Guide To The Software Engineering Body Of Knowledge

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

In a perfect world, software engineers who produce the best code are the most successful. But in our perfectly messy world, success also depends on how you work with people to get your job done. In this highly entertaining book, Brian Fitzpatrick and Ben Collins-Sussman cover basic patterns and anti-patterns for working with other people, teams, and users while trying to develop software. This is valuable information from two respected software engineers whose popular series of talks—including "Working with Poisonous People"—has attracted hundreds of thousands of followers. Writing software is a team sport, and human factors have as much influence on the outcome as technical factors. Even if you've spent decades learning the technical side of programming, this book teaches you about the often-overlooked human component. By learning to collaborate and investing in the "soft skills" of software engineering, you can have a much greater impact for the same amount of effort. Team Geek was named as a Finalist in the 2013 Jolt Awards from Dr. Dobb's Journal. The publication's panel of judges chose five notable books, published during a 12-month period ending June 30, that every serious programmer should read.

This unique book provides you with a wealth of tips, tricks, best practices, and answers to the day-to-day questions that programmers face in their careers. It is split into three parts: Coder Skills, Freelancer Skills, and Career Skills, providing the knowledge you need to get ahead in programming. About This Book Over 50 essays with practical advice on improving your programming career Practical focus gives solutions to common problems, and methods to become a better coder Includes advice for existing programmers and those wanting to begin a career in programming Who This Book Is For This book is useful for programmers of any ability or discipline. It has advice for those thinking about beginning a career in programming, those already working as a fully employed programmer, and for those working as freelance developers. What You Will Learn Improve your soft skills to become a better and happier coder Learn to be a better developer Grow your freelance development business Improve your development career Learn the best approaches to breaking down complex topics Have the confidence to charge what you're worth as a freelancer Succeed in developer job interviews In Detail This is an all-purpose toolkit for your programming career. It has been built by Jordan Hudgens over a lifetime of coding and teaching coding. It helps you identify the key questions and stumbling blocks that programmers encounter, and gives you the answers to them! It is a comprehensive guide containing more than 50 insights that you can use to improve your work, and to give advice in your career. The book is split up into three topic areas: Coder Skills, Freelancer Skills, and Career Skills, each containing a wealth of practical advice. Coder Skills contains advice for people starting out, or those who are already working in a programming role but want to improve their skills. It includes such subjects as: how to study and understand complex topics, and getting past skill plateaus when learning new languages. Freelancer Skills contains advice for developers working as freelancers or with freelancers. It includes such subjects as: knowing when to fire a client, and tips for taking over legacy applications. Career Skills contains advice for building a successful career as a developer. It includes such subjects as: how to improve your programming techniques, and interview guides and developer salary negotiation strategies. Style and approach This unique book provides over 50 insightful essays full of practical advice for improving your programming career. The book is split into three broad sections covering different aspects of a developer's career. Each essay is self-contained and can be read individually, or in chunks.

Process-Centered Software Engineering Environments (PSEEs) represent a new generation of software engineering environments in which the processes used to produce and maintain software products are explicitly modeled in the environment. PSEEs hold the exciting promise of enabling a significant increase in both software productivity and quality. The book presents a comprehensive picture of this emerging technology while highlighting the key concepts and issues. The first chapter introduces some of the basic concepts and developments behind PSEEs and discusses the unifying role it plays in combining project management, software engineering, and process engineering. The second chapter reviews

related process modeling and representation concepts, terminology, and issues. Chapter 3 analyzes the features of some example PSEEs and Chapter 4 takes an inside look at the implementation of these features by describing specific design choices made by researchers. The last chapter discusses the evolution of PSEEs to accommodate practical issues in actual work settings and to play a more significant role in the software life cycle. The text is a collection of influential papers that will bring the newcomer quickly up to speed on this fast-moving field. For the researcher, the issues described in the text present a challenge to be conquered and directions to pursue. For the practitioner, they represent benefits that may be gained in the application of PSEEs in the work environment.

