Contents

Acknowledgments Introduction		xiii xv
Pa	rt I Preparing for the Work Force	1
1	Technical Careers	3
2	The Big Four Engineering Degrees	5
	Civil Engineering	5
	Electrical Engineering	5
	Mechanical Engineering	6
	Industrial Engineering	6
3	Other Engineering Degrees	7
4	Technology Degrees	13
5	Career Choice	15
	What Are My Interests?	15
	What Subjects Do I Like?	16
	What Subjects Are My Strengths?	16
	Who Do I Know in the Field?	16
6	College Selection	19
7	Engineering Technology	21
8	Graduate School	23
9	Day Versus Night School	25
10	Co-Op Programs	27
11	Internships	29
12	Alternative College Funding	31
	Grants	31
	Scholarships	32

	GI Bill	32
	Company Benefit	33
13	Finding That First Job	35
	Where to Look for Your First Job?	36
14	Geographic Factors	39
	Where Are the Jobs?	39
	Where Are Manufacturing Centers?	40
15	Interviews	41
	Campus	41
	Telephone	41
	Neutral Location Interview	42
	Employer's Facility	42
	Panel	42
16	Opportunities for Women	45
Pai	rt II Employment Challenges	47
17	Experience	49
	Discipline	49
	Industry	49
	Specialty	49
18	Work Direction	53
19	Manager	55
20	Management Styles	57
	Coach	57
	Micromanager	57
	Conservative	58
	Ambivalent	58
	Dodger	58
	Dictator	58
21	Positions—Open Versus Created	59
22	Specialties	61
23	Contractor	63
24	Consultant/Self-employed	65

Contents	vii

25	Part Time	67
26	Temporary	69
27	Technical Spectrum	71
28	Job Titles	73
29	Job Descriptions	75
30	Salary Structure	77
31	Key Employee	81
32	Nondisclosure Agreement	83
33	Company Size	85
34	Company Organization	87
35	Pensions What Is a Pension? What Are the Types of Pensions? What Companies Offer Pensions? What Is an Example of an Annuity Payment?	91 91 91 92 92
36	Training	93
37	Benefits Social Security Worker's Compensation Unemployment Insurance Obamacare	97 97 97 98 98
38	Public Versus Private Technology Companies Private Companies Public Companies	99 99 99
39	Industries	101
40	Industry Trends	103
41	Green Jobs	105
42	Regional Manufacturing Centers	107

V111	Contents

43	Foreign-Owned Companies Personal Concerns	109 110
44	Manufacturing	111
45	Engineering Department	113
46	Plant Engineering What Are the Duties of Plant Engineers? What Are the Requirements for Plant Engineers? What Is the Outlook for Plant Engineers? What Are the Trends in Plant Engineering? Who Is a Certified Plant Engineer?	115 116 116 116 117
47	Service Companies and Consulting Engineers	119
48	Government	121
49	Union Versus Nonunion	123
50	Utilities	125
51	Spinoffs, Acquisitions, and Mergers Spinoffs Acquisitions Mergers	129 129 130 130
52	Startups	133
53	Alliances	135
54	Joint Venture	137
55	Job Site Work	139
56	Commuting/Telecommuting	141
57	Reorganizations	143
Pa	rt III The Job Search	145
58	Resumes	147
59	Headhunters	151

Contents			
`ontents			

ix

60	Staffing Firm	153
61	Networking/Newspaper/Internet	155
62	Offers/Counteroffers	157
Pai	rt IV On the Job	159
63	The Midcareer Years	161
64	Technical Library	163
65	Associations/Societies	165
66	Seminars/Webinars	167
67	Publishing	169
68	Industry Standards	171
69	Employment File	173
70	Patents	175
71	Trade Secrets	179
72	Professional Engineer	181
73	Safety	183
74	Business Plan	185
75	Schedules	187
76	Budgets Man-hours Expenses Capital	191 191 191 192
77	Time Management	195
78	Specifications	197
79	Documents	199

X		Content	S

80	Performance Appraisals	201
	Performance Review of Goals and Objectives	201
	Performance Review of the Job Description	201
	Review of Performance Characteristics	202
	Co-reviews	202
81	Decision-Making	203
82	Project Team	205
	First—Why Have a Temporary Organization?	205
	Second—Who Should Participate on the Team?	205
	Third—What Are the Qualifications of a Project Manager?	206
	Fourth—How Is the Workload Organized?	206
	Fifth—How Is Group Progress Communicated?	206
83	Scope of Work	207
84	Procurement	209
85	Trade Shows	211
86	Vendors	213
87	Meetings	215
88	Transfers	219
89	Feasibility Studies	221
90	Projects	223
91	Promotions	225
92	Demotions	227
93	Layoffs	229
94	Resigning	231
95	Relocation Packages	233
Pa	rt V The Career	235
96	The Earning Years	237
97	Success	239

Contents		xi
98	Retirement/Winding Down	241
99	Parting Advice	243
100	Glossary	245
Fur	ther Reading	251
Index		257