

Reliability Engineering Centre IIT Kharagpur

SUBJECT NAME- INTRODUCTION TO RELIABILITY ENGINEERING

LTP- 2-0-0, Credit - 2

OBJECTIVES:-

This course is designed to introduce the various topics of reliability, availability, maintainability and safety engineering aspects of engineering products and systems. This is a core course for the micro-specialization on Reliability and Maintainability Engineering. It is a pre-requisite for other courses offered in the micro-specialization.

SYLLABUS :-

Basic Definitions of reliability and maintainability terms. Failure rates such as constant, increasing and decreasing hazard rates. Reliability Block Diagram, Series, parallel, series-parallel, standby and k-out-of-modeling. Reliability prediction and estimation, Life Testing. The concepts of availability, maintainability, safety, and probabilistic risk of engineering products. Basic concepts of software reliability.

Pre-requisite: NIL

Reference Books:

1. Reliability Engineering and Life Testing, by V.N.A. Naikan, PHI, New Delhi (2014)
2. An Introduction to Reliability and Maintainability Engineering, by Charles E Ebling, TATA McGra-Hill (2009)
3. Reliability in Enmgineering Design, by K.C. Kapur and L. R. Lambersen, Wiley (2009)
4. Introduction to Reliability and Maintainability Engineering, by E. E. Lewis, John-Wiley and Sons (1996)