

Software Engineering Online Course

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[Software Engineering : Complete Course Book](#) Addison-Wesley Professional

(NOTE: this Beta Edition may contain errors. See <http://saasbook.info> for details.) A one-semester college course in software engineering focusing on cloud computing, software as a service (SaaS), and Agile development using Extreme Programming (XP). This book is neither a step-by-step tutorial nor a reference book. Instead, our goal is to bring a diverse set of software engineering topics together into a single narrative, help readers understand the most important ideas through concrete examples and a learn-by-doing approach, and teach readers enough about each topic to get them started in the field. Courseware for doing the work in the book is available as a virtual machine image that can be downloaded or deployed in the cloud. A free MOOC (massively open online course) at saas-class.org follows the book's content and adds programming assignments and quizzes. See <http://saasbook.info> for details.(NOTE: this Beta Edition may contain errors. See <http://saasbook.info> for details.) A one-semester college course in software engineering focusing on cloud computing, software as a service (SaaS), and Agile development using Extreme Programming (XP). This book is neither a step-by-step tutorial nor a reference book. Instead, our goal is to bring a diverse set of software engineering topics together into a single narrative, help readers understand the most important ideas through concrete examples and a learn-by-doing approach, and teach readers enough about each topic to get them started in the field. Courseware for doing the work in the book is available as a virtual machine image that can be downloaded or deployed in the cloud. A free MOOC (massively open online course) at saas-class.org follows the book's content and adds programming assignments and quizzes. See <http://saasbook.info> for details.

Engineering Software as a Service Software Management Training

This tutorial book presents an augmented selection of the material presented at the Software Engineering Education and Training Track at the International Conference on Software Engineering, ICSE 2005, held in St. Louis, MO, USA in May 2005. The 12 tutorial lectures presented cover software engineering education, state of the art and practice: creativity and rigor, challenges for industries and academia, as well as future directions. **Continuous Delivery** IGI Global

Deep learning is often viewed as the exclusive domain of math PhDs and big tech companies. But as this hands-on guide demonstrates, programmers comfortable with Python can achieve impressive results in deep learning with little math background, small amounts of data, and minimal code. How? With *fastai*, the first library to provide a consistent interface to the most frequently used deep learning applications. Authors Jeremy Howard and Sylvain Gugger, the creators of *fastai*, show you how to train a model on a wide range of tasks using *fastai* and PyTorch. You'll also dive progressively further into deep learning theory to gain a complete understanding of the algorithms behind the scenes. Train models in computer vision, natural language processing, tabular data, and collaborative filtering Learn the latest deep learning techniques that matter most in practice Improve accuracy, speed, and reliability by understanding how deep learning models work Discover how to turn your models into web applications Implement deep learning algorithms from scratch Consider the ethical implications of your work Gain insight from the foreword by PyTorch cofounder, Soumith Chintala [Overcoming Challenges in Software Engineering Education: Delivering Non-Technical Knowledge and Skills](#) Penguin

This book will teach you how to test computer software under real-world conditions. The authors have

all been test managers and software development managers at well-known Silicon Valley software companies. Successful consumer software companies have learned how to produce high-quality products under tight time and budget constraints. The book explains the testing side of that success. Who this book is for: * Testers and Test Managers * Project Managers-Understand the timeline, depth of investigation, and quality of communication to hold testers accountable for. * Programmers-Gain insight into the sources of errors in your code, understand what tests your work will have to pass, and why testers do the things they do. * Students-Train for an entry-level position in software development. What you will learn: * How to find important bugs quickly * How to describe software errors clearly * How to create a testing plan with a minimum of paperwork * How to design and use a bug-tracking system * Where testing fits in the product development process * How to test products that will be translated into other languages * How to test for compatibility with devices, such as printers * What laws apply to software quality

[Software Evolution and Maintenance](#) O'Reilly Media

Professionals in the interdisciplinary field of computer science focus on the design, operation, and maintenance of computational systems and software. Methodologies and tools of engineering are utilized alongside computer applications to develop efficient and precise information databases. Computer Systems and Software Engineering: Concepts, Methodologies, Tools, and Applications is a comprehensive reference source for the latest scholarly material on trends, techniques, and uses of various technology applications and examines the benefits and challenges of these computational developments. Highlighting a range of pertinent topics such as utility computing, computer security, and information systems applications, this multi-volume book is ideally designed for academicians, researchers, students, web designers, software developers, and practitioners interested in computer systems and software engineering.