Guide to Advanced Empirical Software Engineering
A Practitioner's Guide
Your Guide to Creating Software Products
guide to the software engineering body of knowledge ; trial version ; a project of the Software Engineering Coordinating Committee ; trial version 1.00
The Development Process
Evidence-Based Software Engineering and Systematic Reviews
A Practical Guide to Successful Software Projects

Do you... Use a computer to perform analysis or simulations in your daily work? Write short scripts or record macros to perform repetitive tasks? Need to integrate off-the-shelf software into your systems or require multiple applications to work together? Find yourself spending much time working the kinks out of your code? Work with software engineers on a regular basis but have difficulty communicating or collaborating? If any of these sound familiar, then you may need a quick primer in the principles of software engineering. Nearly every engineer, regardless of field, will need to develop some form of software during their career. Without exposure to the challenges, processes, and limitations of software engineering, developing software can be a burdensome and inefficient chore. In What Every Engineer Should Know about Software Engineering, Phillip Laplante introduces the profession of software engineering along with a practical approach to understanding, designing, and building sound software based on solid principles. Using a unique question-and-answer format, this book addresses the issues and misperceptions that engineers need to understand in order to successfully work with software engineers, develop specifications for quality software, and learn the basics of the most common programming languages, development approaches, and paradigms.

Based on the author's first-hand experience and expertise,this book offers a proven framework for global softwareengineering. Readers will learn best practices for managing avariety of software projects, coordinating the activities ofseveral locations across the globe while accounting for culturaldifferences. Most importantly, readers will learn how to engineer afirst-rate software product as efficiently as possible by fullyleveraging global personnel and resources. Global Software and IT takes a unique approach that works forprojects of any size, examining such critical topics as: Executing a seamless project across multiple locations Mitigating the risks of off-shoring Developing and implementing processes for globaldevelopment Establishing practical outsourcing guidelines Fostering effective collaboration and communication acrosscontinents and culture This book provides a balanced framework for planning globaldevelopment, covering topics such as managing people in distributedsites and managing a project across locations. It delivers acomprehensive business model that is beneficial to anyone lookingfor the most cost-effective, efficient way to engineer goodsoftware products.

Software engineering education has a problem: universities and bootcamps teach aspiring engineers to write code, but they leave graduates to teach themselves the countless supporting tools required to thrive in real software companies. Building a Career in Software is the solution, a comprehensive guide to the essential skills that instructors don't need and professionals never think to teach: landing jobs, choosing teams and projects, asking good questions, running meetings, going on-call, debugging production problems, technical writing, making the most of a mentor, and much more. In over a decade building software at companies such as Apple and Uber, Daniel Heller has mentored and managed tens of engineers from a variety of training backgrounds, and those engineers inspired this book with their hundreds of questions about career issues and day-to-day problems. Designed for either random access or cover-to-cover reading, it offers concise treatments of virtually every non-technical challenge you will face in the first five years of your career—as well as a selection of industry-focused technical topics rarely covered in training. Whatever your education or technical specialty, Building a Career in Software can save you years of trial and error and help you succeed as a real-world software professional. What You Will Learn Discover every important nontechnical facet of professional programming as well as several key technical practices essential to the transition from student to professional Build relationships with your employer Improve your communication, including technical writing, asking good questions, and public speaking Who This Book Is For Software engineers either early in their careers or about to transition to the professional world; that is, all graduates of computer science or software engineering university programs and all software engineering boot camp participants.

