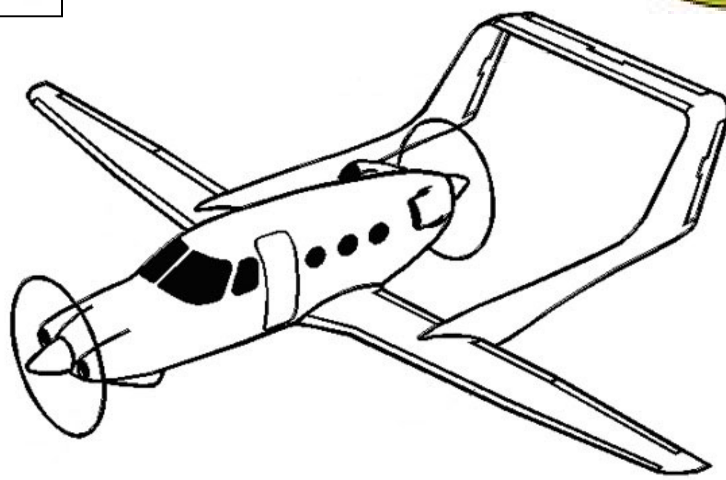

FAA Industry Training Standards

Adam Aircraft Industries A500 Instructor Syllabus

Version 1.0

Adam Aircraft-FITS A500 Transition Training Syllabus

Table of Contents

Acknowledgements:

The Syllabus prepared by:

EMBRY-RIDDLE AERONAUTICAL UNIVERSITY

UND AEROSPACE UNIVERSITY OF NORTH DAKOTA

ADAM AIRCRAFT

Section 1 - FITS Introduction

FAA Industry Training Standards (FITS)

The FITS Program is a joint project of the FAA sponsored Center for General Aviation Research (CGAR), Embry Riddle Aeronautical University, The University of North Dakota, and the General Aviation Industry.

FITS Mission Statement

Ensure pilots learn to safely, competently, and efficiently operate a technically advanced piston or light jet aircraft in the modern National Airspace System (NAS).

FITS Imperatives

The SAFER SKIES initiative is a commitment by the FAA and the aviation industry to significantly reduce general aviation accidents—the majority of which (75%) are pilot error related. Compounding the challenge of this initiative is the emergence of a new class of technically advanced general aviation aircraft that offers significant improvements in performance and capability. These innovative aircraft are equipped with automated cockpits and cruising speeds that require flight management and decision-making skills normally expected from ATP-level pilots; yet they will be flown by pilots with significantly lower qualification and experience levels. It is imperative that a new training philosophy be implemented that reduces the human error element and accelerates acquisition of higher-level judgment and decision-making skills.

FITS training recognizes the wide variety of advanced technology systems and the different combinations and permutations of these systems as compared to the relatively similar layout of the conventional cockpits they replace.

- Within a type of system (e.g. different operations of GPS navigators)
- Within categories of advanced technology systems
    - Pilot Flight Displays (PFD)
    - Multi Function Displays (MFD)
    - Traffic Displays
    - Weather displays
    - Terrain Displays
    - Autopilots

FITS Training Goals

It is imperative to provide pilots of Technically Advanced Aircraft (TAA) with the best possible training in the following areas:

- Aeronautical Decision Making
    - Higher-Order Thinking Skills (HOTS)
        - Cognitive process (problem solving & decision-making processes)
        - Cognitive skills (analysis, synthesis and evaluation)
    - Situational Awareness
    - Decision Making
- Automation Competence
- Planning and Execution

- Procedural Knowledge
- Psychomotor Skills

Section 2 - FITS Terminology and Definitions

Key Terms

Technically Advanced Aircraft (TAA) **–** A General Aviation aircraft that combines some or all of the following design features; advanced cockpit automation system (Moving Map GPS/ Glass Cockpit) for IFR/VFR flight operations, automated engine and systems management, and integrated auto flight/autopilot systems.

Light Turbine TAA **–** a jet or turboprop aircraft weighing 12,500 lbs or less and equipped with cabin pressurization, and conventional (non-swept) wings. This aircraft contains all the features of a Technically Advanced Aircraft and will be capable of operating in Class A airspace on normal mission profiles. A Light Jet TAA will be certified for Single-Pilot operation. (Note: Light TAA's are specifically defined as non-swept wing due to the significantly increased training load incurred when transitioning pilots to swept wing aircraft)

Scenario Based Training (SBT) **–** SBT is a training system that uses a highly structured script of real-world experiences to address flight training objectives in an operational environment. Such training can include initial training, transition training, upgrade training, recurrent training, and special training.

Single Pilot Resource Management (SRM) **–** The art and science of managing all the resources (both on-board the aircraft and from outside sources) available to a single-pilot (prior and during flight) to ensure that the successful outcome of the flight is never in doubt. The primary emphasis will be on integrating the developing and enhancement of mental process and underlying thinking skills needed by the pilot to consistently determine the best course of action in response to a given set of circumstances.

Airmanship **–** The consistent use of good judgment and well-developed skills to accomplish flight objectives. Pilots with strong airmanship skills understand the capabilities and limitations of themselves; their aircraft; the physical, regulatory, and organizational environment; and the multiple risks associated with a particular flight.

Related Terms and Abbreviations

Aircraft Automation Management **–** The ability to control and navigate an aircraft by means of the automated systems installed in the aircraft.

Automated Navigation Leg – A flight of 30 minutes or more conducted between two separate airports in which the aircraft is controlled primarily by the autopilot and the on board navigation systems.

> A ***VFR Automated Navigation Leg*** is flown on autopilot from 1,000 ft AGL on the departure until entry to the VFR traffic pattern.
>
> An ***IFR Automated Navigation Leg*** is flown on autopilot from 500 ft AGL on departure until reaching the decision altitude (coupled ILS approach) or missed approach point (autopilot aided non-precision approach) on the instrument

approach. If a missed approach is flown it will be flown using the autopilot and on-board navigation systems.

Automation Competence **–** The ability to understand and operate the automated systems installed in the aircraft.

Automation Surprise **–** The characteristic of automated systems to provide different types and varieties of cues to pilots compared to the analog systems they replace, especially in time critical situations.

Automation Bias **–** The relative willingness of the pilot to trust and utilize automated systems.

Candidate Assessment **–** A system of critical thinking and skill evaluations designed to assess a training candidates readiness to begin training at the required level.

Critical Safety Tasks/Event **–** Those mission related tasks and or events that if not accomplished quickly and accurately may result in damage to the aircraft or loss of life.

Data Link Situational Awareness Systems – Systems that feed real-time information to the cockpit on weather, traffic, terrain, and flight planning. This information may be displayed on the PFD, MFD, or on other related cockpit displays.

Learner Centered Grading - Desired Pilot in Training (PT) Scenario Outcomes – The object of scenario-based training is a change in the thought processes, habits, and behaviors of the students during the planning and execution of the scenario. Since the training is student centered the success of the training is measured in the following desired student outcomes:

- ***Describe*** – At the completion of the scenario the PT will be able to describe the physical characteristics and cognitive elements of the scenario activities.
- ***Explain*** – At the completion of the scenario the PT will be able to describe the scenario activity and understand the underlying concepts, principles, and procedures that comprise the activity.
- ***Practice*** – At the completion of the scenario the student will be able to practice the scenario activity with little input from the CFI. The PT with coaching and/or assistance from the CFI will quickly correct minor deviations and errors identified by the CFI.
- ***Perform*** **–** At the completion of the scenario, the PT will be able to perform the activity without assistance from the CFI. Errors and deviations will be identified and corrected by the PT in an expeditious manner. At no time will the successful completion of the activity be in doubt. "***Perform***" will be used to signify that the PT is satisfactorily demonstrating proficiency in traditional piloting, systems operation skills and aeronautical decision making.
- ***Manage/Decide*** **–** At the completion of the scenario, the PT will be able to correctly gather the most important data available both within and outside the cockpit, identify possible courses of action, evaluate the risk inherent in each course of action, and make the appropriate decision. **"*Manage/Decide*"** will be

used to signify that the PT is satisfactorily demonstrating acceptable SRM skills including aeronautical decision making.

Emergency Escape Maneuver **–** A maneuver (or series of maneuvers) performed manually or with the aid of the aircraft's automated systems that will allow a pilot to successfully escape from an inadvertent encounter with Instrument Meteorological Conditions (IMC) or other life-threatening situations.

Mission Related Tasks **–** Those tasks required for the safe and effective accomplishment of the mission(s) that the aircraft is capable of and required to conduct.

Multi-Function Display MFD – Any display that combines navigation, aircraft systems, and situational awareness information onto a single electronic display.

Primary Flight Display (PFD) – Any display that combines the primary six flight instruments, plus other related navigation and situational awareness information, into a single electronic display.

Proficiency Based Qualification **–** Aviation task qualification based on demonstrated performance rather than other flight time or experience qualifiers.

Simulation **–** Any use of animation and/or actual representations of aircraft systems to simulate the flight environment. Student interaction with the simulation and task fidelity for the task to be performed are considered the requirements for effective simulation.

Training Only Tasks **–** Training maneuvers that, while valuable to the student's ability to understand and perform a mission related task, are not required for the student to demonstrate proficiency. However, instructor pilots will be required to demonstrate proficiency in Training Only Tasks.

Section 3 - FITS TAA Training Philosophy

FITS TAA Training is a new approach to training pilots which is scenario based rather than maneuver based and structured to emphasize development of critical thinking and flight management skills. The goal of this new training philosophy is accelerated acquisition of the higher level decision-making skills necessary to prevent pilot error accidents in Technically Advanced Aircraft (TAA).

Background

Previous training philosophy assumed that newly certificated pilots would generally remain in the local area until recently acquired aviation skills are refined. This is no longer true with the advent of Technically Advanced Aircraft (TAA). Offering superior avionics and performance capabilities, these aircraft travel faster and further than their predecessors. As a result, a growing number of entry-level pilots suddenly have the capability of long distance high speed and altitude travel—and its incumbent challenges. Flights of this nature routinely span diverse weather systems and topography requiring advanced flight planning and execution skills. Advanced cockpits and avionics, while generally considered enhancements, require increased technical knowledge and finely-tuned automation competence. Without these skills, the potential for increased human-error accidents is daunting. A new method of training is required that accelerates acquisition of these skills during the training process.

Research has proven that learning is enhanced when training is realistic and authentic. In addition, the underlying skills needed to make good judgments and decisions are teachable. Both the military and commercial airlines have embraced these principles through integration of Line Oriented Flight Training (LOFT) and Cockpit Resource Management (CRM) training into their qualification programs. Both LOFT and CRM lessons mimic real-life scenarios as a means to expose trainees to realistic operations and critical decision-making opportunities. The most significant shift in these programs has been to move away from traditional maneuver-based training to incorporate training that is scenario-based.

