ECONOMIC ANALYSIS. Accounting Income and Cash Flow. Interest and Equivalence. Transform Techniques in Cash Flow Modeling. Depreciation and Corporate Taxation. Selecting a Minimum Attractive Rate of Return. DETERMINISTIC ANALYSIS. Measures of Investment Worth--Single Project. Decision Rules for Selecting Among Multiple Alternatives. Deterministic

Capital Budgeting Models. STOCHASTIC ANALYSIS. Utility Theory. Measures of Investment Worth Under Risk--Single Project. Methods for Comparing Risky Projects. Risk Simulation. Decision Tree Analysis. SPECIAL TOPICS IN ENGINEERING ECONOMIC ANALYSIS. Evaluation of Public Investments. Economic Analysis in Public Utilities. Procedures for Replacement Analysis. Appendices. Index.

The Economics of Iterative Software Development

least, the author wishes to thank his constantly helpful wife Maggie and his secretary Pat Weimer; the former for her patience, encouragement, and for acting as a sounding-board, and the latter who toiled endlessly, cheerfully, and most competently on the book's preparation. CONTENTS Preface / iii 1. INTRODUCTION / 1 Frequently Used Economic Studies / 2 Basic Economic Subjects / 3 Priorities / 3 Problems / 6 Appendixes / 6 References / 6 2. EQUIPMENT COST ESTIMATING / 8 Manufacturers' Quotations / 8 Estimating Charts / 10 Size Factoring Exponents / 11 Inflation Cost Indexes / 13 Installation Factor / 16 Module Factor / 18 Estimating Accuracy / 19 Estimating Example / 19 References / 21 3. PLANT COST ESTIMATES / 22 Accuracy and Costs of Estimates / 22 Cost Overruns / 25 Plant Cost Estimating Factors / 26 Equipment Installation / 28 Instrumentation / 30 v vi CONTENTS Piping / 30 Insulation / 30 Electrical / 30 Buildings / 32 Environmental Control / 32 Painting, Fire Protection, Safety Miscellaneous / 32 Yard Improvements / 32 Utilities / 32 Land / 33 Construction and Engineering Expense, Contractor's Fee, Contingency / 33 Total Multiplier / 34 Complete Plant Estimating Charts / 34 Cost per Ton of Product / 35 Capital Ratio (Turnover Ratio) / 35 Factoring Exponents / 37 Plant Modifications / 38 Other Components of Total Capital Investment / 38 Off-Site Facilities / 38 Distribution Facilities / 39 Research and Development, Engineering, Licensing / 40 Working Capital / 40

Software Engineering Economics and Declining Budgets

A lucid statement of the philosophy of modular programming can be found in a 1970 textbook on the design of system programs by Gouthier and Pont [1, 1 Cf10. 23], which we quote below: A well-defined segmentation of the project effort ensures system modularity. Each task forms a separate, distinct program module. At implementation time each module and its inputs and outputs are well-defined, there is no confusion in the intended interface with other system modules. At checkout time the integrity of the module is tested independently; there are few scheduling problems in synchronizing the completion of several tasks before checkout can begin. Finally, the system is maintained in modular fashion; system errors and deficiencies can be traced to specific system modules, thus limiting the scope of detailed error searching. Usually nothing is said about the criteria to be used in dividing the system into modules. This paper will discuss that issue and, by means of examples, suggest some criteria which can be used in decomposing a system into modules. A Brief Status Report The major advancement in the area of modular programming has been the development of coding techniques and assemblers which (1) allow one module to be written with little knowledge of the code in another module, and (2) allow modules to be reassembled and replaced without reassembly of the whole system.

Software Engineering Economics

Software engineering requires specialized knowledge of a broad spectrum of topics, including the construction of software and the platforms, applications, and environments in which the software operates as well as an understanding of the people who build and use the software. Offering an authoritative perspective, the two volumes of the Encyclopedia of Software Engineering cover the entire multidisciplinary scope of this important field. More than 200 expert contributors and reviewers from industry and academia across 21 countries provide easy-to-read entries that cover software requirements, design, construction, testing, maintenance, configuration management, quality control, and software engineering management tools and methods. Editor Phillip A. Laplante uses the most universally recognized definition of the areas of relevance to software engineering, the Software Engineering Body of Knowledge (SWEBOK®), as a template for organizing the material. Also available in an electronic format, this encyclopedia supplies software engineering students, IT professionals, researchers, managers, and scholars with unrivaled coverage of the topics that encompass this ever-changing field. Also Available Online This Taylor & Francis encyclopedia is also available through online subscription, offering a variety of extra benefits for researchers, students, and librarians, including: Citation tracking and alerts Active reference linking Saved searches and marked lists HTML and PDF format options Contact Taylor and Francis for more information or to inquire about subscription options and print/online combination packages. US: (Tel) 1.888.318.2367; (E-mail) e-reference@taylorandfrancis.com International: (Tel) +44 (0) 20 7017 6062; (E-mail) online.sales@tandf.co.uk

