

## CONTENT

	Page
Preface	v
1. Overview of Materials Handling and Facilities Planning	1
I Materials Handling	1
II Facilities Planning	4
III Relationship of Materials Handling and Facilities Planning	5
IV Implementation Procedure	7
V Site Selection	9
VI Building Requirement	15
VII Building Plan	17
Case Study	18
2. Plant Layout	21
I Objectives of Plant Layout	21
II The Plant Layout Function	33
III Plant Layout Requirements	34
IV Block Layout	67
V Progressive Assembly Operations	86
VI Line Balancing	88
VII Utilities and Services	91
VIII Layout of Support and Service Areas	97
IX Plant Rearrangement	100
X Use of Computers for Layout	101
XI Evaluation of Layout	104
Case Study	108
3. Approval and Implementation of Facility Plan	111
I Approval Process	112
II Implementation of Plan	115
III Special Regulations and Requirements	124
4. Advanced manufacturing Concepts and Strategies	127
I Just-in-Time Manufacturing	127
II Facility Planning Considerations	141
III Flexible Manufacturing Systems	142
IV Computer-Integrated Manufacturing	145
Case Study	148
5. Stores and Warehouse Operation	151
I Stores and Warehouse Functions	153
II Facilities Planning Issues	154
III Storage Classifications	155
IV Warehouse Alternatives	160
V Warehouse Cost Overruns	169
VI Kit Operation	170
VII Packaging	177
VIII Dock Operations	182
Case Study	189
6. Materials Handling	193
I Materials Handling Cost Control	197
II Materials Handling Safety	198

III	Principles of Materials Handling	198
IV	Time and Motion Analysis	200
V	Selection of the Right Equipment	202
VI	Islands of Automation	204
VII	Materials Handling Requirements	206
VIII	Materials Handling Planning	208
IX	Axioms of Materials Handling	212
X	Materials Handling in Stores	215
XI	Work Station Materials Handling	222
XII	Materials Handling Integration	225
7.	Handling of Specialty Items	233
I	Ammunition and Explosives	233
II	Electrostatic Discharge	241
III	Handling Chemicals	244
8.	Materials Handling Equipment	249
I	Storage Equipment	250
II	Transportation Equipment	276
III	Work Station Applications	319
IV	In-Process Storage and Handling	331
V	Bulk Materials Handling	333
9.	Factory Equipment Engineering	339
I	Plant Layout Review	341
II	Equipment Literature Review	342
III	Equipment Specifications	342
IV	Source Qualification Checks	354
V	Selection of Supplier	356
VI	Justification	372
VII	Procurement Package	383
VIII	Installation, Startup, and Acceptance of Equipment	394
IX	Preventive Maintenance, Record Keeping, and Follow-Up	399
10.	Other Implementation Considerations	403
I	Simulation	403
II	Identification	407
III	Safety	411
IV	Management Commitment	416
V	Consulting Services	420
	Appendix I : Glossary	423
	Appendix II : Acronyms and Abbreviations	433
	Index	435