Maneuver-based training puts emphasis on the mastery of individual tasks or elements. Completion standards are driven by regulation, as well as Practical Test Standards, that use flight hours and the ability to fly within plus or minus some specified tolerance as the measurement of competence. The emphasis is on development of motor skills to satisfactorily accomplish individual maneuvers. Only limited emphasis is placed on decision-making, and as a result, when the newly trained pilot goes on to fly in the real-world environment, he or she is inadequately prepared to make crucial decisions unassisted.

Scenario Based Training (SBT) and Single Pilot Resource Management (SRM) are similar to LOFT and CRM training but tailored to the TAA pilot's needs. They use the same individual tasks as Maneuver Based Training, but arrange or script them into scenarios that mimic real-life A500 cross-country travel. By emphasizing on each lesson that the goal is getting to a destination safely, the trainee readily correlates the importance of individual training maneuvers to safe mission accomplishment. In addition, throughout the scenario, the instructor poses “What If?” discussions as a means to provide the trainee with increased exposure to proper decision-making. Because the “What If?” discussions are in reference to the scenario, there is a vivid connection between decisions made and the final outcome.

The “What If?” discussions are designed to accelerate development of decision-making skills by posing situations for the trainee to ponder. Once again, research has shown that these types of discussions help build judgment and offset low experience.

Questions or situations posed by the instructor must be somewhat open-ended (rather than requiring only rote or one-line responses.) In addition, the instructor guides the trainee through the decision process by:

1. Posing a question or situation that engages the trainee in some form of decision-making activity.
2. Examining the decisions made.
3. Exploring other ways to solve the problem.
4. Evaluating which way is best.

For example, when the trainee is given a simulated engine failure, the instructor might ask questions like:

“What should we do now?” Or, ”Why did you pick that place to land? Is there a better choice? Which place is the safest? Why?”

Questions of this nature force the trainee to focus on the decision process, which accelerates acquisition of judgment. Judgment, after all, is simply the decision-making process, which is learned primarily from experience. It is not innate. All life experiences mold the judgment tendencies brought into flight situations. By artificially injecting decision opportunities into routine training lessons, we speed-up acquisition of experience, and thus enhance judgment and decision-making. For further information, please reference “Aeronautical Decision Making” in the FAA Aviation Instructor Handbook.

Section 4 – Scenario Development Guide for Instructors in Training

Learning how to properly teach the A500 transition syllabus will enable an instructor to use the same principles and techniques to teach other approved courses in the Adam Aircraft family of aircraft.

The FITS Instructor Training Syllabus assumes that the Instructor in Training (IT) is already a proficient, Certified Flight Instructor who has prior aeronautical experience in operation of the A500. Training time will vary depending on the instructor's prior aeronautical experience in these areas.

Scenario development is the key to the FITS Instructor Training Syllabus. The IT ideally conducts scenario planning with little assistance from the teaching instructor. The teaching instructor, with guidance from the syllabus, will act as a mentor and assist in establishing boundaries for the scenario. The teaching instructor will guide the planning process to ensure that learning outcomes are achieved in an orderly and efficient manner.

The IT and the Teaching Instructor will discuss the lesson syllabus and decide (in advance) the most likely destination for the out and back scenario. The IT must be proficient in the A500. This allows them to concentrate on training specific to the A500, while combining proper teaching techniques for use when practicing flight instruction.

The A500 instructor must become completely versed in all the automated features of the aircraft. The instructor must also be able to teach students how to use such features. Failure to completely master and trust cockpit automation will severely reduce the effectiveness of A500 training.

Although not required, the Teaching Instructor and IT may combine several lessons by performing a long, multi-leg trip into terrain and airspace unfamiliar to the IT. To be consistent with the FITS Transition Training Syllabus, the scenarios should involve flights within increasingly complex airspace. By the end of the Instructor Training Syllabus, the IT will demonstrate effective teaching ability while maintaining mastery of the aircraft at all times.

Instructor in Training (IT)/Teaching Instructor Responsibilities

Pre-Scenario Planning - For Scenario Based Instruction to be effective; it is vital that the IT and the Teaching Instructor communicate the following information well in advance of the flight:

- Scenario destination(s)
- Desired student learning outcomes
- Desired level of IT performance
- Desired level of automation assistance

- Possible in-flight scenario changes (during later stages of the program, no pre-flight notification is required)

When an IT is conducting the Instructor Training Syllabus, the Teaching Instructor should make the situation as realistic as possible. This means the IT will know where they are going and what will transpire on the flight. While the actual flight may deviate from the original plan, it allows the IT to be placed in a realistic scenario.

Scenario Planning – Prior to the flight, the IT will brief the scenario to be planned. The Teaching Instructor will review the plan and offer guidance on how to make the lesson more effective. Discussion, in part, will reflect ways in which the IT can most effectively draw out a student's knowledge and decision processes. This enables the IT to analyze and evaluate the student's level of understanding.
After discussion with the Teaching Instructor, the IT will plan the flight to include:

- Route
- Destination(s)
- Weather
- Notams
- Desired student learning outcomes
- Possible alternate scenarios and emergency procedures

Pre-Flight Briefing – The IT will brief the Teaching Instructor on the flight scenario that he or she expects, which will include:

- Route, weather, and NOTAMS
- Accomplishment of desired training outcomes
- Emergency procedures and alternate scenarios
- SRM considerations
- Safety considerations

In-Flight – The IT will execute the scenario plan with as little intervention from the Training Instructor as possible. Obviously, the first few simple scenarios may require considerable Training Instructor input. The Training Instructor should provide situations that expose the IT to the differences of the A500 while exercising critical thinking skills.

For example, the Training Instructor may create a situation that requires the pilot to divert. In doing so, the IT will have to use the electronic engine monitoring system (located on the MFD) to determine fuel remaining and fuel burn rate. While identifying these differences, the IT will use critical thinking skills to determine the best course of action for the diversion. As the IT gains the experience required to demonstrate good SRM, a role reversal should occur allowing the IT to act as the instructor. The Training Instructor will act as the student learning to transition to the A500.

Just as with the A500 transition training syllabus, the instructor-training syllabus is student-centered, with the IT being considered the "student." However, at no time should the Training Instructor feel as though he or she cannot intervene in the name of safety or to ensure completion of the scenario. It may be useful to let the IT resolve lesser problems encountered before intervening or instructing. This example of selfdirected, or guided learning, will assist the IT in learning how to build a student's confidence and poise. It also assists them in developing their own mental model. Training Instructors should demonstrate how to provide scenario- based instruction while not actually solving the problem for them. As discussed in Section 3, the IT must be taught to ask appropriate questions to clarify and/or challenge the student's thinking process.

Instructors in training must teach students to offer opinions and exercise sound judgment based on relevant criterion and available facts.

Post-Flight – The post-flight review should include a dialogue between the IT and the Training Instructor encompassing the flight scenario. Generally, the Training Instructor should lead the discussion with questions that generate reflective thinking on how the overall flight went. The Training Instructor should use this to assist in evaluating the IT's assessment skills, judgment, and decision making skills. Typically with a student who is being trained to fly the A500, the discussion should be led by the student self-critiquing and the instructor enabling the student to solve the problems and drawing conclusions. Based on this analysis, the IT and Teaching Instructor should discuss methods for improvement, even on those items that were considered successful. In the beginning, the Teaching Instructor may take a leading role in the post-flight review demonstrating to the IT the proper method to conduct the post-flight. However, it is vital that the IT learns to identify performance deficiencies, problem solve, and administer corrective actions.

Scenario Grading - It is important that the IT understand that the object of scenario-based training in the A500 transition training and instructor training syllabi is to affect a change in the thought processes, habits, and behaviors of the Pilot in Training (PT) or the Instructor in Training (IT).

The A500 transition-training syllabus is student-centered, it is important that the IT understands that the success of the transition-training syllabus is measured in the desired student outcomes list below. These desired outcomes are not based on the traditional standards, but are based instead on the knowledge and skill level of the Pilot in Training (PT):

- ***Describe*** – At the completion of the scenario, the pilot in training (PT) will be able to describe the physical characteristics and cognitive elements of the scenario activities.
- ***Explain*** – At the completion of the scenario, the PT will be able to describe the scenario activity and understand the underlying concepts, principles, and procedures that comprise the activity.
- ***Practice*** – At the completion of the scenario, the student will be able to practice the scenario activity with little input from the CFI. The PT, with coaching and/or assistance from the CFI, will quickly correct minor deviations and errors identified by the CFI.
- ***Perform*** - At the completion of the scenario, the PT will be able to perform the activity without assistance from the CFI. Errors and deviations will be identified and corrected by the PT in an expeditious manner. At no time will the successful completion of the activity be in doubt. "Perform" will be used to

signify that the PT is satisfactorily demonstrating proficiency in traditional piloting and systems operation skills.

- ***Manage/Decide*** - At the completion of the scenario, the PT will be able to correctly gather the most important data available both within and outside the cockpit, identify possible courses of action, evaluate the risk inherent in each course of action, and make the appropriate decision. "Manage/Decide" will be used to signify that the PT is satisfactorily demonstrating acceptable SRM skills.

Grading and Evaluation

It is important that the student and instructor understand that the object of scenario-based training in the Transition/Type Training course is to cause a change in the thought processes, habits, and behaviors of the Pilot in Training.

The A500 transition training syllabus is student centered, it is important that the student understands that the success of the transition training syllabus is measured in the desired student outcomes list below. These desired outcomes are not based on the traditional standards but are based instead on the knowledge and skill level of the student:

The grading and evaluation of flight performance shall be based on the appropriate FAA Practical Test Standards using the Desired Pilot in Training Scenario Outcomes defined in Section 1. Client performance shall be graded and evaluated as: PROFICIENT, NORMAL PROGRESS or ADDITIONAL TRAINING REQUIRED. The criteria for evaluation shall be as follows:

- PROFICIENT (1) – Based on the Desired Pilot in Training Scenario Outcomes defined in Section 1, a grade of PROFICIENT (1) will be awarded when the pilot in training attains the level of ***Perform*** or ***Manage-Decide***. ***Perform*** is used to describe proficiency in a skill item such as an approach or landing. ***Manage-Decide*** is used to describe proficiency in an SRM area such as ADM. (Note: a grade of **Explain** may be used to signify proficiency in an event which is not performed in the aircraft due to safety considerations)
- NORMAL PROGRESS (2) – Based on the Desired Pilot in Training Scenario Outcomes defined in Section 1, a grade of NORMAL PROGRESS (2) will be awarded when the pilot in training attains the level of performance below proficiency that is required for the individual training scenario. ***Describe***, ***Explain*** and ***Practice*** are used to describe student learning levels below proficiency in both skill items and SRM areas.
- ADDITIONAL TRAINING REQUIRED (3) – Based on the Desired Pilot in Training Scenario Outcomes defined in Section 1, a grade of ADDITIONAL TRAINING REQUIRED will be given when the pilot in training fails to attain the level of performance that is required for the individual training scenario.

In order to complete any pilot training course, the IT must attain a grade of Proficient (1) in all areas of training. Any maneuver or procedure completed with less than a proficient grade (1) must be repeated until a grade of 1 is attained before the IT can satisfactorily complete the course.

