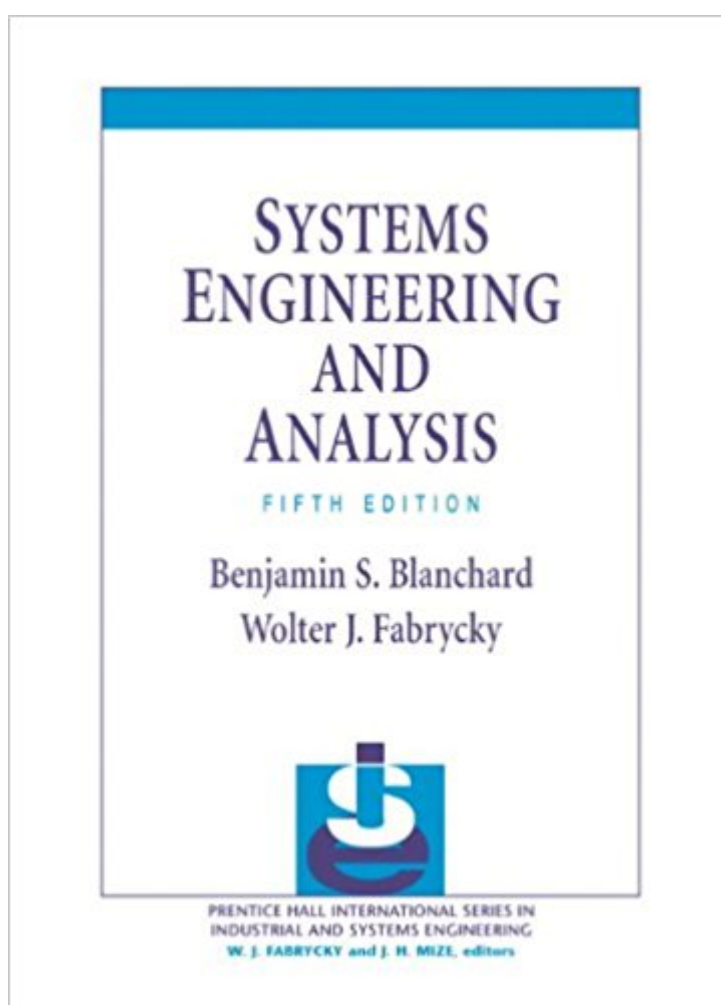


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# Systems Engineering And Analysis (5th Edition) (Prentice Hall International Series In Industrial & Systems Engineering)



## Synopsis

For senior-level undergraduate and first and second year graduate systems engineering and related courses. *Systems Engineering and Analysis, 5/e*, provides a total life-cycle approach to systems and their analysis. This practical introduction to systems engineering and analysis provides the concepts, methodologies, models, and tools needed to understand and implement a total life-cycle approach to systems and their analysis. The authors focus first on the process of bringing systems into being—beginning with the identification of a need and extending that need through requirements determination, functional analysis and allocation, design synthesis, evaluation, and validation, operation and support, phase-out, and disposal. Next, the authors discuss the improvement of systems currently in being, showing that by employing the iterative process of analysis, evaluation, feedback, and modification, most systems in existence can be improved in their affordability, effectiveness, and stakeholder satisfaction.

## Book Information

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## Customer Reviews

“This text is the most complete, most thorough, and the most systematic textbook on the subject of Systems Engineering. The textbook is presenting materials in a proper and sequential manner and it is not jumping from topic to topic.” -Lili H. Tabrizi, CALIFORNIA STATE UNIVERSITY  
“This is, without a doubt, the definitive text on systems engineering. It provides a comprehensive coverage of the field, considering both the design

and analysis of complex systems. — Stanley F. Bullington, MISSISSIPPI STATE UNIVERSITY — “The clean coverage of individual topics makes it easier to address needs of students both in our regular graduate course and to supplement short courses. — The book serves as an excellent quick reference guide. — Paul Compton, THE UNIVERSITY OF ALABAMA IN HUNTSVILLE

