Software Engineering Project Proposal Sample

This book addresses action research (AR), one of the main research methodologies used for academia-industry research collaborations. It elaborates on how to find the right research activities and how to distinguish them from non-significant ones. Further, it details how to glean lessons from the research results, no matter whether they are positive or negative. Lastly, it shows how companies can evolve and build talents while expanding their product portfolio. The book's structure is based on that of AR projects; it sequentially covers and discusses each phase of the project. Each chapter shares new insights into AR and provides the reader with a better understanding of how to apply it. In addition, each chapter includes a number of practical use cases or examples. Taken together, the chapters cover the entire software lifecycle: from problem diagnosis to project (or action) planning and execution, to documenting and disseminating results, including validity assessments for AR studies. The goal of this book is to help everyone interested in industry-academia collaborations to conduct joint research. It is for students of software engineering who need to learn about how to set up an evaluation, how to run a project, and how to document the results. It is for all academics who aren't afraid to step out of their comfort zone and enter industry. It is for industrial researchers who know that they want to do more than just develop software blindly. And finally, it is for stakeholders who want to learn how to manage industrial research projects and how to set up guidelines for their own role and expectations.

Encyclopedia of Software Engineering Three-Volume Set (Print)CRC Press

Like other sciences and engineering disciplines, software engineering requires a cycle of model building, experimentation, and learning. Experiments are valuable tools for all software engineers who are involved in evaluating and choosing between different methods, techniques, languages and tools. The purpose of Experimentation in Software Engineering is to introduce students, teachers, researchers, and practitioners to empirical studies in software engineering, using controlled experiments. The introduction to experimentation is provided through a process perspective, and the focus is on the steps that we have to go through to perform an experiment. The book is divided into three parts. The first part provides a background of theories and methods used in experimentation. Part II then devotes one chapter to each of the five experiment steps: scoping, planning, execution, analysis, and result presentation. Part III completes the presentation with two examples. Assignments and statistical material are provided in appendixes. Overall the book provides indispensable information regarding empirical studies in particular for experiments, but also for case studies, systematic literature reviews, and surveys. It is a revision of the authors' book, which was published in 2000. In addition, substantial new material, e.g. concerning systematic literature reviews and case study research, is introduced. The book is self-contained and it is suitable as a course book in undergraduate or graduate studies where the need for empirical studies in software engineering is stressed. Exercises and assignments are included to combine the more theoretical material with practical aspects. Researchers will also benefit from the book, learning more about how to conduct empirical studies, and likewise practitioners may use it as a "cookbook" when evaluating new methods or techniques before implementing them in their organization.

You're a computing or information student with a huge mountain to climb – that final-year research project. Don't worry, because with this book guardian angels are at hand, in the form of four brilliant academics who will guide you through the process. The book provides you with all the tools necessary to successfully complete a final year research project. Based on an approach that has been tried and tested on over 500 projects, it offers a simple step-by-step guide to the key processes involved. Not only that, but the book also contains lots of useful information for supervisors and examiners including guidelines on how to review a final year project.

