FAA Industry Training Standards (FITS)

Scenario-based Transition Syllabus and Standards For Technically Advanced Piston Aircraft

Version 2.0 June, 2006

FITS TAA Transition Training Master Syllabus
Scenario-based Transition Guide

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Acknowledgements:

The Syllabus prepared by:

EMBRY-RIDDLE AERONAUTICAL UNIVERSITY

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And the FITS Launch Partners:

ECLIPSE AVIATION

CIRRUS DESIGN

elite Flight Center

How to use this generic FITS Syllabus

The generic FITS Transition Syllabus is a guide for aircraft manufacturers, pilot training providers, and flight schools for developing a specific FITS curriculum for their aircraft, geographic region, and customer base. The syllabus presents a series of five flight scenarios that should enable a pilot transitioning into a piston engine technically advanced aircraft (TAA) to master the aircraft, the technology, and, most importantly, the concepts of Risk Management and Aeronautical Decision-Making that provide the main challenge for single pilot operations in the National Airspace System.

To Instructors

Each lesson consists of a scenario description followed by a list of specific tasks to be accomplished by the student. Each scenario also includes a "learning centered" set of grading criteria. The Pilot in Training (PT) and instructor are free to plan all the training activities within the confines of each scenario in a way that supports the overall scenario flow, and provides a realistic representation of real world, day-to-day flying.

To Pilots in Training (PT)

The emphasis of each scenario is on PT planning and execution of each scenario, with minimal help from the instructor. The value of scenario-based training is in the opportunities it provides to plan, execute, and respond to changing situations in a more meaningful way.

To Aircraft Manufacturers, Training providers, and Flight Schools

This generic syllabus is a guide for you to use in developing your specific transition curriculum. FITS "recognition" and "acceptance" is achieved by developing your specific curriculum and submitting it to:

FITS Program Manager, AFS-800
800 Independence Avenue, SW, Washington DC, 20591
202 -267-8212

Use of the FITS logo

You are free to use the FITS Logo on those curriculums that are recognized and accepted by the FAA FITS Program Manager and in your advertising regarding those specific curriculums. The FITS logo will not be used for non-FITS products.

Section 1 - FITS Introduction

FAA Industry Training Standards (FITS)

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

FITS Transition Training Mission Statement:

Improve pilot training to enable pilots to more safely, competently, and efficiently operate a Technically Advanced Aircraft (TAA) in the National Airspace System (NAS).

FITS "Essentials":

Pilot training in TAA requires an emphasis on realistic scenario-based training that will develop essential risk management skills, decision-making skills, and other higher-order thinking skills that are crucial in helping to reduce the general aviation (GA) fatal accident rate. Reduction of the GA fatal accident rate is one of the cornerstones of the FAA's "SAFER SKIES" initiative. FITS scenario-based training will also involve training for new communication, navigation and surveillance (CNS) systems, related airspace and procedures, and the problem of new-entrant pilots flying for transportation purposes

FITS recognizes the variety of advanced technology systems and the different combinations and permutations of these systems-

- Within a type of system (e.g. different operations of GPS navigators)
- Within categories of advanced technology systems such as a-
    - Primary Flight Display (PFD) that normally includes the following primary information on a single display:
        - Attitude
        - Heading
        - Altitude
        - Airspeed
        - Navigation (HSI, bearing, course, ground speed, etc.)
    - Multi Function Display (MFD) that could include any combination of the following information on a single display:
        - Traffic
        - Weather
        - Terrain
        - Navigation (bearing, course, ground speed, ETA, Sectional, Enroute or Terminal Approach charts, etc.)
    - Autopilot

FITS Training Goals

The advancement of:

- Higher Order Thinking
    - Risk Management
    - Aeronautical Decision-Making
    - Situational Awareness (SA)
    - Pattern Recognition (Emergency Procedure) and Decision-Making
- Aircraft Systems Competence
- Planning and Execution
- Procedural Knowledge
- Motor skills that do not require higher cognitive thinking before taking action (i.e. Psychomotor Skills.)

Section 2 - FITS Terminology/Definitions

Key Terms

Technically Advanced Aircraft (TAA) – is a general aviation aircraft that contains a GPS navigator with a moving map display, plus any additional systems. Traditional systems such as autopilots when combined with GPS navigators are included. It includes aircraft used in both VFR and IFR operations, with systems certified to either VFR or IFR standards. Note: there will be application to non-TAAs.

Light Turbine TAA – is a jet or turboprop TAA certified for single-pilot operations, weighing 12,500 lbs or less, that may be equipped with cabin pressurization, and may be capable of operating in Class A airspace on normal mission profiles.

Scenario-based Training (SBT) – is 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. The appropriate term should appear with the term "Scenario-based," e.g., "Scenario-based Transition Training," to reflect the specific application.

Single Pilot Resource Management (SRM) – is the “art and science” of managing all resources available to a single-pilot to ensure the successful outcome of the flight.

Related Terms and Abbreviations

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

Automated Navigation leg – is a flight of 30 minutes or more conducted between two 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 beginning from 1,000 ft above ground level (AGL) on the departure until the 45-degree entry to the downwind leg in the VFR airport traffic pattern.

An *IFR Automated Navigation Leg* is flown on autopilot beginning from 500 ft AGL on departure (unless the limitations of the autopilot require a higher altitude, then from that altitude) until reaching the decision altitude or missed approach point on the instrument approach (unless the limitations of the autopilot require a higher altitude, then from that altitude). If a missed approach is flown, it will also be flown using the autopilot and on-board navigation systems.

Automation Competence – is the demonstrated ability to understand and operate the automated systems installed in the aircraft.

Automation Surprise – occurs when the automation behaves in a manner that is different from what the operator is expecting.

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

Candidate Assessment – is a system of critical thinking and skill evaluations designed to assess a student's readiness to begin training at the appropriate level.

Critical Safety Tasks/Events – are those mission related tasks/events that, if not accomplished quickly and accurately, may result in aircraft damage, injury, or loss of life.

Data link Situational Awareness (SA) Systems – are 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.

Desired Pilot in Training (PT) Scenario Outcomes - Learner Centered Grading

(1) The objective of scenario-based training is a change in the thought processes, habits, and behaviors of the learners during the planning and

execution of the scenario. Since the training is learner centered, the success of the training is measured in the following desired outcomes.

(a) Maneuver, Skill or Task Grades

- Describe – at the completion of the scenario, the PT will be able to describe the physical characteristics and cognitive elements of the scenario activities. *Instructor assistance is required to successfully execute the maneuver.*
- Explain – at the completion of the scenario the learner will be able to describe the scenario activity and understand the underlying concepts, principles, and procedures that comprise the activity. *Instructor assistance is required to successfully execute the maneuver.*
- Practice – at the completion of the scenario the learner will be able to plan and execute the scenario. *Some coaching, instruction, and/or assistance from the instructor are required to correct deviations and errors.*
- Perform – at the completion of the scenario, the learner will be able to perform the activity without assistance from the instructor. *Errors and deviations will be identified and corrected by the learner 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 learner is satisfactorily demonstrating proficiency in piloting and systems operation skills.
- Not Observed – Any event not accomplished or required.

