

Course Competency

ATT 2133 Multi-Engine Pilot Theory

Course Description

This course introduces basic theories of multi-engine pilot operations to prepare students for the F AA Multi-Engine oral and practical exams. Students will acquire aeronautical knowledge required to a ctas a multi-engine rated pilot. (2 hr. lecture)

Course Competency	Learning Outcomes
<p>Competency 1:The student will demonstrate knowledge and understanding in human factors as it relates to multi-engine aircraft by:</p>	<ol style="list-style-type: none"> 1. Critical thinking 2. Computer / Technology Usage 3. Numbers / Data 4. Communication
<ol style="list-style-type: none"> a. Understanding flawed training methods of the past. b. Conceptualizing whether a multi-engine aircraft is safer than a single-engine aircraft. c. Visualizing and understanding situational awareness and workload management. d. Discussing and understanding the physiology of high-altitude flight. e. Discussing the pilot’s mental and physical preparedness for the flight and aeronautical decision-making. 	
<p>Competency 2:The student will demonstrate a complete understanding of multi-engine aircraft systems (emphasis will be placed on the Piper Seminole aircraft), by:</p>	<ol style="list-style-type: none"> 1. Communication 2. Critical thinking 3. Computer / Technology Usage
<ol style="list-style-type: none"> a. Recognizing and explaining different types of power plants and their components. b. Understanding cooling and exhaust systems. c. Demonstrating proficiency in reading and interpreting engine instruments. d. Understanding and explaining engine-driven systems. e. Explaining the operation and identifying parts of the propeller and governor system. 	

<ul style="list-style-type: none"> f. Understanding and demonstrating the proper use of several fuel systems. g. Explaining the normal and emergency use of the landing gear system and its inner workings. h. Explaining the operation and proper use of oxygen systems. 	
<p>Competency 3:The student will be able to perform a complete weight and balance calculation, and understand how this weight and balance will affect the performance and controllability of the aircraft in different flight conditions and aircraft configuration by:</p>	<ul style="list-style-type: none"> 1. Communication 2. Critical thinking 3. Computer / Technology Usage
<ul style="list-style-type: none"> a. Understanding weight and balance terminology. Explaining the relationship between aircraft v-speeds, gross weight and atmospheric conditions. b. Discussing the affects of a forward cg versus an aft cg on the performance and maneuverability of the aircraft in several flight configurations and atmospheric conditions. c. Explaining spin characteristics of an improperly loaded aircraft. 	
<p>Competency 4:The student will demonstrate a thorough understanding of multi-engine aerodynamics and FAR 23.149 by:</p>	<ul style="list-style-type: none"> 1. Computer / Technology Usage 2. Communication 3. Critical thinking
<ul style="list-style-type: none"> a. Understanding the boundary layers and types of airflow. b. Conceptualizing induced flow, asymmetrical thrust, and p-factor. c. Understanding and explaining, VMC, and Critical Engine. d. Describing the side slip as it pertains to two multi-engine out procedures. e. Discussing the effects of a windmilling propeller. f. Understanding density altitude as it relates to VMC. g. Discussing multi-engine aircraft V-speeds(VYSE, VYXE, VMC, etc.) 	

<p>Competency 5: The student will demonstrate the ability to act as pilot in command of a multi-engine aircraft by:</p>	<ol style="list-style-type: none"> 1. Communication 2. Critical thinking 3. Computer / Technology Usage
<ol style="list-style-type: none"> a. Understanding and demonstrating proper engine-out procedures in all phases of flight. b. Discussing and understanding all required multi-engine maneuvers required for the flight test , as per FAA-S-8081-12B(Practical Test Standards) for Commercial Multi-Engine Pilots. c. Planning and explaining a cross country in a multi-engine aircraft. d. Being able to properly handle any emergency situation that may occur during the course of ground and flight operations. e. Properly demonstrating and exhibiting knowledge on multi-engine go-arounds. f. Demonstrating the proper procedure for multi-engine short and soft field take-offs and landings. g. Understanding multi-engine procedures as it pertains to IFR Flight. h. Discussing and understanding departure V-speeds, including accelerate-stop and accelerate-go procedures. i. Demonstrating knowledge of proper pre-flight and ground handling procedures. 	

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