Bioinformatics Software Engineering: Delivering Effective Applications will be useful to anyone who wants to understand how successful software can be developed in a rapidly changing environment. A handbook, not a textbook, it is not tied to any particular operating system, platform, language, or methodology. Instead it focuses on principles and practices that have been proven in the real world. It is pragmatic, emphasizing the importance of what the author calls Adaptive Programming - doing what works in your situation, and it is concise, covering the whole software development lifecycle in one slim volume. At each stage, it describes common pitfalls, explains how these can be avoided, and suggests simple techniques which make it easier to deliver better solutions. "Well thought-out ... addresses many of the key issues facing developers of bioinformatics software." (Simon Dear, Director, UK Technology and Development, Bioinformatics Engineering and Integration, Genetics Research, GlaxoSmithKline) Here are some examples from the book itself. On software development: "Writing software properly involves talking to people – often lots of people – and plenty of non-coding work on your part. It requires the ability to dream up new solutions to problems so complicated that they are hard to describe." From description to specification: "Look for verbs – action words, such as 'does', 'is' and 'views'. Identify nouns – naming words, like 'user', 'home' and 'sequence'. List the adjectives – describing words, for example 'quick', 'simple' or 'precise'. The verbs are the functions that must be provided by your application. The nouns define the parameters to those functions, and the adjectives specify the constraint conditions under which your program must operate." On how to start writing software: "Handle errors. Take in data. Show output. Get going!" On testing: "It may not be physically possible to test every potential combination of situations that could occur as users interact with a program. But one thing that can be done is to test an application at the agreed extremes of its capability: the maximum number of simultaneous users it has to support, the minimum system configuration it must run on, the lowest communication speed it must cope with, and the most complex operations it must perform. If your program can cope with conditions at the edge of its performance envelope, it is less likely to encounter difficulties in dealing with less challenging situations." On showing early versions of software to users: "It can be hard explaining the software development process to people who are unfamiliar with it. Code that to you is nearly finished is simply not working to them, and seeing their dream in bits on the workbench can be disappointing to customers, especially when they were expecting to be able to take it for a test drive." On bugs: "If your users find a genuinely reproducible bug in production code, apologize, fix it fast, and then fix the system that allowed it through. And tell your customers what you are doing, and why, so they will be confident that it will not happen again. Everybody makes mistakes. Don't make the same ones twice." And one last thought on successful software development: "You have to be a detective, following up clues and examining evidence to discover what has gone wrong and why. And you have to be a politician, underst

The book is about RBPS (Risk Based Problem Solving) and RBDM (Risk Based Decision Making). Every project is subjected to the known risks and the unknown risks. Known risks are the four constraints of a project. The four constraints are; scope; schedule; cost; and quality. Unknown risks are the uncertainties and variances that surround every project. The book discusses in detail, with examples and risk stories to support the points made in the book, PM, RM, EVM, and Subcontract Management (SM). Understanding these four disciplines and how to incorporate them into a project, is essential to effective RBPS and RBDM. Project Management knowledge and skills are necessary to manage the known risks. Risk Management knowledge and skills are essential to identifying, assessing and mitigating unknown risks. Earned Value Management is important to tracking and controlling risk mitigation plans. Many companies outsource most of their work scope to subcontractors, so having Subcontract Management knowledge and skills is key to mitigating subcontract risks. The future of work is also discussed in detail. Future work will be projectized more. Working remotely is a trend that is increasing. Project Managers will have a more difficult problem in the future managing a diverse workforce of on-site, remote, and part-time workers. You need to be aware of future trends. The book is structured in a logical sequence and is easy to read. Step by step processes are presented in a logical way with practical examples to help you understand the process. Most of the methods and techniques discussed in the book are based on my DOD experience. However, these techniques also apply to the IT, and Construction Industries.

The all pervasive web is influencing all aspects of human endeavour. In order to strengthen the description of web resources, so that they are more meaningful to both humans and machines, web semantics have been proposed. These allow better annotation, understanding, search, interpretation and composition of these - sources. The growing importance of these has brought about a great increase in research into these issues. We propose a series of books that will address key issues in web semantics on an annual basis. This book series can be considered as an extended journal published annually. The series will combine theoretical results, standards, and their realizations in applications and implementations. The series is titled “Advances in Web Sem- tics” and will be published periodically by Springer to promote emerging Semantic Web technologies. It will contain the cream of the collective contribution of the Int- national Federation for Information Processing (IFIP) Web Semantics Working Group; WG 2. 12 & WG 12. 4. This book, addressing the current state of the art, is the first in the series. In subsequent years, books will address a particular theme, topic or issue where the greatest advances are being made. Examples of such topics include: (i) process semantics, (ii) web services, (iii) ontologies, (iv) workflows, (v) trust and reputation, (vi) web applications, etc. Periodically, perhaps every five years, there will be a scene-setting state of the art volume.