The Economics of Software Quality

Engineering has changed dramatically in the last century. With modern computing systems, instantaneous communication, elimination of low/mid management, increased complexity, and extremely efficient supply chains, all have dramatically affected the responsibilities of engineers at all levels. The future will require cost effective systems that are more secure, interconnected, software centric, and complex. Employees at all levels need to be able to develop accurate cost estimates based upon defensible cost analysis. It is under this backdrop that this book is being written. By presenting the methods, processes, and tools needed to conduct cost analysis, estimation, and management of complex systems, this textbook is the next step beyond basic engineering economics. Features Focuses on systems life cycle costing Includes materials beyond basic engineering economics, such as simulation-based costing Presents cost estimating, analysis, and management from a total ownership cost perspective Offers numerous real-life examples Provides excel based textbook/problems Offers PowerPoint slides, Solutions Manual, and author website with downloadable excel solutions, etc.

Marine Engineering Economics and Cost Analysis

Marine Engineering Economics and Cost Analysis is intended for students and practitioners of ship design, shipbuilding, and ship operations who want to understand and apply the concepts of engineering economics to routine

engineering decisions. Computer software is included to aid in completing the analyses required. "To my knowledge this is the first text published during my fifty-year career that deals with the methods of economic evaluation of maritime decision alternatives from an engineering viewpoint. This book applies engineering economics and cost analysis to the maritime industry and sets forth in a logical sequence the method to reach the most efficient vessel from both a cost and capacity-required approach."--from the foreword by Captain Warren G. Leback, former maritime administrator.

Fundamentals of Engineering Economics and Decision Analysis

A groundbreaking book in this field, *Software Engineering Foundations: A Software Science Perspective* integrates the latest research, methodologies, and their applications into a unified theoretical framework. Based on the author's 30 years of experience, it examines a wide range of underlying theories from philosophy, cognitive informatics, denota

Engineering Economics of Life Cycle Cost Analysis

This book focuses on defining the achievements of software engineering in the past decades and showcasing visions for the future. It features a collection of articles by some of the most prominent researchers and technologists who have shaped the field: Barry Boehm, Manfred Broy, Patrick Cousot, Erich Gamma, Yuri Gurevich, Tony Hoare, Michael A. Jackson, Rustan Leino, David L. Parnas, Dieter Rombach, Joseph Sifakis, Niklaus Wirth, Pamela Zave, and Andreas Zeller. The contributed articles reflect the authors' individual views on what constitutes the most important issues facing software development. Both research- and technology-oriented contributions are included. The book provides at the same time a record of a symposium held at ETH Zurich on the occasion of Bertrand Meyer's 60th birthday.

Engineering Economics

Engineering has changed dramatically in the last century. With modern computing systems, instantaneous communication, elimination of low/mid management, increased complexity, and extremely efficient supply chains, all have dramatically affected the responsibilities of engineers at all levels. The future will require cost effective systems that are more secure, interconnected, software centric, and complex. Employees at all levels need to be able to develop accurate cost estimates based upon defensible cost analysis. It is under this backdrop that this book is being written. By presenting the methods, processes, and tools needed to conduct cost analysis, estimation, and management of complex systems, this textbook is the next step beyond basic engineering economics. Features Focuses on systems life cycle costing Includes materials beyond basic engineering economics, such as simulation-based costing Presents cost estimating, analysis, and management from a total ownership cost perspective Offers numerous real-life examples Provides excel based textbook/problems Offers PowerPoint slides, Solutions Manual, and author website with downloadable excel solutions, etc.

The Economics of Information Systems and Software

Chemical Process Engineering presents a systematic approach to solving design problems by listing the needed equations, calculating degrees-of-freedom, developing calculation procedures to generate process specifications- mostly pressures, temperatures, compositions, and flow rates- and sizing equipment. This illustrative reference/text tabulates numerous easy-to-follow calculation procedures as well as the relationships needed for sizing commonly used equipment.

Engineering Economics for Aviation and Aerospace

This volume presents a selection of the presentations from the first annual conference on Analytical Methods in Software Engineering Economics held at The MITRE Corporation in McLean, Virginia. The papers are representative of the issues that are of interest to researchers in the economics of information systems and software engineering economics. The 1990s are presenting software economists with a particularly difficult set of challenges. Because of budget considerations, the number of large new software development efforts is declining. The primary focus has shifted to issues relating to upgrading and migrating existing systems. In this environment, productivity enhancing methodologies and tools are of primary interest. The MITRE Software Engineering Analysis Conference was designed to address some of the new and difficult challenges that face our profession. The primary objective of the conference was to address new theoretical and applications directions in Software Engineering Economics, a relatively new discipline that deals with the management and control of all segments of the software life-cycle. The discipline has received much visibility in the last twenty-five years because of the size and cost considerations of many software development and maintenance efforts, particularly in the Federal Government. We thank everyone who helped make this conference a success, especially those who graciously allowed us to include their work in this volume.