The standards for course completion for a pilot course requiring the issuance of an Airline Transport Pilot (ATP) Certificate and/or a Type Rating are outlined in the FAA's *Airline Transport Pilot and Type Rating Practical Test Standards*.

The standards for course completion for a pilot course not requiring the issuance of an Airline Transport Pilot (ATP) Certificate and/or a Type Rating are those outlined in the FAA's *Instrument Rating Practical Test Standards.*

LESSON 1 – Teaching The Basics In The A500

Objective

The instructor in training (IT) will have the opportunity to re-enforce insights gained through ground training to begin the safe operation of A500. The IT will also continue to enhance information management, risk management, and single pilot resource management.

Prerequisites

1. Completion of A500 Transition Training Course
2. Completion of pre-flight ground training

Instructor in Training Preparation

Review the following:

1. Normal operating procedures in the A500 POH.
2. Airport information for departure and destination airports.
3. Route of flight information for all legs.
4. Aircraft and avionics systems display and procedures.

Briefing Items

INITIAL INTRODUCTION:

IT should have a clear understanding of the Pilot in Command concept and how command is transferred. This should include a detailed pre-takeoff briefing procedure and format.

SINGLE PILOT RESOURCE MANAGEMENT (SRM)

1. Task management with Electronic Checklist procedures.
2. Automation management with systems to be used during this flight.
3. Radio procedures in relation to IT and Teaching Instructor.
4. Operating procedures in relation to IT and Teaching Instructor.

SAFETY

The following safety items should be briefed to all IT's

1. Mid-air collision avoidance procedures.
2. Taxi procedures
3. Personal Minimums
4. Rick factors for the flight

Preflight Planning, Engine-Start and Taxi

This lesson will be conducted to an airport other than the departure airport. The IT will describe all preflight procedures, engine start-up, avionics set-up, taxi, and before-takeoff procedures. The preflight will be demonstrated with Training Instructor assistance, the Training Instructor should identify the differences they may encounter while teaching preflight procedures in the A500. An example of this would be composite structure considerations. Any differences in engine start procedures should be discussed with consideration given to proper priming procedures and clearing the propeller area. While avionics setup will vary with each A500 flown, special consideration and thought shall be given to display usage in the GPS, MFD and PFD. A flow/checklist procedure should be followed to ensure completion of critical items.

The Teaching Instructor will discuss the proper scanning technique to be used with the A500 avionics package. The IT will explain how to properly monitor fuel burn with the electronic engine monitoring system. Calculations for weight and balance and specific loading considerations will be discussed. It is imperative that the Teaching Instructor begin to change the thought patterns of the IT by discussing personal minimums on every lesson. The Teaching Instructor will intervene to direct the IT toward training techniques that may be used. The IT should be held to these personal minimums, and any change in personal minimums throughout training should be analyzed and evaluated.

The Teaching Instructor shall continue to discuss the differences found when transitioning to the A500. MFD use for electronic engine monitoring and checking the governer system shall be discussed during run-up procedures.

The IT, in a non-congested environment, shall practice instruction on the criteria of a stabilized approach and the decision making process related to go-arounds. The Teaching Instructor shall lead the discussion by starting with a question such as, “How would you decide about conducting a go around, or what criteria would you use to assess a stabilized approach?” It should be noted that quite often the leading question will require additional questions to help the IT recognize his/her own thought processes.

Prior to Takeoff

Through guided discussion, the Teaching Instructor will review the optimal avionics displays to be used in the various phases of flight. Based on various weather (IMC/VMC) (IFR/VFR), traffic, airspace and route considerations, avionics displays will not necessarily be the same. Discussion on that decision process used to determine the proper display should be discussed. The Teaching Instructor shall discuss considerations related to cockpit management and runway incursions. Traffic Situational Awareness Systems such as TCAS can help with runway incursion. Keeping vigilance, while looking outside the cockpit is vital.

Electronic Checklist usage will be emphasized by the Teaching Instructor. He or she should guide the IT in discovering the differences related to the A500.

Normal Operations

The IT will describe a normal takeoff and departure to a safe altitude. When established in the departure the autopilot will be engaged by the IT. Vigilance shall be maintained for traffic with the aid of Traffic Situational Awareness Systems such as TCAS/TCAD. Aircraft systems, avionics, and autopilot functions will be performed during cruise, descent and normal landing phase of the flight by the IT (GPS nearest airport, direct to, flight plan and flight plan modification). The optimal display settings for cruise will be discussed. The autopilot’s basic lateral and vertical modes should be used.

The Teaching Instructor will demonstrate the A500 specific aerodynamics, power, engine, and proper display settings for normal operation. The IT shall perform flight at various airspeeds, control differences, recovery from various stalls, and steep turns while noting the differences from that of other aircraft. While maneuvering in the A500 the trainer should correlate all maneuvers to real-world scenarios.

The IT shall conduct descent planning into a different airport using VNAV. The IT will perform various takeoff and landings until they are being conducted within PTS standards, at which time a role reversal will be conducted so that the IT can demonstrate instructional knowledge. The IT should demonstrate common landing errors that might be encountered in the A500. While maintaining safety, the Training Instructor will simulate a go-around situation in which the IT will be expected to demonstrate judgment and decision making skills relating to go-arounds.

Role reversal will continue on return flight. An actual or simulated crosswind takeoff should be performed at the departure airport. A different route should be selected on this leg of the flight. The IT should continue to practice instructing on the MFD and GPS for the duration of the return trip. After the aircraft is established in cruise, the autopilot should be disengaged and the flight continued in the manual mode. Practice instruction should continue in the areas of aircraft systems and avionics. Multi-tasking and Single Pilot Resource Management should be brought up again at this time. While manually flying the airplane, the IT may become task saturated, and performance may decline. It is critical that the IT is aware of this common error, and the student should discuss ways to reduce or eliminate increased risks.

After Landing

Electronic checklist usage will be emphasized once the aircraft is clear of the active runway. The Teaching Instructor will lead a guided discussion on variations in shutdown and securing procedures.

Scenario One

(note: these activities will be completed as part of the training scenario and are not intended to be a list of training tasks to be completed in numerical order)

Scenario Activities	***Scenario Sub Activities***	***Desired IT Scenario Outcome***
Flight Planning	1. Scenario Planning 2. Weight and Balance and Aircraft Performance Calculations 3. Preflight SRM Briefing 4. Decision Making and Risk Management	1. Perform 2. Perform 3. Explain 4. Perform
Normal Preflight and Cockpit Procedures	1. External Inspection 2. Internal Inspection 3. PFD/MFD/GPS/Autopilot Programming 4. SRM	1. Perform 2. Perform 3. Perform 4. Explain
Powerplant Start	1. Normal 2. External Power 3. Flooded Start 4. Hot Start	1. Perform 2. Perform 3. Perform 4. Perform
Start Malfunctions	1. Low Oil Pressure 2. Starter Engaged	1. Explain/Perform 2. Explain/Perform
Taxiing	1. Flight Instruments 2. SRM	1. Describe 2. Describe
Before Takeoff Checks	1. Alternators 2. Magnetos 3. Propellers 4. Trim/Autopilot 5. Pressurization 6. Ice Protection 7. Avionics Setup 8. SRM	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform 6. Perform 7. Perform 8. Explain
Takeoff	1. Normal/Visual 2. Instrument 3. Aborted Takeoff 4. Crosswind 5. Maximum Performance 6. Instrument Departure Procedure (DP) 7. SRM	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform 6. Perform 7. Explain
Climb Procedures	1. Automated climb 2. Manual climb 3. Navigation Programming 4. Power Management 5. SRM	1. Perform 2. Perform 3. Perform 4. Perform 5. Explain
Cruise Procedures	1. Fuel Management 2. Best Economy vs. Best Power 3. Manual Cruise 4. Autopilot Cruise 5. Navigation Programming 6. Automated navigation leg 7. SRM	1. Perform 2. Explain 3. Perform 4. Perform 5. Perform 6. Perform 7. Explain
Control Performance Instrument/Visual Crosscheck	1. Straight and Level 2. Normal Turns 3. Climbing and Descending Turns 4. Steep Turns	1. Perform 2. Perform 3. Perform 4. Perform
Low Speed Envelope	1. Configuration Changes	1. Perform

	2. Slow Flight 3. Approach to Stalls 4. Recovery from Autopilot Induced Stall 5. SRM	2. Perform 3. Perform 4. Perform 5. Explain
Descent Planning and Execution	1. Vertical Navigation (VNAV) Planning 2. Navigation Programming 3. Manual Descent 4. Autopilot Descent 5. SRM	1. Explain 2. Perform 3. Perform 4. Perform 5. Explain
Landings	1. Before Landing Procedures 2. IFR Landing Transition 3. Normal Landing 4. Maximum Performance Landing 5. Partial Flap Landing 6. Zero Flap Landing 7. Crosswind Landing 8. Traffic Pattern 9. Balked Landing and Go-Around 10. SRM	1. Explain 2. Perform 3. Perform 4. Perform 5. Perform 6. Perform 7. Perform 8. Perform 9. Perform 10. Explain
Aircraft Shutdown and Securing Procedures	1. Aircraft Shutdown and Securing 2. Aircraft Towing, Ground Handling and Tie-down	1. Perform 2. Perform
Automated Avionics Operation and Systems Interface	1. Pilot Flight Display 2. Multi Function Display-Normal Operation 3. EHSI Operation	1. Explain 2. Explain 3. Explain
Systems Management	1. Powerplant 2. Fuel 3. Electrical 4. Avionics/GPS Systems 5. Autopilot 6. Landing Gear 7. Ice Protection 8. Pressurization 9. Oxygen 10. SRM	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform 6. Perform 7. Perform 8. Perform 9. Perform 10. Explain
	Navigation	
VOR	1. Tracking 2. Holding 3. Normal/Manual Approach 4. Single Engine Approach 5. Autopilot Coupled Approach 6. Circling Approach 7. DME Arc 8. SRM	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform 6. Perform 7. Perform 8. Explain
ILS	1. Normal/Manual 2. Single Engine 3. Autopilot Coupled Approach 4. Circling Approach 5. SRM	1. Perform 2. Perform 3. Perform 4. Perform 5. Explain
Localizer	1. Normal/Manual Approach 2. Single Engine 3. Back Course 4. Autopilot Coupled 5. Circling Approach 6. SRM	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform 6. Explain
GPS	1. Enroute 2. Holding	1. Perform 2. Perform

