

Contents

Authors' Biographies	xv
1 This Business of Dependability	1
<i>by Chris Dale and Felix Redmill</i>	
1.1 Introduction	1
1.2 Defining Dependability	2
1.3 Users' and Society's Needs for Dependable Systems	5
1.4 Some Failures of Systems Which Should Have Been Dependable	6
1.5 Achieving and Assessing Dependability	14
2 Getting the Culture Right	21
<i>by Tony Levene</i>	
2.1 Introduction	21
2.2 Factors Affecting Organisational Performance	22
2.3 So What is Culture?	28
2.4 Characteristics of a Dependability Culture	33

2.5	What Happens if We Get It Wrong?	36
2.6	Developing the Right Culture	42
2.7	Final Remarks	45
3	Policy and Planning for Dependability	47
	<i>by Robin Cook</i>	
3.1	Introduction	47
3.2	Definitions	48
3.3	Compilation and Presentation	54
3.4	General Contents	55
3.5	Specific Content for Individual Life-cycle Phases	60
3.6	Summary	74
4	Measurement and Assurance	77
	<i>by John McDermid</i>	
4.1	Introduction	77
4.2	Software Project Management and Management Challenges	79
4.3	Simple Process Measures	83
4.4	Refining the Measures	88
4.5	Best Practice	91
4.6	Use of the Measures	95
4.7	Assurance	101
4.8	Conclusions	102
5	Third Generation Project Management	105
	<i>by Chris Worsley and Louise Lee</i>	
5.1	The Challenge for Project Management	105
5.2	What is Project Success?	107
5.3	What Makes Projects Fail?	109
5.4	The Essential Elements of Project Management	112
5.5	The Characteristics of Successful Managers	126
5.6	A Final Note	129
6	Operations Management for Dependability	133
	<i>by Guy Wingate</i>	
6.1	Introduction	133
6.2	Trends in Computer-related Systems	134
6.3	Incidents and Insights into Dependability	136
6.4	Organisational Structure, Management and Competence	139

6.5	Documentation, Including Operating Instructions	143
6.6	Contingency Planning	146
6.7	Security and Access Control	146
6.8	Hand-over Approval for Live Operation	149
6.9	Training	150
6.10	Preventative Maintenance and Calibration	151
6.11	Repair, Modification and Change Control	151
6.12	Reviewing Operations	152
6.13	Decommissioning from Live Operation	157
6.14	Regulation	157
6.15	Lessons and the Future	159
7	Managing Maintenance and Change	163
	<i>by Erwin Schoitsch</i>	
7.1	Introduction	163
7.2	Some Principles	165
7.3	Levels of Approval	168
7.4	Management Responsibilities	172
7.5	The Maintenance Cycle — The Maintenance and Modification Management Model	175
7.6	Revalidation and Configuration Management	180
7.7	Maintenance of System Architectures for Dependability	183
7.8	Engineering Aspects	185
8	Practical Risk Management	189
	<i>by Felix Redmill</i>	
8.1	Introduction	189
8.2	What is Risk?	191
8.3	Risk Management Goals	193
8.4	Uncertainty and Risk	195
8.5	A Simple Approach	195
8.6	The Management of Risk	197
8.7	Tolerable Risk and the 'ALARP' Principle	203
8.8	A Simple Tool for Risk Analysis	204
8.9	Action Plans Against Risk	208
8.10	Beware of Underestimating Risk — Three Laws	214
8.11	Final Remarks	216
	References	219
	Index	231