

Software Engineering 6th Edition Ian Sommerville

The best way to learn software engineering is by understanding its core and peripheral areas. Foundations of Software Engineering provides in-depth coverage of the areas of software engineering that are essential for becoming proficient in the field. The book devotes a complete chapter to each of the core areas. Several peripheral areas are also explained by assigning a separate chapter to each of them. Rather than using UML or other formal notations, the content in this book is explained in easy-to-understand language. Basic programming knowledge using an object-oriented language is helpful to understand the material in this book. The knowledge gained from this book can be readily used in other relevant courses or in real-world software development environments. This textbook educates students in software engineering principles. It covers almost all facets of software engineering, including requirement engineering, system specifications, system modeling, system architecture, system implementation, and system testing. Emphasizing practical issues, such as feasibility studies, this book explains how to add and develop software requirements to evolve software systems. This book was written after receiving feedback from several professors and software engineers. What resulted is a textbook on software engineering that not only covers the theory of software engineering but also presents real-world insights to aid students in proper implementation. Students learn key concepts through carefully explained and illustrated theories, as well as concrete examples and a complete case study using Java. Source code is also available on the book's website. The examples and case studies increase in complexity as the book progresses to help students build a practical understanding of the required theories and applications.

Innovations in Computing Sciences and Software Engineering includes a set of rigorously reviewed world-class manuscripts addressing and detailing state-of-the-art research projects in the areas of Computer Science, Software Engineering, Computer Engineering, and Systems Engineering and Sciences. Topics Covered: •Image and Pattern Recognition: Compression, Image processing, Signal Processing Architectures, Signal Processing for Communication, Signal Processing Implementation, Speech Compression, and Video Coding Architectures. •Languages and Systems: Algorithms, Databases, Embedded Systems and Applications, File Systems and I/O, Geographical Information Systems, Kernel and OS Structures, Knowledge Based Systems, Modeling and Simulation, Object Based Software Engineering, Programming Languages, and Programming Models and tools. •Parallel Processing: Distributed Scheduling, Multiprocessing, Real-time Systems, Simulation Modeling and Development, and Web Applications. •Signal and Image Processing: Content Based Video Retrieval, Character Recognition, Incremental Learning for Speech Recognition, Signal Processing Theory and Methods, and Vision-based Monitoring Systems. •Software and Systems: Activity-Based Software Estimation, Algorithms, Genetic Algorithms, Information Systems Security, Programming Languages, Software Protection Techniques, Software Protection Techniques, and User Interfaces. •Distributed Processing: Asynchronous Message Passing System, Heterogeneous Software Environments, Mobile Ad Hoc Networks, Resource Allocation, and Sensor Networks. •New trends in computing: Computers for People of Special Needs, Fuzzy Inference, Human Computer Interaction, Incremental Learning, Internet-based Computing Models, Machine Intelligence, Natural Language.

Corporate and commercial software-development teams all want solutions for one important problem—how to get their high-pressure development schedules under control. In RAPID DEVELOPMENT, author Steve McConnell addresses that concern head-on with overall strategies, specific best practices, and valuable tips that help shrink and control development schedules and keep projects moving. Inside, you'll find: A rapid-development strategy that can be applied to any project and the best practices to make that strategy work Candid discussions of great and not-so-great rapid-development practices—estimation, prototyping, forced overtime, motivation, teamwork, rapid-development languages, risk management, and many others A list of classic mistakes to avoid for rapid-development projects, including creeping requirements, shortchanged quality, and silver-bullet syndrome Case studies that vividly illustrate what can go wrong, what can go right, and how to tell which direction your project is going RAPID DEVELOPMENT is the real-world guide to more efficient applications development.

