Aerospace and Aeronautical Engineering Courses

Courses

AERO 2131. Aerospace Materials Lab.
Aerospace Materials Lab: This course will focus on the implementation of different manufacturing methods in the design process for aerospace structures. The students will be introduced to the fundamentals of the machining trade and different types of manufacturing, such as Additive, Subtractive methods and composite manufacturing (Vacuum Assisted Resin Transfer Molding and hand lay-up).

**Department:** Aerospace Engineering

3 Credit Hours
3 Total Contact Hours
3 Lab Hours
0 Lecture Hours
0 Other Hours

**Major Restrictions:**
Restricted to majors of AEAE

**Classification Restrictions:**
Restricted to class of SO

**Prerequisite(s):** (MECH 1305 w/C or better)

Aerospace Materials: This course is designed to introduce the students to basic materials science with an emphasis on properties and how they are influenced by thermal and mechanical treatments. The students will be able to relate the microstructure of a material to its properties, and understand the effects of the environment on materials and the possible failure modes of structures. The students will be provided with demonstrations of various processes in the laboratory.

**Department:** Aerospace Engineering

3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

**Classification Restrictions:**
Restricted to class of SO

**Prerequisite(s):** (CHEM 1105 w/C or better AND CHEM 1305 w/C or better)

AERO 3312. Aerodynamics 1.
Aerodynamics 1: This course builds on the student’s background in Fluid Mechanics to deal primarily with flows (low-speed and high-speed) relevant to aerospace applications, with particular emphasis on components related to an airplane. Both inviscid and viscous flows will be considered in the analysis of airfoils, wings, nozzles, and diffusers.

**Department:** Aerospace Engineering

3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

**Classification Restrictions:**
Restricted to class of JR

**Prerequisite(s):** (AERO 2311 w/C or better)
AERIAL 3323. Aerospace Structures I.
Aerospace Structures I: This course is designed to introduce the students to the analysis and the design of aerospace structures. Review concepts of stress, strain, and equations of elasticity. Plane stress and plane strain. Applications to aerospace structural elements including thin-walled beams with open and closed section, unsymmetrical bending of wing sections, torsion of skin-stringer and multi-cell sections, flexural shear in open and closed sections, Shear Center and failure criteria.
Department: Aerospace Engineering
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours
Classification Restrictions:
Restricted to class of JR
Prerequisite(s): (AERO 2331 w/C or better ) AND (MECH 2322 w/C or better)

AERIAL 3343. Systems Modelling and Control.
Systems Modelling and Control: The course will provide the basis for system modelling in time and frequency domain with an emphasis in aerospace applications. The course will deliver concepts and the best practices for design and implementation of model-based feedback control of SISO systems. The course will include laboratories and project experiences for real-time implementation.
Department: Aerospace Engineering
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours
Classification Restrictions:
Restricted to class of JR
Prerequisite(s): (MATH 2326 w/C or better ) AND (MECH 2340 w/C or better AND MECH 2342 w/C or better)