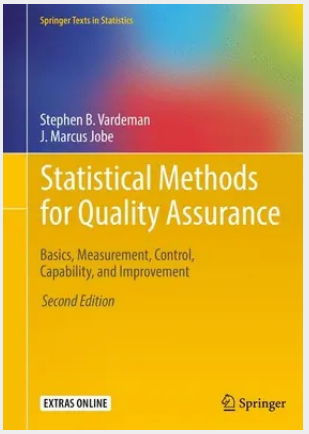
Vardeman / Jobe

Statistical Methods for Quality Assurance

Basics, Measurement, Control, Capability, and Improvement



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This undergraduate statistical quality assurance textbook clearly shows with real projects, cases and data sets how statistical quality control tools are used in practice. Among the topics covered is a practical evaluation of measurement effectiveness for both continuous and discrete data. Gauge Reproducibility and Repeatability methodology (including confidence intervals for Repeatability, Reproducibility and the Gauge Capability Ratio) is thoroughly developed. Process capability indices and corresponding confidence intervals are also explained. In addition to process monitoring techniques, experimental design and analysis for process improvement are carefully presented. Factorial and Fractional Factorial arrangements of treatments and Response Surface methods are covered.
Integrated throughout the book are rich sets of examples and problems that help readers gain a better understanding of where and how to apply statistical quality control tools. These large and realistic problem sets in combination with the streamlined approach of the text and extensive supporting material facilitate reader understanding. Second Edition Improvements

- Extensive coverage of measurement quality evaluation (in addition to ANOVA Gauge R&R methodologies)
- New end-of-section exercises and revised-end-of-chapter exercises
- Two full sets of slides, one with audio to assist student preparation outside-of-class and another appropriate for professors' lectures
- Substantial supporting material

Supporting Material

- Seven R programs that support variables and attributes control chart construction and analyses, Gauge R&R methods, analyses of Fractional Factorial studies, Propagation of Error analyses and Response Surface analyses
- Documentation for the R programs
- Excel data files associated with theend-of-chapter problem sets, most from real engineering settings

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