Software Engineering Addison Wesley Publishing Company

The Architecture of Computer Hardware, Systems Software and Networking is designed help students majoring in information technology (IT) and information systems (IS) understand the structure and operation of computers and computer-based devices. Requiring only basic computer skills, this accessible textbook introduces the basic principles of system architecture and explores current technological practices and trends using clear, easy-to-understand language. Throughout the text, numerous relatable examples, subject-specific illustrations, and in-depth case studies reinforce key learning points and show students how important concepts are applied in the real world. This fully-updated sixth edition features a wealth of new and revised content that reflects today's technological landscape. Organized into five parts, the book first explains the role of the computer in information systems and provides an overview of its components. Subsequent sections discuss the representation of data in the computer, hardware architecture and operational concepts, the basics of computer networking, system software and operating systems, and various interconnected systems and components. Students are introduced to the material using ideas already familiar to them, allowing them to gradually build upon what they have learned without being overwhelmed and develop a deeper knowledge of computer architecture.

Learn the concepts, principles, design, implementation, and management issues of databases. You will adopt a methodical and pragmatic approach to solving database systems problems. Database Systems: A Pragmatic Approach provides a comprehensive, yet concise introduction to database systems, with special emphasis on the relational database model. This book discusses the database as an essential component of a software system, as well as a valuable, mission-critical corporate resource. New in this second edition is updated SQL content covering the latest release of the Oracle Database Management System along with a reorganized sequence of the topics which is more useful for learning. Also included are revised and additional illustrations, as well as a new chapter on using relational databases to anchor large, complex management support systems. There is also added reference content in the appendixes. This book is based on lecture notes that have been tested and proven over several years, with outstanding results. It combines a balance of theory with practice, to give you your best chance at success. Each chapter is organized systematically into brief sections, with itemization of the important points to be remembered. Additionally, the book includes a number of author Elvis Foster's original methodologies that add clarity and creativity to the database modeling and design experience. What You'll Learn Understand the relational model and the advantages it brings to software systems Design database schemas with integrity rules that ensure correctness of corporate data Query data using SQL in order to generate reports, charts, graphs, and other business results Understand what it means to be a database administrator, and why the profession is highly paid Build and manage web-accessible databases in support of applications delivered via a browser Become familiar with the common database brands, their similarities and differences Explore special topics such as tree-based data, hashing for fast access, distributed and object databases, and more Who This Book Is For Students who are studying database technology, who aspire to a career as a database administrator or designer, and practicing database administrators and developers desiring to strengthen their knowledge of database theory

This custom edition is published for the University of Southern Queensland.

The first course in software engineering is the most critical. Education must start from an understanding of the heart of software development, from familiar ground that is common to all software development

endeavors. This book is an in-depth introduction to software engineering that uses a systematic, universal kernel to teach the essential elements of all software engineering methods. This kernel, Essence, is a vocabulary for defining methods and practices. Essence was envisioned and originally created by Ivar Jacobson and his colleagues, developed by Software Engineering Method and Theory (SEMAT) and approved by The Object Management Group (OMG) as a standard in 2014. Essence is a practice-independent framework for thinking and reasoning about the practices we have and the practices we need. Essence establishes a shared and standard understanding of what is at the heart of software development. Essence is agnostic to any particular method, lifecycle independent, programming language independent, concise, scalable, extensible, and formally specified. Essence frees the practices from their method prisons. The first part of the book describes Essence, the essential elements to work with, the essential things to do and the essential competencies you need when developing software. The other three parts describe more and more advanced use cases of Essence. Using real but manageable examples, it covers the fundamentals of Essence and the innovative use of serious games to support software engineering. It also explains how current practices such as user stories, use cases, Scrum, and micro-services can be described using Essence, and illustrates how their activities can be represented using the Essence notions of cards and checklists. The fourth part of the book offers a vision how Essence can be scaled to support large, complex systems engineering. Essence is supported by an ecosystem developed and maintained by a community of experienced people worldwide. From this ecosystem, professors and students can select what they need and create their own way of working, thus learning how to create ONE way of working that matches the particular situation and needs. The Official (ISC)2® Guide to the CISSP®-ISSEP® CBK® provides an inclusive analysis of all of the topics covered on the newly created CISSP-ISSEP Common Body of Knowledge. The first fully comprehensive guide to the CISSP-ISSEP CBK, this book promotes understanding of the four ISSEP domains: Information Systems Security Engineering (ISSE); Certification and Accreditation; Technical Management; and an Introduction to United States Government Information Assurance Regulations. This volume explains ISSE by comparing it to a traditional Systems Engineering model, enabling you to see the correlation of how security fits into the design and development process for information systems. It also details key points of more than 50 U.S. government policies and procedures that need to be understood in order to understand the CBK and protect U.S. government information. About the Author Susan Hansche, CISSP-ISSEP is the training director for information assurance at Nortel PEC Solutions in Fairfax, Virginia. She has more than 15 years of experience in the field and since 1998 has served as the contractor program manager of the information assurance training program for the U.S. Department of State.

