THE UNIVERSITY OF TEXAS AT EL PASO

College of Engineering

Industrial, Manufacturing, and Systems Engineering Department

Course # MFG 5350 (CRN 11592)

Course Title: Reliability & Maintainability

Credit Hrs: 3 Credits

Course Location: Classroom Building C204

Instructor Dr. Francisco Oswaldo Aguirre

Office Location E 201N

Class Hrs Wednesday 6:00 pm – 8:50 pm

Text Book An Introduction to Reliability and Maintainability Engineering By Charles E. Ebeling Second Edition

Course Assignments: Homework: There will be approximately 8 homework assignments during the course. Assignments will be posted on the course website. No late homework will be accepted. Your homework should show all necessary work you used to solve problems

Paper presentation: Groups of 2-3 persons will perform a 10 minutes presentation. The Presentation will be about a journal paper related to the course. The paper can be selected for the student or be assigned by the instructor

Final Project: Groups of 3-4 persons. There are different type of project to choose from:

- Apply the topics explained in class into real problem.
- Explain at least three papers related to the class
- Model and programs a software that solve some of the problems presented in class

Evaluation There will be two midterm exams and one final exam No books, notes, will be allowed. No make-up/alternate exam will be given

Midterm 1: October 7
Midterm 2: November 11
Final Exam: TBA
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<th>Evaluation Criteria</th>
<th>Homework:</th>
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Course Schedule:

**Chapter 1:**
- Introduction
- Brief History
- Applications

**Chapter 2**
- The reliability Function
- Mean Time to failure
- Hazard Rate Function
- Bathtub Curve
- Conditional Reliability

**Chapter 3**
- The Exponential Reliability Function
- Failure Modes
- Applications
- The Two-Parameter Exponential Distribution
- Redundancy and CFR Model

**Chapter 4**
- The Weibul Distribution
- The Normal Distribution
- The Gama Distribution

**Chapter 5**
- Serial Configuration
- Parallel Configuration
- Combined Series-Parallel Systems
- Minimal Cuts and Minimal Paths

**Chapter 6**
- Markov Analysis
- Load- Sharing System
- Standby Systems
- Degraded Systems