This book is composed of a selection of articles from The 2021 World Conference on Information Systems and Technologies (WorldCIST'21), held online between 30 and 31 of March and 1 and 2 of April 2021 at Hangra de Heroismo, Terceira Island, Azores, Portugal. WorldCIST is a global forum for researchers and practitioners to present and discuss recent results and innovations, current trends, professional experiences and challenges of modern information systems and technologies research, together with their technological development and applications. The main topics covered are: A) Information and Knowledge Management; B) Organizational Models and Information Systems; C) Software and Systems Modeling; D) Software Systems, Architectures, Applications and Tools; E) Multimedia Systems and Applications; F) Computer Networks, Mobility and Pervasive Systems; G) Intelligent and Decision Support Systems; H) Big Data Analytics and Applications; I) Human-computer Interaction; J) Ethics, Computers & Security; K) Health Informatics; L) Information Technologies in Education; M) Information Technologies in Radiocommunications; N) Technologies for Biomedical Applications.

Computer science graduates often find software engineering knowledge and skills are more in demand after they join the industry. However, given the lecture-based curriculum present in academia, it is not an easy undertaking to deliver industry-standard knowledge and skills in a software engineering classroom as such lectures hardly engage or convince students. Overcoming Challenges in Software Engineering Education: Delivering Non-Technical Knowledge and Skills combines recent advances and best practices to improve the curriculum of software engineering education. This book is an essential reference source for researchers and educators seeking to bridge the gap between industry expectations and what academia can provide in software engineering education.

Information systems (IS) are the backbone of any organization today, supporting all major business processes. This book deals with the question: how do these systems come into existence? It gives a comprehensive coverage of managerial, methodological and technological aspects including: Management decisions before and during IS development, acquisition and implementation Project management Requirements engineering and design using UML Implementation, testing and customization Software architecture and platforms Tool support (CASE tools, IDEs, collaboration tools) The book takes into account that for most organizations today, inhouse development is only one of several options to obtain an IS. A good deal of IS development has moved to software vendors – be it domestic, offshore or multinational software firms. Since an increasing share of this work is done in Asia, Eastern Europe, Latin America and Africa, the making of information systems is discussed within a global context.

This book introduces fundamental, advanced, and future-oriented scientific quality management methods for the engineering and manufacturing industries. It presents new knowledge and experiences in the manufacturing industry with real world case studies. It introduces Quality 4.0 with Industry 4.0, including quality engineering tools for software quality and offers lean quality management methods for lean manufacturing. It also bridges the gap between quality management and quality engineering, and offers a scientific methodology for problem solving and prevention. The methods, techniques, templates, and processes introduced in this book can be utilized in various areas in industry, from product engineering to manufacturing and shop floor management. This book will be of interest to manufacturing industry leaders and managers, who do not require in-depth engineering knowledge. It will also be helpful to engineers in design and suppliers in management and manufacturing, all who have daily concerns with project and quality management. Students in business and engineering programs may also find this book useful as they prepare for careers in the engineering and manufacturing industries. Presents new knowledge and experiences in the manufacturing industry with real world case studies Introduces quality engineering methods for software development Introduces Quality 4.0 with Industry 4.0 Offers lean quality management methods for lean manufacturing Bridges the gap between quality management methods and quality engineering Provides scientific methodology for product planning, problem solving and prevention management Includes forms, templates, and tools that can be used conveniently in the field

A decade ago nobody could have imagined the crucial role that software would play in our everyday life. The artificial boundaries between hardware, software, telecommunication, and many other disciplines are getting blurred very rapidly. This book presents the essentials of theory and practice of software engineering in an abstracted form. Presenting the information based on software development life cycle, the text guides the students through all the stages of software production—Requirements, Designing, Construction, Testing and Maintenance. Key Features : Emphasizes on non-coding areas Includes appendices on “need to know” basis Makes the learning easier as organized by software development life cycle This text is well suited for academic courses on Software Engineering or for conducting training programmes for software professionals. This book will be equally useful to the instructors of software engineering as well as busy professionals who wish to grasp the essentials of software

