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Requirements Engineering Fundamentals A Study Guide for the Certified Professional for Requirements Engineering Exam - Foundation Level - Ireb Compliant Requirements engineering tasks have become increasingly complex. In order to ensure a high level of knowledge and competency among requirements engineers, the International Requirements Engineering Board (IREB) developed a standardized qualification called the Certified Professional for Requirements Engineering (CPRE). The certification defines the practical skills of a requirements engineer on various training levels. This book is designed for self-study and covers the curriculum for the Certified Professional for Requirements Engineering Foundation Level exam as defined by the IREB. The 2nd edition has been thoroughly revised and is aligned with the curriculum Version 2.2 of the IREB. In addition, some minor corrections to the 1st edition have been included. About IREB: The mission of the IREB is to contribute to the standardization of further education in the fields of business analysis and requirements engineering by providing syllabi and examinations, thereby achieving a higher level of applied requirements engineering. The IRE Board is comprised of a balanced mix of independent, internationally recognized experts in the fields of economy, consulting, research, and science. The IREB is a non-profit corporation. For more information visit www.certified-re.com. **Requirements Engineering Fundamentals, 2nd Edition A Study Guide for the Certified Professional for Requirements Engineering Exam - Foundation Level - IREB compliant** Rocky Nook, Inc. Requirements engineering tasks have become increasingly complex. In order to ensure a high level of knowledge and competency among requirements engineers, the International Requirements Engineering Board (IREB) developed a standardized qualification called the Certified Professional for Requirements Engineering (CPRE). The certification defines the practical skills of a requirements engineer on various training levels. This book is designed for self-study and covers the curriculum for the Certified Professional for Requirements Engineering Foundation Level exam as defined by the IREB. **The 2nd edition** has been thoroughly revised and is aligned with the curriculum Version 2.2 of the IREB. In addition, some minor corrections to the 1st edition have been included. **About IREB:** The mission of the IREB is to contribute to the standardization of further education in the fields of business analysis and requirements engineering by providing syllabi and examinations, thereby achieving a higher level of applied requirements engineering. The IRE Board is comprised of a balanced mix of independent, internationally recognized experts in the fields of economy, consulting, research, and science. The IREB is a non-profit corporation. For more information visit www.certified-re.com **Requirements Engineering Fundamentals A Study Guide for the Certified Professional for Requirements Engineering Exam, Foundation Level--IREB Compliant** Requirements engineering tasks have become increasingly complex. In order to ensure a high level of knowledge and competency among requirements engineers, the International Requirements Engineering Board (IREB) developed a standardized qualification called the Certified Professional for Requirements Engineering (CPRE). The certification defines the practical skills of a requirements engineer on various training levels. This book is designed for self-study and covers the curriculum for the Certified Professional for Requirements Engineering Foundation Level exam as defined by the IREB. The 2nd edition has been thoroughly revised and is aligned with the curriculum Version 2.2 of the IREB. In addition, some minor corrections to the 1st edition have been included. **Requirements Engineering Fundamentals, Principles, and Techniques** Springer Requirements engineering is the process of eliciting individual stakeholder requirements and needs and developing them into detailed, agreed requirements documented and specified in such a way that they can serve as the basis for all other system development activities. In this textbook, Klaus Pohl provides a comprehensive and well-structured introduction to the fundamentals, principles, and techniques of requirements engineering. He presents approved techniques for eliciting, negotiating and documenting as well as validating, and managing requirements for software-intensive systems. The various aspects of the process and the techniques are illustrated using numerous examples based on his extensive teaching experience and his work in industrial collaborations. His presentation aims at professionals, students, and lecturers in systems and software engineering or business applications development. Professionals such as project managers, software architects, systems analysts, and software engineers will benefit in their daily work from the didactically well-presented combination of validated procedures and industrial experience. Students and lecturers will appreciate the comprehensive description of sound fundamentals, principles, and techniques, which is completed by a huge commented list of references for further reading. Lecturers will find additional teaching material on the book's website, www.requirements-book.com. **Blueprint Reading Construction Drawings for the Building Trade** McGraw Hill Professional Improve Your Ability to Read and Interpret All Types of Construction Drawings Blueprint Reading is a step-by-step guide to reading and interpreting all types of construction drawings. Filled with hundreds of illustrations and study questions, this easy-to-use resource offers a complete overview of construction drawing basics for every