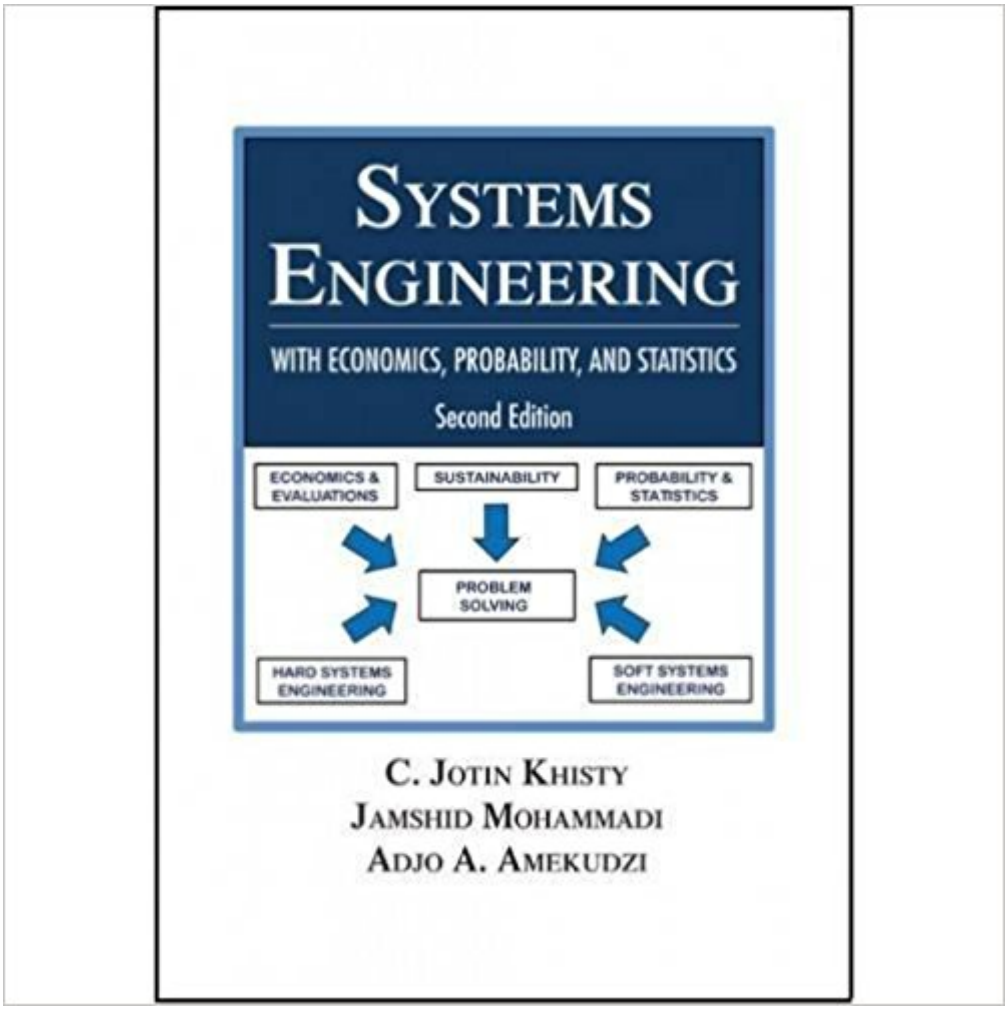
Systems Engineering With Economics, Probability And Statistics



Synopsis

This extensively revised comprehensive textbook, covering a wide range of topics, is suitable for courses at the graduate and undergraduate levels, each with a different emphasis. There is more than enough material to cover two semesters of an undergraduate course, as well as a one semester graduate course. The pedagogy provides enough flexibility for an instructor to teach the topics in systems engineering he or she would like. Systems Engineering with Economics, Probability, and Statistics, Second Edition is sufficiently broad-based for undergraduate and graduate programs in various branches of engineering and management. Key Features: --Includes a wide range of topics covering the fundamentals and practice applications of probability and statistics (including advanced topics on statistical analysis and testing and interpretation of engineering data), microeconomics, engineering economics, hard systems (such as linear programming, decision analysis, CPM, LOB, and PERT), soft systems analysis (such as Checklands method), and sustainable development and sustainability applications in engineering planning --Integrates the power of quantitative analysis, in a very concrete way, with the conceptual richness of economics and systems thinking to deal with engineering problems --Examples and end-of-chapter exercises drive home the fact that answers to problems need not be merely optimal solutions, but must include value tradeoffs and lend themselves to an enriched decision-making process, most suitable for applications in an uncertain world --Includes a unique chapter on systems thinking -- a first of its kind in a textbook on systems engineering -- and covers the most recent soft systems structuring methods available in dealing with complexity, uncertainty, and conflict --Contains two new chapters: one on sustainable development, sustainability, engineering and planning; and the other on case studies dealing with engineering and planning for sustainability --WAV material includes a solutions manual for those exercise problems that require numerical solutions -- available from the Web Added Value Download Resource Center at jrosspub.com Table of Contents: Chapter 1: MAPPING THE TERRAIN OF THE SYSTEMS APPROACH Chapter 2: PROBLEM SOLVING AND DESIGNING IN ENGINEERING AND PLANNING Chapter 3: BASIC ENGINEERING ECONOMICS AND EVALUATION Chapter 4: BASIC MICROECONOMICS FOR ENGINEERS AND PLANNERS Chapter 5: PRINCIPLES OF PROBABILITY: PART I--REVIEW OF PROBABILITY THEORY Chapter 6: PRINCIPLES OF PROBABILITY: PART II--RANDOM VARIABLES AND PROBABILITY DISTRIBUTIONS Chapter 7: PRINCIPLES OF PROBABILITY: PART III--JOINT PROBABILITY FUNCTIONS AND CORRELATED VARIABLES Chapter 8: PRINCIPLES OF STATISTICS: PART I--ESTIMATION OF STATISTICAL PARAMETERS AND TESTING VALIDITY OF DISTRIBUTION FUNCTIONS Chapter 9: PRINCIPLES OF STATISTICS:

PART II--HYPOTHESIS TESTING, ANALYSIS OF VARIANCE, REGRESSION, AND CORRELATION ANALYSIS Chapter 10: BASIC HARD SYSTEMS ENGINEERING--PART I Chapter 11: BASIC HARD SYSTEMS ENGINEERING--PART II Chapter 12: SYSTEMS THINKING Chapter 13: SYSTEMS THINKING: CASE STUDIES Chapter 14: SUSTAINABLE DEVELOPMENT, SUSTAINABILITY, ENGINEERING AND PLANNING Chapter 15: CASE STUDIES IN ENGINEERING AND PLANNING FOR SUSTAINABILITY

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Customer Reviews

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