Statististical Methods For Industrial Process Control, David Drain, Chapman & Hall, 115 Fifth Avenue, New York, NY 10003, 1997, 456 pp, $64.95.

The first three chapters cover basic probability and statistics, linear regression analysis and variance components. The value of this book is in the last three chapters, which cover measurement capability, introduction to statistical process control, and statistical process control implementation. The first three chapters prepare the readers with some important statistical concepts that are required to understand the discussions in the later chapters.

Chapter 4, Measurement Capability, presents a very unique discussion of measurement systems and capability. The major components of measurement capability are defined as: repeatability, accuracy, reproducibility, linearity, and stability. This book provides a lucid exposition of these important but easily confused quality and metrology terms with unambiguous statistical models. Statistical Process Control (SPC), is introduced in Chapter 5. After the discussion of the measurement capability, it is almost effortless to explain important functions of the SPC.

The examples presented are almost exclusively in the field of semiconductor manufacturing. This can pose a burden for those who are interested only in the application of statistics in the field of engineering or manufacturing, and are not concerned with the process of semiconductor fabrication. Specifically, , the readers need to learn some semiconductor processing fundamentals and terminology before they can learn and appreciate the statistical methods and tools being used here .

This strong bias in favor of semiconductor examples is both the strong and weak point of the book. For those who want to get a glimpse of semiconductor processing and how statistical methods are applied in this field, this book is very good. For professionals who are already in this field they may appreciate and enjoy the examples provided in the book. Otherwise, the examples and case studies provided only offer more stumbling blocks for the uninitiated readers.

I will recommend this book for quality and process control professionals who will benefit most from the exposure to the materials in “measurement capability”.

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