aspect of the construction process- from site work, foundations, and structural systems to interior work and finishes. Covering all the latest technological advances, noted architect Sam Kubba offers detailed information on: Blueprint standards-ANSI, ISO, AWS, and ASME Computer-aided design (CAD) and computer-aided design and drafting (CADD) Lines, views, elevations, and dimensions Layouts of all construction drawing types-architectural, structural, mechanical, and electrical Specifications-MasterFormat and UniFormat Symbols-materials, electrical, plumbing, HVAC, and others How to avoid costly pitfalls on construction projects You'll also find a glossary of terms for quick reference, convenient tables and charts for identifying symbols and abbreviations, and much more. Inside This Skills-Building Guide to Construction Drawing Basics • Blueprint Standards • Blueprints and Construction Drawings: A Universal Language • Understanding Lines • Types of Views • Understanding Dimensions • Layout of Construction Drawings • Understanding Industrial Blueprints • The Meaning of Symbols • Understanding Schedules • Specifications • ISO Issues, Codes, and Building Regulations • Construction Business Environment **Testing in Scrum A Guide for Software Quality Assurance in the Agile World** Rocky Nook, Inc. These days, more and more software development projects are being carried out using agile methods like Scrum. Agile software development promises higher software quality, a shorter time to market, and improved focus on customer needs. However, the transition to working within an agile methodology is not easy. Familiar processes and procedures change drastically. Software testing and software quality assurance have a crucial role in ensuring that a software development team, department, or company successfully implements long-term agile development methods and benefits from this framework. This book discusses agile methodology from the perspective of software testing and software quality assurance management. Software development managers, project managers, and quality assurance managers will obtain tips and tricks on how to organize testing and assure quality so that agile projects maintain their impact. Professional certified testers and software quality assurance experts will learn how to work successfully within agile software teams and how best to integrate their expertise. Topics include: Agile methodology and classic process models How to plan an agile project Unit tests and test first approach Integration testing and continuous integration System testing and test nonstop Quality management and quality assurance Also included are five case studies from the manufacturing, online-trade, and software industry as well as test exercises for self-assessment. This book covers the new ISTQB Syllabus for Agile Software Testing and is a relevant resource for all students and trainees worldwide who plan to undertake this ISTQB certification. **Exploring and Optimizing Agricultural Landscapes** Springer Nature The book informs about agricultural landscapes, their features, functions and regulatory mechanisms. It characterizes agricultural production systems, trends of their development, and their impacts on the landscape. Agricultural landscapes are multifunctional systems, coupled with all nexus problems of the 21st century. This has led to serious discrepancies between agriculture and environment, and between urban and rural population. The mission, key topics and methods of research in order to understanding, monitoring and controlling processes in rural landscapes is being explained. Studies of international expert teams, many of them from Russia, demonstrate approaches towards both improving agricultural productivity and sustainability, and enhancing ecosystem services of agricultural landscapes. Scientists of different disciplines, decision makers, farmers and further informed people dealing with the evolution of thriving rural landscapes are the primary audience of this book. **Software Architecture Foundation CPSA Foundation® Exam Preparation** Van Haren This book covers everything you need to master the iSAQB® Certified Professional for Software Architecture - Foundation Level (CPSA-F) certification. This internationally renowned education and certification schema defines various learning path for practical software architects. This book concentrates on the foundation level examination. It explains and clarifies all 40+ learning goals of the CPSA-F® curriculum. In addition, you find step-by-step preparation guide for the examination. Please beware: This book is not meant as a replacement for existing software architecture books and courses, but strongly focusses on explaining and clarifying the iSAQB CPSA-F foundation. **Requirements Engineering From System Goals to UML Models to Software Specifications** Wiley Global Education Essential comprehensive coverage of the fundamentals of requirements engineering Requirements engineering (RE) deals with the variety of prerequisites that must be met by a software system within an organization in order for that system to produce stellar results. With that explanation in mind, this must-have book presents a disciplined approach to the engineering of high-quality requirements. Serving as a helpful introduction to the fundamental concepts and principles of requirements engineering, this guide offers a comprehensive review of the aim, scope, and role of requirements engineering as well as best practices and flaws to avoid. Shares state-of-the-art techniques for domain analysis, requirements elicitation, risk analysis, conflict management, and more Features in-depth treatment of system modeling in the specific context of engineering requirements Presents various forms of reasoning about models for requirements