

Contents

Preface *vii*

Part 1 An introduction to engineering

- 1. The Engineering Profession 2
- 2. Engineering Solutions 34
- 3. Representation of Technical Information 50
- 4. Engineering Estimations and Approximations 78

Part 2 Metric (SI) units in engineering

- 5. Dimensions, SI Units, and Conversions 98

Part 3 Computers and calculators in engineering

- 6. Introduction to Computing Systems 122
- 7. Preparation for Computer Solutions 148

Part 4 Applied engineering concepts

- 8. Mechanics 164
- 9. Chemistry—Concepts and Calculations 192
- 10. Material Balance 214
- 11. Electrical Theory 230
- 12. Energy 254
- 13. Engineering Economy 280
- 14. Statistics 304

Part 5 Foundations of design

15. Engineering Design—A Process 324

Appendix

- A. Selected Topics from Algebra 378
 - B. Trigonometry 388
 - C. Graphics 402
 - D. General 425
-

Unit conversions 437

Answers to selected problems 443

Selected bibliography 448

Index 451