(b) Single Pilot Resource Management (SRM) Grades

- Explain – the learner can verbally identify, describe, and understand the risks inherent in the flight scenario. *The* learner *will need to be prompted to identify risks and make decisions.*
- Practice – the learner is able to identify, understand, and apply SRM principles to the actual flight situation. *Coaching, instruction, and/or assistance from the instructor will quickly correct minor deviations and errors identified by the instructor.* The learner will be an active decision maker.
- Manage/Decide - the learner can 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. *Instructor intervention is not required for the safe completion of the flight.*
- Not Observed – Any event not accomplished or required.

(2) Grading will be conducted independently by the learner and the instructor, and then compared during the post flight critique.

(3) Learner centered grading is a vital part of the FITS concept. Traditional syllabi and curriculum have depended on a grading scale designed to maximize learner

management and ease of instructor use. Thus the traditional: "excellent, good, fair, poor" or "exceeds standards, meets standards, needs more training" often meet the instructor's needs but not the learner's. The learner centered grading described above is a way for the instructor and learner to determine the learner's level of knowledge and understanding. "Perform" is used to describe proficiency in a skill item such as an approach or landing. "Manage-Decide" is used to describe proficiency in the SRM area such as ADM.

(4) Grading should be progressive. During each flight, the learner should achieve a new level of learning (e.g. flight one, the automation management area, might be an "explain" item, by flight three a "practice" item, and by flight five a "manage-decide" item.

Emergency Escape Maneuver – is a maneuver (or series of maneuvers) performed manually or with the aid of the aircrafts automated systems that will allow a pilot to successfully escape from an unanticipated flight into Instrument Meteorological Conditions (IMC) or other life-threatening situation.

Mission Related Tasks – are those tasks required for the safe and effective accomplishment of the mission.

Multi-Function Display (MFD) – is a device that combines primarily navigation, systems, and situational awareness (SA) information onto a single electronic display.

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

Proficiency Based Qualification – is a qualification based on demonstrated performance rather than other flight time or experience.

Simulation – is any use of animation and/or actual representations of aircraft systems to simulate the flight environment. PT interaction with the simulation and task fidelity for the task to be performed are required for effective simulation.

Training Only Tasks – are training maneuvers that, while valuable to the PT's ability to understand and perform a mission related task, are not required for the PT to demonstrate proficiency. However, instructor pilots would be required to demonstrate proficiency in training-only tasks.

Section 3 - FITS TAA Transition Master Syllabus

Over the years, the airlines and the military have shifted their training philosophy toward a "train the way you will fly in the real world and fly the way you trained" approach to satisfy their flight training requirements. The airlines refer to this training approach as Line Oriented Flight Training (LOFT), which is now considered doctrine in the air carrier community.

The complexity of the national airspace under the FAA's Operational Evolution Plan (OEP) along with the introduction of new cockpit technologies make the idea of LOFT, or "scenario-based" flight training, an idea that demands serious consideration from the general aviation (GA) community.

> *The challenge is to develop an adaptable flight training system that will not only maintain but will greatly improve the safety and utility of increasingly complex (GA) flight operations*. (Wright, 2002)

> *The concept of "scenario-based" flight training is attracting considerable support. This training approach, when coupled with state-of-the-art simulation and curricula, would be ideally suited to preparing GA pilots for operations in an increasingly complex national airspace system. In particular, it could provide an effective bridge between the training environment and the actual environment pilots will experience. The concept also provides a way for trainees to integrate various phases of training into a unified flight operation. Rather than, for example, conducting practice instrument approaches repeatedly, scenario-based training may enable a pilot to experience the complete transition from enroute to terminal to approach operations.* (Wright, 2002)

GOAL

The goal of Transition Training is to prevent accidents by ensuring pilots have proper training in the specified systems and operating characteristics of every airplane model they fly. Transition Training, therefore, concentrates on those areas where the pilot will encounter something that is distinctive or unique to that airplane model. No attempt is made to review general piloting knowledge or skills that would be the same in any airplane. Instruction in these areas is highly beneficial, but should be accomplished through other means.

MASTER SYLLABUS

This Master Syllabus document is a general outline of the items to be included in the ground and flight training of pilots transitioning into technically advanced aircraft (TAA). The Master Syllabus should be used to develop a Transition Training Guide for a specific airplane. "Specific airplane" includes airplane models that are sufficiently similar so that a pilot trained or experienced in one airplane model would not normally require Transition Training to operate another model.

TRANSITION TRAINING GUIDES

A Transition Training Guide is written for a specific airplane and is based on the Master Syllabus. Any person or company such as a certificated flight instructor, training organization, manufacturer, or aviation publisher may produce it. It can be very specific or may be only an outline that refers to the Pilot's Operating Handbook (POH) or FAA-approved Airplane Flight Manual (AFM).

Because the sequence of training may need to be altered to accommodate individual progress or special circumstances, the training guide/syllabus should be flexible. As complexity varies between airplane models, developers of Transition Training Guides may find it necessary to expand upon the information described herein. If the prescribed sequence of training is changed, it is the responsibility of the pilot training school or instructor to make sure that all necessary training is accomplished.

IFR TRANSITION TRAINING

Certain maneuvers in the flight section are prescribed as "IFR only". These maneuvers are required only for instrument rated pilots. They are included so that an instrument rated pilot in training (PT) may practice key IFR maneuvers in an unfamiliar airplane under the supervision of an instructor. PTs that are instrument rated and elect not to perform the IFR maneuvers, or PTs who are not instrument rated (VFR only) will receive a "VFR" endorsement in their logbook when training is satisfactorily completed. This type of endorsement indicates that only VFR transition training was completed. The presence or absence of this endorsement does not legally affect the pilot's instrument privileges in any airplane.

COURSE ELEMENTS

Scenario-based flight training (SBT) represents a non-traditional approach to GA pilot training. The most significant shift is observed in the move away from the traditional practice of analyzing a maneuver and breaking it down into manageable chunks, establishing behavioral objectives, and measuring performance based on those objectives. SBT uses the same maneuvers, for the most part, but attempts to arrange or script them into more "real world" learning experiences. Practice of the task remains the cornerstone of skill acquisition, but the shift is away from meaningless drill in the practice area toward meaningful application as a part of a normal flight activity.

While the traditional approach to civilian flight training certainly has served the industry, there is ample evidence of the need for modifications to our traditional perspectives on developing safe, competent and efficient pilots. The traditional approach to pilot training is driven by regulations that use flight hours and the ability to fly maneuvers within certain parameters as the benchmark of competency. The emphasis during training is on individual psychomotor skill and, to a limited extent, pilot decision-making. After completion of training, the pilot goes on to fly in an environment that asks them to use skills, apply knowledge, and make decisions unassisted.