quality assurance Discusses the transitions from requirements to software specifications to software architecture In addition, case studies are included that complement the many examples provided in the book in order to show you how the described method and techniques are applied in practical situations. **Software and Systems Traceability** Springer Science & Business Media Software and Systems Traceability provides a comprehensive description of the practices and theories of software traceability across all phases of the software development lifecycle. The term software traceability is derived from the concept of requirements traceability. Requirements traceability is the ability to track a requirement all the way from its origins to the downstream work products that implement that requirement in a software system. Software traceability is defined as the ability to relate the various types of software artefacts created during the development of software systems. Traceability relations can improve the quality of a product being developed, and reduce the time and cost of development. More specifically, traceability relations can support evolution of software systems, reuse of parts of a system by comparing components of new and existing systems, validation that a system meets its requirements, understanding of the rationale for certain design and implementation decisions, and analysis of the implications of changes in the system. **SysML Distilled A Brief Guide to the Systems Modeling Language** Pearson Education SysML Distilled is a go-to reference for everyone who wants to start creating accurate and useful system models with SysML. Drawing on his pioneering experience creating models for Lockheed Martin and NASA, Lenny Delligatti illuminates SysML's core components, and shows how to use them even under tight deadlines and other constraints. The reader needn't know all of SysML to create effective models: SysML Distilled quickly teaches what does need to be known, and helps deepen the reader's knowledge incrementally as the need arises. **Requirements Engineering** Springer Science & Business Media Written for those who want to develop their knowledge of requirements engineering process, whether practitioners or students. Using the latest research and driven by practical experience from industry, this book gives useful hints to practitioners on how to write and structure requirements. - Explains the importance of

Systems Engineering and the creation of effective solutions to problems - Describes the underlying representations used in system modeling - data flow diagrams; statecharts; object-oriented approaches - Covers a generic multi-layer requirements process - Discusses the key elements of effective requirements management - Includes a chapter written by one of the developers of rich traceability - Introduces an overview of DOORS - a software tool which serves as an enabler of a requirements management process Additional material and links are available at: <http://www.requirementsengineering.info> "In recent years we have been finding ourselves with a shortage of engineers with good competence in requirements engineering. Perhaps this is in part because requirements management tool vendors have persuaded management that a glitzy tool will solve their requirements engineering problems. Of course, the tools only make it possible for engineers who understand requirements engineering to do a better job. This book goes a long way towards building a foundational set of skills in requirements engineering, so that today's powerful tools can be used sensibly. Of particular value is a recognition of the place software requirements have within the system context, and of ways for dealing with that sensitive connection. This is an important book. I think its particular value in industry will be to bring the requirements engineers and their internal customers to a practical common understanding of what can and should be achieved." (Byron Purves, Technical Fellow, The Boeing Company) **Mastering the Requirements Process Getting Requirements Right** Pearson Education "Mastering the Requirements Process: Getting Requirements Right" sets out an industry-proven process for gathering and verifying requirements, regardless of whether you work in a traditional or agile development environment. In this sweeping update of the bestselling guide, the authors show how to discover precisely what the customer wants and needs, in the most efficient manner possible. **Requirements Writing for System Engineering** Apress Learn how to create good requirements when designing hardware and software systems. While this book emphasizes writing traditional "shall" statements, it also provides guidance on use case design and creating user stories in support of agile methodologies. The book surveys modeling techniques and various tools that support requirements collection and analysis. You'll learn to manage requirements, including discussions of document types and digital approaches using spreadsheets, generic databases, and dedicated requirements tools. Good, clear examples are presented, many related to real-world work the author has done during his career. Requirements Writing for System Engineering advantages of different requirements approaches and implement them correctly as your needs evolve. Unlike most requirements books, Requirements Writing for System Engineering teaches writing both hardware and software requirements because many projects include both areas. To exemplify this approach, two example projects are developed throughout the book, one focusing on hardware and the other on software. This book Presents many techniques for capturing requirements. Demonstrates gap analysis to find missing requirements. Shows how to address both software and hardware, as