[Engineering Long-lasting Software](#) Independently Published

Software startups make global headlines every day. As technology companies succeed and grow, so do their engineering departments. In your career, you'll may suddenly get the opportunity to lead teams: to become a manager. But this is often uncharted territory. How can you decide whether this career move is right for you? And if you do, what do you need to learn to succeed? Where do you start? How do you know that you're doing it right? What does "it" even mean? And isn't management a dirty word? This book will share the secrets you need to know to manage engineers successfully. Going from engineer to manager doesn't have to be intimidating. Engineers can be managers, and fantastic ones at that. Cast aside the rhetoric and focus on practical, hands-on techniques and tools. You'll become an effective and supportive team leader that your staff will look up to. Start with your transition to being a manager and see how that compares to being an engineer. Learn how to better organize information, feel productive, and delegate, but not micromanage. Discover how to manage your own boss, hire and fire, do performance and salary reviews, and build a great team. You'll also learn the psychology: how to ship while keeping staff happy, coach and mentor, deal with deadline pressure, handle sensitive information, and navigate workplace politics. Consider your whole department. How can you work with other teams to ensure best practice? How do you help form guilds and committees and communicate effectively? How can you create career tracks for individual contributors and managers? How can you support flexible and remote working? How can you improve diversity in the industry through your own actions? This book will show you how. Great managers can make the world a better place. Join us.

[Artificial Intelligence with Python](#) Springer Science & Business Media

Build real-world Artificial Intelligence applications with Python to intelligently interact with the world around you About This Book Step into the amazing world of intelligent apps using this comprehensive guide Enter the world of Artificial Intelligence, explore it, and create your own applications Work through simple yet insightful examples that will get you up and running with Artificial Intelligence in no time Who This Book Is For This book is for Python developers who want to build real-world Artificial Intelligence applications. This book is friendly to Python beginners, but being familiar with Python would be useful to play around with the code. It will also be useful for experienced Python programmers who are looking to use Artificial Intelligence techniques in their existing technology stacks. What You Will Learn Realize different classification and regression techniques Understand the concept of clustering and how to use it to automatically segment data See how to build an intelligent recommender system Understand logic programming and how to use it Build automatic speech recognition systems Understand the basics of heuristic search and genetic programming Develop games using Artificial Intelligence Learn how reinforcement learning works Discover how to build intelligent applications centered on images, text, and time series data See how to use deep learning algorithms and build applications based on

it In Detail Artificial Intelligence is becoming increasingly relevant in the modern world where everything is driven by technology and data. It is used extensively across many fields such as search engines, image recognition, robotics, finance, and so on. We will explore various real-world scenarios in this book and you'll learn about various algorithms that can be used to build Artificial Intelligence applications. During the course of this book, you will find out how to make informed decisions about what algorithms to use in a given context. Starting from the basics of Artificial Intelligence, you will learn how to develop various building blocks using different data mining techniques. You will see how to implement different algorithms to get the best possible results, and will understand how to apply them to real-world scenarios. If you want to add an intelligence layer to any application that's based on images, text, stock market, or some other form of data, this exciting book on Artificial Intelligence will definitely be your guide! Style and approach This highly practical book will show you how to implement Artificial Intelligence. The book provides multiple examples enabling you to create smart applications to meet the needs of your organization. In every chapter, we explain an algorithm, implement it, and then build a smart application.

[Software Engineering Education](#) Cambridge University Press

This title gives students an integrated and rigorous picture of applied computer science, as it comes to play in the construction of a simple yet powerful computer system.

[Skills of a Successful Software Engineer](#) O'Reilly Media

Focus on masters' level education in software engineering. Topics discussed include: software engineering principles, current software engineering curricula, experiences with existing courses, and the future of software engineering education.