Consequently, traditional flight training curricula lack the continuity, consistency, and activities characteristic of the TAA of the future

While this Master Syllabus does not utilize the more traditional maneuver-based method of learning, it does attempt to provide a coordinated ground/flight sequence of training so that educational support materials are covered prior to the associated flight lessons. Additionally, the simple-to-complex "building block" approach is maintained in that each lesson increases in complexity and the PT is provided the opportunity to practice the maneuver in a "real world" flight experience.

STANDARDS

Several training items require a discussion of the limitations of an airplane component or system. In every airplane system, there are limitations based on two factors:

1. The capability of the equipment to perform a particular function and;
2. The individual pilot's ability to use that equipment.

Effective training and experience can enable safe operation of an airplane within its limitations. Some airplane systems are more complex and require a higher level of skill and interpretation. Pilot skills and knowledge vary with a pilot's total flight time, time-in-type, and recent flight training or experience. Therefore, pilots must be trained to recognize their personal limitations and the airplane's limitations.

Throughout the ground school and flight curriculum, emphasis should be placed on operating within airplane and pilot limitations. Risk management and decision-making skills should be especially emphasized. A discussion of limitations, as they apply to the PT's experience level, and with reference to potential problem areas, may prevent many accidents. For that reason, Transition Training Guides should include items that instructors may discuss with transitioning pilots concerning limitations of various systems, flight characteristics of the specific airplane, and how these items may apply to a particular pilot.

GROUND TRAINING

The ground-based segments of the Master Syllabus are an integral part of the SBT course and should be mastered prior to in-flight training. The PT should demonstrate, through written and oral review, the knowledge to safely operate the specific airplane using the Pilot's Operating Handbook (POH) or FAA-approved Airplane Flight Manual (AFM) and airplane checklists. All immediate-action emergency procedures must be committed to memory. The instructor will discuss each incorrect response with the pilot to ensure complete understanding.

FLIGHT TRAINING

Each lesson in the flight-training phase of the SBT course consists of a scripted scenario, and each scenario increases in complexity as the PT progresses through the course. The instructor and PT should use the scenario as a "lesson

plan" with the intent for the PT to study the plan and brief it as part of the pre-flight preparation.

The PT should demonstrate the necessary skill and experience required for the specific airplane. Operations must be accomplished within the parameters specified in the FAA Practical Test Standards (PTS) appropriate to the grade of PT's pilot certificate.

In addition, a PT who holds an instrument rating must demonstrate competency in the instrument maneuvers and procedures identified in the flight portion of the Master Syllabus within the parameters specified in the Instrument Rating PTS. If a PT chooses not to demonstrate competency in instrument flight in the specific airplane, the PT's logbook endorsement will indicate "VFR only". An instrument rated pilot with a "VFR only" logbook endorsement for Transition Training may remove the endorsement at a later date by completing the designated instrument maneuvers and training. The presence or absence of this endorsement does not legally affect the pilot's instrument privileges in any airplane.

Section 4 - FITS Scenario-based Transition Syllabus

LESSON 1

MASTER SYLLABUS - SCENARIO-BASED TRANSITION

OBJECTIVE

The Pilot in Training (PT) will demonstrate a basic knowledge and proficiency in avionics and aircraft system equipment location and normal operating procedures.

SCENARIO 1

Preflight

The PT will plan a short visual cross-country flight of about one hour or less in duration, to include a full stop landing an airport other than the departure airport.

The PT will perform all weight and balance and performance calculations, and describe his/her approach to management of the specific risks involved in this flight. The instructor will provide the necessary guidance to insure that the overall plan provides for all the scenario activities and sub-activities listed for this lesson. The PT is evaluated on the ability to plan a comprehensive flight with conscious attention to all the required scenario activities.

The PT will perform all preflight procedures, engine start-up, avionics set-up, and taxi and before-takeoff procedures for each leg of the scenario. This will include GPS flight plan programming for the flight as well as MFD and PFD setup and an effective pre-takeoff briefing.

The preflight activities will be accomplished prior to takeoff for each leg of the flight

Leg 1

The PT will perform a normal takeoff and departure to a safe altitude. When established in the departure, the autopilot will be engaged. Climbing turns will be performed during the departure using the autopilot with a transition to VFR cruise. Aircraft systems, avionics and autopilot functions will all be practiced during cruise, descent and normal landing phase of the flight. The VNAV function will be used for the descent and the instrument rated PT will execute a coupled ILS approach. The VFR PT will perform a normal descent and pattern transition followed by a normal approach and landing to a full stop.

Leg 2

A different route will be programmed into the GPS flight plan for the return trip and an actual or simulated crosswind takeoff will be performed. After the aircraft is established in cruise the autopilot will be turned off and the flight continued in the manual mode with continued practice of aircraft systems and avionics. Airspeed and configuration changes are practiced during cruise. At some point on the return trip the flight will proceed to a designated “practice” area to

accomplish steep turns, slow flight, the stall recognition and recovery series, and unusual attitude recovery.

The PT will use the GPS “direct” page to proceed to the destination, perform a manual descent, and transition to a manual ILS approach with a missed approach, a go-around and a crosswind landing. For VFR PTs, a visual approach and unplanned go-around will be performed.

Post-flight

The PT will perform all aircraft shutdown and securing procedures.

PREREQUISITES

Completion of training provider’s pre-training packet corrected to 100%.

Completion of a quiz for normal operating procedures, aircraft systems, and avionics corrected to 100%

PT PREPARATION

Review the following:

a. Normal operating procedures in the POH or approved AFM
b. A worksheet on systems and procedures
c. Airport information for departure and destination airports.
d. Route of flight information for both trips.
e. Aircraft and avionics systems display and procedures.

BRIEFING ITEMS

A. INITIAL INTRODUCTION:

PTs 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.

B. SINGLE-PILOT RESOURCE MANAGEMENT (SRM)

1. Checklist procedures.
2. Avionics systems to be used during this flight.
3. Radio procedures.
4. Operating procedures

C. SAFETY

The following safety items should be briefed to all PTs

1. Mid-air collision avoidance procedures
2. Taxi 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)

Learner Centered Grading - Desired Scenario Outcomes

(1) The objective of scenario-based training is a change in the thought processes, habits, and behaviors of the learners during the planning and execution of the scenario. Since the training is learner centered, the success of the training is measured in the following desired outcomes.

(a) Maneuver, Skill or Task Grades

- Describe – at the completion of the scenario, the PT will be able to describe the physical characteristics and cognitive elements of the scenario activities. *Instructor assistance is required to successfully execute the maneuver.*
- Explain – at the completion of the scenario the learner will be able to describe the scenario activity and understand the underlying concepts, principles, and procedures that comprise the activity. *Instructor assistance is required to successfully execute the maneuver.*
- Practice – at the completion of the scenario the learner will be able to plan and execute the scenario. *Some coaching, instruction, and/or assistance from the instructor are required to correct deviations and errors.*
- Perform – at the completion of the scenario, the learner will be able to perform the activity without assistance from the instructor. *Errors and deviations will be identified and corrected by the learner 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 learner is satisfactorily demonstrating proficiency in piloting and systems operation skills.
- Not Observed – Any event not accomplished or required.