Encyclopedia of Software Engineering Three-Volume Set (Print)

The Economics of Information Systems and Software focuses on the economic aspects of information systems and software, including advertising, evaluation of information systems, and software maintenance. The book first elaborates on value and values, software business, and scientific information as an economic category. Discussions focus on information products and information services, special economic properties of information, culture and convergence, hardware and software products, materiality and consumption, technological progress, and software flexibility. The text then takes a look at advertising to finance software, perspectives on East-West relations in economics and information, and evaluation of information systems. Topics include research on information systems, knowledge on Eastern European information services, GDR information institutes, local databases, GDR databases, CMEA directions, and theoretical propositions. The manuscript reviews software reuse, software methodology in the harsh light of economics, quantitative aspects of software maintenance management, and calibrating a software cost-estimation model. Concerns cover the need for

calibration, measuring maintainability, prognosis of maintenance effort, object-oriented programming, metaprogramming, and software quality and reuse. The text is a dependable reference for computer science experts and researchers wanting to explore further the economics of information systems and software.

Return on Software

Economic and Financial Analysis for Engineering and Project Management

Revised and updated to reflect major changes in the field, this second edition presents an integrated and balanced view of current attitudes and practices used in sound economic decision-making for engineering problems encountered in the oil industry. The volume contains many problem-solving examples demonstrating how economic analyses are applied to different facets of the oil industry.; Discussion progresses from an introduction to the industry, through principles and techniques of engineering economics, to the application of economic methods to the oil industry. It provides information on the types of crude oils, their finished products and resources of natural gas, and also summarizes worldwide oil production and consumption data.

Principles of Engineering Economics with Applications

CD-ROM includes: Video introduction -- Book overview -- COCOMO II. 2000 software -- Tutorials -- Adobe Acrobat Reader installation package.

Engineering Economics and Economic Design for Process Engineers

Ross Jeffery When, as a result of pressure from the CEO, the Chief Information Officer poses the question "Just what is this information system worth to the organization?" the IT staff members are typically at a loss. "That's a difficult question," they might say; or "well it really depends" is another answer. Clearly, neither of these is very satisfactory and yet both are correct. The IT community has struggled with questions concerning the value of an organization's investment in software and hardware ever since it became a significant item in organizational budgets. And like all questions concerning value, the first step is the precise determination of the object being assessed and the second step is the identification of the entity to which the value is beneficial. In software engineering both of these can be difficult. The precise determination of the object can be complex. If it is an entire information system in an organizational context that is the object of interest, then boundary definition becomes an issue. Is the hardware and middleware to be included? Can the application exist without any other applications? If however the object of interest is, say, a software engineering activity such as testing within a particular project, then the boundary definition becomes a little easier. But the measure of benefit may become a little harder.

Economics-Driven Software Architecture

More than any other book available, *Risk Analysis in Engineering and Economics* introduces the fundamental concepts, techniques, and applications of the subject in a style tailored to meet the needs of students and practitioners of engineering, science, economics, and finance. Drawing on his extensive experience in uncertainty and risk modeling and analysis, the author leads readers from the fundamental concepts through the theory, applications, and data requirements, sources, and collection. He emphasizes the practical use of the methods presented and carefully examines the limitations, advantages, and disadvantages of each. Case studies that incorporate the techniques discussed offer a practical perspective that helps readers clearly identify and solve problems encountered in practice. If you deal with decision-making under conditions of uncertainty, this book is required reading. The presentation includes more than 300 tables and figures, more than 100 examples, many case studies, and a wealth of end-of-chapter problems. Unlike the classical books on reliability and risk assessment, this book helps you relate underlying concepts to everyday applications and better prepares you to understand and use the methods of risk analysis.

The Future of Software Engineering

Fuzzy set approaches are suitable to use when the modeling of human knowledge is necessary and when human evaluations are needed. Fuzzy set theory is recognized as an important problem modeling and solution technique. It has been studied extensively over the past 40 years. Most of the early interest in fuzzy set theory pertained to representing uncertainty in human cognitive processes. Fuzzy set theory is now applied to problems in engineering, business, medical and related health sciences, and the natural sciences. This book handles the fuzzy cases of classical engineering economics topics. It contains 15 original research and application chapters including different topics of fuzzy engineering economics. When no probabilities are available for states of nature, decisions are given under uncertainty. Fuzzy sets are a good tool for the operation research analyst facing uncertainty and subjectivity. The main purpose of the first chapter is to present the role and importance of fuzzy sets in the economic decision making problem with the literature review of the most recent advances.

[ROMANCE](#) [ACTION & ADVENTURE](#) [MYSTERY & THRILLER](#) [BIOGRAPHIES & HISTORY](#) [CHILDREN'S](#) [YOUNG ADULT](#) [FANTASY](#) [HISTORICAL FICTION](#) [HORROR](#) [LITERARY FICTION](#) [NON-FICTION](#) [SCIENCE FICTION](#)