ESE 540: Reliability Theory  
Syllabus (Fall 2019)

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**Learning Objective:** To introduce students to the theory and practice of reliable system design and evaluation. This is a hybrid course, it meets one hour a week and the rest of the course is online.

**Coverage**

1. Introduction  
2. Reliability of Systems and Components  
3. System Analysis  
4. Lifetime Distributions  
5. Repairable Systems  
6. Warranties  
7. Preventive Maintenance & Inspection  
8. Software Reliability  
9. Event and Fault Trees  
10. Error Detection and Corrections in communication systems  
11. Case Schedule

**Schedule**

Weeks 1-6, Chapters 1 and 2, Exam 1: March 4  
Weeks 7-10, Chapters 3 and 4, Exam 2: April 8th  
Weeks 11-14, Chapter 6 + special topics, Exam 3: April 29th  
Essay 1 due Feb. 18th, Essay 2 due March 25th, Portfolio: due April 22nd

**Text:** L. Leemis, Reliability: Probabilistic Models and Statistical Methods, Prentice-Hall, (1st or 2nd edition). Also get a copy (paperback available) of Inviting Disaster by James Chiles.

**Grading:** Exam 1 (20 points), Exam 2 (20 points), Two Case Study Essays (10 points each), Portfolio (20 points) and Exam 3 (20 points).
The portfolio is a collection of five original reliability problems and solutions created by students.

**Note:** If you have a physical, psychological, medical or learning disability that may impact on your ability to carry out assigned course work, I would urge you to contact the staff in the Student Accessibility Support Center office 631-632-6748. The staff will review your concerns and determine with you what accommodations are necessary and appropriate. All information and documentation of disability are confidential.