

## PREFACE

This fourth edition of *Measurement Uncertainty: Methods and Applications* is designed to provide an understanding of the importance of the role played by measurement uncertainty analysis in any test or experimental measurement process. No test data should be considered without knowing their uncertainty.

Examples and problems have been included to illustrate the principles and applications of measurement uncertainty analysis. Sections on the business impact of measurement uncertainty and the treatment of calibration uncertainty have been included. The very latest in measurement uncertainty technology is included in this revised edition. In addition, all the material herein is in full harmony with the ISO *Guide to the Expression of Uncertainty in Measurement*. Specifically, the terminology and symbols are in agreement with the US National Standard on Test Uncertainty and in harmony with the ISO Guide. The term “standard uncertainty” is now employed throughout to indicate that each uncertainty mentioned is one standard deviation of the average for a group of measurements. Thus, instead of reporting “random uncertainty” and “systematic uncertainty,” this text now uses the terms “random standard uncertainty” and “systematic standard uncertainty.”

This material will be useful to test engineers, process engineers, control engineers, researchers, plant supervisors, managers, executives, and all others who need a basic understanding of the assessment and impact of uncertainty in test and experimental measurements. In addition, technical school, college, and university students will find this course useful in gaining insight into the impact of errors in their measurements as well as estimating the effects of such errors with measurement uncertainty analysis.

### **Acknowledgments**

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Ron Dieck, 2006