Drawing on best practices identified at the Software Quality Institute and embodied in bodies of knowledge from the Project Management Institute, the American Society of Quality, IEEE, and the Software Engineering Institute, Quality Software Project Management teaches 34 critical skills that allow any manager to minimize costs, risks, and time-to-market. Written by leading practitioners Robert T. Futrell, Donald F. Shafer, and Linda I. Shafer, it addresses the entire project lifecycle, covering process, project, and people. It contains extensive practical resources-including downloadable checklists, templates, and forms.

An engaging, illustrated collection of insights revealing the practices and principles that expert software designers use to create great software. What makes an expert software designer? It is more than experience or innate ability. Expert software designers have specific habits, learned practices, and observed principles that they apply deliberately during their design work. This book offers sixty-six insights, distilled from years of studying experts at work, that capture what successful software designers actually do to create great software. The book presents these insights in a series of two-page illustrated spreads, with the principle and a short explanatory text on one page, and a drawing on the facing page. For example, "Experts generate alternatives" is illustrated by the same few balloons turned into a set of very different balloon animals. The text is engaging and accessible; the drawings are thought-provoking and often playful. Organized into such categories as "Experts reflect," "Experts are not afraid," and "Experts break the rules," the insights range from "Experts prefer simple solutions" to "Experts see error as opportunity." Readers learn that "Experts involve the user"; "Experts take inspiration from wherever they can"; "Experts design throughout the creation of software"; and "Experts draw the problem as much as they draw the solution." One habit for an aspiring expert software designer to develop would be to read and reread this entertaining but essential little book. The insights described offer a guide for the novice or a reference for the veteran—in software design or any design profession. A companion web site provides an annotated bibliography that compiles key underpinning literature, the opportunity to suggest additional insights, and more.

The book has been written according to the syllabus prescribed by the Directorate General of Employment and Training for the Craftsman Training Scheme and the Apprenticeship Training Scheme for the Electrical Trades (Electrician, Wireman and Lineman). The first volume covers what should be taught in the first year. The language is very simple and the concepts are explained with the help of clear illustrations. The theory is supported by practical applications of the concepts. A number of solved examples have been provided. At each chapter end is a set of unsolved numerical problems and review questions. Answers to these have been provided. These review questions are taken from the examination papers of the National Council for Vocational trades and from the All India Skill Competitions. This book will help trainees and apprentices prepare themselves for the final examination and for the job interviews. Key features Software estimation, software quality, software project management, risk management, COCOMO II model covered in detail. Discussions on software engineering tools, user interface issues, ISO 9001, and CMM. Cases and Term Projects. A case for study and analysis with questions for discussion related to the topics learnt at the end of each part. An integrated solution to the case using both the approaches-System and Object-Oriented-given at the end of the text. Three cases are given at the end of Part V, for the students to analyze and submit as term project.

Extreme Programming has come a long way since its first use in the C3 project almost 10 years ago. Agile methods have found their way into the mainstream, and at the end of last year we saw the second edition of Kent Beck's book on Extreme Programming, containing a major refactoring of XP. This year, the 6th International Conference on Extreme Programming and Agile Processes in Software Engineering took place June 18–23 in Sheffield. As in the years before, XP 2005 provided a unique forum for industry and academic professionals to discuss their needs and ideas on Extreme Programming and agile methodologies. These proceedings reflect the activities during the conference which ranged from presentation of research papers, invited talks, posters and demonstrations, panels and activity sessions, to tutorials and workshops. Included are also papers from the Ph.D. and Master's Symposium which provided a forum for young researchers to present their results and to get feedback. As varied as the activities were the topics of the conference which covered the presentation of new and improved practices, empirical studies, experience reports and case studies, and last but not least the social aspects of agile methods. The papers and the activities went through a rigorous reviewing process. Each paper was reviewed by at least three Program Committee members and was discussed carefully among the Program Committee. Of 62 papers submitted, only 22 were accepted as full papers.

