Course Competency

ASC 1550 Aerodynamics

Course Description

This is a basic course in aerodynamics. Students will analyze the physics of flight and the application of basic aerodynamics to both airframe and power plant as preparation for the requirements of commercial aviation.

Course Competency	Learning Outcomes
Competency 1: The student will demonstrate knowledge and understanding of aerodynamics by:	1. Computer / Technology Usage 2. Critical thinking 3. Numbers / Data
a. discussing basic aerodynamic principles and the manner in which they are related b. defining the four forces affecting flight and the factors that go into airfoil design. c. describing the different factors that affect airplane performance as they relate to airplane design and operating characteristics. d. analyzing high speed aerodynamics and effects of airplane configuration on the same. e. explaining aircraft control and stability, the critical relationship between both, and the importance of avoiding flight outside of the limitations imposed by the manufacturer. f. identifying various aspects of operational strength and structural limitations attributed to aircraft design.	
Competency 2: The student will demonstrate skills in applying and analyzing aerodynamic principles by explaining:	1. Critical thinking 2. Computer / Technology Usage 3. Numbers / Data

Competency 3: The student will produce reasoned, critical responses to common aerodynamic concerns by:	1. Critical thinking 2. Numbers / Data 3. Computer / Technology Usage
a. Describing flight at high lift conditions defining stalls, b. Understanding the physics leading to such, and distinguishing among the differing stalling characteristics of differing airfoil designs. c. Analyzing viscous flow, boundary layers, Reynolds number, airflow separation, and the scale effect. d. Recognizing and discussing the operation of aircraft in the region of reversed command. e. Identifying the various aerodynamic principles and factors that must be taken into consideration when operating modern transport category aircraft.	

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