engineering without attending a formal instructional course.
This new edition is a direct response to the ever-growing need for better project management which covers the basics, but also addresses more-technical topics in much greater depth than any other book. Case studies and examples from engineering and technology projects are utilized to prepare technical and business students for management positions in technical fields. It's thorough yet accessible approach makes this text an ideal resource and reference for anyone studying or practicing project management within engineering or business. Includes case studies, examples and background on managing business, engineering, and technology projects to add context for specialists and prepare business students for managing projects in technical industry. New edition features closer alignment with PMBOK terms and definitions, simplified chapter summaries, several new case studies throughout, and expanded coverage of communication and leadership issues such as conflict resolution and the management of distributed teams.
The Art and Science of Analyzing Software Data provides valuable information on analysis techniques often used to derive insight from software data. This book shares best practices in the field generated by leading data scientists, collected from their experience training software engineering students and practitioners to master data science. The book covers topics such as the analysis of security data, code reviews, app stores, log files, and user telemetry, among others. It covers a wide variety of techniques such as co-change analysis, text analysis, topic analysis, and concept analysis, as well as advanced topics such as release planning and generation of source code comments. It includes stories from the trenches from expert data scientists illustrating how to apply data analysis in industry and open source, present results to stakeholders, and drive decisions. Presents best practices, hints, and tips to analyze data and apply tools in data science projects Presents research methods and case studies that have emerged over the past few years to further understanding of software data Shares stories from the trenches of successful data science initiatives in industry
Over the past decade, software engineering has developed into a highly respected field. Though computing and software engineering education continues to emerge as a prominent interest area of study, few books specifically focus on software engineering education itself. Software Engineering: Effective Teaching and Learning Approaches and Practices presents the latest developments in software engineering education, drawing contributions from over 20 software engineering educators from around the globe. Encompassing areas such as student assessment and learning, innovative teaching methods, and educational technology, this much-needed book greatly enhances libraries with its unique research content.
A synthesis of nearly 2,000 articles to help make engineers better educators While a significant body of knowledge has evolved in the field of engineering education over the years, much of the published information has been restricted to scholarly journals and has not found a broad audience. This publication rectifies that situation by reviewing the findings of nearly 2,000 scholarly articles to help engineers become better educators, devise more effective curricula, and be more effective leaders and advocates in curriculum and research development. The author's first objective is to provide an illustrative review of research and development in engineering education since 1960. His second objective is, with the examples given, to encourage the practice of classroom assessment and research, and his third objective is to promote the idea of curriculum leadership. The publication is divided into four main parts: Part I demonstrates how the underpinnings of education—history, philosophy, psychology, sociology—determine the aims and objectives of the curriculum and the curriculum's internal structure, which integrates assessment, content, teaching, and learning Part II focuses on the curriculum itself, considering such key issues as content organization, trends, and change. A chapter on interdisciplinary and integrated study and a chapter on project and problem-based models of curriculum are included Part III examines problem solving, creativity, and design Part IV delves into teaching, assessment, and evaluation, beginning with a chapter on the lecture, cooperative learning, and teamwork The book ends with a brief, insightful forecast of the future of engineering education. Because this is a practical tool and reference for engineers, each chapter is self-contained and may be read independently of the others. Unlike other works in engineering education, which are generally intended for educational researchers, this publication is written not only for researchers in the field of engineering education, but also for all engineers who teach. All readers acquire a host of practical skills and knowledge in the fields of learning, philosophy, sociology, and history as they specifically apply to the process of engineering curriculum improvement and evaluation.
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.
Mobile Library Services provides 11 proven ways to reach out to mobile users and increase your library’s relevance to their day-to-day lives. Librarians detail how they created mobile apps to how they went mobile on a shoestring budget. Written by public, academic, and special librarians, these 11 best practices offer models for libraries of every type and size.
This new edition of the book, is restructured to trace the advancements made and landmarks achieved in software engineering. The text not only incorporates latest and enhanced software engineering techniques and practices, but also shows how these techniques are applied into the practical software assignments. The chapters are incorporated with illustrative examples to add an analytical insight on the subject. The book is logically organised to cover expanded and revised treatment of all software process activities. KEY FEATURES • Large number of worked-out examples and practice problems • Chapter-end exercises and solutions to selected problems to check students’ comprehension on the subject • Solutions manual available for instructors who are confirmed adopters of the text • PowerPoint slides available online at www.phindia.com/rajibmall to provide integrated learning to the students NEW TO THE FIFTH EDITION • Several rewritten sections in almost every chapter to increase readability • New topics on latest developments, such as agile development using SCRUM, MC/DC testing, quality models, etc. • A large number of additional multiple choice questions and review questions in all the chapters help students to understand the important concepts TARGET AUDIENCE • BE/B.Tech (CS and IT) • BCA/MCA • M.Sc. (CS) • MBA
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.