	3. Normal/Manual Approach 4. Single Engine Approach 5. Autopilot Coupled Approach 6. Circling Approach 7. SRM	3. Perform 4. Perform 5. Perform 6. Perform 7. Explain
Missed Approach	1. From Precision 2. From Non-Precision 3. From Circle 4. Single Engine 5. Use of Navaids 6. SRM	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform 6. Explain
Abnormal and Emergency Procedures		
Powerplant	1. Engine Fail Before Rotation 2. Engine Fail After Rotation 3. In flight Fail/Troubleshoot 4. Engine Securing 5. Single Engine Maneuvering 6. Glide 7. Engine Fire In Flight 8. Propeller Overspeed 9. SRM	1. N/A 2. N/A 3. N/A 4. N/A 5. N/A 6. N/A 7. N/A 8. N/A 9. N/A
Electrical	1. Alternator Fail 2. Electrical Fire 3. Battery Only Operations 4. SRM	1. N/A 2. N/A 3. N/A 4. N/A
Fuel	1. Engine Driven Fuel Pump Failure 2. Crossflow 3. SRM	1. N/A 2. N/A 3. N/A
Landing Gear	1. Unsafe Gear Indication 2. Emergency Extension 3. SRM	1. N/A 2. N/A 3. N/A
Flight Controls	1. Unscheduled Trim 2. Autopilot Failure 3. Flap Malfunction 4. SRM	1. N/A 2. N/A 3. N/A 4. N/A
Pressurization	1. Rapid Decompression 2. Door Seal 3. Emergency Descent 4. SRM	1. N/A 2. N/A 3. N/A 4. N/A
Flight Instruments	1. ADI Failure 2. HSI Failure 3. Airspeed Failure 4. Static System Blockage 5. SRM	1. N/A 2. N/A 3. N/A 4. N/A 5. N/A
Avionics	1. Communication Failure 2. Glide Slope Failure 3. PDF Failure 4. MFD Failure 5. GPS Failure 6. NAV ½ Failure 7. Smoke Removal 8. Ice Protection 9. Emergency Evacuation 10. SRM	1. N/A 2. N/A 3. N/A 4. N/A 5. N/A 6. N/A 7. N/A 8. N/A 9. N/A 10. N/A
Airmanship	1. Aircraft Control 2. Checklist/Memory Items 3. Smoothness In Handling	1. Perform 2. Perform 3. Perform

	4. Conduct In Emergencies 5. SRM	4. N/A 5. Explain
Special Emphasis Items	1. Collision Avoidance 2. Wake Turbulence Avoidance 3. LAHSO 4. Communication Management 5. Runway Incursion Awareness 6. Windshear 7. SRM	1. Explain 2. Explain 3. Explain 4. Perform 5. Explain 6. Explain 7. Explain
Instructional Technique		
Preparation	1. Weather/Flight Plan Review 2. Publications Review	1. Explain 2. Explain
Briefing	1. Technical and SRM Objectives 2. Technical & SRM Completion Standards 3. Safety Precautions 4. Checklist Procedures 5. Weight & Balance and Performance	1. Explain 2. Explain 3. Explain 4. Explain 5. Explain
Presentation	1. Preflight/Postflight Inspection 2. Technical Knowledge 3. Procedural Knowledge 4. SRM Knowledge 5. Scenario Progression 6. Demonstration Skills	1. Explain 2. Explain 3. Explain 4. Explain 5. Explain 6. Practice
Instructor	1. Enthusiasm/Sincerity/Honesty 2. Confidence	1. Practice 2. Practice
Speaking Technique	1. Voice/Expression 2. Vocabulary	1. Practice 2. Practice
Debriefing	1. Positive Reinforcement Used 2. Constructive Criticism Used 3. SRM Aspects Integrated 4. IT Input Encouraged	1. Practice 2. Practice 3. Practice 4. Practice
Client/Instructor Relations	1. Courtesy 2. Attitude	1. Practice 2. Practice
Adam Aircraft Policies	1. Knowledge 2. Compliance	1. Explain 2. Practice
Forms Completed	1. Training Records	1. Practice

LESSON 2 – Teaching Emergencies In The A500

Objective

The IT will correlate information introduced in Scenario One and will be exposed to abnormal and emergency procedures in flight. The IT will also demonstrate automation competency in the A500 while conducting a X-C based scenario.

Prerequisites

1. Completion of assigned pre-flight written materials
2. Completion of scenario training ground briefing

Instructor in Training Preparation

Review the following:

1. Previous lesson
2. Areas of weakness
3. Prior planned flight profile using scenario assigned by Teaching Instructor.
4. Normal and emergency procedures in the A500 POH.
5. Airport information for departure and destination airports.
6. Aircraft and avionics systems display and procedures.

Briefing Items

INITIAL INTRODUCTION:

1. Weather
2. Flight profile
3. Command transfer and pre-takeoff brief
4. Personal minimums

SRM

1. ADM
2. Task, automation and risk management
3. SA and CFIT awareness

SAFETY

1. Mid-air collision avoidance procedures
2. Appropriate NOTAMS
3. Airport diagrams and taxi procedures
4. Emergency procedures

Preflight Planning, Engine-Start and Taxi

The lesson will emphasis the IT teaching avionics interface and the use of automation while the Teaching Instructor introduces abnormal and emergency procedures in the National Airspace System. The Teaching Instructor shall continue to ask questions that evaluates the IT's judgment and decision making skills while teaching, such as, "During this emergency, teach me how to prioritize what must be accomplished."

This cross country-based scenario should be at least 3 legs and conducted in a manner in which the IT has ample time to demonstrate the use of an electronic checklist, enroute procedures and system malfunctions or emergencies. The IT will use the autopilot for most of this flight to gain proficiency in operating the various avionics in the aircraft, and enable him or her to teach while flying the aircraft.

Prior to Takeoff

The IT should plan their profile and perform all preflight procedures, engine start-up, avionics set-up, taxi, and before-takeoff procedures. The IT shall note the differences between the A500 and a traditional aircraft. The IT should be able to demonstrate instructional knowledge on runway incursions, high wind taxi situations, abnormal indications, and corrective actions related to the unique functions of the A500. The Teaching Instructor will begin to be more a facilitator of learning than the end authority of all subject matter. The IT shall begin to provide more of the questions that continue to evaluate the decision-making skills and judgment. The IT shall lead the discussion on the risk factors that include, but are not limited to, weather consideration, fuel burn, and personal limitations in relation to this flight lesson scenario. The Teaching Instructor will assist the IT with the appropriate insights related to the A500. Questions shall be used to facilitate that discussion. The Training Instructor shall take note of these items discussed to reinforce instructional techniques during the post-flight discussion.

The IT should be able to select and teach the proper start-up procedure. Emphasis should be placed on teaching how to identify the proper start, taxi, and run up procedures and the differences based on comparison to traditional aircraft. Questions such as, “How does the A500 compare/contrast with aircraft you’ve previously flown?” The IT will teach the proper set up of the avionics while continuously identifying differences. The Teaching Instructor shall also evaluate the IT’s fundamental knowledge of the avionics and practical use given the flight scenarios (IFR/VFR).

The IT will use instructional techniques to lead the discussion on avionics setup to include MFD – checklist usage and performance information, PFD navigation set up, appropriate display for the VFR or IFR leg being conducted, and use of GPS display(s).

Normal Operations

The IT should practice giving instruction while conducting a normal takeoff and departure to a safe altitude. When established in the departure phase, the autopilot will be engaged and the IT shall demonstrate the use of NAV and any other special lateral navigation features, GPS navigation, and flight plan pages during the first leg. On GPS #2, if available, the most efficient way to edit the flight plan should be emphasized. The IT will continue demonstrating instructional knowledge on use of electronic checklists, adjusting the MFD display(s) appropriately.

Upon reaching cruise altitude, the Teaching Instructor shall ensure the IT has properly established the autopilot navigation mode using the GPSS (GPS Steer) function. The Teaching Instructor should ask questions such as, “What other solutions could be used in place of GPSS functions?” while the IT practices giving instruction. The IT will also be asked to demonstrate the A500 leaning procedures. All pre-setting cruise functions shall be discussed.

While in cruise, the IT will be required to demonstrate understanding of isolated system failures. The Teaching Instructor shall not unrealistically overload the IT, but instead will develop a realistic scenario. While normally reliable, electrically related failures and malfunctions are a common avenue for discussion based on the complexity of the electrical systems of the A500.

During at least one VFR leg, the Teaching Instructor shall present the IT with a scenario that has no single correct answer, such as a maximum endurance problem. The IT will decide if the route should be changed. In addition, the IT must be allowed to follow through with previous decisions so that an outcome may be determined. If the Teaching Instructor feels the situation is leading to an unsafe condition, the scenario shall be terminated. Examples of scenarios that require the IT to demonstrate instructional knowledge include:

- Icing scenario
- Rising terrain/Lowering ceiling
- Diversion
- Electrical failure
- Abnormal engine readings
- Minimum fuel / Maximum endurance

At least one IFR leg shall involve a loss of the PFD. While the goal is not to overload the IT, it should be noted that scenarios beginning with a chain of events is optimal. For example, a cabin fire may also result in an emergency descent and forced landing.

An unexpected low-fuel situation may result in the recalculation of fuel, conservation of fuel, and diversion procedures involving correlative knowledge on the interface between the autopilot, MFD, PFD, and the GPS.

During the IFR leg(s), the IT shall also conduct a minimum of two instrument approaches. The Training Instructor must continue to facilitate the discussion of the differences when transitioning a pilot from “steam gage” to glass, and how teaching a A500 differs. The Teaching Instructor shall make every effort to provide the IT with the most variations in airspace, especially complex airspace in which the IT has little experience.

The IT should plan and conduct descents from different altitudes on each leg and explain pattern transition. Enough landings should be accomplished to provide the IT with the knowledge and skill to perform as an instructor. A maximum performance takeoff should be performed with a manual climb, and the IT should expect to continue onto the next leg.

Each leg will emphasis the IT’s use of critical thinking skills. On each leg, the Teaching Instructor will introduce different emergencies and situations that will reinforce the IT’s correlation of systems interface and related corrective actions. The best scenario is one that sets off a chain of events and decisions. The IT should have to base each decision on previously made decisions, unless the Teaching Instructor determines it would compromise safety.

After Landing

The IT should lead the discussion on checklist usage once clear of the active runway.

The IT should also lead a discussion of the flight; analyzing possible alternative decisions which could have been made to increase proficiency and safety.

The Teaching Instructor should be cautioned not to give the IT the answers, but instead guide them in discovering the alternatives, options, and factors they did not consider.