Software Security Engineering draws extensively on the systematic approach developed for the Build Security In (BSI) Web site. Sponsored by the Department of Homeland Security Software Assurance Program, the BSI site offers a host of tools, guidelines, rules, principles, and other resources to help project managers address security issues in every phase of the software development life cycle (SDLC). The book's expert authors, themselves frequent contributors to the BSI site, represent two well-known resources in the security world: the CERT Program at the Software Engineering Institute (SEI) and Cigital, Inc., a consulting firm specializing in software security. This book will help you understand why Software security is about more than just eliminating vulnerabilities and conducting penetration tests Network security mechanisms and IT infrastructure security services do not sufficiently protect application software from security risks Software security initiatives should follow a risk-management approach to identify priorities and to define what is "good enough"–understanding that software security risks will change throughout the SDLC Project managers and software engineers need to learn to think like an attacker in order to address the range of functions that software should not do, and how software can better resist, tolerate, and recover when under attack

Software Engineering
From Fundamentals to Application Methods
A Self-Study Guide for Today's Software Professional
Software Engineering Essentials, Volume I
The Management of Risk and Quality
Software Project Survival Guide
Software Design

This text is designed for the introductory programming course or the software engineering projects course offered in departments of

computer science. In essence, it is a cookbook for software engineering, presenting the subject as a series of steps (or rules) that the student can apply to successfully complete any software project. In contrast, Pressman's other book, Software Engineering: A Practitioner's Approach, 5/e, (2001), is intended as a text for senior and graduate level courses and is a more comprehensive, in-depth treatment of the software engineering process.

This is the digital version of the printed book (Copyright © 1996). Written in a remarkably clear style, Creating a Software Engineering Culture presents a comprehensive approach to improving the quality and effectiveness of the software development process. In twenty chapters spread over six parts, Wiegers promotes the tactical changes required to support process improvement and high-quality software development. Throughout the text, Wiegers identifies scores of culture builders and culture killers, and he offers a wealth of references to resources for the software engineer, including seminars, conferences, publications, videos, and on-line information. With case studies on process improvement and software metrics programs and an entire part on action planning (called "What to Do on Monday"), this practical book guides the reader in applying the concepts to real life. Topics include software culture concepts, team behaviors, the five dimensions of a software project, recognizing achievements, optimizing customer involvement, the project champion model, tools for sharing the vision, requirements traceability matrices, the capability maturity model, action planning, testing, inspections, metrics-based project estimation, the cost of quality, and much more! Principles from Part 1 Never let your boss or your customer talk you into doing a bad job. People need to feel the work they do is appreciated. Ongoing education is every team member's responsibility. Customer involvement is the most critical factor in software quality. Your greatest challenge is sharing the vision of the final product with the customer. Continual improvement of your software development process is both possible and essential. Written software development procedures can help build a shared culture of best practices. Quality is the top priority; long-term productivity is a natural consequence of high quality. Strive to have a peer, rather than a customer, find a defect. A key to software quality is to iterate many times on all development steps except coding: Do this once. Managing bug reports and change requests is essential to controlling quality and maintenance. If you measure what you do, you can learn to do it better. You can't change everything at once. Identify those changes that will yield the greatest benefits, and begin to implement them next Monday. Do what makes sense; don't resort to dogma. Interviewing can be challenging, time-consuming, stressful, frustrating, and full of disappointments. My goal is to help make things easier for you so you can get the engineering leadership job you want. The Software Engineering Manager Interview Guide is a comprehensive, no-nonsense book about landing an engineering leadership role at a top-tier tech company. You will learn how to master the different kinds of engineering management interview questions. If you only pick up one or two tips from this book, it could make the difference in getting the dream job you want. This guide contains a collection of 150+ real-life management and behavioral questions I was asked on phone screens and by panels during onsite interviews for engineering management positions at a variety of big-name and top-tier tech companies in the San Francisco Bay Area such as Google, Facebook, Amazon, Twitter, LinkedIn, Uber, Lyft, Airbnb, Pinterest, Salesforce, Intuit, Autodesk, et al. In this book, I discuss my experiences and reflections mainly from the candidate's perspective. Your experience will vary. The random variables include who will be on your panel, what exactly they will ask, the level of training and mood of the interviewers, their preferences, and biases. While you cannot control any of those variables, you can control how prepared you are, and hopefully, this book will help you in that process. I will share with you everything I've learned while keeping this book short enough to read on a plane ride. I will share tips I picked up along the way. If you are interviewing this guide will serve you as a playbook to prepare, or if you are hiring give you ideas as to what you might ask an engineering management candidate yourself. CONTENTS: Introduction Chapter 1: Answering Behavioral Interview Questions Chapter 2: The Job Interviews Phone Screens Prep Call with the Recruiter Onsite Company Values Coding, Algorithms and Data structures System Design and Architecture Interviews Generic Design Of A Popular System A Design Specific To A Domain Design Of A System Your Team Worked On Lunch Interview Managerial and Leadership Bar Raiser Unique One-Off Interviews Chapter 3: Tips To Succeed How To Get The Interviews Scheduling and Timelines Interview Feedback Mock Interviews Panelists First Impressions Thank You Notes Ageism Chapter 4: Example Behavioral and Competency Questions General Questions Feedback and Performance Management Prioritization and Execution Strategy and Vision Hiring Talent and Building a Team Working With Tech Leads, Team Leads and Technology Dealing With Conflicts Diversity and Inclusion