This book contains a selection of papers from the 2020 International Conference on Software Process Improvement (CIMPS 20), held between the 21st and 23rd of October in Mazatlan, Sinaloa, Mexico. The CIMPS 20 is a global forum for researchers and practitioners that present and discuss the most recent innovations, trends, results, experiences and concerns in the several perspectives of Software Engineering with clear relationship but not limited to software processes, Security in Information and Communication Technology and Big Data Field. The main topics covered are: Organizational Models, Standards and Methodologies, Software Process Improvement, Knowledge Management, Software Systems, Applications and Tools, Information and Communication Technologies and Processes in Non-software Domains (mining, automotive, aerospace, business, health care, manufacturing, etc.) with a demonstrated relationship to Software Engineering Challenges.

Our new Indian original book on software engineering covers conventional as well as current methodologies of software development to explain core concepts, with a number of case studies and worked-out examples interspersed among the chapters. Current industry practices followed in development, such as computer aided software engineering, have also been included, as are important topics like ‘Widget based GUI' and ‘Windows Management System'. The book also has coverage on interdisciplinary topics in software engineering that will be useful for software professionals, such as ‘quality management', ‘project management', ‘metrics' and ‘quality standards'. Features Covers both function oriented as well as object oriented (OO) approach Emphasis on emerging areas such as ‘Web engineering’, ‘software maintenance’ and ‘component based software engineering’ A number of line diagrams and examples Case Studies on the ATM system and milk dispenser Includes multiple-choice, objective-type questions and frequently asked questions with answers.

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.

CMMI® for Development (CMMI-DEV) describes best practices for the development and maintenance of products and services across their lifecycle. By integrating essential bodies of knowledge, CMMI-DEV provides a single, comprehensive framework for organizations to assess their development and maintenance processes and improve performance. Already widely adopted throughout the world for disciplined, high-quality engineering, CMMI-DEV Version 1.3 now accommodates other modern approaches as well, including the use of Agile methods, Lean Six Sigma, and architecture-centric development. CMMI® for Development, Third Edition, is the definitive reference for CMMI-DEV Version 1.3. The authors have revised their tips, hints, and cross-references, which appear in the margins of the book, to help you better understand, apply, and find information about the content of each process area. The book includes new and updated perspectives on CMMI-DEV in which people influential in the model’s creation, development, and transition share brief but valuable insights. It also features four new case studies and five contributed essays with practical advice for adopting and using CMMI-DEV. This book is an essential resource–whether you are new to CMMI-DEV or are familiar with an earlier version–if you need to know about, evaluate, or put the latest version of the model into practice. The book is divided into three parts. Part One offers the broad view of CMMI-DEV, beginning with basic concepts of process improvement. It introduces the process areas, their components, and their relationships to each other. It describes effective paths to the adoption and use of CMMI-DEV for process improvement and benchmarking, all illuminated with fresh case studies and helpful essays. Part Two, the bulk of the book, details the generic goals and practices and the twenty-two process areas now comprising CMMI-DEV. The process areas are organized alphabetically by acronym for easy reference. Each process area includes goals, best practices, and examples. Part Three contains several useful resources, including CMMI-DEV-related references, acronym definitions, a glossary of terms, and an index.

This book provides a collection of papers from the Ninth Workshop on Computing: Theory and Practice, WCTP 2019 devoted to theoretical and practical approaches to computation, which was organized by four top universities in Japan and the Philippines: Tokyo Institute of Technology, Osaka University, the University of the Philippines Diliman, and De La Salle University. The proceedings provide a broad overview of recent research trends in computer science research in Asia, particularly in these two countries. The papers included in the proceedings focus on both theoretical and practical aspects of computations, such as programming language theory, modeling of software systems, applications of machine learning, empathic computing, and various