(b) Single Pilot Resource Management (SRM) Grades

- Explain – the learner can verbally identify, describe, and understand the risks inherent in the flight scenario. *The* learner *will need to be prompted to identify risks and make decisions.*
- Practice – the learner is able to identify, understand, and apply SRM principles to the actual flight situation. *Coaching, instruction, and/or assistance from the instructor will quickly correct minor deviations and errors identified by the instructor.* The learner will be an active decision maker.
- Manage/Decide - the learner can 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. *Instructor intervention is not required for the safe completion of the flight.*

- Not Observed – Any event not accomplished or required.

(2) Grading will be conducted independently by the learner and the instructor, and then compared during the post flight critique.

(3) Learner centered grading is a vital part of the FITS concept. Traditional syllabi and curriculum have depended on a grading scale designed to maximize learner management and ease of instructor use. Thus the traditional: "excellent, good, fair, poor" or "exceeds standards, meets standards, needs more training" often meet the instructor's needs but not the learner's. The learner centered grading described above is a way for the instructor and learner to determine the learner's level of knowledge and understanding. "Perform" is used to describe proficiency in a skill item such as an approach or landing. "Manage-Decide" is used to describe proficiency in the SRM area such as ADM.

(4) Grading should be progressive. During each flight, the learner should achieve a new level of learning (e.g. flight one, the automation management area, might be an "explain" item, by flight three a "practice" item, and by flight five a "manage-decide" item.

Scenario Activities	Scenario Sub Activities	Desired PT Scenario Outcome
Flight Planning	1. Scenario Planning 2. Weight and Balance and Aircraft Performance Calculations 3. Preflight SRM Briefing 4. Decision-Making (DM) and Risk Management (RM)	1. Describe 2. Explain 3. Explain 4. Describe
Normal Preflight and Cockpit procedures	1. Normal Pre-Takeoff Checklist Procedures 2. GPS Programming 3. MFD Setup 4. PFD Setup	1. Practice 2. Describe 3. Describe 4. Describe
Engine Start and Taxi Procedures	1. Engine Start 2. Taxi 3. SRM/Situational Awareness (SA)	1. Practice 2. Practice 3. Describe
Before Takeoff Checks	1. Normal and Abnormal Indications 2. Aircraft Automation Management 3. Aeronautical Decision-making and Risk management	1. Describe 2. Describe 3. Describe

Takeoff (T/O)	1. Normal T/O 2. Crosswind T/O 3. SA 4. DM and RM	1. Practice 2. Practice 3. Describe 4. Describe
Climb procedures	1. Manual Climb 2. Autopilot Climb 3. Navigation programming 4. Power management 5. SA, Task Management (TM), and DM	1. Practice 2. Practice 3. Explain 4. Explain 5. Describe
Cruise Procedures	1. Lean Assist (if so equipped) 2. Best Power vs. Best Economy 3. Manual Cruise 4. Autopilot Cruise 5. Navigation programming 6. TM, SA, and DM	1. Describe 2. Describe 3. Practice 4. Practice 5. Explain 6. Describe
Control Performance Instrument /Visual Crosscheck Note: All items will be accomplished enroute during the scenario	1. Straight and level 2. Normal Turns 3. Climbing and Descending Turns	1. Practice 2. Practice 3. Practice
Low Speed Envelope and Steep Turns Note 1: Slow Flight and Stall Recovery may be accomplished enroute or in a practice area Note 2: Emphasis will be placed on stall prevention and recovery	1. Configuration Changes and Slow Flight 2. Recovery from Power Off Stalls 3. Recovery from Power On Stalls 4. Stall prevention, SA, TM, and DM 5. Steep Turns	1. Practice 2. Practice 3. Practice 4. Describe 5. Practice
GPS Operation and Programming	1. VFR (non instrument rated PT) a. Direct-To b. Nearest c. Airport Information d. Flight Plan 2. IFR (instrument rated PT) a. Direct-To b. Nearest c. Airport Information d. Approach Select e. Flight Plan	1. Describe 2. Describe
Autopilot Programming, Modes and Enunciators	1. Vertical Speed and Altitude Hold 2. Navigation Modes 3. Flight Director/PFD Interface	1. Practice 2. Explain 3. Describe
Avionics Operation	1. Pilot Flight Display (if installed 2. MFD Normal Operation a. Setup Pages b. Navigation Mode c. Checklist Mode 3. EHSI Operation	1. Describe 2. Practice 3. Practice

Avionics Interface	None for this Scenario	
Data link Situational Awareness Systems and Additional Avionics Setup	Data link Traffic Setup and operation	Describe
Emergency Escape Maneuvers, Emergency Procedures/Recovery from Unusual Attitudes and Upsets/Use of Ballistic Parachute Recovery System (BRS)	BRS	Describe
Descent Planning and Execution	1. Automation Management 2. VNAV Planning 3. Navigation programming 4. Manual Descent 5. Autopilot descent 6. TM, SA, and Controlled Flight Into Terrain (CFIT) Avoidance	1. Describe 2. Describe 3. Describe 4. Practice 5. Practice 6. Describe
Instrument Approach procedures (IFR Rated Pilot)	1. Manual ILS 2. Coupled ILS	1. Describe 2. Describe
Landing	1. Before landing procedures 2. Normal Landing 3. Crosswind landing 4. DM and SA	1. Practice 2. Practice 3. Explain 4. Describe
Aircraft Shutdown and Securing procedure	1. Aircraft Shutdown and Securing Checklist 2.Aircraft Tie down	1. Practice 2. Practice

LESSON 2
MASTER SYLLABUS - SCENARIO-BASED TRANSITION

OBJECTIVE

The PT will plan a flight that will provide for the practice of skills introduced in Lesson 1, and will safely and efficiently demonstrate maneuvers in a Technically Advanced Aircraft (TAA).

SCENARIO 2

The Instructor will provide feedback to the PT upon completion of each leg and guidance on the remained of the flight.

Preflight

The PT will plan a VFR cross-country flight with a return to the home airport after landings at 3 other airports. This flight should consist of 4 legs with a full-stop landing after each leg.

The PT will plan the flight profile and perform all preflight procedures, engine start-up, avionics set-up, taxi, before takeoff procedures before each leg of the flight. Runway incursions, high wind taxi situations, and abnormal indications and corrective actions are introduced and practiced. The PT will perform all radio communications for the flight.

Leg 1

The PT will perform a normal takeoff and departure to a safe altitude. When established in the departure phase, the autopilot will be engaged. Climbing turns and transition to cruise are practiced. Aircraft systems, avionics, and autopilot functions are practiced during cruise, descent, and normal landing phase of the flight. GPS navigation including flight plan pages is practiced during the first leg.