most projects involve both. Provides extensive examples of "shall" statements, user stories, and use cases. Explains how to supplement or replace traditional requirement statements with user stories and use cases that work well in agile development environments What You Will Learn Understand the 14 techniques for capturing all requirements. Address software and hardware needs; because most projects involve both. Ensure all statements meet the 16 attributes of a good requirement. Differentiate the 19 different functional types of requirement, and the 31 non-functional types. Write requirements properly based on extensive examples of good 'shall' statements, user stories, and use cases. Employ modeling techniques to mitigate the imprecision of words. Audience Writing Requirements teaches you to write requirements the correct way. It is targeted at the requirements engineer who wants to improve and master his craft. This is also an excellent book from which to teach requirements engineering at the university level. Government organizations at all levels, from Federal to local levels, can use this book to ensure they begin all development projects correctly. As well, contractor companies supporting government development are also excellent audiences for this book. **Software Architecture Fundamentals A Study Guide for the Certified Professional for Software Architecture® - Foundation Level - ISAQB compliant** dpunkt.verlag Software architecture is an important factor for the success of any software project. In the context of systematic design and construction, solid software architecture ensures the fulfilment of quality requirements such as expandability, flexibility, performance, and time-to-market. Software architects reconcile customer requirements with the available technical options and the prevailing conditions and constraints. They ensure the creation of appropriate structures and smooth interaction of all system components. As team players, they work closely with software developers and other parties involved in the project. This book gives you all the basic know-how you need to begin designing scalable system software architectures. It goes into detail on all the most important terms and concepts and how they relate to other IT practices. Following on from the basics, it describes the techniques and methods required for the planning, documentation, and quality management of software architectures. It details the role, the tasks, and the work environment of a software architect, as well as looking at how the job itself is embedded in company and project structures. The book is designed for self-study and covers the curriculum for the Certified Professional for Software Architecture - Foundation Level (CPSA-F) exam as defined by the International Software Architecture Qualification Board (ISAQB). **Product Lifecycle Management: Towards Knowledge-Rich Enterprises IFIP WG 5.1 International Conference, PLM 2012, Montreal, QC, Canada, July 9-11, 2012, Revised Selected Papers** Springer This book constitutes the refereed post-proceedings of the 9th IFIP WG 5.1 International Conference on Product Lifecycle Management, PLM 2012, held in Montreal, Canada, in July 2012. The 58 full papers presented were carefully reviewed and selected from numerous submissions. They cover a large range of topics such as collaboration in PLM, tools and methodologies for PLM, modeling for PLM, and PLM implementation issues. **Writing Effective Use Cases** Pearson Education This guide will help readers learn how to employ the significant power of use cases to their software development efforts. It provides a practical methodology, presenting key use case concepts. **Managed Software Evolution** Springer This open access book presents the outcomes of the "Design for Future - Managed Software Evolution" priority program 1593, which was launched by the German Research Foundation ("Deutsche Forschungsgemeinschaft (DFG)") to develop new approaches to software engineering with a specific focus on long-lived software systems. The different lifecycles of software and hardware platforms lead to interoperability problems in such systems. Instead of separating the development, adaptation and evolution of software and its platforms, as well as aspects like operation, monitoring and maintenance, they should all be integrated into one overarching process. Accordingly, the book is split into three major parts, the first of which includes an introduction to the nature of software evolution, followed by an overview of the specific challenges and a general introduction to the case studies used in the project. The second part of the book consists of the main chapters on knowledge carrying software, and cover tacit knowledge in software evolution, continuous design decision support, model-based round-trip engineering for software product lines, performance analysis strategies, maintaining security in software evolution, learning from evolution for evolution, and formal verification of evolutionary changes. In turn, the last part of the book presents key findings and spin-offs. The individual chapters there describe various case studies, along with their benefits, deliverables and the respective lessons learned. An overview of future research topics rounds out the coverage. The book was mainly written for scientific researchers and advanced professionals with an academic background. They will benefit from its comprehensive treatment of various topics related to problems that are now gaining in importance, given the higher costs for maintenance and evolution in comparison to the initial development, and the fact that today, most software is not developed from scratch, but as part of a continuum of former and future releases. **Plasma Spectrochemistry Model-Based Engineering of