# Design of Atmospheric Flight Vehicles II

## **AEROENG 4516**

#### **Credit Hours:**

3.00

#### **Course Levels:**

Undergraduate (1000-5000 level)

#### **Course Components:**

Lecture

Lab

#### **Course Description:**

Continuation of 4515. Preliminary and detailed design of aerospace vehicle components: design of a vehicle for atmospheric flight.

#### **Prerequisites and Co-requisites:**

Prereq: 4515 (515 and 516), and enrollment as AeroEng-BS student (No pre-majors can enroll in this class).

#### **Course Goals / Objectives:**

- Provide students with preliminary and detailed aircraft design experience
- Foster multidisciplinary thought processes and collaborations
- Train students in effective teamwork
- Refine students' technical communication skills through written reports and presentations

### **Course Topics:**

- Minimum Buckling Load Design
- Low Cycle/High Cycle Fatigue Design
- FEA with Hypermesh and Nastran
- Structural design presentations
- Detailed aerodynamic analysis
- Detailed weights estimation
- Detailed stability, control, and handling
- Detailed propulsion performance
- Detailed performance assessment
- Cost analysis
- Final presentations

## **Designation:**

Required