Software Development in Java is a comprehensive introduction to all aspects of software development. The authors discuss software engineering processes such as problem specification, modularization, aesthetic programming, stepwise re-refinement, testing, verification, and documentation. Besides these topics, software developers also need to understand performance analysis and measurement methods and make choices between data structures and algorithms. Software Development in Java also covers these topics. The authors use Java to teach software development and for the many examples. Software Development in Java is appropriate for use as a textbook for courses on good software development, introduction to computer science, and advanced programming. It is also a valuable reference

book for the experienced programmer. Software Development in Java is a must for software developers.

For courses in computer science and software engineering The Fundamental Practice of Software Engineering Software Engineering introduces students to the overwhelmingly important subject of software programming and development. In the past few years, computer systems have come to dominate not just our technological growth, but the foundations of our world's major industries. This text seeks to lay out the fundamental concepts of this huge and continually growing subject area in a clear and comprehensive manner. The Tenth Edition contains new information that highlights various technological updates of recent years, providing students with highly relevant and current information. Sommerville's experience in system dependability and systems engineering guides the text through a traditional plan-based approach that incorporates some novel agile methods. The text strives to teach the innovators of tomorrow how to create software that will make our world a better, safer, and more advanced place to live.

Software Engineering presents a broad perspective on software systems engineering, concentrating on widely used techniques for developing large-scale systems. The objectives of this seventh edition are to include new material on iterative software development, component-based software engineering and system architectures, to emphasize that system dependability is not an add-on but should be considered at all stages of the software process, and not to increase the size of the book significantly. To this end the book has been restructured into 6 parts, removing the separate section on evolution as the distinction between development and evolution can be seen as artificial. New chapters have been added on: Socio-technical Systems A discussing the context of software in a broader system composed of other hardware and software, people, organisations, policies, procedures and laws. Application System Architectures A to teach students the general structure of application systems such as transaction systems, information systems and embedded control systems. The chapter covers 6 common system architectures with an architectural overview and discussion of the characteristics of these types of system. Iterative Software Development A looking at prototyping and adding new material on agile methods and extreme programming. Component-based Software Engineering A introducing the notion of a component, component composition and component frameworks and covering design with reuse. Software Evolution A revising the presentation of the 6th edition to cover re-engineering and software change in a single chapter. The book supports students taking undergraduate or graduate courses in software engineering, and software engineers in industry needing to update their knowledge

Project Requirements: A Guide to Best Practices gives project managers tools they can assimilate and apply easily to improve project success rates, reduce development costs, reduce rework, and accelerate time to market. Based on experience and best practices, this valuable reference will help you:

- Clarify real requirements before you initiate project work
- Improve management of project requirements
- Save time and effort
- Manage to your schedule
- Improve the quality of deliverables
- Increase customer satisfaction and drive repeat business

Project Requirements: A Guide to Best Practices provides project managers with a direct, practical strategy to overcome requirements challenges and manage requirements successfully.

Even though Six Sigma programs have successfully been implemented in practice, many IT departments remain skeptical of the process or are unaware of how the tools can be used to improve system development. Removing the mystique surrounding this technique, Six Sigma Software Development, Second Edition demonstrates how Six Sigma tools and concepts can be used to enhance the system development process. Revised and updated, this second edition clearly explains Six Sigma concepts and their application, maps Six Sigma concepts and tools to all aspects of system development, and proposes the use of Six Sigma tools to evaluate and improve the overall performance of the IT department. In addition to classic Six Sigma, the book introduces Design for Six Sigma (DFSS) and illustrates when and how its tools and techniques can be used to increase the robustness and reliability of a new system. It also shows how the judicious application of lean tools can reduce the complexity of IT processes, thus shortening the time needed to translate customer requirements into completed systems and increasing customer satisfaction.