Collaborative Embedded Systems Extensions of the SPES Methodology** Springer Nature This Open Access book presents the results of the "Collaborative Embedded Systems" (CrEst) project, aimed at adapting and complementing the methodology underlying modeling techniques developed to cope with the challenges of the dynamic structures of collaborative embedded systems (CESs) based on the SPES development methodology. In order to manage the high complexity of the individual systems and the dynamically formed interaction structures at runtime, advanced and powerful development methods are required that extend the current state of the art in the development of embedded systems and cyber-physical systems. The methodological contributions of the project support the effective and efficient development of CESs in dynamic and uncertain contexts, with special emphasis on the reliability and variability of individual systems and the creation of networks of such systems at runtime. The project was funded by the German Federal Ministry of Education and Research (BMBWF), and the case studies are therefore selected from areas that are highly relevant for Germany's economy (automotive, industrial production, power generation, and robotics). It also supports the digitalization of complex and transformable industrial plants in the context of the German government's "Industry 4.0" initiative, and the project results provide a solid foundation for implementing the German government's high-tech strategy "Innovations for Germany" in the coming years. **Twelve Years a Slave** Prabhat Prakashan "Having been born a freeman, and for more than thirty years enjoyed the blessings of liberty in a free State—and having at the end of that time been kidnapped and sold into Slavery, where I remained, until happily rescued in the month of January, 1853, after a bondage of twelve years—it has been suggested that an account of my life and fortunes would not be uninteresting to the public." -an excerpt **Financial Planning Competency Handbook** John Wiley & Sons The official guide for exam success and career excellence Financial Planning Competency Handbook, Second Edition is the essential reference for those at any stage of certification and a one-stop resource for practitioners looking to better serve their clients. This fully updated second edition includes brand new content on connections diagrams, new case studies, and new instructional videos, and a completely new section devoted to the interdisciplinary nature of financial planning. You'll gain insights from diverse fields like psychology, behavioral finance, communication, and marriage and family therapy to help you better connect with and guide your clients, alongside the detailed financial knowledge you need to perform to the highest expectations as a financial planner. This book contains over ninety chapters that are essential for practitioners, students, and faculty. Whether a practitioner, student, or faculty member, this guide is the invaluable reference you need at your fingertips. Comprehensive, clear, and detailed, this handbook forms the foundation of the smart financial planner's library. Each jurisdiction has its own laws and regulations surrounding financial planning, but the information in this book represents the core body of knowledge the profession demands no matter where you practice. Financial Planning Competency Handbook, Second Edition guides you from student to practitioner and far beyond, with the information you need when you need it. **White Papers 2019** The Living Architecture Systems Group is an interdisciplinary partnership of academics, artists, designers, and industry partners dedicated to researching and developing next-generation architectural environments. Projects produced by this group are now showing qualities that come strikingly close to life. These experimental works can move, respond, explore, learn, and adapt. Open boundaries and expanded dimensions run throughout the studies, exploring the scales of new adaptive and responsive architecture, from intimate personal spaces to regional infrastructures. Dimensions at the edges of human perception, subtle phenomena, immersive sonic environments, and precise measurements using innovative software controls are included. Deep involvement in computation and material craft is offered, reflecting the unparalleled new abilities of designers to precisely address material performance. This White Papers 2019 volume offers readers a sense of the variety and depth of research that is being conducted by Living Architecture Systems Group. **Continuous Software Engineering** Springer This book provides essential insights on the adoption of modern software engineering practices at large companies producing software-intensive systems, where hundreds or even thousands of engineers collaborate to deliver on new systems and new versions of already deployed ones. It is based on the findings collected and lessons learned at the Software Center (SC), a unique collaboration between research and industry, with Chalmers University of Technology, Gothenburg University and Malmö University as academic partners and Ericsson, AB Volvo, Volvo Car Corporation, Saab Electronic Defense Systems, Grundfos, Axis Communications, Jeppesen (Boeing) and Sony Mobile as industrial partners. The 17 chapters present the "Stairway to Heaven" model, which represents the typical evolution path companies move through as they develop and mature their software engineering capabilities. The chapters describe theoretical frameworks, conceptual models and, most importantly, the industrial experiences gained by the partner companies in applying novel software engineering techniques. The book's structure consists of six parts. Part I describes the model in detail and presents an overview of