This book is perhaps the first attempt to give full treatment to the topic of Software Design. It will facilitate the academia as well as the industry. This book covers all the topics of software design including the ancillary ones.

Software Engineering - Guide to the Software Engineering Body of Knowledge (SWEBOK).

Foundations of Software Engineering

A Developer's Guide

A Software Engineering Guide to Embedded Development

Object-oriented Software Engineering

Beginning Software Engineering

Concise Guide to Software Engineering

Novel in its approach to software design, development, and management, Building Software: A Practitioner's Guide shows you how to successfully build and manage a system. The approach the authors recommend is a simple, effective framework known as Solution Engineering Execution (SEE). Through SEE, you create a successful solution by following a high

Pressman explains the complexities of software engineering to a managerial audience by highlighting its impact on the corporation. In a relaxed question-and-answer format, he helps readers frame and answer four key questions--What is software engineering and why it is important to us? How do we manage teh changes it requires? How can it help us manage projects more effectively?

The best way to learn software engineering is by understanding its core and peripheral areas. Foundations of Software Engineering provides in-depth coverage of the areas of software engineering that are essential for becoming proficient in the field. The book devotes a complete chapter to each of the core areas. Several peripheral areas are also explained by assigning a separate chapter to each of them. Rather than using UML or other formal notations, the content in this book is explained in easy-to-understand language. Basic programming knowledge using an object-oriented language is helpful to understand the material in this book. The knowledge gained from this book can be readily used in

other relevant courses or in real-world software development environments. This textbook educates students in software engineering principles. It covers almost all facets of software engineering, including requirement engineering, system specifications, system modeling, system architecture, system implementation, and system testing. Emphasizing practical issues, such as feasibility studies, this book explains how to add and develop software requirements to evolve software systems. This book was written after receiving feedback from several professors and software engineers. What resulted is a textbook on software engineering that not only covers the theory of software engineering but also presents real-world insights to aid students in proper implementation. Students learn key concepts through carefully explained and illustrated theories, as well as concrete examples and a complete case study using Java. Source code is also available on the book's website. The examples and case studies increase in complexity as the book progresses to help students build a practical understanding of the required theories and applications.

The purpose of the Guide to the Software Engineering Body of Knowledge is to provide a validated classification of the bounds of the software engineering discipline and topical access that will support this discipline. The Body of Knowledge is subdivided into ten software engineering Knowledge Areas (KA) that differentiate among the various important concepts, allowing readers to find their way quickly to subjects of interest. Upon finding a subject, readers are referred to key papers or book chapters. Emphases on engineering practice lead the Guide toward a strong relationship with the normative literature. The normative literature is validated by consensus formed among practitioners and is concentrated in standards and related documents. The two major standards bodies for software engineering (IEEE Computer Society Software and Systems Engineering Standards Committee and ISO/IEC JTC1/SC7) are represented in the project.

