

Generic Requirements for Software Reliability Prediction Contents

Preface	vii
1. Introduction	1-1
2. General Information	2-1
2.1. Software Release	2-1
2.2. Software Faults	2-4
2.3. Software Failures	2-4
2.4. Failure Processes	2-5
3. Requirements	3-1
3.1. Software Reliability Metrics for Ongoing Operations	3-1
3.2. Software Reliability Metrics for Installation	3-2
3.3. Data Requirements	3-3
3.3.1. Failures	3-4
3.3.2. Faults	3-5
3.3.3. Software Modules	3-5
3.3.4. Software Releases	3-7
3.4. Software Reliability Prediction Models	3-8
Appendix. Example Model	Appendix-1
A.1. Model Objective	Appendix- 1
A.2. Data for Model Predictions	Appendix-2
A.3. A Poisson Regression Model	Appendix-3
A.3. 1. Estimation of Parameters	Appendix-4
A.3.2. Confidence Intervals for Parameters	Appendix-7
References	References-1
Bibliography	Bibliography- 1
Glossary	Glossary-1

List of Figures

Figure 2-1. Source Code for Different Releases	2-1
Figure 2-2. Life Cycle of Software Release	2-2
Figure 2-3. Example of Software Release History	2-3
Figure 3-1. Data for Software Reliability Prediction	3-4

List of Tables

Table 2-1. Application of Software Reliability Prediction in the Software Development Cycle	2-3
Table 2-2. Data Describing a Single Software Failure for Software Reliability Prediction	2-5
Table 3-1. Operation Failure Rates for System S	3-2
Table 3-2. Installation Failure Rates for System S	3-3
Table A-1. Common Functional Forms for Failure Intensity λ	Appendix-2
Table A-2. Grouped Failure Data by Release	Appendix-6
Table A-3. Estimated Failure Intensity Parameters for Logarithmic Poisson Model Based on Maximum Likelihood Estimates	Appendix-7