

1. Record Nr.	UNINA9910144869003321
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Titolo	Axiomatic quality [[electronic resource]] : integrating axiomatic design with six-sigma, reliability, and quality engineering / / Basem Said El-Haik ; with foreword by Nam P. Suh
Pubbl/distr/stampa	Hoboken, N.J., : John Wiley, 2005
ISBN	1-280-27540-5 9786610275403 0-470-32386-8 0-471-71468-2 0-471-71467-4
Descrizione fisica	1 online resource (307 p.)
Disciplina	658.5/62
Soggetti	Process control Quality control Six sigma (Quality control standard) Production management
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	"Wiley-Interscience publication."
Nota di bibliografia	Includes bibliographical references (p. 273-280) and index.
Nota di contenuto	AXIOMATIC QUALITY; CONTENTS; FOREWORD; PREFACE; 1 INTRODUCTION TO THE AXIOMATIC QUALITY PROCESS; 1.1 Why Axiomatic Quality?; 1.2 Goals and Scope of the Book; 1.3 Axiomatic Design; 1.4 Six-Sigma and Design for Six-Sigma Philosophy; 1.4.1 Introduction to Design for Six-Sigma; 1.5 Robustness Engineering: Taguchi's Quality Engineering; 1.6 Problems Addressed by Axiomatic Quality; 1.7 Introduction to the Axiomatic Quality Process; 1.8 Axiomatic Quality in Product Development; 1.9 Summary; 2 AXIOMATIC DESIGN METHOD; 2.1 Introduction; 2.2 Axiomatic Design Method; 2.2.1 Design Domains 2.2.2 Design Hierarchy and Zigzagging ProcessAcclaro DFSS Light® ftp://ftp.wiley.com/public/sci_tech_med/axiomatic_quality/; 2.3 Introduction to the Independence Axiom; 2.4 Introduction to the Information Axiom; 2.5 Axiomatic Design Theorems and Corollaries; 2.5.1 Axiomatic Design Corollaries; 2.5.2 Axiomatic Design Theorems

of General Design; 2.5.3 Theorems for Design of Large Systems; 2.6 Case Study: Depth Charge Initiator (Nordlund, 1996); 2.7 Summary; 3 INDEPENDENCE AXIOM; 3.1 Introduction; 3.2 Independence Axiom and the Zigzagging Approach; 3.2.1 Coupling Measures 3.3 Design Mappings and Design Structures 3.4 Case Study 1: Axiomatic Design of a Water Faucet (Swenson and Nordlund, 1995); 3.5 Case Study 2: Implementation Methodology for Transition from Traditional to Cellular Manufacturing Using Axiomatic Design (Durmusoglu et al., 2002); 3.5.1 Axiomatically Driven Cellular Manufacturing System; 3.6 Summary; 4 INFORMATION AXIOM AND DESIGN COMPLEXITY; 4.1 Introduction; 4.2 Traditional Formulation of the Information Axiom: Suh's Definition; 4.2.1 Complexity Reduction Techniques; 4.3 Complexity Vulnerability 4.4 Theoretical Foundation of the New Complexity Theory 4.5 New Complexity Theory; 4.5.1 Coupled Design Complexity; 4.6 Complexity Due to Statistical Correlation; 4.7 Summary; 5 QUALITY ENGINEERING: AXIOMATIC PERSPECTIVE; 5.1 Introduction; 5.2 Robust Design (Quality Engineering): Overview; 5.3 Mathematical Relationship between the Quality Loss Function and Axiomatic Measures; 5.4 Mathematical Relationship between the Quality Loss Function and Axiomatic Measures of Higher Modularity; 5.4.1 Equal Variance; 5.4.2 Equal Sensitivity; 5.5 Estimation of the Expected Loss Function 5.6 Mathematical Relationship between the Signal-to-Noise Ratio and Axiomatic Measures 5.7 Summary; 6 AXIOMATIC QUALITY AND RELIABILITY PROCESS; 6.1 Introduction; 6.2 Axiomatic Quality Process; 6.2.1 Why the Axiomatic Quality Process?; 6.2.2 Axiomatic Quality Process Map; 6.2.3 Axiomatic Quality Design Team; 6.3 Customer Attributes-to-FRs Mapping: Understanding the Voice of the Customer; 6.3.1 QFD Stage 1; 6.3.2 QFD Stage 2; 6.4 Conceptual Design for Capability Phase; 6.4.1 Define FR Specification Target Values and Allowable Tolerances 6.5 Option A: Conceptual Design for the Capability Phase of an Incremental Design

Sommario/riassunto

The first book to integrate axiomatic design and robust design for a comprehensive quality approach. As the adoption of quality methods grows across various industries, its implementation is challenged by situations where statistical tools are inadequate, yet the earlier a proactive quality system is introduced into a given process, the greater the payback these methods will yield. Axiomatic Quality brings together two well-established theories, axiomatic design and robust design, to eliminate or reduce both conceptual and operational weaknesses. Providing a complete framework for
