



System Engineering Analysis, Design, and Development: Concepts, Principles, and Practices (Wiley Series in Systems Engineering and Management)

By Charles S. Wasson

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Praise for the first edition:

“This excellent text will be useful to every system engineer (SE) regardless of the domain. It covers ALL relevant SE material and does so in a very clear, methodical fashion. The breadth and depth of the author's presentation of SE principles and practices is outstanding.” –Philip Allen

This textbook presents a comprehensive, step-by-step guide to System Engineering analysis, design, and development via an integrated set of concepts, principles, practices, and methodologies. The methods presented in this text apply to any type of human system -- small, medium, and large organizational systems and system development projects delivering engineered systems or services across multiple business sectors such as medical, transportation, financial, educational, governmental, aerospace and defense, utilities, political, and charity, among others.

- Provides a common focal point for “bridging the gap” between and unifying System Users, System Acquirers, multi-discipline System Engineering, and Project, Functional, and Executive Management education, knowledge, and decision-making for developing systems, products, or services
- Each chapter provides definitions of key terms, guiding principles, examples, author’s notes, real-world examples, and exercises, which highlight and reinforce key SE&D concepts and practices
- Addresses concepts employed in Model-Based Systems Engineering (MBSE), Model-Driven Design (MDD), Unified Modeling Language (UML™) / Systems Modeling Language (SysML™), and Agile/Spiral/V-Model Development such as user needs, stories, and use cases analysis; specification development; system architecture development; User-Centric System Design (UCSD);

interface definition & control; system integration & test; and Verification & Validation (V&V)

- Highlights/introduces a new 21st Century Systems Engineering & Development (SE&D) paradigm that is easy to understand and implement.
- Provides practices that are critical staging points for technical decision making such as Technical Strategy Development; Life Cycle requirements; Phases, Modes, & States; SE Process; Requirements Derivation; System Architecture Development, User-Centric System Design (UCSD); Engineering Standards, Coordinate Systems, and Conventions; et al.

Thoroughly illustrated, with end-of-chapter exercises and numerous case studies and examples, *Systems Engineering Analysis, Design, and Development, Second Edition* is a primary textbook for multi-discipline, engineering, system analysis, and project management undergraduate/graduate level students and a valuable reference for professionals.

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Editorial Review

From the Back Cover

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The objective of this book is to enable systems engineers, engineers, system analysts, project managers, and others to understand HOW Systems Engineering and Development (SE&D) are performed so the reader can become more productive and competitive within the organization and the marketplace. There is a solid examination of SE&D concepts, principles, processes, and practices used to evolve an abstract end user's operational need into a physical, field-operable system or product. Topical discussions are supported by practical examples, observations, mini-case studies, lessons learned, and real life events that illustrate how system engineering impacts technical and programmatic decision making and the corporate bottom line.

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About the Author

Charles S. WASSON, BSEE, MBA, ESEP, is a member of the INCOSE, ASEE, PMI, and IEEE and is President / Principal Consultant of Wasson Strategics, LLC. His professional career spans over 40 years of leadership in program/project management; system, hardware, and software design, development, integration, and test; and organizational and team development. Wasson Strategics is a provider of multi-discipline SE, technical project management, organizational and team development training and consulting services for Fortune 100 & 500 clients striving to achieve System Engineering and Development excellence.

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