Scenario Two

(note: these activities will be completed as part of the training scenario and are not intended to be a list of training tasks to be completed in numerical order)

Scenario Activities	***Scenario Sub Activities***	***Desired IT Scenario Outcome***
Flight Planning	1. Scenario Planning 2. Weight and Balance and Aircraft Performance Calculations 3. Preflight SRM Briefing 4. Decision Making and Risk Management	1. Perform 2. Perform 3. Manage/Decide 4. Perform
Normal Preflight and Cockpit Procedures	1. External Inspection 2. Internal Inspection 3. PFD/MFD/GPS/Autopilot Programming 4. SRM	1. Perform 2. Perform 3. Perform 4. Manage/Describe
Powerplant Start	1. Normal 2. External Power 3. Flooded Start 4. Hot Start	1. Perform 2. Perform 3. Perform 4. Perform
Start Malfunctions	1. Low Oil Pressure 2. Starter Engaged	1. Explain/Perform 2. Explain/Perform
Taxiing	1. Flight Instruments 2. SRM	1. Describe 2. Describe
Before Takeoff Checks	1. Alternators 2. Magnetos 3. Propellers 4. Trim/Autopilot 5. Pressurization 6. Ice Protection 7. Avionics Setup 8. SRM	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform 6. Perform 7. Perform 8. Manage/Decide
Takeoff	1. Normal/Visual 2. Instrument 3. Aborted Takeoff 4. Crosswind 5. Maximum Performance 6. Instrument Departure Procedure (DP) 7. SRM	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform 6. Perform 7. Manage/Decide
Climb Procedures	1. Automated climb 2. Manual climb 3. Navigation Programming 4. Power Management 5. SRM	1. Perform 2. Perform 3. Perform 4. Perform 5. Manage/Decide
Cruise Procedures	1. Fuel Management 2. Best Economy vs. Best Power 3. Manual Cruise 4. Autopilot Cruise 5. Navigation Programming 6. Automated navigation leg 7. SRM	1. Perform 2. Manage/Decide 3. Perform 4. Perform 5. Perform 6. Perform 7. Manage/Decide
Control Performance Instrument/Visual Crosscheck	1. Straight and Level 2. Normal Turns 3. Climbing and Descending Turns 4. Steep Turns	1. Perform 2. Perform 3. Perform 4. Perform
Low Speed Envelope	1. Configuration Changes	1. Perform

	2. Slow Flight 3. Approach to Stalls 4. Recovery from Autopilot Induced Stall 5. SRM	2. Perform 3. Perform 4. Perform 5. Manage/Decide
Descent Planning and Execution	1. Vertical Navigation (VNAV) Planning 2. Navigation Programming 3. Manual Descent 4. Autopilot Descent 5. SRM	1. Manage/Decide 2. Perform 3. Perform 4. Perform 5. Manage/Decide
Landings	1. Before Landing Procedures 2. IFR Landing Transition 3. Normal Landing 4. Maximum Performance Landing 5. Partial Flap Landing 6. Zero Flap Landing 7. Crosswind Landing 8. Traffic Pattern 9. Balked Landing and Go-Around 10. SRM	1. Manage/Decide 2. Perform 3. Perform 4. Perform 5. Perform 6. Perform 7. Perform 8. Perform 9. Perform 10. Manage/Decide
Aircraft Shutdown and Securing Procedures	1. Aircraft Shutdown and Securing 2. Aircraft Towing, Ground Handling and Tie-down	1. Perform 2. Perform
Automated Avionics Operation and Systems Interface	1. Pilot Flight Display 2. Multi Function Display-Normal Operation 3. EHSI Operation	1. Manage/Decide 2. Manage/Decide 3. Manage/Decide
Systems Management	1. Powerplant 2. Fuel 3. Electrical 4. Avionics/GPS Systems 5. Autopilot 6. Landing Gear 7. Ice Protection 8. Pressurization 9. Oxygen 10. SRM	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform 6. Perform 7. Perform 8. Perform 9. Perform 10. Manage/Decide
Navigation		
VOR	1. Tracking 2. Holding 3. Normal/Manual Approach 4. Single Engine Approach 5. Autopilot Coupled Approach 6. Circling Approach 7. DME Arc 8. SRM	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform 6. Perform 7. Perform 8. Manage/Decide
ILS	1. Normal/Manual 2. Single Engine 3. Autopilot Coupled Approach 4. Circling Approach 5. SRM	1. Perform 2. Perform 3. Perform 4. Perform 5. Manage/Decide
Localizer	1. Normal/Manual Approach 2. Single Engine 3. Back Course 4. Autopilot Coupled 5. Circling Approach 6. SRM	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform 6. Manage/Decide
GPS	1. Enroute 2. Holding	1. Perform 2. Perform

	3. Normal/Manual Approach 4. Single Engine Approach 5. Autopilot Coupled Approach 6. Circling Approach 7. SRM	3. Perform 4. Perform 5. Perform 6. Perform 7. Manage/Decide
Missed Approach	1. From Precision 2. From Non-Precision 3. From Circle 4. Single Engine 5. Use of Navaids 6. SRM	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform 6. Manage/Decide
Abnormal and Emergency Procedures		
Powerplant	1. Engine Fail Before Rotation 2. Engine Fail After Rotation 3. In flight Fail/Troubleshoot 4. Engine Securing 5. Single Engine Maneuvering 6. Glide 7. Engine Fire In Flight 8. Propeller Overspeed 9. SRM	1. Practice 2. Practice 3. Practice 4. Practice 5. Practice 6. Practice 7. Practice 8. Practice 9. Explain
Electrical	1. Alternator Fail 2. Electrical Fire 3. Battery Only Operations 4. SRM	1. Practice 2. Practice 3. Practice 4. Explain
Fuel	1. Engine Driven Fuel Pump Failure 2. Crossflow 3. SRM	1. Practice 2. Practice 3. Explain
Landing Gear	1. Unsafe Gear Indication 2. Emergency Extension 3. SRM	1. Practice 2. Practice 3. Explain
Flight Controls	1. Unscheduled Trim 2. Autopilot Failure 3. Flap Malfunction 4. SRM	1. Practice 2. Practice 3. Practice 4. Explain
Pressurization	1. Rapid Decompression 2. Door Seal 3. Emergency Descent 4. SRM	1. Practice 2. Practice 3. Practice 4. Explain
Flight Instruments	1. ADI Failure 2. HSI Failure 3. Airspeed Failure 4. Static System Blockage 5. SRM	1. Practice 2. Practice 3. Practice 4. Practice 5. Explain
Avionics	1. Communication Failure 2. Glide Slope Failure 3. PDF Failure 4. MFD Failure 5. GPS Failure 6. NAV ½ Failure 7. Smoke Removal 8. Ice Protection 9. Emergency Evacuation 10. SRM	1. Practice 2. Practice 3. Practice 4. Practice 5. Practice 6. Practice 7. Practice 8. Practice 9. Practice 10. Explain
Airmanship	1. Aircraft Control 2. Checklist/Memory Items 3. Smoothness In Handling	1. Perform 2. Perform 3. Perform

	4. Conduct In Emergencies 5. SRM	4. Practice 5. Manage/Decide
Special Emphasis Items	1. Collision Avoidance 2. Wake Turbulence Avoidance 3. LAHSO 4. Communication Management 5. Runway Incursion Awareness 6. Windshear 7. SRM	1. Manage/Decide 2. Manage/Decide 3. Manage/Decide 4. Perform 5. Manage/Decide 6. Manage/Decide 7. Manage/Decide
Instructional Technique		
Preparation	1. Weather/Flight Plan Review 2. Publications Review	1. Manage/Decide 2. Manage/Decide
Briefing	1. Technical and SRM Objectives 2. Technical & SRM Completion Standards 3. Safety Precautions 4. Checklist Procedures 5. Weight & Balance and Performance	1. Manage/Decide 2. Manage/Decide 3. Manage/Decide 4. Manage/Decide 5. Manage/Decide
Presentation	1. Preflight/Postflight Inspection 2. Technical Knowledge 3. Procedural Knowledge 4. SRM Knowledge 5. Scenario Progression 6. Demonstration Skills	1. Manage/Decide 2. Manage/Decide 3. Manage/Decide 4. Manage/Decide 5. Manage/Decide 6. Perform
Instructor	1. Enthusiasm/Sincerity/Honesty 2. Confidence	1. Perform 2. Perform
Speaking Technique	1. Voice/Expression 2. Vocabulary	1. Perform 2. Perform
Debriefing	1. Positive Reinforcement Used 2. Constructive Criticism Used 3. SRM Aspects Integrated 4. IT Input Encouraged	1. Perform 2. Perform 3. Perform 4. Perform
Client/Instructor Relations	1. Courtesy 2. Attitude	1. Perform 2. Perform
Adam Aircraft Policies	1. Knowledge 2. Compliance	1. Manage/Decide 2. Perform
Forms Completed	1. Training Records	1. Perform

LESSON 3 – Bringing It All Together

Objective

The IT, while teaching the Teaching Instructor in a role reversal situation, shall demonstrate proficiency in all critical action emergency procedures and a representative cross section of non-critical action emergency and normal procedures described in the A500 POH. The Teaching Instructor shall determine if the IT has acquired the knowledge and skill level that meets or exceeds the appropriate PTS in the A500. Emphasis shall not be placed on performing every situation, but by the IT's ability to safely act as the instructor while using **critical thinking skills**.

Prerequisites

1. Completion of assigned pre-flight written materials.
2. Completion of scenario training ground briefing.

Instructor in Training Preparation

Review the following:

1. Previous lesson
2. Areas of weakness
3. Prior planned flight profile using scenario assigned by Teaching Instructor
4. Normal and emergency procedures in the A500 POH
5. Airport information for departure and destination airports
6. Aircraft and avionics systems display and procedures

Briefing Items

INITIAL INTRODUCTION:

1. Weather
2. Flight profile
3. Command transfer and pre-takeoff briefing
4. Personal minimums

SRM

1. ADM
2. Task, automation and risk management
3. SA and CFIT awareness

SAFETY

1. Mid-air collision avoidance procedures
2. Appropriate NOTAMS
3. Airport diagrams and taxi procedures
4. Emergency procedures
5. Proper transfer of controls

Preflight Planning, Engine-Start and Taxi

This lesson shall be conducted as a multiple leg VFR and IFR cross country in which the IT alternates control of the aircraft with the Teaching Instructor on each leg. Positive transfer of control shall be demonstrated at all times. For those emergencies and specific maneuvers, if the IT is controlling the aircraft, he shall act as if he is demonstrating the maneuver to the Teaching Instructor for the first time, and the Teaching Instructor has been briefed on the maneuver but has never conducted that particular maneuver. Those times the Teaching Instructor is controlling the aircraft, the IT shall act as if the Teaching Instructor is conducting the particular maneuver for the first time and it has been demonstrated once.

The IT shall plan the cross-country flight from the position of a flight instructor developing a scenario-based lesson to conduct with a student in the A500.

Prior to the lesson, the IT shall brief the Teaching Instructor on all aspects of the scenario. This cross country-based scenario should be at least 3 legs and conducted in a manner that emphasizes judgment and decision making in ambiguous situations.

Prior to Takeoff

The IT should practice giving instruction during all preflight, engine start-up, avionics set-up, taxi, and before-takeoff procedures. The Teaching Instructor, without compromising safety, shall demonstrate improper use of systems and equipment. The IT should practice asking questions that facilitate the use of critical thinking skills. The IT should be able to skillfully teach the avoidance of runway incursions, high wind taxi situations, and abnormal indications and corrective actions. The IT should lead the Teaching Instructor in a discussion of risk factors that include, but are not limited to, weather, fuel burn, and personal limitations. The IT will be expected to begin using questions that facilitate the use of critical thinking skills. The Teaching Instructor will note appropriate insights related to the A500 aircraft missed by the IT during the debrief.