The PT will plan and conduct a normal descent and pattern transition with a short field landing to a full stop, including “Land and Hold Short Operations” (LAHSO).

Leg 2

A short field takeoff is performed followed by a manual (no autopilot) constant-rate climb and transition to cruise. Cruise procedures and Flight Plan modification are practiced on this phase of the scenario with a visual descent and transition into an airport within Class C airspace. The IFR PT will execute an autopilot-assisted GPS approach followed by a manual missed approach, and then vectors for a coupled ILS a missed approach remaining in the pattern for a soft field approach and landing to a full stop. The VFR PT will execute a GPS assisted entry and a soft field approach and landing to a full stop.

Leg 3

The PT will perform a soft field takeoff with an autopilot-assisted climb out and transition to cruise. The PT will practice use of the avionics system and will be introduced into uncomplicated emergencies during cruise. At some point during

this phase of the scenario, the PT will plan to deviate to a safe “practice area” to practice landing and departure configuration stall recognition and recovery, and recovery from unusual attitudes. The descent and transition into the traffic pattern will include a runway change with a crosswind landing to a full stop.

Leg 4
The PT will perform an aborted takeoff to a full stop, followed by a high performance takeoff to be selected by the Instructor with an autopilot-assisted climb and transition to cruise. The Instructor will select GPS and avionics procedures to be practiced enroute. The PT will perform a VNAV descent. The IFR PT will execute a manual VOR/GPS approach to a landing. The VFR PT will perform a GPS assisted entry and will select an approach procedure to a full-stop landing.

Post-flight

The PT will perform all aircraft shutdown and securing procedures.
Instructor will provide feedback and planning data to the PT for the next flight.

PREREQUISITES

- Completion of a Worksheet on aircraft Systems
- Completion of a progress Quiz on the material to be covered
- Completion of a Worksheet on Weight & Balance

PILOT IN TRAINING PREPARATION

- Review previous Lessons
- Review the AFM/ POH
- Plan flight profile using the scenario as listed above.

BRIEFING ITEMS

A. INITIAL INTRODUCTION:
   a. Weather
   b. Flight profile
   c. Command transfer and pre-takeoff briefing

B. SRM
   a. Avionics systems to be used during this flight
   b. Decision making

C. SAFETY
   a. Mid-air collision avoidance procedures
   b. Appropriate NOTAMS
   c. Airport diagrams and taxi procedures
   d. Emergency procedures

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)

Learner Centered Grading - Desired Scenario Outcomes

(1) The objective of scenario-based training is a change in the thought processes, habits, and behaviors of the learners during the planning and execution of the scenario. Since the training is learner centered, the success of the training is measured in the following desired outcomes.

(a) Maneuver, Skill or Task Grades

- Describe – at the completion of the scenario, the PT will be able to describe the physical characteristics and cognitive elements of the scenario activities. *Instructor assistance is required to successfully execute the maneuver.*
- Explain – at the completion of the scenario the learner will be able to describe the scenario activity and understand the underlying concepts, principles, and procedures that comprise the activity. *Instructor assistance is required to successfully execute the maneuver.*
- Practice – at the completion of the scenario the learner will be able to plan and execute the scenario. *Some coaching, instruction, and/or assistance from the instructor are required to correct deviations and errors.*
- Perform – at the completion of the scenario, the learner will be able to perform the activity without assistance from the instructor. *Errors and deviations will be identified and corrected by the learner 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 learner is satisfactorily demonstrating proficiency in piloting and systems operation skills.
- Not Observed – Any event not accomplished or required.

(b) Single Pilot Resource Management (SRM) Grades

- Explain – the learner can verbally identify, describe, and understand the risks inherent in the flight scenario. *The* learner *will need to be prompted to identify risks and make decisions.*
- Practice – the learner is able to identify, understand, and apply SRM principles to the actual flight situation. *Coaching, instruction, and/or assistance from the instructor will quickly correct minor deviations and errors identified by the instructor.* The learner will be an active decision maker.
- Manage/Decide - the learner can 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. *Instructor intervention is not required for the safe completion of the flight.*

- Not Observed – Any event not accomplished or required.

(2) Grading will be conducted independently by the learner and the instructor, and then compared during the post flight critique.

(3) Learner centered grading is a vital part of the FITS concept. Traditional syllabi and curriculum have depended on a grading scale designed to maximize learner management and ease of instructor use. Thus the traditional: "excellent, good, fair, poor" or "exceeds standards, meets standards, needs more training" often meet the instructor's needs but not the learner's. The learner centered grading described above is a way for the instructor and learner to determine the learner's level of knowledge and understanding. "Perform" is used to describe proficiency in a skill item such as an approach or landing. "Manage-Decide" is used to describe proficiency in the SRM area such as ADM.

(4) Grading should be progressive. During each flight, the learner should achieve a new level of learning (e.g. flight one, the automation management area, might be an "explain" item, by flight three a "practice" item, and by flight five a "manage-decide" item.

Scenario Activities	Scenario Sub-Activities	Desired PT Scenario Outcome
Flight Planning	1. Scenario Planning 2. Weight and Balance and Aircraft Performance Calculations 3. Preflight SRM Briefing 4. Decision-Making (DM) and Risk Management (RM)	1. Explain/Practice 2. Practice 3. Practice 4. Explain/Practice
Normal Preflight and Cockpit procedures	1. Normal Pre-Takeoff Checklist Procedures 2. GPS Programming 3. MFD Setup 4. PFD Setup	1. Practice 2. Explain/Practice 3. Explain/Practice 4. Explain/Practice
Engine Start and Taxi Procedures	1. Engine Start 2. Taxi 3. SRM and Situational Awareness (SA)	1. Perform 2. Perform 3. Explain
Before Takeoff Checks	1. Normal and Abnormal Indications 2. Aircraft Automation Management 3. DM and RM	1. Explain 2. Explain/Practice 3. Explain
Takeoff (T/O)	1. Normal T/O 2. Crosswind T/O 3. Aborted T/O 4. Soft Field/Short Field T/O 5. SA 6. DM and RM	1. Perform 2. Explain/Practice 3. Practice 4. Explain/Practice 5. Explain 6. Explain