A complete introduction to building robust and reliable software Beginning Software Engineering demystifies the software engineering methodologies and techniques that professional developers use to design and build robust, efficient, and consistently reliable software. Free of jargon and assuming no previous programming, development, or management experience, this accessible guide explains important concepts and techniques that can be applied to any programming language. Each chapter ends with exercises that let you test your understanding and help you elaborate on the chapter's main concepts. Everything you need to understand waterfall, Sashimi, agile, RAD, Scrum, Kanban, Extreme Programming, and many other development models is inside! Describes in plain English what software engineering is Explains the roles and responsibilities of team members working on a software engineering project Outlines key phases that any software engineering effort must handle to produce applications that are powerful and dependable Details the most popular software development methodologies and explains the different ways they handle critical development tasks Incorporates exercises that expand upon each chapter's main ideas Includes an extensive glossary of software engineering terms

"As this book shows, Linux systems are just as functional, secure, and reliable as their proprietary counterparts. Thanks to the ongoing efforts of thousands of Linux developers, Linux is more ready than ever for deployment at the frontlines of the real world. The authors of this book know that terrain well, and I am happy to leave you in their most capable hands." –Linus Torvalds "The most successful sysadmin book of all time—because it works!" –Rik Farrow, editor of ;login: "This book clearly explains current technology with the perspective of decades of experience in large-scale system administration. Unique and highly recommended." –Jonathan Corbet, cofounder, LWN.net "Nemeth et al. is the overall winner for Linux administration: it's intelligent, full of insights, and looks at the implementation of concepts." –Peter Salus, editorial director, Matrix.net Since 2001, Linux Administration Handbook has been the definitive resource for every Linux® system administrator who must efficiently solve technical problems and maximize the reliability and performance of a production environment. Now, the authors have systematically updated this classic guide to address today's most important Linux distributions and most powerful new administrative tools. The authors spell out detailed best practices for every facet of system administration, including storage management, network design and administration, web hosting, software configuration management, performance analysis, Windows interoperability, and much more. Sysadmins will especially appreciate the thorough and up-to-date discussions of such difficult topics such as DNS, LDAP, security, and the management of IT service organizations. Linux® Administration Handbook, Second Edition, reflects the current versions of these leading distributions: Red Hat® Enterprise Linux® Fedora™ Core SUSE® Linux Enterprise Debian® GNU/Linux Ubuntu® Linux Sharing their war stories and hard-won insights, the authors capture the behavior of Linux systems in the real world, not just in ideal environments. They explain complex tasks in detail and illustrate these tasks with examples drawn from their extensive hands-on experience.

Nowadays, societies crucially depend on high-quality software for a large part of their functionalities and activities. Therefore, software professionals, researchers, managers, and practitioners alike have to competently decide what software technologies and products to choose for which purpose. For various reasons, systematic empirical studies employing strictly scientific methods are hardly practiced in software engineering. Thus there is an unquestioned need for developing improved and better-qualified empirical methods, for their application in practice and for dissemination of the results. This book describes different kinds of empirical studies and methods for performing such studies, e.g., for planning, performing, analyzing, and reporting such studies. Actual studies are presented in detail in various chapters dealing with inspections, testing, object-oriented techniques, and component-based software engineering.

EBOOK: OBJECT-ORIENTED SOFTWARE ENGINEERING

Gathering customer requirements is a key activity for developing software that meets the customer's needs. A concise and practical overview of everything a requirements analyst needs to know about establishing customer requirements, this first-of-its-kind book is the perfect desk guide for systems or software development work.

In this volume, the author shows how to dramatically reduce the time and resources expended in project planning, while producing more effective project specifications. It gives real-world insight into project planning and refreshing perspectives on how to tackle the software planning challenge. It provides simple techniques.

