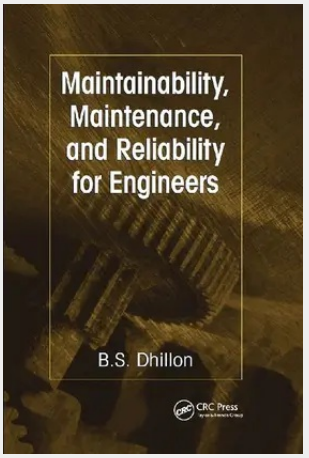
Dhillon

Maintainability, Maintenance, and Reliability for Engineers



The demands of the global economy require manufacturers to produce highly reliable and easily maintainable engineering products. Recent studies indicate that for many large and sophisticated products or systems, maintenance, and support account for as much as 60 to 75 percent of their life cycle costs. Therefore, the role of maintainability, maintenance, and reliability has become increasingly significant. Satisfying the pressing need for a volume that addresses these subjects with an interdiscilinary approach, Maintainability, Maintenance, and Reliability for Engineers distills knowledge specific to each discipline into one comprehensive resource. After reviewing the history of all three fields and their interrelationships, the book covers mathematical concepts such as Boolean algebra laws, probability properties, mathematical definitions, and probability distributions. It includes reliability evaluation methods such as fault tree analysis, network reduction method, delta-method, Markov method, supplementary variables method, and reliabitity management, both mechanical and human. Highlihting maintainibility tools and functions, the author discusses topics in maintainibility management and costing including tasks during product life cycle, program plan, organization functions, design reviews, life cycle costing, investment cost elements, and life cycle cost estimation models. The author also includes coverage of maintenance engineering, focusing on safety, quality, corrective, and preventive maintenance. The book concludes with coverage of maintenance management costing and human errror in engineering maintenance and contains 60 illustrations, 16 tables, and more than 200 equations. There is a definite need to considermaintainibility, maintenance, and reliability during product/system design and other phases. To achieve this goal effectively, it is absoulutely imperative to have a certain degree of understanding of each of these disciplines. Although m

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