Climb procedures	1. Manual Climb 2. Autopilot Climb 3. Navigation programming 4. Power management 5. SA, Task Management (TM), and DM	1. Perform 2. Practice 3. Practice 4. Practice 5. Explain
Cruise Procedures	1. Lean Assist (if so equipped) 2. Best Power vs. Best Economy 3. Manual Cruise 4. Autopilot Cruise 5. Navigation programming 6. Automated navigation leg 7. TM, SA, and DM	1. Explain/practice 2. Explain 3. Perform 4. Practice 5. Practice 6. Explain/practice 7. Explain
Control Performance Instrument /Visual Crosscheck Note: All items will be accomplished enroute during the scenario	1. Straight and level 2. Normal Turns 3. Climbing and Descending Turns	1. Perform 2. Perform 3. Perform
Low Speed Envelope and Steep Turns Note 1: Slow Flight and Stall Recovery may be accomplished enroute or in a practice area Note 2: Emphasis will be placed on stall prevention and recovery	1. Configuration Changes and Slow Flight 2. Recovery from Power Off Stalls 3. Recovery from Power On Stalls 4. Stall prevention, SA, TM, and DM 5. Steep Turns	1. Perform 2. Practice 3. Practice 4. Explain 5. Practice
GPS Operation and Programming	3. VFR (non instrument rated PT) a. Direct-To b. Nearest c. Airport Information d. Flight Plan 4. IFR (instrument rated PT) a. Direct-To b. Nearest c. Airport Information d. Approach Select e. Flight Plan	1. Explain/Practice 2. Explain/practice
Autopilot Programming, Modes and Annunciations	1. LNAV Programming 2. Vertical Speed and Altitude Hold 3. Navigation Modes 4. Coupled Approach Modes 5. Auto Trim Modes 6. Flight Director/PFD Interface	1. Explain/Practice 2. Practice 3. Practice 4. Describe 5. Explain 6. Explain
Avionics Operation	1. Pilot Flight Display (if installed 2. MFD Normal Operation a. Setup Pages b. Navigation Mode c. Checklist Mode 3. EHSI Operation	1. Explain/Practice 2. Explain/practice 3. Explain/Practice

Avionics Interface	None for this Scenario	
Data link Situational Awareness Systems and Additional Avionics Setup	Data link Traffic Setup and operation	Explain/Practice
Emergency Escape maneuvers, Emergency Procedures/Recovery from Unusual Attitudes and Upsets/Use of Ballistic Recovery System(BRS), if installed	BRS	Explain
Descent Planning and Execution	1. Automation Management 2. VNAV Planning 3. Navigation programming 4. Manual Descent 5. Autopilot descent 6. TA, SA, Controlled Flight Into Terrain (CFIT) Avoidance	1. Explain/Practice 2. Explain 3. Practice 4. Perform 5. Practice 6. Explain
Instrument Approach procedures (IFR Rated Pilot)	1. Manual ILS 2. Coupled ILS 3. Manual VOR 4. Manual GPS 5. Autopilot Assisted VOR/GPS VNAV Approach 6. Manual Missed Approach 7. Autopilot Assisted Missed Approach 8. Procedure Turn 9. Holding 10. Task management and decision making	1. Practice 2. Explain/Practice 3. Practice 4. Practice 5. Explain 6. Practice 7. Explain 8. Practice (Optional) 9. Practice (Optional) 10. Explain
Landing	1. Before landing procedures 2. IFR Landing Transition 3. Normal Landing 4. Soft and Short field landing 5. Crosswind landing 6. ADM and SA 7. Land and Hold Short Operations (LAHSO)	1. Practice 2. Explain/practice 3. Practice 4. Practice (Optional) 5. Practice (Optional) 6. Explain 7. Perform
Aircraft Shutdown and Securing procedure	1. Aircraft Shutdown and Securing Checklist 2. Aircraft Towing, Ground Handling, and Tie down	1. Practice 2. Explain/Practice

LESSON 3
MASTER SYLLABUS - SCENARIO-BASED TRANSITION

OBJECTIVE

The PT will demonstrate proficiency in all critical action emergency procedures and a representative cross section of non-critical action emergency procedures described in the aircraft POH.

SCENARIO 3

The PT may plan the same cross-country flight from Lesson 2 but in the reverse direction (VFR or IFR as appropriate).

Preflight

The PT will plan the profile and perform all preflight procedures, engine start-up, avionics set-up, taxi, and before-takeoff procedures before each leg of the flight. Runway incursions, high wind taxi situations, and abnormal indications and corrective actions should be practiced.

Leg 1

The PT will initiate a normal takeoff and the instructor will call for an abort. The PT will taxi back and perform a high performance takeoff with an autopilot-assisted departure (IFR pilots will use the DP on the GPS as a part of their flight plan).

The autopilot will be turned off in cruise and the flight will proceed under Basic Attitude Instrument (BAI) flying conditions. In cruise, the PT will execute the proper procedures for an engine fire emergency and for isolated system failures. Airspeed and configuration changes will be practiced during cruise.

The IFR PT will perform an autopilot assisted instrument approach (ILS or GPS) at the first airport followed with an autopilot assisted missed approach with GPS Nav to the Hold and a manual VOR approach to a full stop landing. The VFR pilot will plan and perform a GPS assisted entry and approach procedure to a full-stop landing.

Leg 2

The PT will perform a normal takeoff and autopilot assisted departure. In cruise, the PT will perform the proper procedures for a significant engine power loss, control surface failures, and a complete electrical failure. The IFR PT will plan and perform a GPS hold followed by an instrument approach (either the ILS or GPS that was not performed at the first airport) to a full-stop landing. The VFR pilot will plan and perform a GPS assisted entry and approach procedure to a full-stop landing.

Leg 3
The PT will perform a normal takeoff and autopilot assisted departure. The IFR flight plan will be cancelled and the 3rd leg will proceed under VFR. The PT will perform recovery from unusual attitudes; perform the procedure for a complete engine failure, an emergency descent and a diversion to the home airport.

The PT will perform a GPS assisted VFR entry into the downwind pattern with an engine failure in the pattern followed by a power-off landing to a full stop.

The PT will perform a normal closed pattern takeoff followed by a 50% flap landing and a second one with a zero-flap landing.

Post-flight

The PT will perform all aircraft shutdown and securing procedures.

PREREQUISITES

- Completion of a worksheet on Abnormal & Emergency Procedures
- Completion of a progress quiz on the material to be covered

PILOT IN TRAINING PREPARATION

- Review previous lessons
- Review the AFM/ POH
- Plan flight profile using the scenario as listed above

BRIEFING ITEMS

A. INITIAL INTRODUCTION:
    a. Weather
    b. Flight profile
    c. Command transfer and pre-takeoff briefing

B. SRM
    a. Avionics systems to be used during this flight
    b. Abnormal and emergency procedures
    c. Decision making

C. SAFETY
    a. Mid-air collision avoidance procedures
    b. Appropriate NOTAMS
    c. Airport diagrams and taxi procedures
    d. Emergency procedures

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)

Learner Centered Grading - Desired Scenario Outcomes

(1) The objective of scenario-based training is a change in the thought processes, habits, and behaviors of the learners during the planning and execution of the scenario. Since the training is learner centered, the success of the training is measured in the following desired outcomes.

