ENAE 324 Aerospace Structures

Credits & Contact Hours: 3 credits (3 hours of lecture)

Course Status: Required

Schedule: Offered every Spring semester

Course Description: Analysis of torsion, beam bending, plate bending, buckling and their application to aerospace.

Pre-Requisites: ENES 220

Co-Requisites: None

Textbooks: Course notes

Other Required Material: Course lecture notes and handouts

Course Oversight: Structures and Vibration Committee

Syllabus Prepared By/Date: Dr. Mary Bowden, June 6 2011

Course Objectives/Student Learning Outcomes:
1. Sizing under strength and stiffness constraints
2. Torsion, bending and buckling of thin-walled structures
3. Concept of damage tolerant design
4. Concept of finite element modeling

Topics Covered:
1. Basic structural elements
2. Internal loads
3. Intertia loads
4. Shear center & wing box sizing
5. Torsion of thin-walled structures
6. Bending of thin-wall structures
7. Direct shear of thin-wall structures
8. Torque equivalence & finding shear center
9. Shear flow
10. Stringers & shear panels
11. Temperature effects
12. Column & panel buckling
13. Finite element modeling
14. Structural integrity

Relationship of Course Objectives to Program Outcomes
This course addresses program outcomes: 1, 3, 5, 8, 9