

1. Record Nr.	UNINA9910830035303321
Autore	Raheja Dev
Titolo	Assurance technologies [[electronic resource]] : principles and practices : a product, process, and system safety perspective // Dev G. Raheja, Michael Allocco
Pubbl/distr/stampa	Hoboken, N.J., : Wiley-Interscience, c2006
ISBN	1-280-54979-3 9786610549795 0-470-00942-X 0-470-00941-1
Edizione	[2nd ed.]
Descrizione fisica	1 online resource (494 p.)
Altri autori (Persone)	AlloccoMichael
Disciplina	620.00452 658.562
Soggetti	Quality assurance Industrial design Reliability (Engineering)
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	ASSURANCE TECHNOLOGIES PRINCIPLES AND PRACTICES; CONTENTS; PREFACE; CHAPTER 1 ASSURANCE TECHNOLOGIES, PROFITS, AND MANAGING SAFETY-RELATED RISKS; 1.1 Introduction; 1.2 Cheaper, Better, and Faster Products; 1.3 What Is System Assurance?; 1.4 Key Management Responsibilities; 1.4.1 Integration; 1.4.2 Budget Consistent with Objectives; 1.4.3 Managing Risk; 1.4.3.1 Managing Safety-Related Risk; 1.4.3.2 Risk Assessment; 1.4.3.3 Risk Types; 1.4.3.4 Risk Terms; 1.4.3.5 Risk Knowledge; 1.5 Is System Assurance a Process?; 1.6 System Assurance Programs; References; Further Reading CHAPTER 2 INTRODUCTION TO STATISTICAL CONCEPTS2.1 Probabilistic Designs; 2.2 Probability Computations for Reliability, Safety, and Maintainability; 2.2.1 Construction of a Histogram and the Empirical Distribution; 2.2.2 Computing Reliability; 2.2.3 Failure Rate and Hazard Function; 2.3 Normal Distribution; 2.4 Log Normal Distribution; 2.5 Exponential Distribution; 2.6 Weibull Distribution; 2.7 Data Analysis with Weibull Distribution; 2.8 Discrete Distributions; 2.8.1 Binomial

Distribution; 2.8.2 Poisson Distribution; 2.9 Topics for Student Projects and Theses; References; Further Reading
CHAPTER 3 RELIABILITY ENGINEERING AND SAFETY-RELATED APPLICATIONS
3.1 Reliability Principles; 3.2 Reliability in the Design Phase; 3.2.1 Writing Reliability Specifications; 3.2.2 Conducting Design Reviews; 3.2.2.1 Preliminary Design Review; 3.2.2.2 Lessons Learned and Checklists; 3.2.3 Reliability Allocation; 3.2.4 Reliability Modeling; 3.2.4.1 Series Model; 3.2.4.2 Parallel Model; 3.2.5 Reliability Prediction; 3.2.6 Failure-Mode, Effects, and Criticality Analysis; 3.2.7 Worst-Case Analysis; 3.2.8 Other Analysis Techniques; 3.2.9 Design Improvement Approaches; 3.2.9.1 Derating
3.2.9.2 Fault Tolerance
3.3 Reliability in the Manufacturing Phase; 3.4 Reliability in the Test Phase; 3.4.1 Reliability Growth Testing; 3.4.2 Tests for Durability; 3.4.3 Testing for Low Failure Rates; 3.4.4 Burn-in and Screening; 3.5 Reliability in the Use Phase; 3.6 Reliability and Safety Commonalities; 3.6.1 Common System Objective; 3.6.2 Unreliability and Hazards; 3.6.3 Complex Risks; 3.6.4 Potential System Accidents; 3.6.5 Software Reliability and Safety; 3.6.6 Reliability and Safety Trade-offs; 3.6.7 Reliability and Safety Misconceptions; 3.6.7.1 Redundancy; 3.6.7.2 Monitoring
3.6.7.3 Concepts of Probability
3.6.7.4 Familiarization to Automation; 3.6.7.5 Reliable Software and Safety Considerations; 3.6.7.6 Reliable Analyses and Safety Applications; 3.7 Topics for Student Projects and Theses; References; Further Reading; CHAPTER 4 MAINTAINABILITY ENGINEERING AND SAFETY-RELATED APPLICATIONS; 4.1 Maintainability Engineering Principles; 4.2 Maintainability during the Design Phase; 4.2.1 Developing Maintainability Specifications; 4.2.2 Design Review for Maintainability; 4.2.3 Maintainability Analysis; 4.2.4 FMECA for Maintainability; 4.2.5 Maintainability Prediction
4.2.6 Life-Cycle Cost Analysis

Sommario/riassunto

The Second Edition features new content, examples, methods, techniques, and best practices Assurance Technologies Principles and Practices is based on the assertion that safety is not a cost, but an excellent investment. According to the authors, more than sixty percent of problems in complex systems arise from incomplete, vague, and poorly written specifications. In keeping with the authors' passion for safety, the text is dedicated to uniting the gamut of disciplines that are essential for effective design applying assurance technology principles, including system safety, reli
