

- **Section I Sensors, Nanoscience, and Instruments**
- **1 Sensors**
- **1.1 Introduction** (p. 1)
- **1.2 Electrochemical Sensors** (p. 11)
- **1.3 The Stannic Oxide Semiconductor Gas Sensor** (p. 18)
- **2 An Introduction to Multi-Sensor Data Fusion** (p. 1)
- **3 Magneto-optics** (p. 1)
- **4 Materials and Nanoscience**
- **4.1 Carbon Nanotubes** (p. 1)
- **4.2 Modeling MEMS and NEMS** (p. 9)
- **4.3 Micromechatronics** (p. 20)
- **4.4 Nanocomputers, Nano-Architectronics, and Nano-ICs** (p. 42)
- **4.5 Semiconductor Nano-Electronics and Nano-Optoelectronics** (p. 68)
- **5 Instruments and Measurements**
- **5.1 Electrical Equipment in Hazardous Areas** (p. 1)
- **5.2 Portable Instruments and Systems** (p. 27)
- **5.3 G (LabVIEW) Software Engineering** (p. 36)
- **6 Reliability Engineering** (p. 1)
- **Section II Biomedical Systems**
- **7 Bioelectricity**
- **7.1 Neuroelectric Principles** (p. 1)
- **7.2 Bioelectric Events** (p. 13)
- **7.3 Biological Effects and Electromagnetic Fields** (p. 33)
- **7.4 Embedded Signal Processing** (p. 55)
- **8 Biomedical Sensors** (p. 1)
- **9 Bioelectronics and Instruments**
- **9.1 The Electro-encephalogram** (p. 1)
- **9.2 The Electrocardiograph** (p. 14)
- **10 Tomography** (p. 1)
- **Section III Mathematics, Symbols, and Physical Constants**
- **Introduction** (p. 1)
- **Greek Alphabet** (p. 3)
- **International System of Units (SI)** (p. 3)
- **Conversion Constants and Multipliers** (p. 6)
- **Physical Constants** (p. 8)
- **Symbols and Terminology for Physical and Chemical Quantities** (p. 9)
- **Credits** (p. 13)
- **Probability for Electrical and Computer Engineers** (p. 14)
- **Indexes**
- **Author Index** (p. 1)
- **Subject Index** (p. 1)