

Part II

CHEMICAL ENGINEERING TOPICS

Part II is concerned with subject matter of interest and concern to the practicing chemical engineer. Topics reviewed include (with accompanying Chapter Number);

1. Material Science and Engineering
2. Applied Mathematics
3. Stoichiometry
4. Thermodynamics
5. Fluid Flow
6. Heat Transfer
7. Mass Transfer Operations
8. Chemical Reactors
9. Process Control
10. Economics and Finance
11. Plant Design
12. Transport Phenomena
13. Project Management
14. Environmental Management
15. Environmental Health and Hazard Risk Assessment
16. Energy Management

14 OPEN-ENDED PROBLEMS

17. Water Management
18. Biochemical Engineering
19. Probability and Statistics
20. Legal Considerations
21. Nanotechnology
22. Ethics

Each chapter contains three sections. The first section provides a broad (but brief) overview of the subject matter of concern. Several sections then address technical subject matter related to the topic of concern. This in turn is followed with a section that contains three *solved* open-ended problems. The chapter concludes with approximately 35-40 open-ended problems—some solutions of which are available to those who adopt the book for classroom or training purposes. A reference page compliments the presentation.

Additional details for each chapter topic is available in Theodore's "Chemical Engineering: The Essential Reference"; an extensive and comprehensive treatment of most topics is provided in Perry's "Chemical Engineers' Handbook", 8th edition (both of McGraw-Hill).