

Book Review: Fundamentals of Quality Control and Improvement

Amitava MITRA. 3rd edition. Hoboken, NJ: Wiley, 2008. xxii+700 pp. \$125.00.

Fundamentals of Quality Control and Improvement is an introductory textbook that the author suggests “may serve as a text for an undergraduate or graduate course for students in business and management” (p. xx). In this review, I evaluated the textbook from the perspective of teaching an MBA quality control course using Montgomery (2009).

Comparing Mitra (2008) and Montgomery (2009) there are some clear similarities. In terms of organization, both books begin with a section that defines quality, describes the history of the quality control movement, and discusses various aspects of management philosophies for quality improvement. They both then proceed to a section that summarizes basic probability and statistics concepts, and from there to a third section focused on control charting methods. The books diverge in the later chapters: Mitra (2008) concludes with material on acceptance sampling, reliability, and experimental design.

The texts differ in the amount of space devoted to discussing the quality control movement and management philosophies: 146 pages in Mitra (2008) compared to 60 pages in Montgomery (2009). While one might be tempted to conclude that more is better, I found the material in this section to be a rather simple and noncritical abridgement of the quality control management literature. In addition, from a pedagogical point of view I found some of the explanations and definitions in this section too general and nonspecific. The extra space devoted to quality management comes at the expense of the section on control charts where, for example, the discussions of CUSUM and EWMA control charts, as well as multivariate control charts, are very abbreviated in Mitra (2008). In addition, important operational concepts such as Phase I and Phase II use of control charts are not discussed.

After reading Mitra (2008), I decided I preferred Montgomery (2009) for teaching. I reached this conclusion for a number of reasons, including the fact that Montgomery’s treatment of control charts, the fundamental tool of quality control practitioners, is more complete and more detailed. In addition, in my opinion, Montgomery’s book has a more unified feel, with the sections more tightly connected together and to the overall purpose of the book. This seems to come from the fact that Montgomery (2009) is predominantly focused on the statistical tools for quality control, while Mitra (2008) tries to simultaneously cover both quality control management techniques and statistical process control methods.

That said, I do not want to leave readers with the wrong impression. *Fundamentals of Quality Control and Improvement* is a well-written book that does a nice job of summarizing the fundamentals of quality control. The author has clearly put a great deal of effort into the book and has successfully and accurately compressed a great deal of information from a large literature into a single tome. This book would serve as a nice introduction to the field of quality control and an efficient overview of quality control methods. It may also serve nicely for MBA courses that do attempt to teach both quality control management techniques and philosophies with an introduction to statistical process control and other statistical methods. Furthermore, since each chapter concludes with a list of references, readers can use the text as a springboard to delve more deeply into topics and methods as desired.

Ronald D. Fricker, JR.
Naval Postgraduate School

REFERENCES

Montgomery, D.C. (2009). *Introduction to Statistical Quality Control*, sixth edition, John Wiley & Sons, Hoboken, NJ.