

CA9174 SOFTWARE RELIABILITY AND METRICS

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UNIT I INTRODUCTION TO SOFTWARE RELIABILITY

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Basic Concepts – Failure and Faults – Environment – Availability –Modeling –uses.

UNIT II SOFTWARE RELIABILITY MODELING

12

Concepts – General Model Characteristic – Historical Development of models – Model Classification scheme – Markovian models – General concepts – General Poisson Type Models – Binomial Type Models – Poisson Type models – Fault reduction factor for Poisson Type models.

UNIT III COMPARISON OF SOFTWARE RELIABILITY MODELS

10

Comparison Criteria – Failure Data – Comparison of Predictive Validity of Model Groups – Recommended Models – Comparison of Time Domains – Calendar Time Modeling – Limiting Resource Concept – Resource Usage model – Resource Utilization – Calendar Time Estimation and confidence Intervals.

UNIT IV FUNDAMENTALS OF MEASUREMENT

8

Measurements in Software Engineering – Scope of Software metrics – Measurements theory – Goal based Framework – Software Measurement Validation.

UNIT V PRODUCT METRICS

8

Measurement of Internet Product Attributes – Size and Structure – External Product Attributes – Measurement of Quality –Reliability Growth Model – Model Evaluation

TOTAL = 45

REFERENCES:

1. John D. Musa, Anthony Iannino, Kazuhira Okumoto, "Software Reliability – Measurement, Prediction, Application, Series in Software Engineering and Technology", McGraw Hill, 1987.
2. John D. Musa, "Software Reliability Engineering", Tata McGraw Hill, 1999.
3. Norman E . Fenton, Shari Lawrence Pfleeger, "Software metrics", Second Edition, International Student Edition, 2003.