(a) Maneuver, Skill or Task Grades

- Describe – at the completion of the scenario, the PT will be able to describe the physical characteristics and cognitive elements of the scenario activities. *Instructor assistance is required to successfully execute the maneuver.*
- Explain – at the completion of the scenario the learner will be able to describe the scenario activity and understand the underlying concepts, principles, and procedures that comprise the activity. *Instructor assistance is required to successfully execute the maneuver.*
- Practice – at the completion of the scenario the learner will be able to plan and execute the scenario. *Some coaching, instruction, and/or assistance from the instructor are required to correct deviations and errors.*
- Perform – at the completion of the scenario, the learner will be able to perform the activity without assistance from the instructor. *Errors and deviations will be identified and corrected by the learner 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 learner is satisfactorily demonstrating proficiency in piloting and systems operation skills.
- Not Observed – Any event not accomplished or required.

(b) Single Pilot Resource Management (SRM) Grades

- Explain – the learner can verbally identify, describe, and understand the risks inherent in the flight scenario. *The* learner *will need to be prompted to identify risks and make decisions.*
- Practice – the learner is able to identify, understand, and apply SRM principles to the actual flight situation. *Coaching, instruction, and/or assistance from the instructor will quickly correct minor deviations and errors identified by the instructor.* The learner will be an active decision maker.
- Manage/Decide - the learner can 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. *Instructor intervention is not required for the safe completion of the flight.*

- Not Observed – Any event not accomplished or required.

(2) Grading will be conducted independently by the learner and the instructor, and then compared during the post flight critique.

(3) Learner centered grading is a vital part of the FITS concept. Traditional syllabi and curriculum have depended on a grading scale designed to maximize learner management and ease of instructor use. Thus the traditional: "excellent, good, fair, poor" or "exceeds standards, meets standards, needs more training" often meet the instructor's needs but not the learner's. The learner centered grading described above is a way for the instructor and learner to determine the learner's level of knowledge and understanding. "Perform" is used to describe proficiency in a skill item such as an approach or landing. "Manage-Decide" is used to describe proficiency in the SRM area such as ADM.

(4) Grading should be progressive. During each flight, the learner should achieve a new level of learning (e.g. flight one, the automation management area, might be an "explain" item, by flight three a "practice" item, and by flight five a "manage-decide" item.

Scenario Activities	Scenario Sub-Activities	Desired PT Scenario Outcome
Flight Planning	1. Scenario Planning 2. Weight and Balance and Aircraft Performance Calculations 3. Preflight SRM Briefing 4. Decision-Making (DM) and Risk Management (RM)	1. Perform 2. Perform 3. Perform 4. Explain/Practice
Normal Preflight and Cockpit procedures	1. Normal Pre-Takeoff Checklist Procedures 2. GPS Programming 3. MFD Setup 4. PFD Setup	5. Perform 1. Explain/Practice 2. Perform 3. Explain/Practice
Engine Start and Taxi Procedures	1. Engine Start 2. Taxi 3. SRM and Situational Awareness (SA)	1. Perform 2. Perform 3. Explain
Before Takeoff Checks	1. Normal and Abnormal Indications 2. Aircraft Automation Management 3. DM and RM	1. Perform 2. Explain/Practice 3. Explain
Takeoff (T/O)	1. Normal T/O 2. Crosswind T/O 3. Aborted T/O 4. Soft Field/Short Field T/O 5. SA 6. DM and RM	1. Perform 2. Perform 3. Practice 4. Perform 5. Explain/Practice 6. Explain/Practice

Climb procedures	1. Manual Climb 2. Autopilot Climb 3. Navigation programming 4. Power management 5. SA, Task Management (TM), and DM	1. Perform 2. Perform 3. Perform 4. Perform 5. Explain
Cruise Procedures	1. Lean Assist (if so equipped) 2. Best Power vs. Best Economy 3. Manual Cruise 4. Autopilot Cruise 5. Navigation programming 6. Automated navigation leg 7. TM, SA, and DM	1. Perform 2. Explain 3. Perform 4. Perform 5. Perform 6. Explain/practice 7. Explain
Control Performance Instrument /Visual Crosscheck Note: All items will be accomplished enroute during the scenario	1. Straight and level 2. Normal Turns 3. Climbing and Descending Turns	1. Perform 2. Perform 3. Perform
Low Speed Envelope and Steep Turns Note 1: Slow Flight and Stall Recovery may be accomplished enroute or in a practice area Note 2: Emphasis will be placed on stall prevention and recovery	1. Configuration Changes and Slow Flight 2. Recovery from Power Off Stalls 3. Recovery from Power On Stalls 4. Stall prevention, SA, TM, and DM 5. Steep Turns	1. Describe 2. Describe 3. Describe 4. Describe 5. Perform
GPS Operation and Programming	1. VFR (non instrument rated PT) a. Direct-To b. Nearest c. Airport Information d. Flight Plan 2. IFR (instrument rated PT) a. Direct-To b. Nearest c. Airport Information d. Approach Select e. Flight Plan	1. Explain/Practice 2. Explain/practice
Autopilot Programming, Modes and Annunciations	1. Control Wheel Steering (if installed) 2. LNAV Programming 3. Vertical Speed and Altitude Hold 4. Navigation Modes 5. Coupled Approach Modes 6. Auto Trim Modes 7. Flight Director/PFD Interface	1. Explain/Practice 2. Explain/Practice 3. Perform 4. Perform 5. Practice 6. Explain 7. Explain

Avionics Operation	1. PFD (if installed) 2. MFD Normal Operation a. Setup Pages b. Navigation Mode c. Checklist Mode 3. Abnormal/Emergency Modes 4. EHSI Operation	1. Explain/Practice 2. Perform 3. Explain/Practice 4. Perform
Avionics Interface	1. Identification of Data/Power sources 2. Identification of PFD Failure Modes 3. Aircraft Automation management	1. Describe 2. Describe 3. Describe
Data link Situational Awareness Systems and Additional Avionics Setup	1. Data link Weather Setup and operation 2. Data link Traffic Setup and operation 3. Data link Terrain Display and Warning Setup and operation 4. Data link Flight Planning and Traffic Control (CNS) Setup and operation	1. Describe 2. Explain/practice 3. Describe 4. Describe
Emergency Escape Maneuvers, Emergency Procedures/Recovery from Unusual Attitudes and Upsets/Use of BRS, if installed	1. PFD Unusual Attitude recovery 2. Backup Instrument Unusual Attitude recovery 3. Autopilot Unusual Attitude recovery 4. BRS 5. Engine failure/Emergency descent 6. RM and DM	1. Explain/Practice 2. Explain/practice 3. Describe 4. Explain/Practice (simulated) 5. Describe 6. Explain
Descent Planning and Execution	1. Automation Management 2. VNAV Planning 3. Navigation programming 4. Manual Descent 5. Autopilot descent 6. TM, SA, Controlled Flight Into Terrain (CFIT) Avoidance	1. Explain/Practice 2. Explain/Practice 3. Practice 4. Perform 5. Perform 6. Explain/Practice
Instrument Approach procedures (IFR Rated Pilot)	1. Manual ILS 2. Coupled ILS 3. Manual VOR 4. Manual GPS 5. Autopilot Assisted VOR/GPS VNAV Approach 6. Manual Missed Approach 7. Autopilot Assisted Missed Approach 8. Procedure Turn 9. Holding 10. TM and DM	1. Perform 2. Explain/Practice 3. Practice 4. Practice 5. Explain/Practice 6. Perform 7. Explain/Practice 8. Practice (Optional) 9. Practice (Optional) 10. Explain/Practice