Normal Operations

While acting as the student, the Teaching Instructor shall facilitate the IT's use of judgment and aeronautical decision making as an instructor.

While this lesson will re-enforce the items previously learned; the Teaching Instructor will evaluate if the IT has the instructional knowledge needed to properly teach a student in the A500.

On the IFR leg, the Teaching Instructor indirectly guides the IT so that an instrument approach is performed, (as appropriate an ILS or GPS) at the first airport to a full stop landing.

On a VFR leg, the Teaching Instructor shall indirectly guide the IT so that a normal takeoff and autopilot-assisted departure can be demonstrated. In cruise, the Teaching Instructor acting as the student, will perform the improper procedures for a significant engine power loss, control surface failures, and a complete electrical failure. The IT's reaction as the "instructor" will then be evaluated.

The IT shall provide instruction on unusual attitude recovery, complete engine failure, and an emergency descent and a diversion to the home airport.

The IT, while practicing instruction, shall perform a GPS assisted VFR entry into the downwind pattern with an engine failure in the pattern, followed by a single engine landing to a full stop.

<u>After Landing</u>

With the IT acting as the instructor, a thorough debriefing of the entire flight must be conducted. A review of the IT's instructional decisions will lead to a discussion of how they could have been done differently.

Scenario Three

(note: these activities will be completed as part of the training scenario and are not intended to be a list of training tasks to be completed in numerical order)

Scenario Activities	***Scenario Sub Activities***	***Desired IT Scenario Outcome***
Flight Planning	1. Scenario Planning 2. Weight and Balance and Aircraft Performance Calculations 3. Preflight SRM Briefing 4. Decision Making and Risk Management	1. Perform 2. Perform 3. Manage/Decide 4. Perform
Normal Preflight and Cockpit Procedures	1. External Inspection 2. Internal Inspection 3. PFD/MFD/GPS/Autopilot Programming 4. SRM	1. Perform 2. Perform 3. Perform 4. Manage/Describe
Powerplant Start	1. Normal 2. External Power 3. Flooded Start 4. Hot Start	1. Perform 2. Perform 3. Perform 4. Perform
Start Malfunctions	1. Low Oil Pressure 2. Starter Engaged	1. Perform 2. Perform
Taxiing	1. Flight Instruments 2. SRM	1. Describe 2. Describe
Before Takeoff Checks	1. Alternators 2. Magnetos 3. Propellers 4. Trim/Autopilot 5. Pressurization 6. Ice Protection 7. Avionics Setup 8. SRM	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform 6. Perform 7. Perform 8. Manage/Decide
Takeoff	1. Normal/Visual 2. Instrument 3. Aborted Takeoff 4. Crosswind 5. Maximum Performance 6. Instrument Departure Procedure (DP) 7. SRM	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform 6. Perform 7. Manage/Decide
Climb Procedures	1. Automated climb 2. Manual climb 3. Navigation Programming 4. Power Management 5. SRM	1. Perform 2. Perform 3. Perform 4. Perform 5. Manage/Decide
Cruise Procedures	1. Fuel Management 2. Best Economy vs. Best Power 3. Manual Cruise 4. Autopilot Cruise 5. Navigation Programming 6. Automated navigation leg 7. SRM	1. Perform 2. Manage/Decide 3. Perform 4. Perform 5. Perform 6. Perform 7. Manage/Decide
Control Performance Instrument/Visual Crosscheck	1. Straight and Level 2. Normal Turns 3. Climbing and Descending Turns 4. Steep Turns	1. Perform 2. Perform 3. Perform 4. Perform
Low Speed Envelope	1. Configuration Changes	1. Perform

	2. Slow Flight 3. Approach to Stalls 4. Recovery from Autopilot Induced Stall 5. SRM	2. Perform 3. Perform 4. Perform 5. Manage/Decide
Descent Planning and Execution	1. Vertical Navigation (VNAV) Planning 2. Navigation Programming 3. Manual Descent 4. Autopilot Descent 5. SRM	1. Manage/Decide 2. Perform 3. Perform 4. Perform 5. Manage/Decide
Landings	1. Before Landing Procedures 2. IFR Landing Transition 3. Normal Landing 4. Maximum Performance Landing 5. Partial Flap Landing 6. Zero Flap Landing 7. Crosswind Landing 8. Traffic Pattern 9. Balked Landing and Go-Around 10. SRM	1. Manage/Decide 2. Perform 3. Perform 4. Perform 5. Perform 6. Perform 7. Perform 8. Perform 9. Perform 10. Manage/Decide
Aircraft Shutdown and Securing Procedures	1. Aircraft Shutdown and Securing 2. Aircraft Towing, Ground Handling and Tie-down	1. Perform 2. Perform
Automated Avionics Operation and Systems Interface	1. Pilot Flight Display 2. Multi Function Display-Normal Operation 3. EHSI Operation	1. Manage/Decide 2. Manage/Decide 3. Manage/Decide
Systems Management	1. Powerplant 2. Fuel 3. Electrical 4. Avionics/GPS Systems 5. Autopilot 6. Landing Gear 7. Ice Protection 8. Pressurization 9. Oxygen 10. SRM	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform 6. Perform 7. Perform 8. Perform 9. Perform 10. Manage/Decide
	Navigation	
VOR	1. Tracking 2. Holding 3. Normal/Manual Approach 4. Single Engine Approach 5. Autopilot Coupled Approach 6. Circling Approach 7. DME Arc 8. SRM	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform 6. Perform 7. Perform 8. Manage/Decide
ILS	1. Normal/Manual 2. Single Engine 3. Autopilot Coupled Approach 4. Circling Approach 5. SRM	1. Perform 2. Perform 3. Perform 4. Perform 5. Manage/Decide
Localizer	1. Normal/Manual Approach 2. Single Engine 3. Back Course 4. Autopilot Coupled 5. Circling Approach 6. SRM	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform 6. Manage/Decide
GPS	1. Enroute 2. Holding	1. Perform 2. Perform

	3. Normal/Manual Approach 4. Single Engine Approach 5. Autopilot Coupled Approach 6. Circling Approach 7. SRM	3. Perform 4. Perform 5. Perform 6. Perform 7. Manage/Decide
Missed Approach	1. From Precision 2. From Non-Precision 3. From Circle 4. Single Engine 5. Use of Navaids 6. SRM	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform 6. Manage/Decide
Abnormal and Emergency Procedures		
Powerplant	1. Engine Fail Before Rotation 2. Engine Fail After Rotation 3. In flight Fail/Troubleshoot 4. Engine Securing 5. Single Engine Maneuvering 6. Glide 7. Engine Fire In Flight 8. Propeller Overspeed 9. SRM	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform 6. Perform 7. Perform 8. Perform 9. Manage/Decide
Electrical	1. Alternator Fail 2. Electrical Fire 3. Battery Only Operations 4. SRM	1. Perform 2. Perform 3. Perform 4. Manage/Decide
Fuel	1. Engine Driven Fuel Pump Failure 2. Crossflow 3. SRM	1. Perform 2. Perform 3. Manage/Decide
Landing Gear	1. Unsafe Gear Indication 2. Emergency Extension 3. SRM	1. Perform 2. Perform 3. Manage/Decide
Flight Controls	1. Unscheduled Trim 2. Autopilot Failure 3. Flap Malfunction 4. SRM	1. Perform 2. Perform 3. Perform 4. Manage/Decide
Pressurization	1. Rapid Decompression 2. Door Seal 3. Emergency Descent 4. SRM	1. Perform 2. Perform 3. Perform 4. Manage/Decide
Flight Instruments	1. ADI Failure 2. HSI Failure 3. Airspeed Failure 4. Static System Blockage 5. SRM	1. Perform 2. Perform 3. Perform 4. Perform 5. Manage/Decide
Avionics	1. Communication Failure 2. Glide Slope Failure 3. PDF Failure 4. MFD Failure 5. GPS Failure 6. NAV ½ Failure 7. Smoke Removal 8. Ice Protection 9. Emergency Evacuation 10. SRM	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform 6. Perform 7. Perform 8. Perform 9. Perform 10. Manage/Decide
Airmanship	1. Aircraft Control 2. Checklist/Memory Items 3. Smoothness In Handling	1. Perform 2. Perform 3. Perform

	4. Conduct In Emergencies 5. SRM	4. Manage/Decide 5. Manage/Decide
Special Emphasis Items	1. Collision Avoidance 2. Wake Turbulence Avoidance 3. LAHSO 4. Communication Management 5. Runway Incursion Awareness 6. Windshear 7. SRM	1. Manage/Decide 2. Manage/Decide 3. Manage/Decide 4. Perform 5. Manage/Decide 6. Manage/Decide 7. Manage/Decide
Instructional Technique		
Preparation	1. Weather/Flight Plan Review 2. Publications Review	1. Manage/Decide 2. Manage/Decide
Briefing	1. Technical and SRM Objectives 2. Technical & SRM Completion Standards 3. Safety Precautions 4. Checklist Procedures 5. Weight & Balance and Performance	1. Manage/Decide 2. Manage/Decide 3. Manage/Decide 4. Manage/Decide 5. Manage/Decide
Presentation	1. Preflight/Postflight Inspection 2. Technical Knowledge 3. Procedural Knowledge 4. SRM Knowledge 5. Scenario Progression 6. Demonstration Skills	1. Manage/Decide 2. Manage/Decide 3. Manage/Decide 4. Manage/Decide 5. Manage/Decide 6. Perform
Instructor	1. Enthusiasm/Sincerity/Honesty 2. Confidence	1. Perform 2. Perform
Speaking Technique	1. Voice/Expression 2. Vocabulary	1. Perform 2. Perform
Debriefing	1. Positive Reinforcement Used 2. Constructive Criticism Used 3. SRM Aspects Integrated 4. IT Input Encouraged	1. Perform 2. Perform 3. Perform 4. Perform
Client/Instructor Relations	1. Courtesy 2. Attitude	1. Perform 2. Perform
Adam Aircraft Policies	1. Knowledge 2. Compliance	1. Manage/Decide 2. Perform
Forms Completed	1. Training Records	1. Perform

Section 5 - FITS Master Learning Outcomes List

TAA 01	**Single Pilot Resource Management (SRM)**	
Unit Objective – Demonstrates safe and efficient operations by adequately managing all available resources.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1.Task Management (TM)	Note: All tasks under SRM will be embedded into the curriculum and the training will occur selectively during all phases of training. SRM will be graded as it occurs during the training scenario syllabus.	Prioritize and select the most appropriate tasks (or series of tasks) to ensure successful completion of the training scenario.
2. Automation Management (AM)		Program and utilize the most appropriate and useful modes of cockpit automation to ensure successful completion of the training scenario.
3. Risk Management (RM) and Aeronautical Decision Making (ADM)		Consistently make informed decisions in a timely manner based on the task at hand and a thorough knowledge and use of all available resources.
4. Situational Awareness (SA)		Be aware of all factors such as traffic, weather, fuel status, aircraft mechanical condition, and pilot fatigue level that may have an impact on the successful completion of the training scenario.
5. Controlled Flight Into Terrain (CFIT) Awareness		Understand, describe, and apply techniques to avoid CFIT encounters: a. During inadvertent encounters with Instrument Meteorological Conditions during VFR flight b. During system and navigation failures and physiological incidents during IFR flight

TAA 02 Flight Planning		
Unit Objective – Develop thorough and successful preflight habit patterns for flight planning, performance, weight and balance, and normal and emergency single pilot resource management.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Flight Training Scenario Planning	Preflight planning	a. Review the required elements of the appropriate flight training scenario. b. Decide on the optimum route and sequence of events to accomplish all required tasks. c. Obtain all required charts and documents. d. Obtain and analyze an FAA approved weather briefing appropriate to the scenario to be flown. e. File a flight plan (VFR/IFR) for the scenario to be flown.
2. Weight and Balance and Aircraft Performance Computation	a. Classroom training b. Preflight planning	Perform weight and balance and performance computations for the specific training scenario to be flown without error.
3. Preflight SRM Briefing	Preflight planning	a. Orally review in specific terms all aspects of the flight scenario. b. Identify possible emergency and abnormal procedures relevant to the scenario and describe successful SRM strategies to deal with them.
4. Decision Making and Risk Management	a. Pre-Arrival-eLearning b. Classroom Training c. All phases of flight planning and flight	a. Make sound decisions based on a logical analysis of factual information, aircraft capability, and pilot experience and skill. b. Continuously critique the success of the flight scenario. c. Adjust the training scenario to maintain flight safety at all times.