[Software Engineering Fundamentals](#) Springer

AUDIENCE Software Engineering: Principles and Practices (SEPP) is intended for use by college or university juniors, seniors, or graduate students who are enrolled in a general one-semester course or two-semester sequence of courses in software engineering and who are majoring in computer science, applied computer science, computer information systems, business information systems, information technology, or any other area in which software development is the focus. It is assumed that these students have taken at least two computer programming courses as well as any additional computing courses required in the first two years of their major. SEPP may also be appropriate for use in an introductory survey course in a full-fledged software engineering curriculum. In such a course, the instructor can choose the topics to be covered as well as the depth in which those topics are treated in an effort to provide freshmen or sophomore software engineering students with a preview of the concepts they will encounter later in their curriculum. SWEBOK CONTENT SEPP covers or touches on most of the topics listed in the Software Engineering Body of Knowledge (SWEBOK) Guide V3. This guide contains a comprehensive description of the knowledge required of a professional software engineer after four years of experience and is viewed by the IEEE as the authoritative source of software engineering knowledge. In addition, the Guide was used to inform the contents of the Computer Science Curricula 2013: Curriculum Guidelines for Undergraduate Degree Programs in Computer Science and the Software Engineering 2013 Curriculum Guidelines for Undergraduate Degree Programs in Software Engineering, both of which were developed by a joint task force of the IEEE Computer Society (IEEE-CS) and the Association for Computing Machinery (ACM). FEATURES * The beginning of each chapter includes a relevant and thought-provoking quote that can be used by the instructor to pique the interests of his or her students and generate some initial discussion about the topic at hand. * The beginning of each chapter also includes a big question of the form: What is...? The answer to this question is then answered in the following paragraph. This paragraph provides students with both a succinct definition of the term and a context into which the chapter's concepts can be placed. * Since a large amount of

information can be represented in a relatively small space using a table, and since a picture is worth a thousand words, the text includes over 230 tables and figures. * In many places in the text, talking points are displayed as bulleted lists instead of being buried in the narrative. * A significant proportion of the examples in the text are drawn from the real-life experiences of the author's own software development practice that began in 1987. * Every effort has been made to present concepts clearly and logically, utilize consistent language and terminology across all chapters and topics, and articulate concepts fully yet concisely. * Specialized, trendy, and/or arcane language that is inaccessible to the average software development student is either clearly defined or replaced in favor of clear and generalizable terminology. * Although references to the original works that contain the formulas discussed in the text are provided, these formulas have been transformed into a predictable and uniform mathematical notation. * The introductory chapters and the chapters that cover the umbrella activities and tasks of the SDLC include projects that require students to apply something they have learned in the chapters. INSTRUCTOR SUPPLEMENTS * Lecture/Discussion Outlines * PowerPoint Presentations * Test Banks * Real-World Case Studies STUDENT SUPPLEMENTS * Form Templates * Videos [Optimized C++](#) IGI Global

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

[Software Engineering](#) John Wiley & Sons

The system design interview is considered to be the most complex and most difficult technical job interview by many. Those questions are intimidating, but don't worry. It's just that nobody has taken the time to prepare you systematically. We take the time. We go slow. We draw lots of diagrams and use lots of examples. You'll learn step-by-step, one question at a time. Don't miss out. What's inside? - An insider's take on what interviewers really look for and why. - A 4-step framework for solving any system design interview question. - 16 real system design interview questions with detailed solutions. - 188 diagrams to visually explain how different systems work.

