

## Book Cover

A. Birolini

### Reliability Engineering

This book shows how to build in and assess reliability, availability, maintainability, and safety (RAMS) of components, equipment, and systems. It presents the state-of-the-art of reliability (RAMS) engineering, in theory & practice, and is based on over 30 years author's experience in this field, half in industry and half as Professor of Reliability Engineering at the ETH, Zurich. The book structure allows rapid access to practical results. Methods & tools are given in a way that they can be tailored to cover different RAMS requirement levels. Thanks to Appendices A6 - A8 the book is mathematically self contained, and can be used as a text book or as a desktop reference with a large number of tables (60), figures (210), and examples/exercises (220, of which 80 as problems for homework).

The request for a Chinese translation of this book and the very high eBook requirements (> 10,000 per year since 2013) were the motivation for this final edition, the 13th since 1985, including German editions. Extended and carefully reviewed to improve accuracy, it represents the continuous improvement effort to satisfy reader's needs and confidence.

New are an introduction to risk management with structurally new models based on semi-Markov processes & to the concept of mean time to accident, reliability & availability of a *k-out-of-n* redundancy with arbitrary repair rate for  $n-k=2$ , 10 new homework problems, and refinements, in particular, on multiple failure mechanisms, approximate expressions for large complex systems, data analysis, comments on  $\lambda$ , *MTBF*, *MTTF*, *MTTR*, *R*, *PA*.

From a book review to 4th Ed. (*Rel. Newsletter* 50(2004)3, Aug. 2004):

"All in all, Professor Birolini has given readers an excellent instructional tool and desktop reference. It is extremely well written. The span of topics makes the coverage of some topics necessarily brief. Professor Birolini presents much of the non-statistical information in a manner that could be understood easily by engineering and program managers as well as reliability experts. He discusses the statistical topics in the proper amount of detail to ensure at least a good basic understanding. Tables, illustrations, and examples amply support the text."

*Kenneth P. LaSala, Ph.D.* (See *Rel. Newsletter* 57(2011)1, Feb. 2011 for a book review to 6th Ed.)

From a book review to 6th Ed. (*Quality Assurance (Asigurarea Calitatii)*, 16(2010)63, pp. 3-5):

"With the ability, patience and talent of a Swiss jeweler, Professor Birolini has polished this book to perfection for over 25 years. And the result is a real jewel, with an infinite value for both theory and practice in the field of Reliability; a true Bible for this domain."

*Prof. Ioan C. Bacivarov, Ph.D.* (See also *Proc CCF 2010*, Sinaia RO, 22-24 Sept. 2010, pp. 19-24)