A Comprehensive Guide to Software Development Projects
The Software Engineer's Guide to Freelance Consulting
IEEE Computer Society Real-World Software Engineering Problems
A Manager's Guide to Software Engineering
Version 3.0
The Complete Software Developer's Career Guide
A Software Developer's Guide to Working Well with Others

Key concepts and best practices for new software engineers — stuff critical to your workplace success that you weren't taught in school. For new software engineers, knowing how to program is only half the battle. You'll quickly find that many of the skills and processes key to your success are not taught in any school or bootcamp. The Missing README fills in that gap—a distillation of workplace lessons, best practices, and engineering fundamentals that the authors have taught rookie developers at top companies for more than a decade. Early chapters explain what to expect when you begin your career at a company. The book's middle section expands your technical education, teaching you how to work with existing codebases, address and prevent technical debt, write production-grade software, manage dependencies, test effectively, do code reviews, safely deploy software, design evolvable architectures, and handle incidents when you're on-call. Additional chapters cover planning and interpersonal skills such as Agile planning, working effectively with your manager, and growing to senior levels and beyond. You'll learn: • How to use the legacy code change algorithm, and leave code cleaner than you found it • How to write operable code with logging, metrics, configuration, and defensive programming • How to write deterministic tests, submit code reviews, and give feedback on other people's code • The technical design process, including experiments, problem definition, documentation, and collaboration • What to do when you are on-call, and how to navigate production incidents • Architectural techniques that make code change easier • Agile development practices like sprint planning, stand-ups, and retrospectives This is the book your tech lead wishes every new engineer would read before they start. By the end, you'll know what it takes to transition into the workplace–from CS classes or bootcamps to professional software engineering.

In the decade since the idea of adapting the evidence-based paradigm for software engineering was first proposed, it has become a major tool of empirical software engineering. Evidence-Based Software Engineering and Systematic Reviews provides a clear introduction to the use of an evidence-based model for software engineering research and practice.

Addresses critical software engineering issues, showing how an object - oriented approach can provide much improved solutions over other methods. Designed as a technology tool.

Looks at a successful software project and provides details for software development for clients using object-oriented design and programming.

Guide to the Software Engineering Body of Knowledge (SWEBOK).
Software Security Engineering
A Comprehensive Guide to Success in the Software Industry

Ship it!
Creating a Software Engineering Culture
Guide to the Software Engineering Body of Knowledge
Building Software

Start programming from scratch, no experience required. This beginners' guide to software engineering starts with a discussi
editors used to create software and covers setting up a Docker environment. Next, you will learn about repositories and vers
with its uses. Now that you are ready to program, you'll go through the basics of Python, the ideal language to learn as a no
engineer. Many modern applications need to talk to a database of some kind, so you will explore how to create and connect t
how to design one for your app. Additionally you will discover how to use Python's Flask microframework and how to efficien
code. Finally, the book explains best practices in coding, design, deployment, and security. Software Engineering for Absolute B
answers the question of what topics you should know when you start out to learn software engineering. This book covers a
aims to clarify the hidden, but very important, portions of the software development toolkit. After reading this book, you, a c
will be able to identify best practices and efficient approaches to software development. You will be able to go into a work e
recognize the technology and approaches used, and set up a professional environment to create your own software applicatio
Learn Explore the concepts that you will encounter in the majority of companies doing software development Create readable
as well as well-designed Build code that is source controlled, containerized, and deployable Secure your codebase Optimize you
Who This Book Is For A reader with a keen interest in creating software. It is also helpful for students.

This book presents describes in detail each of the 40 software and systems engineering standards contained in the collection
book is organized to allow users to quickly pinpoint a subject of interest, find an overall description of the subject, and obtain
explanation of best-practice standards for that subject.