[Introduction to Medical Software](#) John Wiley & Sons

Improve Your Creativity, Effectiveness, and Ultimately, Your Code In Modern Software Engineering, continuous delivery pioneer David Farley helps software professionals think about their work more effectively, manage it more successfully, and genuinely improve the quality of their applications, their lives, and the lives of their colleagues. Writing for programmers, managers, and technical leads at all levels of experience, Farley illuminates durable principles at the heart of effective software development. He distills the discipline into two core exercises: learning and exploration and managing complexity. For each, he defines principles that can help you improve everything from your mindset to the quality of your code, and describes approaches proven to promote success. Farley's ideas and techniques cohere into a unified, scientific, and foundational approach to solving practical software development problems within realistic economic constraints. This general, durable, and pervasive approach to software engineering can help you solve problems you haven't encountered yet, using today's technologies and tomorrow's. It offers you deeper insight into what you do every day, helping you create better software, faster, with more pleasure and personal fulfillment. Clarify what you're trying to accomplish Choose your tools based on sensible criteria Organize work and systems to facilitate continuing incremental progress Evaluate your progress toward thriving systems, not just more "legacy code" Gain more value from experimentation and empiricism Stay in control as systems grow more complex Achieve rigor without too much rigidity Learn from history and experience Distinguish "good" new software development ideas from "bad" ones Register your book for convenient access to downloads,

updates, and/or corrections as they become available. See inside book for details.

[A Concise Introduction to Software Engineering](#) Simon and Schuster

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)). [Software Engineering Education in the Modern Age](#) Pearson Education Winner of the 2011 Jolt Excellence Award! Getting software released to users is often a painful, risky, and time-consuming process. This groundbreaking new book sets out the principles and technical practices that enable rapid, incremental delivery of high quality, valuable new functionality to users. Through automation of the build, deployment, and testing process, and improved collaboration between developers, testers, and operations, delivery teams can get changes released in a matter of hours—sometimes even minutes—no matter what the size of a project or the complexity of its code base. Jez Humble and David Farley begin by presenting the foundations of a rapid, reliable, low-risk delivery process. Next, they introduce the “deployment pipeline,” an automated process for managing all changes, from check-in to release. Finally, they discuss the “ecosystem” needed to support continuous delivery, from infrastructure, data and configuration management to governance. The authors introduce state-of-the-art techniques, including automated infrastructure management and data migration, and the use of virtualization. For each, they review key issues, identify best practices, and demonstrate how to mitigate risks. Coverage includes • Automating all facets of building, integrating, testing, and deploying software • Implementing deployment pipelines at team and organizational levels • Improving collaboration between developers, testers, and operations • Developing features incrementally on large and distributed teams • Implementing an effective configuration management strategy • Automating acceptance testing, from analysis to implementation • Testing capacity and other non-functional requirements • Implementing continuous deployment and zero-downtime releases • Managing infrastructure, data, components and dependencies • Navigating risk management, compliance, and auditing Whether you're a developer, systems administrator, tester, or manager, this book will help your organization move from idea to release faster than ever—so you can deliver value to your business rapidly and reliably.

[Software Engineering](#) Independently Published

Interested in developing embedded systems? Since they don't tolerate inefficiency, these systems require a disciplined approach to programming. This easy-to-read guide helps you cultivate a host of good development practices, based on classic software design patterns and new patterns unique to embedded programming. Learn how to build system architecture for processors, not operating systems, and discover specific techniques for dealing with hardware difficulties and manufacturing requirements. Written by an expert who's created embedded systems ranging from urban surveillance and DNA scanners to children's toys, this book is ideal for intermediate and experienced programmers, no matter what platform you use. Optimize your system to reduce cost and increase performance Develop an architecture that makes your software robust in resource-constrained environments Explore sensors, motors, and other I/O devices Do more with less: reduce RAM consumption, code space, processor cycles, and power consumption Learn how to update embedded code directly in the processor Discover how to implement complex mathematics on small processors Understand what interviewers look for when you apply for an embedded systems job "Making Embedded Systems is the book for a C programmer who wants to enter the fun (and lucrative) world of embedded systems. It's very well written—entertaining, even—and filled with clear illustrations." —Jack Ganssle, author and embedded system expert.