lessons learned in the collaboration between industry and academia. Part II deals with the first step of the Stairway to Heaven, in which R&D adopts agile work practices. Part III of the book combines the next two phases, i.e., continuous integration (CI) and continuous delivery (CD), as they are closely intertwined. Part IV is concerned with the highest level, referred to as "R&D as an innovation system," while Part V addresses a topic that is separate from the Stairway to Heaven and yet critically important in large organizations: organizational performance metrics that capture data, and visualizations of the status of software assets, defects and teams. Lastly, Part VI presents the perspectives of two of the SC partner companies. The book is intended for practitioners and professionals in the software-intensive systems industry, providing concrete models, frameworks and case studies that show the specific challenges that the partner companies encountered, their approaches to overcoming them, and the results. Researchers will gain valuable insights on the problems faced by large software companies, and on how to effectively tackle them in the context of successful cooperation projects. **Warning Miracle** Lulu.com **Agile Systems Engineering** Morgan Kaufmann Agile Systems Engineering presents a vision of systems engineering where precise specification of requirements, structure, and behavior meet larger concerns as such as safety, security, reliability, and performance in an agile engineering context. World-renown author and speaker Dr. Bruce Powel Douglass incorporates agile methods and model-based systems engineering (MBSE) to define the properties of entire systems while avoiding errors that can occur when using traditional textual specifications. Dr. Douglass covers the lifecycle of systems development, including requirements, analysis, design, and the handoff to specific engineering disciplines. Throughout, Dr. Douglass couples agile methods with SysML and MBSE to arm system

engineers with the conceptual and methodological tools they need to avoid specification defects and improve system quality while simultaneously reducing the effort and cost of systems engineering. Identifies how the concepts and techniques of agile methods can be effectively applied in systems engineering context Shows how to perform model-based functional analysis and tie these analyses back to system requirements and stakeholder needs, and forward to system architecture and interface definition Provides a means by which the quality and correctness of systems engineering data can be assured (before the entire system is built!) Explains agile system architectural specification and allocation of functionality to system components Details how to transition engineering specification data to downstream engineers with no loss of fidelity Includes detailed examples from across industries taken through their stages, including the "Waldo" industrial exoskeleton as a complex system **Machine Learning in Chemistry The Impact of Artificial Intelligence** *Royal Society of Chemistry* Progress in the application of machine learning (ML) to the physical and life sciences has been rapid. A decade ago, the method was mainly of interest to those in computer science departments, but more recently ML tools have been developed that show significant potential across wide areas of science. There is a growing consensus that ML software, and related areas of artificial intelligence, may, in due course, become as fundamental to scientific research as computers themselves. Yet a perception remains that ML is obscure or esoteric, that only computer scientists can really understand it, and that few meaningful applications in scientific research exist. This book challenges that view. With contributions from leading research groups, it presents in-depth examples to illustrate how ML can be applied to real chemical problems. Through these examples, the reader can both gain a feel for what ML can and cannot (so far) achieve, and also identify characteristics that might make a problem in physical science amenable to a ML approach. This text is a valuable resource for scientists who are intrigued by the power of machine learning and want to learn more about how it can be applied in their own field. **Software Architecture in Practice** *Addison-Wesley Professional* This is the eagerly-anticipated revision to one of the seminal books in the field of software architecture which clearly defines and explains the topic. **Agile Model-Based Systems Engineering Cookbook Improve system development by applying proven recipes for effective agile systems engineering** *Packt Publishing Ltd* The Agile Model-Based Systems Engineering Cookbook distills the most relevant MBSE workflows and work products into a set of easy-to-follow recipes, complete with examples of their application. This book serves as a quick and reliable practical reference for systems engineers looking to apply agile MBSE to real-world projects. **Agile Project Management Creating Innovative Products** *Pearson Education* Best practices for managing projects in agile environments—now updated with new techniques for larger projects Today, the pace of project management moves faster. Project management needs to become more flexible and far more responsive to customers. Using Agile Project Management (APM), project managers can achieve all these goals without compromising value, quality, or business discipline. In *Agile Project Management, Second Edition*, renowned agile pioneer Jim Highsmith thoroughly updates his classic guide to APM, extending and refining it to support even the largest projects and organizations. Writing for project leaders, managers, and executives at all levels, Highsmith integrates the best project management, product