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Nota di contenuto Notation; Abbreviations. Introduction to Quality and Reliability

Engineering: Statement of the Problem; The Costs of Quality; How and Why Products Fail; Risk as a Basis for Design; Designing for Quality; Designing for Reliability; Summary. Designing Capable Components and Assemblies: Manufacturing Capability; Component Manufacturing Variability Risks Analysis; Assembly Capability; Component Assembly Variability Risks Analysis; The Effects of Nonconformance; Objectives, Application and Guidance for an Analysis; Case Studies; Summary. Designing Capable Assembly Stacks: Introduction; Background; Tolerance Stack Models; A Methodology for Assembly Stack Analysis; Application Issues; Case Study - Revisiting the Solenoid Design; Summary. Designing Reliable Products: Deterministic Versus Probabalistic Design; Statistical Methods for Probabalistic Design; Variables in Probabalistic Design; Stress-Strength Interference (SSI) Analysis; Elements of Stress Analysis and Failure Theory; Setting

Reliability Targets; Application Issues; Case Studies; Summary. Effective

Product Development: Introduction; Product Development Models; Tools & Techniques in Product Development; Supporting Issues in

## Sommario/riassunto

Effective Product Development; Summary. References; Bibliography; Appendices

Designing Capable and Reliable Products offers an introduction to the importance of capability, quality and reliability in product development. It introduces the concept of capable design, focusing on producing designs that meet quality standards and also looks at linking component manufacture and its process capability with failure rates. It provides an introduction to reliable design, incorporating the probabilistic concept of reliability into the product design. This quantitative and highly practical volume provides practical methods for analysing mechanical designs with respect to their capability and reliability. Practising engineers who have to hit definite standards for design will find this book invaluable, as it outlines methods which use physically significant data to quantify engineering risks at the design stage. By obtaining more realistic measures of design performance, failure costs can be reduced. Taking product design as its central theme, this book is a very useful tool for postgraduate students as well as professional engineers