This is the eBook of the printed book and may not include any media, website access codes, or print supplements that may come packaged with the bound book. Intended for introductory and advanced courses in software engineering. The ninth edition of Software Engineering presents a broad perspective of software engineering, focusing on the processes and techniques fundamental to the creation of reliable, software systems. Increased coverage of agile methods and software reuse, along with coverage of 'traditional' plan-driven software engineering, gives readers the most up-to-date view of the field currently available. Practical case studies, a full set of easy-to-access supplements, and extensive web resources make teaching the course easier than ever. The book is now structured into four parts: 1: Introduction to Software Engineering 2: Dependability and Security 3: Advanced Software Engineering 4: Software Engineering Management

Reduce risk and improve the overall performance of IT assets! Federal IT Capital Planning and Investment Control is the first book to provide a comprehensive look at the IT capital planning and investment control (CPIC) process. Written from a practitioner's perspective, this book covers a range of topics designed to provide both strategic and operational perspectives on IT CPIC. From planning to evaluation, this valuable resource helps managers and analysts at all levels realize the full benefits of the CPIC process.

- Explore the full range of IT investment principles and practices
- Learn CPIC project management techniques including earned-value management, integrated baseline review, cost-benefit analysis, and risk-adjusted cost and schedule estimates
- Identify strategies to improve how your organization manages its IT portfolio and selects, controls, and evaluates investments
- Discover how to leverage scarce IT resources and align investments with program priorities
- Benefit from the in-depth coverage—excellent for the experienced as well as those new to the CPIC process

Software Engineering: A Methodical Approach (Second Edition) provides a comprehensive, but concise introduction to software engineering. It adopts a methodical approach to solving software engineering problems, proven over several years of teaching, with outstanding results. The book covers concepts, principles, design, construction, implementation, and management issues of software engineering. Each chapter is organized systematically into brief, reader-friendly sections, with itemization of the important points to be remembered. Diagrams and illustrations also sum up the salient points to enhance learning. Additionally, the book includes the author's original methodologies that add clarity and creativity to the software engineering experience. New in the Second Edition are chapters on software engineering projects, management support systems, software engineering frameworks and patterns as a significant building block for the design and construction of contemporary software systems, and emerging software engineering frontiers. The text starts with an introduction of software engineering and the role of the software engineer. The following chapters examine in-depth software analysis, design, development, implementation, and management. Covering object-oriented methodologies and the principles of object-oriented information engineering, the book reinforces an object-oriented approach to the early phases of the software development life cycle. It covers various diagramming techniques and emphasizes object classification and object behavior. The text features comprehensive treatments of: Project management aids that are commonly used in software engineering An overview of the software design phase, including a discussion of the software design process, design strategies, architectural design, interface design, database design, and design and development standards User interface design Operations design Design considerations including system catalog, product documentation, user message management, design for real-time software, design for reuse, system security, and the agile effect Human resource management from a software engineering perspective Software economics Software implementation issues that range from operating environments to the marketing of software Software maintenance, legacy systems, and re-engineering This textbook can be used as a one-semester or two-semester course in software engineering, augmented with an appropriate CASE or RAD tool. It emphasizes a practical, methodical approach to software engineering, avoiding an overkill of theoretical calculations where possible. The primary objective is to help students gain a solid grasp of the activities in the software development life cycle to be confident about taking on new software engineering projects.

For over 20 years, Software Engineering: A Practitioner's Approach has been the best selling guide to software engineering for students and industry professionals alike. The sixth edition continues to lead the way in software engineering. A new Part 4 on Web Engineering presents a complete engineering approach for the analysis, design, and testing of Web Applications, increasingly important for today's students. Additionally, the UML coverage has been enhanced and significantly increased in this new edition. The pedagogy has also been improved in the new edition to include sidebars. They provide information on relevant software tools, specific work flow for specific kinds of projects, and additional information on various topics. Additionally, Pressman provides a running case study called "Safe Home" throughout the book, which provides the application of software engineering to an industry project. New additions to the book also include chapters on the Agile Process Models, Requirements Engineering, and Design Engineering. The book has been completely updated and contains hundreds of new references to software tools that address all important topics in the book. The ancillary material for the book includes an expansion of the case study, which illustrates it with UML diagrams. The On-Line Learning Center includes resources for both instructors and students such as checklists, 700 categorized web references, Powerpoints, a test bank, and a software engineering library-containing over 500 software engineering papers. TAKEAWY HERE IS THE

