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Nota di contenuto	Cover; Title Page; Copyright; Contents; Preface; Vision for the Fourth Edition; Contributors; Part 1 Design; Chapter 1 Computer-Aided Design; 1 Introduction to CAD; 2 Hardware; 3 Input and Output Devices; 4 CAD Software; 5 CAD Standards and Translators; 6 Applications of CAD; Bibliography; Chapter 2 Product Design for Manufacturing and Assembly; 1 Introduction; 2 Design for Manufacturing and Assembly; 3 Why Is DFM&A Important?; References; Chapter 3 Design-for-Environment Processes and Tools; 1 Introduction; 2 Creating a DFE Program; 3 Using DFE Tools; 4 Examples of DFE Innovations 5 ConclusionsReferences; Chapter 4 Design Optimization: An Overview; 1 Introduction; 2 Requirements for the Application of Optimization Methods; 3 Applications of Optimization in Engineering; 4 Structure of Optimization Problems; 5 Overview of Optimization Methods; 6 Summary; References; Chapter 5 Total Quality Management in Mechanical System Design; 1 Introduction; 2 Terms and Definitions; 3 TQM in General; 4 Three General Approaches to TQM; 5 Quality in Design Phase; 6 TQM Methods; References; Bibliography; Chapter 6 Reliability in the Mechanical Design Process; 1 Introduction 2 Statistical Distributions and Hazard Rate Models3 Common Reliability Networks; 4 Mechanical Failure Modes and Causes of General and Gear

Failures; 5 Reliability-Based Design and Design-by-Reliability Methodology; 6 Design Reliability Allocation and Evaluation Methods; 7 Human Error and Reliability Consideration in Mechanical Design; 8 Failure Rate Estimation Models for Various Mechanical Items; 9 Failure Data and Failure Data Collection Sources; References; Chapter 7 Product Design and Manufacturing Processes for Sustainability; 1 Introduction
2 Need for Sustainability Science and Its Applications in Product Design and Manufacture
3 Product Design for Sustainability; 4 Processes for Sustainability; 5 Case Study; 6 Future Directions; References; Chapter 8 Life-Cycle Design; 1 Historical Influences on Development of DFLL; 2 DFLL Definitions; 3 Motivations for DFLL; 4 Principles of DFLL; 5 Life-Cycle Design Methods; 6 Design for Life-Cycle Tools; 7 Implementation of DFLL; 8 Implementation Examples; 9 Future of DFLL; References; Chapter 9 Design for Maintainability; 1 Introduction; 2 Review of Probability and Random Variables
3 Review of System Reliability and Availability
4 Repairable Systems and Availability Analysis; References; Bibliography; Chapter 10 Design for Remanufacturing Processes; 1 Introduction to Remanufacturing; 2 Basic Remanufacturing Business Practice; 3 Remanufacturing Facility Processes; 4 Overarching Design Principles and Strategies Enhancing Reuse; 5 Hardware Design Guidelines; 6 Design for Remanufacturing Conflicts; 7 Design Decision Support Tools; 8 Summary; References; Chapter 11 Design for Manufacture and Assembly with Plastics; 1 Introduction; 2 Plastic Materials Selection
3 Plastic Materials Selection Techniques

Sommario/riassunto

Full coverage of electronics, MEMS, and instrumentation and control in mechanical engineering. This second volume of Mechanical Engineers' Handbook covers electronics, MEMS, and instrumentation and control, giving you accessible and in-depth access to the topics you'll encounter in the discipline: computer-aided design, product design for manufacturing and assembly, design optimization, total quality management in mechanical system design, reliability in the mechanical design process for sustainability, life-cycle design, design for remanufacturing processes, signal processing, data acquisition and dis