TAA 03	Normal Preflight & Cockpit Procedures	
Unit Objective – Aircraft familiarization, checklists, cockpit procedures and PFD/GPS/MFD and autopilot operation.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Normal Pre-takeoff Checklist procedures	a. Pre-arrival – eLearning b. Pre-flight briefing c. Actual aircraft pre-flight	a. Perform normal exterior inspection by reference to the written checklist. b. Perform normal interior preflight inspection, engine start, taxi, before takeoff checklists by reference to the MFD. c. Perform all checklists in the proper sequence and without error.
2. PFD/MFD/GPS Autopilot Programming	a. Pre-arrival – eLearning b. Pre-flight briefing c. Actual aircraft pre-flight	a. Perform PFD/AHRS initialization. b. Perform autopilot pre-flight checks. c. Program all the GPS and MFD according to the Cirrus POH for the specific training scenario to be flown.

TAA 04	Engine Start and Taxi Procedures	
Unit Objective – Demonstrate the proper Engine Start and Taxi Procedures for the A500.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Engine Start	a. Pre-arrival – eLearning b. Actual aircraft pre-flight	a. Demonstrate the correct procedures for engine start under all conditions. b. Demonstrate the correct emergency procedures associated with engine start. c. Successfully start the engine.
2. Taxi	a. Pre-arrival – eLearning b. Actual aircraft pre-flight	a. Understand the proper technique to control the aircraft using differential braking and power. b. Successfully taxi the aircraft.
3. SRM/Situational Awareness	a. Pre-arrival – eLearning b. Pre-flight briefing c. Actual aircraft pre-flight	a. Understand the capability of the MFD/GPS to aid in low visibility/congested airport taxi situations. b. Demonstrate the proper visual clearing techniques during all taxi operations.

TAA 05	Before Takeoff Checks	
Unit Objective – demonstrate the proper pre-takeoff procedures for the A500.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Normal and Abnormal Indications	a. Pre-arrival – eLearning b. Actual aircraft pre-flight	a. Complete all Pre- Takeoff checklist items correctly and in the proper sequence. Identify normal and abnormal systems indications using the MFD and the POH.
2. Aircraft Automation Management	a. Pre-arrival – eLearning b. Actual aircraft pre-flight	Correctly configure and program the PFD /MFD /HSI /GPS/ Autopilot for the departure.
3. Aeronautical Decision Making/Risk Management		Make the correct go / no-go decision based on the status of the aircraft, pilot, and the weather.

TAA 06	Takeoff	
Unit Objective – demonstrate the proper takeoff procedures for the A500		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Normal takeoff	a. Pre-Flight briefing b. In-Flight from lineup on the runway through flap reduction	Perform a normal takeoff within the PTS standards.
2. Crosswind takeoff		Perform a crosswind takeoff within the PTS standards.
3. Aborted takeoff		Perform the aborted takeoff procedure within the PTS standard.
4. Soft Field/Short field Takeoff		Perform a Soft Field/Short Field Takeoff within the PTS standards.
5.Situational Awareness		a. Identify traffic, systems failures, and other developing situations that might prompt the performance of an aborted takeoff. b. Verbalize and prioritize those situations present during any given takeoff.
6.Aeronautical Decision Making/Risk management		Decide to continue or abort any given takeoff based on the actual situation or a simulated scenario created by the instructor.

TAA 07 Climb Procedures		
Unit Objective – demonstrate the proper climb procedures for the A500.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Manual Climb	a. Pre-Flight briefing b. In-Flight from flap retraction until after initial level-off at cruise altitude	a. Perform a hand flown climb and level-off within the PTS standards. b. Establishes pitch within the PTS standards.
2. Autopilot Climb		a. Perform an autopilot flown climb and level-off within the PTS standards. b. Establishes pitch attitude within the PTS standards.
3. Navigation Programming		Program the GPS/MFD to comply with the flight planned course and all ATC clearances.
4. Power management		Set appropriate power/engine leaning settings by reference to the MFD.
5. Situational Awareness, Task Management, and Decision Making		a. Identify all traffic, hazardous terrain, and potentially hazardous situation as they occur by reference to visual clearing and the MFD (if available and optioned). b. Perform all required in-cockpit tasks in such a manner that visual clearing is not impacted negatively. c. Make timely decisions based on information obtained visually, by radio, or by aircraft automation equipment.

TAA 08	**Cruise procedures**	
Unit Objective – demonstrate the proper cruise procedures for the A500.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Lean Assist MFD 2. Best Power vs. Best Economy	a. Pre-arrival – eLearning b. In Cruise Flight	Lean the engine using the Lean Assist procedures and the MFD.
3. Manual Cruise	.In Cruise Flight	a. Perform hand flown manual cruise within the PTS standards. b. Maintain altitude, within the PTS standards.
4. Autopilot Cruise		a. Perform an autopilot assisted cruise within the PTS. standards (for manual cruise) b. Maintain altitude within the PTS standards. c. Demonstrate the aircraft reaction to course changes programmed into the GPS/MFD.
5. Navigation Programming		Program flight plan changes into the GPS.
6. Automated Navigation Leg		a. In VFR conditions conduct a navigation leg of 30 minutes or more to a different airfield by use of the autopilot beginning at 1,000 ft AGL on departure and terminating autopilot use just prior to entry to the VFR pattern. b. In IFR conditions (or simulated IFR) conduct a navigation leg of 30 minutes or more to a different airfield by use of the autopilot beginning at 500 ft AGL on departure and terminating autopilot use at the decision altitude or missed approach point as applicable. If a missed approach is flown it will be flown by use of the autopilot.

7. Task Management, Situational Awareness, and Decision making		terrain, and potentially hazardous situations as they occur by reference to visual clearing and the MFD (if available and optioned) b. Perform all required in-cockpit tasks in such a manner that visual clearing is not impacted negatively c. Make timely decisions based on information obtained visually, by radio, or by aircraft automation equipment

TAA 09	**Control Performance Instrument/Visual crosscheck**	
Unit Objective – demonstrate the proper use of flight controls and Visual or PFD derived cues to perform basic flight maneuvers in the A500.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Straight and level 2. Normal Turns 3. Climbing and Descending Turns 4. Steep Turns (45 degree)	a. Pre-Flight briefing b. In Flight	a. Perform the maneuver by sole reference to the window within the PTS standard. b. Perform the maneuver by sole reference to the PFD within the PTS standard. c. Establish airspeed and altitude within the PTS standard.

TAA 10	**Low Speed Envelope**	
Unit Objective – recognize the onset of low speed flight regimes and demonstrate the proper use of flight controls and Visual or PFD derived cues to perform basic low speed flight maneuvers in the A500		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Configuration changes 2. Slow Flight	a. Pre-Flight briefing b. In Flight	Demonstrate slow flight within the PTS standard with the flaps in all possible flap positions and detents.
3. Recovery From Power –Off and Power -On Stalls		a. Demonstrate a recovery from a planned Power-Off or Power-On Stall with minimum altitude loss. b. Demonstrate a recovery from an instructor induced Power-On/Power-Off stall with minimum altitude loss.
4. Recovery from autopilot induced stall		Demonstrate a recovery from an autopilot induced stall with minimum altitude loss.
5. Stall Prevention, Situational Awareness, Task management, and Decision Making		a. Describe possible situations that might lead to an inadvertent stall and cockpit indications that would warn of an impending stall. b. Demonstrate pilot actions to avert the stall prior to its occurrence.

TAA 11	Descent Planning and Execution	
Unit Objective – demonstrate the proper descent procedures for the A500.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Automation management	a. Pre-Fight briefing b. Descent planning during the cruise leg and the descent itself from cruise altitude until just prior to flap extension for landing	a. Decide which automated features will be used during the descent and program them prior to beginning the descent. b. Monitor and update the automated features during the descent.
2. Vertical Navigation (VNAV) Planning		Use the descent features of the GPS and the map features of the MFD to plan a fuel efficient descent that avoids known obstacles and terrain.
3. Navigation Programming		Program the entire descent (VFR) and program and activate the desired approach and go-around (IFR).
4. Manual Descent		Perform a manual descent within PTS standards.
5. Autopilot Descent		Perform an autopilot descent within PTS standards (for a manual descent).
6. Task Management, Situational Awareness, CFIT Avoidance		Identify the most important data available from the PFD/MFD.

TAA 12	Landings	
Unit Objective – demonstrate landing procedures in the A500.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Before landing procedures	a. Pre-arrival – eLearning b. Pre-Flight Briefing c. In flight d. (VFR) flap extension to turning off the runway or return to pattern altitude in the event of a go-around e. (IFR) from 1,000 feet (stabilized approach until turning off the runway or climb to missed approach altitude	Perform all pre-landing checklist items correctly and in sequence.
2. IFR Landing Transition (Autopilot to manual and manual to Manual)		a. Demonstrate the proper transition from instrument. reference to visual reference b. Demonstrate the proper procedures for autopilot disengagement and transition to landing.
3. Normal landing		Perform a normal full flap landing within the PTS standards.
4. Soft and Short Field landing		Perform Soft and Short field landings within the PTS standards.
5. Partial Flap landing		Perform a partial flap landing within the PTS standards.
6. Zero Flap landing		Perform a zero flap landing within the PTS standards.
7. Crosswind landing		Perform a crosswind landing within the PTS standards.
8. Balked landing and Go-Around		a. Make a timely decision to go-around either in flight or after initial touchdown if the landing cannot be accomplished safely. b. Perform the balked landing procedure within the PTS standards.
9.Decision Making and Situational Awareness		a. Demonstrate awareness of all potential weather, traffic, and airfield factors that might impact the approach and landing. b. Make timely decisions to mitigate risks and ensure a successful approach and landing.

