RELIABILITY EVALUATION OF ENGINEERING SYSTEMS
(OPEN ELECTIVE)

Subject Code: 15EE1150 L T P C
4 0 0 3

Pre requisites: Basic Circuit Theory, Probability theory.

Course Outcomes: At the end of the course the student shall be able to

1. Understand the basics of probability theory and network systems.
2. Analyze various distribution systems and implement Discrete Markov techniques.
3. Analyze frequency and duration techniques.
4. Test system reliability.
5. Design Monte Carlo simulation.

UNIT-I


B. Network Modelling and Evaluation of simple systems: Analysis of Series, Parallel, Series-Parallel systems – partially redundant systems – standby redundant systems

(12 Lectures)

UNIT-II


(12 Lectures)

UNIT-III

Frequency & Duration Techniques: Frequency and duration concept – Two component repairable system – state probabilities - frequency of encountering individual states, mean duration of individual states – cycle time between individual states - frequency of encountering of cumulated states - Recursive evaluation of cumulative frequency – Mean duration of probability and cumulated states.

(12 Lectures)
UNIT-IV

A. Approximate System Reliability Evaluation: Series systems, Parallel systems, Network reduction techniques, minimal cut set/failure modes of approach, inclusion of scheduled maintenance, common mode failures.


(12 Lectures)

UNIT-V


(12 Lectures)

TEXT BOOKS:


REFERENCES:


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