FOLLOWING:1. AGILE PROCESS METHODS ARE COVERED EARLY IN CH. 42. NEW PART ON WEB APPLICATIONS --5 CHAPTERS

This book constitutes the refereed proceedings of the 7th European Workshop on Software Process Technology, EWSPT 2000, held in Kaprun, Austria in February 2000 in conjunction with a meeting of the European ESPRIT IV Project for Process Instance Evolution (PIE). The 21 revised papers presented were carefully reviewed and selected from 44 submissions. The book is organized in sections on methods, applications, process instance evolution, distributed processes and process modeling languages, and industrial experience.

Requirements Engineering Processes and Techniques Why this book was written The value of introducing requirements engineering to trainee software engineers is to equip them for the real world of software and systems development. What is involved in Requirements Engineering? As a discipline, newly emerging from software engineering, there are a range of views on where requirements engineering starts and finishes and what it should encompass. This book offers the most comprehensive coverage of the requirements engineering process to date - from initial requirements elicitation through to requirements validation. How and Which methods and techniques should you use? As there is no one catch-all technique applicable to all types of system, requirements engineers need to know about a range of different techniques. Tried and tested techniques such as data-flow and object-oriented models are covered as well as some promising new ones. They are all based on real systems descriptions to demonstrate the applicability of the approach. Who should read it? Principally written for senior undergraduate and graduate students studying computer science, software engineering or systems engineering, this text will also be helpful for those in industry new to requirements engineering. Accompanying Website: <http://www.comp.lancs.ac.uk/computing/resources/re> Visit our Website: <http://www.wiley.com/college/wws>

This text provides a comprehensive, but concise introduction to software engineering. It adopts a methodical approach to solving software engineering problems proven over several years of teaching, with outstanding results. The book covers concepts, principles, design, construction, implementation, and management issues of software systems. Each chapter is organized systematically into brief, reader-friendly sections, with itemization of the important points to be remembered. Diagrams and illustrations also sum up the salient points to enhance learning. Additionally, the book includes a number of the author's original methodologies that add clarity and creativity to the software engineering experience, while making a novel contribution to the discipline. Upholding his aim for brevity, comprehensive coverage, and relevance, Foster's practical and methodical discussion style gets straight to the salient issues, and avoids unnecessary topics and minimizes theoretical coverage.

Database Systems: A Pragmatic Approach is a classroom textbook for use by students who are learning about relational databases, and the professors who teach them. It discusses the database as an essential component of a software system, as well as a valuable, mission critical corporate resource. The book is based on lecture notes that have been tested and proven over several years, with outstanding results. It also exemplifies mastery of the technique of combining and balancing theory with practice, to give students their best chance at success. Upholding his aim for brevity, comprehensive coverage, and relevance, author Elvis C. Foster's practical and methodical discussion style gets straight to the salient issues, and avoids unnecessary fluff as well as an overkill of theoretical calculations. The book discusses concepts, principles, design, implementation, and management issues of databases. Each chapter is organized systematically into brief, reader-friendly sections, with itemization of the important points to be remembered. It adopts a methodical and pragmatic approach to solving database systems problems. Diagrams and illustrations also sum up the salient points to enhance learning. Additionally, the book includes a number of Foster's original methodologies that add clarity and creativity to the database modeling and design experience while making a novel contribution to the discipline. Everything combines to make Database Systems: A Pragmatic Approach an excellent textbook for students, and an excellent resource on theory for the practitioner.

"Software Engineering" presents a broad perspective on software systems engineering, concentrating on widely-used techniques for developing large-scale software systems. This best-selling book covers a wide spectrum of software processes from initial requirements elicitation through design and development to system evolution. It supports students taking undergraduate and graduate courses in software engineering. The sixth edition has been restructured and updated, important new topics have been added and obsolete material has been cut. Reuse now focuses on component-based development and patterns; object-oriented design has a process focus and uses the UML; the chapters on requirements have been split to cover the requirements themselves and requirements engineering process; cost estimation has been updated to include the COCOMO 2 model.