In just a few chapters you will learn about Tcl features that allow you to isolate and protect your code from being damaged i
applications. You will even learn how to extend the language itself. Tcl/Tk: A Developer's Guide clearly discusses development t
techniques, and existing extensions. It shows how to use Tcl/Tk effectively and provides many code examples. This fully revise
the complete resource for computer professionals, from systems administrators to programmers. It covers versions 7.4 to 8.
ROM containing the interpreters, libraries, and tutorials to get you started quickly. Additional materials in the book include ca
discussions of techniques for the advanced user. On the CD-ROM *Distributions for Tcl 8.3 and 8.4 for Linux, Solaris, Macinto
Windows. *A copy of ActiveTcl from ActiveState. *The latest release of TclTutor. *How-to's and tutorials as well as copies of a
discussed in the book.

The Software Engineer's Guide to Freelance Consulting will help teach you to be an effective freelance software consultant, v
you make more money, dedicate more time to hobbies, spend more time with your loved-ones and even discover new busines:
Contents: Chapter 1: Finding Clients We will literally map out the client acquisition skills that are paramount for you to devel
the business of software consulting. We will give you the step-by-step concrete TODOs to achieve competence and we expla
abstract theory. Chapter 2: Choosing a Rate How do some people charge $2/hr and others $500/hr? Where do you fit in? In
help you choose, justify and even increase your existing rate. Chapter 3: Keeping Yourself Educated How do you keep yourself
outdated? How do you keep your skills in demand and the projects coming over time? We'll discuss that in this chapter. Chap
Deals You've got the interest but now how do you get the client to start working with you? We'll talk about closing sales as
chapter. Chapter 5: Being Productive Productivity is a critical part of freelancing. Since most freelancers bill hourly it can mak
between making $100,000/year and $300,000/year. This chapter contains tips to maximize your productivity as a freelancer.
Building & Maintaining Relationships Freelance consulting is a relationship-driven business. As engineers however, we tend to s
this. In this chapter we will talk about how you can build strong relationships and reduce the amount of time you need to spe
to new clients. Chapter 7: Legal Ideas Being a consultant comes with legal implications that can save your butt when things c
chapter our very own Silicon Valley Lawyer Richard Burt will give you some tips of the trade. Chapter 8: Making Great First In
impressions are a primer for excellent long-term relationships that will yield great value to you. This chapter will talk about fir
as a freelance tech person. Chapter 9: Getting Paid Okay, so you've completed some contracts and now you're waiting to get
get paid faster? Can you reduce your risk? We'll discuss these things in this chapter and even talk about how to deal with cli
Chapter 10: Must-know Tax Tips As a freelance consultant, managing your tax effectively will save you a TON of money at the
In this chapter we'll run through some basic tips that will help you minimize your tax liability so you can keep more hard-earn
pocket. Chapter 11: Communicating Effectively Say the wrong things and you can find yourself staying up late at night on the
right things and you could find yourself making more money and spending more time with your family and friends. In this chap
you say less of the wrong things and more of the right things. Chapter 12: Freelancing Part-time What if you don't want to le
full-time job? What if you're in school full-time, or taking care of children? This chapter will help part-time freelancers. Chapte
Back to a "Regular" Coding Job In case you later decide freelancing is not for you, this chapter will help you ease back into a "
without ruffling too many feathers. Chapter 14: Additional Resources Everyone who purchases the book receives an invitation
community. You'll even get a direct line to experienced freelancers (including the authors) that can help answer questions any

The Software Engineering Manager Interview Guide
Strategies for Software Engineering
A Guide for Project Managers
Software Engineering for Absolute Beginners
The Road Map to Software Engineering
SWEBOK
What Every Engineer Should Know about Software Engineering

An immensely practical resource for professionals in the software industry, this text offers a simple but effective
decision-making approach to planning and managing all types of software engineering projects. The book
establishes a constructive framework for selecting a development strategy, development methods, and support
tools with the ultimate goal of minimizing technical risk and increasing product quality. Specific topics include
the range of quality attributes (fitness for purpose, fitness for use, and timely delivery), standards for quality
management systems, the work breakdown structure, and the use of metrics and indicators. The book closes

with a discussion of the 14 dilemmas of software engineering--and how to break them.

