

The University of Texas at Tyler
Department of Electrical Engineering

Course: EENG 5340 Reliability

Syllabus

Catalog Description:

Basic concepts of probability and reliability, time dependent reliability models, reliability growth predictions, strength based reliability; weakest link and fail-safe systems; Monte Carlo Methods, maintainability, availability, fault tree analysis, reliability data bases.

Prerequisites:

Prerequisites, Engineering Graduate Student, Course in probability and statistics, Programming skill in high level language and/or Matlab

Credits:

(3 hours lecture, 0 hours laboratory per week)

Text(s):

Introduction to Reliability Engineering, E.E. Lewis, 2nd edition, John Wiley & Sons, 1996. **ISBN-10:** 0471018333 **ISBN-13:** 9780471018339

Additional Material:

Access to MATLAB software

Course Coordinator:

Ron J Pieper

Topics Covered: (paragraph of topics separated by semicolons)

Review of statistics and probability; Reliability models, Bath tub curve; Burn in and Accelerated testing; Failure rate; Time dependent; reliability; reliability growth; Monte Carlo Methods; Maintainability, Fault tree analysis

Evaluation Methods: (only items in dark print apply):

- 1. Examinations / Quizzes**
2. Homework
- 3. Report**
- 4. Computer Programming**
- 5. Project**
- 6. Presentation**
7. Course Participation
8. Peer Review

Course Objectives¹: By the end of this course students will be able to:

1. Program, plot and interpret discrete and continuous probability distribution functions
2. Apply mathematical knowledge of statistics and probability to calculate failure rates, and reliability

¹Numbers in brackets refer to method(s) used to evaluate the course objective.

Relationship to Program Outcomes (only items in dark print apply)²: This course supports the following Electrical Engineering Program Outcomes, which state that our students will (only items in dark print apply):

- 1. Possess a breadth and depth of knowledge in electrical and computer engineering.**

- 2. Possess and demonstrate oral and written communication skills**
- 3. Demonstrate the capability to perform independent learning and investigation.**

²Numbers in brackets refer to course objective(s) that address the Program Outcome.

Contribution to Meeting Professional Component: (in semester hours)

Mathematics and Basic Sciences:	1	hours
Engineering Sciences and Design:	2	hours
General Education Component:		hours

Prepared By: Ron J Pieper Date: August 9,2011