applications of information technology.
This book covers two applications of ontologies in software engineering and software technology: sharing knowledge of the problem domain and using a common terminology among all stakeholders; and filtering the knowledge when defining models and metamodels. By presenting the advanced use of ontologies in software research and software projects, this book is of benefit to software engineering researchers in both academia and industry.
On behalf of the Organizing Committee for this event, we are glad to welcome you to IWASE 2006, the First International Workshop on Advanced Software Engineering. We hope you will enjoy the traditional Chilean hospitality and, of course, please tell us how we can make your visit a pleasant and useful experience. The goal of this Workshop is to create a new forum for researchers, professionals and educators to discuss advanced software engineering topics. A distinctive feature of this Workshop is its attempt to foster interactions between the Latin-American software engineering community and computer scientists around the world. This is an opportunity to discuss with other researchers or simply to meet new colleagues. IWASE 2006 has been organized to facilitate strong interactions among those attending it and to offer ample time for discussing each paper. IWASE 2006 attracted 28 submissions from 14 countries, 8 of them outside Latin-America. Each of the 28 articles was reviewed by at least three members of the Program Committee. As a result of this rigorous reviewing process, 13 papers were accepted: nine fiill papers and four work-in-progress papers. These papers were grouped in four tracks; software architecture, software modeling, software development process and experiences in software development.
Software engineering education is an important, often controversial, issue in the education of Information Technology professionals. It is of concern at all levels of education, whether undergraduate, post-graduate or during the working life of professionals in the field. This publication gives perspectives from academic institutions, industry and education bodies from many different countries. Several papers provide actual curricula based on innovative ideas and modern programming paradigms. Various aspects of project work, as an important component of the educational process, are also covered and the uses of software tools in the software industry and education are discussed. The book provides a valuable source of information for all those interested and involved in software engineering education.
Software engineering is of major importance to all enterprises; however, the key areas of software quality and software process improvement standards and models are currently geared toward large organizations, where most software organizations are small and medium enterprises. Software Process Improvement for Small and Medium Enterprises: Techniques and Case Studies offers practical and useful guidelines, models, and techniques for improving software processes and products for small and medium enterprises, utilizing the authoritative, demonstrative tools of case studies and lessons learned to provide academics, scholars, and practitioners with an invaluable research source.
Presents an Integrated Approach, Providing Clear and Practical GuidelinesAre you a student facing your first serious research project? If you are, it is likely that you'll be, firstly, overwhelmed by the magnitude of the task, and secondly, lost as to how to go about it. What you really need is a guide to walk you through all aspects of the researc
This book gathers chapters from some of the top international empirical software engineering researchers focusing on the practical knowledge necessary for conducting, reporting and using empirical methods in software engineering. Topics and features include guidance on how to design, conduct and report empirical studies. The volume also provides information across a range of techniques, methods and qualitative and quantitative issues to help build a toolkit applicable to the diverse software development contexts
For each position, the authors include a brief overview and its history. Discussions of education, certifications, or licensing required; a detailed job description; salary; and the future outlook are also supplied.
Today, software engineers need to know not only how to program effectively but also how to develop proper engineering practices to make their codebase sustainable and healthy. This book emphasizes this difference between programming and software engineering. How can software engineers manage a living codebase that evolves and responds to changing requirements and demands over the length of its life? Based on their experience at Google, software engineers Titus Winters and Hyrum Wright, along with technical writer Tom Manshreck, present a candid and insightful look at how some of the world’s leading practitioners construct and maintain software. This book covers Google’s unique engineering culture, processes, and tools and how these aspects contribute to the effectiveness of an engineering organization. You’ll explore three fundamental principles that software organizations should keep in mind when designing, architecting, writing, and maintaining code: How time affects the sustainability of software and how to make your code resilient over time How scale affects the viability of software practices within an engineering organization What trade-offs a typical engineer needs to make when evaluating design and development decisions
This book was written primarily for all those DTP users and programmers who want to keep up with the rapid development of electronic publishing, particular those who wish to develop new systems for the output of typefaces. In this volume, various formats are presented, their properties discussed and production requirements analyzed. Appendices provide readers additional information, largely on digital formats for typeface storage.
Written in concise language this book is for any student who is about to undertake a final year undergraduate or MSc project. It takes them step-by-step through all the important stages of the process, from initial planning to completion. It tells them everything they need to know about key issues such as: How to formulate a suitable problem, Which research method to use, Developing an appropriate structure for the written report, Project focus, and Quality assurance. The book aims to demystify the whole process, making it invaluable for any MSc student.
Nowadays, engineering large-scale software systems means dealing with complex systems composed of pervasive software components that move around and adapt to nondeterministic and open environments, like the Internet, in order to achieve systems design goals through the coordination of autonomously distributed services. The agent