TAA 13	Aircraft Shutdown and Securing procedures	
Unit Objective – demonstrate proficiency shutting down and securing the A500.		
Performance	Conditions	
The training task is:	The training is conducted during:	The pilot in training will:
1. Aircraft Shutdown & Securing Checklist	Postflight	Demonstrate proficiency properly concluding a flight that includes engine shutdown and securing.
2. Aircraft Towing, Ground Handling, and Tiedown		Demonstrate proficiency properly concluding a flight that includes aircraft storage.

TAA 14	Automated Avionics Interface	
Unit Objective – demonstrate proficiency interfacing the avionics for flight operations.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Identification of Data/Power Sources a. Air Data failure b. AHRS failure c. Generator/battery failure	a. Pre-Arrival-eLearning b. Classroom c. Pre-flight d. In-flight	a. Understand data/power source failure modes that affect operation of the PFD. b. Identify specific failures and their associated cues.
2. Identification of PFD Failure Modes and corrective actions a. Invalid Sensor Data b. Invalid Heading c. Crosscheck Monitor d. Recoverable Attitude e. Invalid Attitude and Heading f. Complete/partial Electrical Power failure		Perform the appropriate corrective action for each malfunction.
3. Aircraft Automation Management		a. Understand and be able to correctly describe the interface between all the installed avionics systems in the aircraft. b. Demonstrate proficiency operating the Avionics installed on the aircraft as an integrated system.

TAA 15	GPS Operation and Programming	
Unit Objective – demonstrate proficiency with the GPS.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. VFR: Direct-To Function Nearest Function Airport Information Function Flight Plan Function	In-flight	Demonstrate proficiency using the GPS including the Direct-To, Nearest, and Airport Information functions.
2. IFR: Direct-To Function Nearest Function DP/STAR/Approach Function Flight Plan Function – Integration with PFD/MFD/Autopilot	a. Pre-flight b. In-flight	a. Demonstrate proficiency using the GPS including the Direct-To, Nearest, Airport Information, DP/STAR/Approach functions. b. Demonstrate proficiency flight planning the GPS and flying the flight plan.

TAA 16	Autopilot Programming, Modes, and Annunciators	
Unit Objective – demonstrate proper use of the autopilot.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Control Wheel Steering	In-flight	Demonstrate proper use of the control wheel steering.
2. LNAV and VNAV Programming	In-flight	Demonstrate proper use of the LNAV and VNAV functions of the autopilot.
3. Vertical Speed and Altitude Hold	In-flight	Demonstrate proper use of the vertical speed and altitude hold.
4. Navigation Modes	In-flight	Demonstrate proper use of the navigation modes of the autopilot.
5. Coupled Approach Modes	In-flight	Demonstrate proper use of the coupled approach modes of the autopilot.
6. Auto trim Mode	In-flight	Demonstrate proper use of the auto trim mode of the autopilot.
7. Flight Director/PFD Interface	In-flight	Demonstrate proper use of the flight director/PFD interfaces.

TAA 17	Automated Avionics Operation and Systems Interface	
Unit Objective – demonstrate proper use of the Avionics Interface including normal, abnormal, and emergency operations of the A500 and all installed avionics.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Pilot Flight Display	In-flight	Demonstrate proper use of the PFD during autopilot operation.
2. Multi Function Display Normal Operation Setup Pages Navigation Modes Traffic Mode Weather Modes Checklist Modes	a. Pre-flight b. In-flight c. Post-flight	Demonstrate proper use of the avionics interface during normal operations including setup, navigation, traffic, weather, and checklist.
3. Abnormal and Emergency Indications and Operations Navigation Modes Traffic Mode Weather Modes Checklist Modes	a. Pre-flight b. In-flight c. Post-flight	Demonstrate proper use of the avionics interface during abnormal and emergency operations including setup, navigation, traffic, weather, and checklist.
4. EHSI Operation	a. Pre-flight b. In-flight	Demonstrate proper setup, use, and operation.

TAA 18	Datalink Situational Awareness Systems and Additional Avionics Setup	
Unit Objective –demonstrate proper use of the EHSI and it's interface with other installed avionics.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Datalink Weather Setup and Operation	a. Pre-flight b. In-flight	a. Demonstrate the proper setup of the information and related displays. b. Demonstrate the proper decision making skills based on the information presented.
2. Datalink Traffic Setup and Operation	a. Pre-flight b. In-flight	a. Demonstrate the proper setup of the information and related displays. b. Demonstrate the proper decision making skills based on the information presented.
3. Terrain Display and Avoidance Systems Setup and Operation	a. Pre-flight b. In-flight	a. Demonstrate the proper setup of the information and related displays. b. Demonstrate the proper decision making skills based on the information presented.
4. Datalink Flight Plan and Traffic Control Systems Setup and Operation	a. Pre-flight b. In-flight	a. Demonstrate the proper setup of the information and related displays. b. Demonstrate the proper decision making skills based on the information presented.

TAA 19 **Emergency Escape Maneuvers/ Recovery from Unusual Attitudes and Upsets/**		
Unit Objective – demonstrate unusual attitude/upset recovery in the A500 and discuss the proper use of the BRS if installed.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. PFD	In-flight	Demonstrate unusual attitude recovery using the PFD to PTS standards.
2. Backup Instruments	In-flight	Demonstrate unusual attitude recovery using backup instruments to PTS standards.
3. Autopilot – Limitations of it use for recovery	a. Pre-flight b. In-flight	Demonstrate unusual attitude recovery using the autopilot to PTS standards.
4. Upset Training	In-flight	Demonstrate upset recovery using the PFD.
5. BRS Preflight In-flight Activation Post Deployment Procedures Reasons for Deployment	a. Pre-flight b. In-flight c. BRS Training Device	a. Demonstrate procedural knowledge proper use of BRS. b. Describe situations when it is appropriate to deploy the BRS and situations when it is not appropriate.
6. Engine Failure/Emergency Descent	a. Pre-flight b. In-flight c. BRS Training Device	a. Demonstrate procedures to be used during engine failure or situations requiring an emergency descent. b. When given a realistic scenario make an appropriate decision between landing the aircraft or deployment of the BRS system.
7. Emergency Escape Maneuvers, Risk management, and Decision Making	a. Pre-flight b. In-flight c. BRS Training Device	a. Understand the capabilities of the PFD, Autopilot, and BRS. b. Develop a problem solving matrix for use of all these systems when faced with IFR/VFR emergency procedures. c. Demonstrate the ability to make correct decisions when faced with IFR/VFR emergency conditions.

TAA 20 Instrument Approach Procedures (IFR Rated Pilots Only)		
Unit Objective – demonstrate IFR procedures and proficiency in the A500 using the installed equipment.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Manual ILS	a. Pre-arrival – eLearning b. Pre-flight Briefing c. In-flight	Perform the approach within the PTS standards.
2. Coupled ILS		Perform the approach within the PTS standards (for a manual approach).
3. Manual VOR		Perform the approach within the PTS standards.
4. Manual GPS		a. Program and activate the GPS approach in a timely manner. b. Perform the approach within the PTS standards.
5. Coupled VOR/GPS VNAV Approach		a. Program and activate the GPS/VNAV approach in a timely manner. b. Perform the GPS/VNAV approach within the PTS standards (for a manual approach).
6. Manual Missed Approach		Perform the missed approach within the PTS standards.
7. Autopilot Flown missed Approach		Perform the missed approach within the PTS standards (for a manual missed approach).
8. Procedure Turn		Demonstrate Procedure to PTS standards.
9. Holding		Demonstrate Instrument Holding to PTS standards.
10. Task Management and Decision making	In-flight	Demonstrate proper planning and prioritization of time between avionics programming and execution of IFR procedures.
11. Situational Awareness	In-flight	Demonstrate proper use of the MFD and HSI to maintain situational awareness during IFR procedures.

Section 6 - Flight Risk Assessment

Pilot

Factor	***VFR***	***IFR***	***Score***
Less than 100 hours in type	+2	+3	
Unfamiliar Destination	+1	+1	
Fatigue (less than normal sleep prior night)	+2	+3	
Flight at end of work day	+2	+3	
Scheduled commitment after flight	+2	+2	
Recent death of close family member	+2	+2	
Major domestic problems	+2	+2	
Illness in family	+1	+1	
Second pilot who is rated and current	-1	-1	
Alcohol within the last 24 hours	+2	+2	
Taking over the counter medications	+3	+3	
Inadequate food prior to flight	+2	+2	
Inadequate water prior to flight/no water on board	+2	+2	
Flight duration more than 3 hours	+2	+2	
Total			

Aircraft

Factor	VFR	IFR	Score
Fuel calculation completed for flight with reserves for day/night conditions	-1	-1	
Total fuel required for flight with reserves for day/night conditions less 60% of available fuel	-2	-3	
Weight and balance calculated	-1	-1	
Weight within 10% of maximum gross	+2	+2	
Takeoff or landing distance more than 50% of runway length	+2	+2	
Total			

Environment

Factor	**VFR**	**IFR**	**Score**
Visibility 3 to 5 miles	+2	0	
Visibility 1 to 3 miles	+3	0	
Destination visibility less than 1 mile	+20	+1	
Ceilings less than 3,000' AGL	+3	0	
Destination ceilings less than 1,000' AGL	+10	+1	
Destination ceilings less than 500' AGL +20	+1		
Convective activity within 20 NM of flight path	+5	+3	
Convective activity/no storm scope/detection capability	+10	+3	
Convective activity with detection capability	0	-2	
Destination dew point spread less than 3°	+5	+1	
No ice protection equipment, surface temperatures less than 40°F, and low clouds or precipitation	+30	+10	
Icing forecast (AIRMET more than light) at altitude required to fly with ice protection equipment	N/A	+2	
Operational control tower at destination	-2	-2	
VASI/PAPI at destination	-1	-1	
Radar environment at destination	-1	-1	
Mountainous terrain	+3	+3	
Approach/departure over water	+1	+1	
High bird hazard	+1	+1	
Unpaved runway	+1	+1	
IFR and only approach is non-precision	N/A	+2	
Weather reporting at airport	-1	-1	
Precipitation causing obstruction to visibility	+2	+1	
Wet runway	+1	+1	
Ice on runway	+2	+2	
Crosswind 90% of max POH	+2	+2	
Using flight following/radar advisories in high density traffic areas	-1	N/A	
On IFR flight plan during VFR conditions	-1	N/A	
Total			
Grand Total			

	VFR Grand Total	**VFR Action**	**IFR Grand Total**	**IFR Action**
Minimal	Less than 6	Go	Less than 7	Go
Low	6 to 8	Consider alternate actions	7 to 10	Consider alternate actions
Medium	9 to 14	Consult experienced CFI	11 to 15	Consult experienced CFI
High	More than 14	Don't Go	More than 15	Don't Go