

Ikvinderpal Singh

SOFTWARE ENGINEERING A Progressive Approach

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Product Description

Software Engineering: An Engineering Approach provides a comprehensive and reader-friendly introduction to software development as a rigorous engineering discipline. Tailored for upper-level undergraduate students, first-year graduate students, and industry practitioners, this text bridges the gap between chaotic programming habits and mature software practices. It outlines structural development life cycles, detailed cost estimation metrics, design modeling frameworks, and exhaustive verification methodologies. By highlighting the integration of Computer-Aided Software Engineering (CASE) tools, the text provides readers with the practical skills needed to deploy high-quality, reliable, and maintainable systems. Ultimately, this volume serves as an essential manual for navigating the rapid technical shifts within modern industrial applications.

Salient Feature:

- **Foundational Learning Paradigms**: Evaluates core software development principles, stakeholder management roles, Davis's rules, and CMM quality frameworks to establish structural programming discipline.
- **Essential Algorithms**: Covers foundational process pathways including Waterfall, prototyping, incremental growth, Spiral architectures, and rapid development life cycles.
- **Practical Implementation**: Explains algorithmic test-case design using equivalence partitioning, boundary values, structural basis paths, and systematic integration testing methodologies.
- **Data Strategy**: Integrates data flow diagrams, structured dictionaries, entity relationships, and structural object-oriented UML modeling to streamline architectural configurations.
- **Model Optimization**: Maximizes lifecycle efficiency through automated CASE tool environments, repository coordination architectures, and software quality assurance

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Dr. Ikvinderpal Singh is an Assistant Professor at Trai Shatabdi Guru Gobind Singh Khalsa college Amritsar, bringing 17+ years of academic leadership and research experience to the field of computer science. A Gold Medalist in B.Sc. IT, with an MCA (Distinction) and a Ph.D. in Neural Networks and Image Processing, he is known for blending rigorous research with practical innovation. A prolific academic creator, he has authored 37 books, published 82+ research papers, and designed 100+ industry-aligned skill-development courses. His expertise extends to doctoral evaluation, supervision, and active participation on 100+ editorial and review boards worldwide.

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