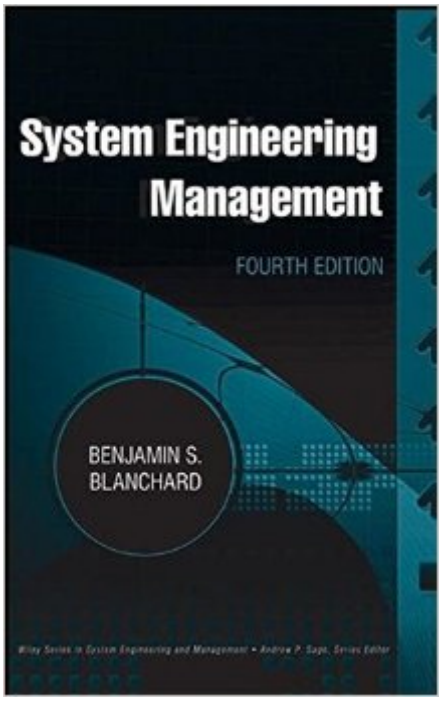
System Engineering Management



Synopsis

Technology/Engineering/General A top-down, step-by-step, life-cycle approach to systems engineering In today's environment, there is an ever-increasing need to develop and produce systems that are robust, reliable, high quality, supportable, cost-effective, and responsive to the needs of the customer or user. Reflecting these worldwide trends, System Engineering Management, Fourth Edition introduces readers to the full range of system engineering concepts, tools, and techniques, emphasizing the application of principles and concepts of system engineering and the way these principles aid in the development, utilization, and support of systems. Viewing systems engineering from both a technical and a management perspective, this fully revised and updated edition extends its coverage to include: * The changing areas of system requirements * Increasing system complexities * Extended system life cycles versus shorter technology cycles * Higher costs and greater international competition * The interrelationship of project management and systems engineering as they work together at the project team level Supported by numerous, real-life case studies, this new edition of the classic resource demonstrates-step by step-a comprehensive, top-down, life-cycle approach that system engineers can follow to reduce costs, streamline the design and development process, improve reliability, and win customers.

Book Information

Hardcover: 560 pages
Publisher: Wiley; 4 edition (July 28, 2008)
Language: English
ISBN-10: 0470167351
ISBN-13: 978-0470167359
Product Dimensions: 6.4 x 1.3 x 9.6 inches
Shipping Weight: 2 pounds (View shipping rates and policies)
Average Customer Review: 4.1 out of 5 starsÂ Â See all reviewsÂ (28 customer reviews)
Best Sellers Rank: #101,996 in Books (See Top 100 in Books) #5 inÂ Books > Engineering & Transportation > Engineering > Industrial, Manufacturing & Operational Systems > Management #17 inÂ Books > Engineering & Transportation > Engineering > Industrial, Manufacturing & Operational Systems > Industrial Technology #181 inÂ Books > Engineering & Transportation > Engineering > Electrical & Electronics > Electronics

Customer Reviews

This book is aimed at the system engineer who is involved in product design and engineering or

involved in government contracting and must produce system engineering management plans (SEMPs). It is also applicable to organizations who have or are planning to use the capability maturity model (CMM) to improve their effectiveness. For the intended audience this book is both comprehensive and complete. There are eight chapters, each followed by case studies, questions and problems, and six appendices.It starts with a foundation of the basics, such as definitions, system engineering life cycle, analysis and concurrent engineering. It then builds upon this foundation by addressing all of the elements of a well-managed system engineering program: integrated product and process development, TQM, configuration management, support and logistics. Each element is discussed in detail and placed into the context of a total system engineering environment.The chapter on system design requirements is particularly complete and covers every facet of this discipline, including reliability, maintainability, safety, software, etc. There is a lot of good material here, which is reinforced by the next chapter that covers design tools and methods. The design process is concluded by a chapter on design review and evaluation, which is a foundation of good quality practices as well as a well-written SEMP.The real heart of the book starts in chapter 6, which covers SE program planing. It covers program requirements, the SEMP itself and provides a statement of work. It then provides a complete work breakdown structure for implementing system engineering functions and tasks. This chapter provides a risk management plan that is well thought out and serves as an excellent template.

This book (or something similar) really should be required for anyone graduating with an engineering degree who intends to work in industry.Systems engineering is essentially the function that oversees any design effort to ensure that the resulting design does what it’s supposed to. As such requirements are the bread and butter of systems engineering. The most visible job of the system engineer then is to turn the customer’s desires into functional requirements, and then turn those requirements into something that can be designed to based on the system architecture the designers / system engineers prefer.For example, consider if you have a city with a river through it and the local government wants to develop a system to carry cars across the river. The system engineer would first turn that desire into functional requirements. These would include requirements like: No. of cars per hour that can transit, can’t interfere with riverborne ship traffic, growth in traffic that can be absorbed etc. From this you have something that you can verify design concepts against to see if they satisfy the customer desires, but actually can’t pull out the ruler and calculators just yet. Systems engineers / designers would then consider options like a suspension bridge, a ferry system, or a tunnel beneath the river. Each of these system options would have their own

architectures and the functional requirements would have to be translated into different design requirements for each. The bridge would have to be so high to allow ship traffic and have so many lanes and bear so much live weight. The ferry system would need so many ferries of such and such a carrying capacity. The tunnel would have to have so many lanes, would require such and such a ventilation capacity, etc.