This book describes in detail how ARIS methods model and identify business processes by means of the UML (Unified Modeling Language), leading to an information model that serves as the basis for a systematic and intelligent development of application systems. Multiple real-world examples using SAP R/3 illustrate aspects of business process modeling including methods of knowledge management, implementation of workflow systems and standard software solutions, and the deployment of ARIS methods.

Job titles like "Technical Architect" and "Chief Architect" nowadays abound in software industry, yet many people suspect that "architecture" is one of the most overused and least understood terms in professional software development. Gorton's book tries to resolve this dilemma. It concisely describes the essential elements of knowledge and key skills required to be a software architect. The explanations encompass the essentials of architecture thinking, practices, and supporting technologies. They range from a general understanding of structure and quality attributes through technical issues like middleware components and service-oriented architectures to recent technologies like model-driven architecture, software product lines, aspect-oriented design, and the Semantic Web, which will presumably influence future software systems. This second edition contains new material covering enterprise architecture, agile development, enterprise service bus technologies, RESTful Web services, and a case study on how to use the MeDICi integration framework. All approaches are illustrated by an ongoing real-

world example. So if you work as an architect or senior designer (or want to someday), or if you are a student in software engineering, here is a valuable and yet approachable knowledge source for you.

This book discusses a comprehensive spectrum of software engineering techniques and shows how they can be applied in practical software projects. This edition features updated chapters on critical systems, project management and software requirements.

With its support for dynamic programming, C# 4.0 continues to evolve as a versatile language on its own. But when C# is used with .NET Framework 4, the combination is incredibly powerful. This bestselling tutorial shows you how to build web, desktop, and rich Internet applications using C# 4.0 with .NET's database capabilities, UI framework (WPF), extensive communication services (WCF), and more. In this sixth edition, .NET experts Ian Griffiths, Matthew Adams, and Jesse Liberty cover the latest enhancements to C#, as well as the fundamentals of both the language and framework. You'll learn concurrent programming with C# 4.0, and how to use .NET tools such as the Entity Framework for easier data access, and the Silverlight platform for browser-based RIA development. Learn C# fundamentals, such as variables, flow control, loops, and methods Build complex programs with object-oriented and functional programming techniques Process large collections of data with the native query features in LINQ Communicate across networks with Windows Communication Foundation (WCF) Learn the advantages of C# 4.0's dynamic language features Build interactive Windows applications with Windows Presentation Foundation (WPF) Create rich web applications with Silverlight and ASP.NET

The overwhelming majority of a software system's lifespan is spent in use, not in design or implementation. So, why does conventional wisdom insist that software engineers focus primarily on the design and development of large-scale computing systems? In this collection of essays and articles, key members of Google's Site Reliability Team explain how and why their commitment to the entire lifecycle has enabled the company to successfully build, deploy, monitor, and maintain some of the largest software systems in the world. You'll learn the principles and practices that enable Google engineers to make systems more scalable, reliable, and efficient—lessons directly applicable to your organization. This book is divided into four sections: Introduction—Learn what site reliability engineering is and why it differs from conventional IT industry practices Principles—Examine the patterns, behaviors, and areas of concern that influence the work of a site reliability engineer (SRE) Practices—Understand the theory and practice of an SRE's day-to-day work: building and operating large distributed computing systems Management—Explore Google's best practices for training, communication, and meetings that your organization can use

For one-semester courses in software engineering. Introduces software engineering techniques for developing software products and apps With Engineering Software Products, author Ian Sommerville takes a unique approach to teaching software engineering and focuses on the type of software products and apps that are familiar to students, rather than focusing on project-based techniques. Written in an informal style, this book focuses on software engineering techniques that are relevant for software product engineering. Topics covered include personas and scenarios, cloud-based software, microservices, security and privacy and DevOps. The text is designed for students taking their first course in software engineering with experience in programming using a modern programming language such as Java, Python or Ruby.

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