Ship It! is a collection of tips that show the tools andtechniques a successful project team has to use, and how to use themwell. You'll get quick, easy-to-follow advice on modernpractices: which to use, and when they should be applied. This bookavoids current fashion trends and marketing hype; instead, readersfind page after page of solid advice, all tried and tested in thereal world. Aimed at beginning to intermediate programmers, Ship It! will show you: Which tools help, and which don't How to keep a project moving Approaches to scheduling that work How to build developers as well as product What's normal on a project, and what's not How to manage managers, end-users and sponsors Danger signs and how to fix them Few of the ideas presented here are controversial or extreme; most experiencedprogrammers will agree that this stuff works. Yet 50 to 70 percent of allproject teams in the U.S. aren't able to use even these simple, well-acceptedpractices effectively. This book will help you get started. Ship It! begins by introducing the common technicalinfrastructure that every project needs to get the job done. Readerscan choose from a variety of recommended technologies according totheir skills and budgets. The next sections outline the necessarysteps to get software out the door reliably, using well-accepted,easy-to-adopt, best-of-breed practices that really work. Finally, and most importantly, Ship It! presents commonproblems that teams face, then offers real-world advice on how tosolve them.

This classroom-tested textbook presents an active-learning approach to the foundational concepts of software design. These concepts are then applied to a case study, and reinforced through practice exercises, with the option to follow either a structured design or object-oriented design paradigm. The text applies an incremental and iterative software development approach, emphasizing the use of design characteristics and modeling techniques as a way to represent higher levels of design abstraction, and promoting the model-view-controller (MVC) architecture. Topics and features: provides a case study to illustrate the various concepts discussed throughout the book, offering an in-depth look at the pros and cons of different software designs; includes discussion questions and hands-on exercises that extend the case study and apply the concepts to other problem domains; presents a review of program design fundamentals to reinforce understanding of the basic concepts; focuses on a bottom-up approach to describing software design concepts; introduces the characteristics of a good software design, emphasizing the model-view-controller as an underlying architectural principle; describes software design from both object-oriented and structured perspectives; examines additional topics on human-computer interaction design, quality assurance, secure design, design patterns, and persistent data storage design; discusses design concepts that may be applied to many types of software development projects; suggests a template for a software design document, and offers ideas for further learning. Students of computer science and software engineering will find this textbook to be indispensable for advanced undergraduate courses on programming and software design. Prior background knowledge and experience of programming is required, but familiarity in software design is not assumed.

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

Guide to the Software Engineering Body of Knowledge (Swebok(r))

Tcl/Tk

The Professional Developer's Guide

A Guide to Distributed Development, Projects, and Outsourcing

Lessons Learned from Programming Over Time

Guide to Efficient Software Design

The New Book That Encompasses Finding and Maintaining Clients As a Software Developer, Tax and Legal Tips, and Everything in Between

Discover how to apply software engineering patterns to develop more robust firmware faster than traditional embedded development approaches. In the authors' experience, traditional embedded software projects tend towards monolithic applications that are optimized for their target hardware platforms. This leads to software that is fragile in terms of extensibility and difficult to test without fully integrated software and hardware. Patterns in the Machine focuses on creating loosely coupled implementations that embrace both change and testability. This book illustrates how implementing continuous integration, automated unit testing, platform-independent code, and other best practices that are not typically implemented in the embedded systems world is not just feasible but also practical for today's embedded projects. After reading this book, you will have a better idea of how to structure your embedded software projects. You will recognize that while writing unit tests, creating simulators, and implementing continuous integration requires time and effort up front, you will be amply rewarded at the end of the project in terms of quality, adaptability, and maintainability of your code. What You Will Learn Incorporate automated unit testing into an embedded project Design and build functional simulators for an embedded project Write production-quality software

when hardware is not available Use the Data Model architectural pattern to create a highly decoupled design and implementation Understand the importance of defining the software architecture before implementation starts and how to do it Discover why documentation is essential for an embedded project Use finite state machines in embedded projects Who This Book Is For Mid-level or higher embedded systems (firmware) developers, technical leads, software architects, and development managers.

