
Table of Contents

Appendices Table of Contents	vii
Preface	ix
Acknowledgments	xi
Introduction	xiii
Topic I: Mathematical Support	
Systems of Units	1-1
Engineering Drawing Practice	2-1
Algebra	3-1
Linear Algebra	4-1
Vectors	5-1
Trigonometry	6-1
Analytic Geometry	7-1
Differential Calculus	8-1
Integral Calculus	9-1
Differential Equations	10-1
Probability and Statistical Analysis of Data	11-1
Numerical Analysis	12-1
Topic II: Fluids	
Properties of Areas	13-1
Fluid Properties	14-1
Fluid Statics	15-1
Fluid Flow Parameters	16-1
Fluid Dynamics	17-1
Hydraulic Machines	18-1
Special Fluid Topics	19-1
Topic III: Thermodynamics	
Inorganic Chemistry	20-1
Fuels and Combustion	21-1
Energy, Work, and Power	22-1
Thermodynamic Properties of Substances	23-1
Changes in Thermodynamic Properties	24-1
Vapor Power Cycle Equipment	25-1
Vapor Power Cycles	26-1
Combustion Power Cycles	27-1
Nuclear Power Cycles	28-1
Gas Compression Cycles	29-1
Refrigeration Cycles	30-1
Topic IV: Heat Transfer	
Heat Transfer: Conduction	31-1
Heat Transfer: Natural Convection	32-1
Heat Transfer: Forced Convection	33-1
Heat Transfer: Radiation	34-1

Topic V: Environmental	
Water Supply Quality and Testing	35-1
Water Supply Treatment and Distribution	36-1
Biology and Bacteriology	37-1
Wastewater Quantity and Quality	38-1
Wastewater Treatment: Equipment and Processes	39-1
Activated Sludge and Sludge Processing	40-1
Municipal Solid Waste	41-1
Environmental Engineering	42-1
Topic VI: Mass Transfer	
Basic Principles of Mass Transfer	43-1
Vapor-Liquid Processes	44-1
Liquid-Liquid Extraction	45-1
Solid-Liquid Processes	46-1
Topic VII: Kinetics	
Kinetics	47-1
Topic VIII: Plant Design	
Basic Chemical Plant Design	48-1
Psychrometrics	49-1
Ventilation and Humidification	50-1
Properties of Solid Bodies	51-1
Engineering Materials	52-1
Physical Properties of Construction Materials	53-1
Material Testing	54-1
Thermal Treatment of Metals	55-1
Modeling of Engineering Systems	56-1
Analysis of Engineering Systems	57-1
Process Monitoring and Instrumentation	58-1
Electrical Systems and Equipment	59-1
Illumination and Sound	60-1
Workplace Safety	61-1
Process and Production Optimization	62-1
Engineering Economic Analysis	63-1
Topic IX: Law and Ethics	
Engineering Law	64-1
Engineering Ethics	65-1
Engineering Licensing in the U.S.	66-1
Topic X: Support Material	
Appendices	A-1
Index	I-1