management, and software development practices into an overall framework designed to support unprecedented speed and mobility. The many topics added in this new edition include incorporating agile values, scaling agile projects, release planning, portfolio governance, and enhancing organizational agility. Project and business leaders will especially appreciate Highsmith's new coverage of promoting agility through performance measurements based on value, quality, and constraints. This edition's coverage includes: Understanding the agile revolution's impact on product development Recognizing when agile methods will work in project management, and when they won't Setting realistic business objectives for Agile Project Management Promoting agile values and principles across the organization Utilizing a proven Agile Enterprise Framework that encompasses governance, project and iteration management, and technical practices Optimizing all five stages of the agile project: Envision, Speculate, Explore, Adapt, and Close Organizational and product-related processes for scaling agile to the largest projects and teams Agile project governance solutions for executives and management The "Agile Triangle": measuring performance in ways that encourage agility instead of discouraging it The changing role of the agile project leader **Software Requirements** *Publisher Fact Sheet* A concise, hands-on approach to managing & improving the critical requirements process in software development. **Safety and Security of Cyber-Physical Systems Engineering dependable Software using Principle-based Development** *Springer Nature* Cyber-physical systems (CPSs) consist of software-controlled computing devices communicating with each other and interacting with the physical world through sensors and actuators. A CPS has, therefore, two parts: The cyber part implementing most of the functionality and the physical part, i.e., the real world. Typical examples of CPS's are a water treatment plant, an unmanned aerial vehicle, and a heart pacemaker. Because most of the functionality is implemented in software, the software is of crucial importance. The software determines the functionality and many CPS properties, such as safety, security, performance, real-time behavior, etc. Therefore, avoiding safety accidents and security incidents in the CPS requires highly dependable software. Methodology Today, many methodologies for developing safe and secure software are in use. As software engineering slowly becomes disciplined and mature, generally accepted construction principles have emerged. This monograph advocates principle-based engineering for the development and operation of dependable software. No new development process is suggested, but integrating security and safety principles into existing development processes is demonstrated. **Safety and Security Principles** At the core of this monograph are the engineering principles. A total of 62 principles are introduced and catalogized into five categories: Business & organization, general principles, safety, security, and risk management principles. The principles are rigorous, teachable, and enforceable. The terminology used is precisely defined. The material is supported by numerous examples and enriched by illustrative quotes from celebrities in the field. **Final Words** «In a cyber-physical system's safety and security, any compromise is a planned disaster» Audience First, this monograph is for organizations that want to improve their methodologies to build safe and secure software for mission-critical cyber-physical systems. Second, the material is suitable for a two-semester, 4 hours/week, advanced computer science lecture at a Technical University. This textbook has been recommended and developed for university courses in Germany, Austria and Switzerland. **Discovering Requirements How to Specify Products and Services** *John Wiley & Sons* "This book is not only of practical value. It's also a lot of fun to read." Michael Jackson, *The Open University*. Do you need to know how to create good requirements? *Discovering Requirements* offers a set of simple, robust, and effective cognitive tools for building requirements. Using worked examples throughout the text, it shows you how to develop an understanding of any problem, leading to questions such as: What are you trying to achieve? Who is involved, and how? What do those people want? Do they agree? How do you envisage this working? What could go wrong? Why are you making these decisions? What are you assuming? The established author team of Ian Alexander and Ljerka Beus-Dukic answer these and related questions, using a set of complementary techniques, including stakeholder analysis, goal modelling, context modelling, storytelling and scenario modelling, identifying risks and threats, describing rationales, defining terms in a project dictionary, and prioritizing. This easy to read guide is full of carefully-checked tips and tricks. Illustrated with worked examples, checklists, summaries, keywords and exercises, this book will encourage you to move closer to the real problems you're trying to solve. Guest boxes from other experts give you additional hints for your projects. Invaluable for anyone specifying requirements including IT practitioners, engineers, developers, business analysts, test engineers, configuration managers, quality engineers and project managers. A practical sourcebook for lecturers as well as students studying software engineering who want to learn about requirements work in industry. Once you've read this book you will be ready to create good requirements! **Model-Based Engineering of Embedded Systems The SPES 2020 Methodology** *Springer Science & Business Media* Embedded systems have long become essential in application areas in which human