[Testing Computer Software](#) Pragmatic Bookshelf

Skills to grow from a solo coder into a productive member of a software development team, with seasoned advice on everything from refactoring to acing an interview. In Skills of a Successful Software Engineer you will learn: The skills you need to succeed on a software development team Best practices for writing maintainable code Testing and commenting code for others to read and use Refactoring code you didn't write What to expect from a technical interview process How to be a tech leader Getting around gatekeeping in the tech community Skills of a Successful Software Engineer is a best practices guide for succeeding on a software development team. The book reveals how to optimize both your code and your

career, from achieving a good work-life balance to writing the kind of bug-free code delivered by pros. You'll master essential skills that you might not have learned as a solo coder, including meaningful code commenting, unit testing, and using refactoring to speed up feature delivery. Timeless advice on acing interviews and setting yourself up for leadership will help you throughout your career. Crack open this one-of-a-kind guide, and you'll soon be working in the professional manner that software managers expect. About the technology Success as a software engineer requires technical knowledge, flexibility, and a lot of persistence. Knowing how to work effectively with other developers can be the difference between a fulfilling career and getting stuck in a life-sucking rut. This brilliant book guides you through the essential skills you need to survive and thrive on a software engineering team. About the book Skills of a Successful Software Engineer presents techniques for working on software projects collaboratively. In it, you'll build technical skills, such as writing simple code, effective testing, and refactoring, that are essential to creating software on a team. You'll also explore soft skills like how to keep your knowledge up to date, interacting with your team leader, and even how to get a job you'll love. What's inside Best practices for writing and documenting maintainable code Testing and refactoring code you didn't write What to expect in a technical interview How to thrive on a development team About the reader For working and aspiring software engineers. About the author Fernando Doglio has twenty years of experience in the software industry, where he has worked on everything from web development to big data. Table of Contents 1 Becoming a successful software engineer 2 Writing code everyone can read 3 Unit testing: delivering code that works 4 Refactoring existing code (or Refactoring doesn't mean rewriting code) 5 Tackling the personal side of coding 6 Interviewing for your place on the team 7 Working as part of a team 8 Understanding team leadership

[Software Engineering](#) Createspace Independent Pub

In today's fast and competitive world, a program's performance is just as important to customers as the features it provides. This practical guide teaches developers performance-tuning principles that enable optimization in C++. You'll learn how to make code that already embodies best practices of C++ design run faster and consume fewer resources on any computer—whether it's a watch, phone, workstation, supercomputer, or globe-spanning network of servers. Author Kurt Guntheroth provides several running examples that demonstrate how to apply these principles incrementally to improve existing code so it meets customer requirements for responsiveness and throughput. The advice in this book will prove itself the first time you hear a colleague exclaim, “Wow, that was fast. Who fixed something?” Locate performance hot spots using the profiler and software timers Learn to perform repeatable experiments to measure performance of code changes Optimize use of dynamically allocated variables Improve performance of hot loops and functions Speed up string handling functions Recognize efficient algorithms and optimization patterns Learn the strengths—and weaknesses—of C++ container classes View searching and sorting through an optimizer's eye Make efficient use of C++ streaming I/O functions Use C++ thread-based concurrency features effectively

[Issues in Software Engineering Education](#) Springer Science & Business Media

A concise and accessible overview of the design, implementation and management of medical software.

[Modern Software Engineering](#) CRC Press

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instructor to pique the interests of his or her students and generate some initial discussion about the topic at hand. * The beginning of each chapter also includes a big question of the form: What is...? The answer to this question is then answered in the following paragraph. This paragraph provides students with both a succinct definition of the term and a context into which the chapter's concepts can be placed. * Since a large amount of information can be represented in a relatively small space using a table, and since a picture is worth a thousand words, the text includes over 230 tables and figures. * In many places in the text, talking points are displayed as bulleted lists instead of being buried in the narrative. * A significant proportion of the examples in the text are drawn from the real-life experiences of the author's own software development practice that began in 1987. * Every effort has been made to present concepts clearly and logically, utilize consistent language and terminology across all chapters and topics, and articulate concepts fully yet concisely. * Specialized, trendy, and/or arcane language that is inaccessible to the average software development student is either clearly defined or replaced in favor of clear and generalizable terminology. * Although references to the original works that contain the formulas discussed in the text are provided, these formulas have been transformed into a predictable and uniform mathematical notation. * The introductory chapters and the chapters that cover the umbrella activities and tasks of the SDLC include projects that require students to apply something they have learned in the chapters.

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