metaphor, in particular software agents and multi-agent systems (MAS), constitutes a promising approach for covering most of the software development life cycle, from conceptual modeling and requirements specification to architectural definition, design, and implementation. This book presents 17 carefully reviewed papers arranged in order to provide a coherent survey of how to exploit agent properties and MAS issues in today's software systems. The book offers the following topical sections: - software engineering foundations - requirements engineering and software architecture - coordination and mobility - reuse -dependability -empirical studies and applications

A hands-on guide for creating a winning engineering project Engineering Project Management is a practical, step-by-step guide to project management for engineers. The author – a successful, long-time practicing engineering project manager – describes the techniques and strategies for creating a successful engineering project. The book introduces engineering projects and their management, and then proceeds stage-by-stage through the engineering life-cycle project, from requirements, implementation, to phase-out. The book offers information for understanding the needs of the end user of a product and other stakeholders associated with a project, and is full of techniques based on real, hands-on management of engineering projects. The book starts by explaining how we perform the actual engineering on projects; the techniques for project management contained in the rest of the book use those engineering methods to create superior management techniques. Every topic – from developing a work-breakdown structure and an effective project plan, to creating credible predictions for schedules and costs, through monitoring the progress of your engineering project – is infused with actual engineering techniques, thereby vastly increasing the effectivity and credibility of those management techniques. The book also teaches you how to draw the right conclusions from numeric data and calculations, avoiding the mistakes that often cause managers to make incorrect decisions. The book also provides valuable insight about what the author calls the social aspects of engineering project management: aligning and motivating people, interacting successfully with your stakeholders, and many other important people-oriented topics. The book ends with a section on ethics in engineering. This important book: Offers a hands-on guide for developing and implementing a project management plan Includes background information, strategies, and techniques on project management designed for engineers Takes an easy-to-understand, step-by-step approach to project management Contains ideas for launching a project, managing large amount of software, and tips for ending a project Structured to support both undergraduate and graduate courses in engineering project management, Engineering Project Management is an essential guide for managing a successful project from the idea phase to the completion of the project.

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

Adopt a diagrammatic approach to creating robust real-time embedded systems Key Features Explore the impact of real-time systems on software design Understand the role of diagramming in the software development process Learn why software performance is a key element in real-time systems Book Description From air traffic control systems to network multimedia systems, real-time systems are everywhere. The correctness of the real-time system depends on the physical instant and the logical results of the computations. This book provides an elaborate introduction to software engineering for real-time systems, including a range of activities and methods required to produce a great real-time system. The book kicks off by describing real-time systems, their applications, and their impact on software design. You will learn the concepts of software and program design, as well as the different types of programming, software errors, and software life cycles, and how a multitasking structure benefits a system design. Moving ahead, you will learn why diagrams and diagramming plays a critical role in the software development process. You will practice documenting code-related work using Unified Modeling Language (UML), and analyze and test source code in both host and target systems to understand why performance is a key design-driver in applications. Next, you will develop a design strategy to overcome critical and fault-tolerant systems, and learn the importance of documentation in system design. By the end of this book, you will have sound knowledge and skills for developing real-time embedded systems. What you will learn Differentiate between correct, reliable, and safe software Discover modern design methodologies for designing a real-time system Use interrupts to implement concurrency in the system Test, integrate, and debug the code Demonstrate test issues for OOP constructs Overcome software faults with hardware-based techniques Who this book is for If you are interested in developing a real-time embedded system, this is the ideal book for you. With a basic understanding of programming, microprocessor systems, and elementary digital logic, you will achieve the maximum with this book. Knowledge of assembly language would be an added advantage.