control is impossible or infeasible. The development of modern embedded systems is becoming increasingly difficult and challenging because of their overall system complexity, their tighter and cross-functional integration, the increasing requirements concerning safety and real-time behavior, and the need to reduce development and operation costs. This book provides a comprehensive overview of the Software Platform Embedded Systems (SPES) modeling framework and demonstrates its applicability in embedded system development in various industry domains such as automation, automotive, avionics, energy, and healthcare. In *SPES 2020*, twenty-one partners from academia and industry have joined forces in order to develop and evaluate in different industrial domains a modeling framework that reflects the current state of the art in embedded systems engineering. The content of this book is structured in four parts. Part I "Starting Point" discusses the status quo of embedded systems development and model-based engineering, and summarizes the key requirements faced when developing embedded systems in different application domains. Part II "The SPES Modeling Framework" describes the SPES modeling framework. Part III "Application and Evaluation of the SPES Modeling Framework" reports on the validation steps taken to ensure that the framework met the requirements discussed in Part I. Finally, Part IV "Impact of the SPES Modeling Framework" summarizes the results achieved and provides an outlook on future work. The book is mainly aimed at professionals and practitioners who deal with the development of embedded systems on a daily basis. Researchers in academia and industry may use it as a compendium for the requirements and state-of-the-art solution concepts for embedded systems development. **Augmented Reality An Emerging Technologies Guide to AR** *Elsevier* With the explosive growth in mobile phone usage and rapid rise in search engine technologies over the last decade, augmented reality (AR) is poised to be one of this decade's most disruptive technologies, as the information that is constantly flowing around us is brought into view, in real-time, through augmented reality. In this cutting-edge book, the authors outline and discuss never-before-published information about augmented reality and its capabilities. With coverage of mobile, desktop, developers, security, challenges, and gaming, this book gives you a comprehensive understanding of what augmented reality is, what it can do, what is in store for the future and most importantly: how to benefit from using AR in our lives and careers. Educates readers how best to use augmented reality regardless of industry Provides an in-depth understanding of AR and ideas ranging from new business applications to new crime fighting methods Includes actual examples and case studies from both private and government application **Lessons Learned in Software Testing A Context-Driven Approach** *John Wiley & Sons* Decades of software testing experience condensed into the most important lessons learned. The world's leading software testing experts lend you their wisdom and years of experience to help you avoid the most common mistakes in testing software. Each lesson is an assertion related to software testing, followed by an explanation or example that shows you the how, when, and why of the testing lesson. More than just tips, tricks, and pitfalls to avoid, *Lessons Learned in Software Testing* speeds you through the critical testing phase of the software development project without the extensive trial and error it normally takes to do so. The ultimate resource for software testers and developers at every level of expertise, this guidebook features: * Over 200 lessons gleaned from over 30 years of combined testing experience * Tips, tricks, and common pitfalls to avoid by simply reading the book rather than finding out the hard way * Lessons for all key topic areas, including test design, test management, testing strategies, and bug reporting * Explanations and examples of each testing trouble spot help illustrate each lesson's assertion **Requirements Engineering for Software and Systems, Second Edition** *CRC Press* As requirements engineering continues to be recognized as the key to on-time and on-budget delivery of software and systems projects, many engineering programs have made requirements engineering mandatory in their curriculum. In addition, the wealth of new software tools that have recently emerged is empowering practicing engineers to improve their requirements engineering habits. However, these tools are not easy to use without appropriate training. Filling this need, *Requirements Engineering for Software and Systems, Second Edition* has been vastly updated and expanded to include about 30 percent new material. In addition to new exercises and updated references in every chapter, this edition updates all chapters with the latest applied research and industry practices. It also presents new material derived from the experiences of professors who have used the text in their classrooms. Improvements to this edition include: An expanded introductory chapter with extensive discussions on requirements analysis, agreement, and consolidation An expanded chapter on requirements engineering for Agile methodologies An expanded chapter on formal methods with new examples An expanded section on requirements traceability An updated and expanded section on requirements engineering tools New exercises including ones suitable for research projects Following in the footsteps of its bestselling predecessor, the text illustrates key ideas associated with requirements engineering using extensive case studies and three common example systems: an airline baggage handling system, a point-of-sale system for a large pe