Systems Engineering and Analysis Fifth Edition Benjamin S. Blanchard Wolter J. Fabrycky This book is about systems. It concentrates on the engineering of human-made systems and on systems analysis. In the first case, emphasis is on the process of bringing systems into being, beginning with the identification of a need and extending through requirements determination, functional analysis and allocation, design synthesis and evaluation, validation, operation and support, and disposal. In the second case, focus is on the improvement of systems already in being. By employing the iterative process of analysis, evaluation, modification, and feedback most systems now in existence can be improved in their effectiveness, product quality, affordability, and stakeholder satisfaction. Systems engineering may be defined and/or described as a technologically based interdisciplinary process for bringing systems, products, and structures (technical entities) into being. While the main focus is nominally on the entities themselves, systems engineering offers organizations a better strategy. Systems engineering is inherently oriented to considering "the end before the beginning" and concentrates on what the entities do before determining what the entities are. Instead of offering systems or system elements and products per se, systems engineering focuses on designing, delivering, and sustaining functionality, a capability, or a solution. This strategic thinking is now being considered by forward-looking organizations in both the private and public sectors. It is applicable to most types of technical systems encompassing the domains of communication, defense, education, healthcare, manufacturing, transportation, and others. The advancement and promulgation of this emerging strategy through education is the primary aim of this textbook.

This book is laughably difficult to use in a course setting. The shortcomings in consideration for usability and extensibility to the classroom setting by the authors significantly undermine their credibility on the topic of systems engineering. Strike 1 - The table of contents has no subtopics or any indications of what is in each chapter aside from a headline. For example "8 - Detail Design and Development". Say I want to review for a test, or find something quickly? Tough, read the whole chapter again. Strike 2 - There are no indications of what chapter you're in on any given page. For example, I flip to randomly selected page 242, which has heading 7.4 for Profitability Evaluation.

This is actually in chapter 8, which you can only determine by flipping backwards until you find the intro page, which still doesn't even have the chapter number!!!! You have to find it in small print on the bottom of the first page of the chapter. This book is insanely monotonous so its easy to lose your place or accidentally go too far if for instance your instructor notes "check chapter 11, Section 5.3".Strike 3 - The index must have been an afterthought, as it hasn't included a single topic that I've wanted to review later. Want to brush up on how TPM's (Technical performance measures) are defined or used? Tough! Start flipping pages! I've tested numerous topics as I run across them in the text by flipping back to the index and laughing each time they are not there (e.g. SEMP (systems engineering management plan), PMP (program management plan), etc.).Seriously do not but this book until they fix these glaringly obvious flaws. I've been trying to find a contact for the authors or the publisher to no avail. I fault my instructor for selecting this book, obviously he has not tried to use it.

This book provides a good overview of the systems engineering discipline either as a academic subject or career-based.Pros:-Breaks down common model, approaches, and analysis-Uses "real-life" examples and applies processes and analysis previously mentioned-Does "build on" previous materialCons:-The examples are pretty closely linked, more variety would have been better for those outside certain industries-Certain approaches are just glossed over-Sometimes it's too "academic". Most SE is real-world and should be applicable to many fields/disciplines, whereas this book names it as a sole discipline

Can be used with other texts. There are typographical errors here and there.

This textbook was assigned in my grad level electrical engineering course. It's very readable. If you are a student with no experience in systems engineering or engineering project management, I recommend this book because it does a good job of explaining real world practices. Upon graduation, if you are fortunate enough to find an engineering job, the content in this book will help you do a better job of design and management.

Author clearly has a very high-level understanding of the topic. However, this book is very wordy and repetitive. It can be difficult to stay engaged when it keeps looping back around and saying the same thing in different ways. It's very different from your typical engineering book.

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I used this book in a class that was part of my Masters degree. It was probably in the top 3 of most useful books to me at the time and I used it throughout my Masters degree program as a reference. I have also used it a few times in my career as a reference.

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