The University of Texas at El Paso
College of
Department of
Syllabus

Course Prefix and Number: AERO 4313
Course Title: Aerospace Structures II
Credit Hours: 3

Prerequisite Courses: AERO 3323 with a D or better.

Course Description: This course is designed to introduce the students to the analysis and the design of aerospace structures. Bending of plates and shells. Buckling analysis. Energy principles and minimum potential energy. Introduction to the finite element method. Airworthiness and airframe loads. Strength and damage characteristics of ductile, brittle and composite materials. Elements of fracture mechanics and fatigue.

Learning Outcomes:
1. Students will be able to analyze shear flow in practical aerospace structures.
2. Students will be able to calculate buckling loads for beams and plates.
3. Students will be able to understand Principle of Minimum Potential Energy and apply the theorem to solve a variety of structural problems.
4. Students will be able to derive finite element equations for truss and beams.

Required Materials: Advanced Strength and Applied Stress Analysis, 2nd ed, Budynas, R.G., McGraw-Hill 1999

Course Schedule:
1. The bending of plates and shells.
2. Buckling analysis for thin structures in compression.
3. Energy principles in linear elasticity: minimum potential energy.
5. Strength and damage characteristics of ductile and brittle metals.
6. Strength and general nature of composite materials.
7. Elements of fracture mechanics and fatigue