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

In the Guide to the Software Engineering Body of Knowledge (SWEBOK(R) Guide), the IEEE Computer Society establishes a baseline for the body of knowledge for the field of software engineering, and the work supports the Society's responsibility to promote the advancement of both theory and practice in this field. It should be noted that the Guide does not purport to define the body of knowledge but rather to serve as a compendium and guide to the knowledge that has been developing and evolving over the past four decades. Now in Version 3.0, the Guide's 15 knowledge areas summarize generally accepted topics and list references for detailed information. The editors for Version 3.0 of the SWEBOK(R) Guide are Pierre Bourque (Ecole de technologie superieure (ETS), Universite du Quebec) and Richard E. (Dick) Fairley (Software and Systems Engineering Associates (S2EA)).

This essential textbook presents a concise introduction to the fundamental principles of software engineering, together with practical guidance on how to apply the theory in a real-world, industrial environment. The wide-ranging coverage encompasses all areas of software design, management, and quality. Topics and features: presents a broad overview of software engineering, including software lifecycles and phases in software development, and project management for software engineering; examines the areas of requirements engineering, software configuration management, software inspections, software testing, software quality assurance, and process quality; covers topics on software metrics and problem solving, software reliability and dependability, and software design and development, including Agile approaches; explains formal methods, a set of mathematical techniques to specify and derive a program from its specification, introducing the Z specification language; discusses software process improvement, describing the CMMI model, and introduces UML, a visual modelling language for software systems; reviews a range of tools to support various activities in software engineering, and offers advice on the selection and management of a software supplier; describes such innovations in the field of software as distributed systems, service-oriented architecture, software as a service, cloud computing, and embedded systems; includes key learning topics, summaries and review questions in each chapter, together with a useful glossary. This practical and easy-to-follow textbook/reference is ideal for computer science students seeking to learn how to build high quality and reliable software on time and on budget. The text also serves as a self-study primer for software engineers, quality professionals, and software managers.

Software Engineering at Google

An MVC Approach to Concepts, Structures, and Models

Building a Career in Software

The Missing README

A Guide for the New Software Engineer

Patterns in the Machine

Skill Up: A Software Developer's Guide to Life and Career

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

resource for coursework or general study.

"Early in his software developer career, John Sonmez discovered that technical knowledge alone isn't enough to break through to the next income level - developers need "soft skills" like the ability to learn new technologies just in time, communicate clearly with management and consulting clients, negotiate a fair hourly rate, and unite teammates and coworkers in working toward a common goal. Today John helps more than 1.4 million programmers every year to increase their income by developing this unique blend of skills. Who Should Read This Book? Entry-Level Developers - This book will show you how to ensure you have the technical skills your future boss is looking for, create a resume that leaps off a hiring manager's desk, and escape the "no work experience" trap. Mid-Career Developers - You'll see how to find and fill in gaps in your technical knowledge, position yourself as the one team member your boss can't live without, and turn those dreaded annual reviews into chance to make an iron-clad case for your salary bump. Senior Developers - This book will show you how to become a specialist who can command above-market wages, how building a name for yourself can make opportunities come to you, and how to decide whether consulting or entrepreneurship are paths you should pursue. Brand New Developers - In this book you'll discover what it's like to be a professional software developer, how to go from "I know some code" to possessing the skills to work on a development team, how to speed along your learning by avoiding common beginner traps, and how to decide whether you should invest in a programming degree or 'bootcamp.'"--

Global Software and IT

A Beginner's Guide

Team Geek

Process-centered Software Engineering Environments

A Standards-Based Guide