Landing	1. Before landing procedures 2. IFR Landing Transition 3. Normal Landing 4. Soft and Short field landing 5. Partial Flap Landing 6. Zero Flap landing 7. Crosswind landing 8. Balked landing and Go-Around 9. DM and SA	1. Perform 2. Explain/practice 3. Practice 4. Practice 5. Practice (Optional) 6. Practice (Optional) 7. Perform 8. Explain/Practice 9. Explain/Practice
Aircraft Shutdown and Securing procedure	1. Aircraft Shutdown and Securing Checklist 2. Aircraft Towing, Ground Handling, and Tie down	1. Perform 2. Explain/Practice

LESSON 4
MASTER SYLLABUS - SCENARIO-BASED TRAINING

OBJECTIVE

The PT will combine previously learned flight skills and instrument procedures to achieve flying proficiency.

SCENARIO 4

The PT will plan and perform a detailed cross-country flight using airports not previously visited. The flight will include transition into an airport within Class B airspace, and the maneuvers and procedures should include representative sub-activities selected from the list of scenario activities for the course.

PREREQUISITES

- Completion of a worksheet on Abnormal & Emergency Procedures
- Completion of a progress quiz on the material to be covered

PILOT IN TRAINING PREPARATION

- Review previous lessons
- Review the AFM/ POH
- Plan flight profile using the scenario from lessons 3 and 4.

BRIEFING ITEMS

A. INITIAL INTRODUCTION:
   a. Weather
   b. Flight profile
   c. Command transfer and pre-takeoff briefing

B. SRM
   a. Avionics systems to be used during this flight
   b. Abnormal and emergency procedures
   c. Decision making

C. SAFETY
   a. Mid-air collision avoidance procedures
   b. Appropriate NOTAMS
   c. Airport diagrams and taxi procedures
   d. Instrument approach procedures
   e. Emergency procedures

Scenario Four

(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)

Learner Centered Grading - Desired Scenario Outcomes

(1) The objective of scenario-based training is a change in the thought processes, habits, and behaviors of the learners during the planning and execution of the scenario. Since the training is learner centered, the success of the training is measured in the following desired outcomes.

(a) Maneuver, Skill or Task Grades

- Describe – at the completion of the scenario, the PT will be able to describe the physical characteristics and cognitive elements of the scenario activities. *Instructor assistance is required to successfully execute the maneuver.*
- Explain – at the completion of the scenario the learner will be able to describe the scenario activity and understand the underlying concepts, principles, and procedures that comprise the activity. *Instructor assistance is required to successfully execute the maneuver.*
- Practice – at the completion of the scenario the learner will be able to plan and execute the scenario. *Some coaching, instruction, and/or assistance from the instructor are required to correct deviations and errors.*
- Perform – at the completion of the scenario, the learner will be able to perform the activity without assistance from the instructor. *Errors and deviations will be identified and corrected by the learner 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 learner is satisfactorily demonstrating proficiency in piloting and systems operation skills.
- Not Observed – Any event not accomplished or required.

(b) Single Pilot Resource Management (SRM) Grades

- Explain – the learner can verbally identify, describe, and understand the risks inherent in the flight scenario. *The* learner *will need to be prompted to identify risks and make decisions.*
- Practice – the learner is able to identify, understand, and apply SRM principles to the actual flight situation. *Coaching, instruction, and/or assistance from the instructor will quickly correct minor deviations and errors identified by the instructor.* The learner will be an active decision maker.
- Manage/Decide - the learner can 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. *Instructor intervention is not required for the safe completion of the flight.*

- Not Observed – Any event not accomplished or required.

(2) Grading will be conducted independently by the learner and the instructor, and then compared during the post flight critique.

(3) Learner centered grading is a vital part of the FITS concept. Traditional syllabi and curriculum have depended on a grading scale designed to maximize learner management and ease of instructor use. Thus the traditional: "excellent, good, fair, poor" or "exceeds standards, meets standards, needs more training" often meet the instructor's needs but not the learner's. The learner centered grading described above is a way for the instructor and learner to determine the learner's level of knowledge and understanding. "Perform" is used to describe proficiency in a skill item such as an approach or landing. "Manage-Decide" is used to describe proficiency in the SRM area such as ADM.

(4) Grading should be progressive. During each flight, the learner should achieve a new level of learning (e.g. flight one, the automation management area, might be an "explain" item, by flight three a "practice" item, and by flight five a "manage-decide" item.

Scenario Activities	Scenario Sub-Activities	Desired PT Scenario Outcome
Flight Planning	1. Scenario Planning 2. Weight and Balance and Aircraft Performance Calculations 3. Decision-Making (DM) and Risk Management (RM)	1. Perform 2. Perform 3. Perform 4. Manage/Decide
Normal Preflight and Cockpit procedures	1. Normal Pre-Takeoff Checklist Procedures 2. GPS Programming 3. MFD Setup 4. PFD Setup	1. Perform 2. Perform 3. Perform 4. Perform
Engine Start and Taxi Procedures	1. Engine Start 2. Taxi 3. SRM/Situational Awareness (SA)	1. Perform 2. Perform 3. Manage/Decide
Before Takeoff Checks	1. Normal and Abnormal Indications 2. Aircraft Automation Management 3. DM and RM	1. Perform 2. Manage/Decide 3. Manage/Decide
Takeoff (T/O)	1. Normal T/O 2. Crosswind T/O 3. Aborted T/O 4. Soft Field/Short Field T/O 5. SA 6. DM and RM	1. Perform 2. Perform 3. Perform 4. Perform 5. Manage/Decide 6. Manage/Decide

Climb procedures	1. Manual Climb 2. Autopilot Climb 3. Navigation programming 4. Power management 5. SA, Task management (TM), and DM	1. Perform 2. Perform 3. Perform 4. Perform 5. Manage/Decide
Cruise Procedures	1. Lean Assist (if so equipped) 2. Best Power vs. Best Economy 3. Manual Cruise 4. Autopilot Cruise 5. Navigation programming 6. Automated navigation leg 7. TM, SA, and DM	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform 6. Perform 7. Manage/Decide
Control Performance Instrument /Visual Crosscheck Note: All items will be accomplished enroute during the scenario	1. Straight and level 2. Normal Turns 3. Climbing and Descending Turns	1. Perform 2. Perform 3. Perform
Low Speed Envelope and Steep Turns Note 1: Slow Flight and Stall Recovery may be accomplished enroute or in a practice area Note 2: Emphasis will be placed on stall prevention and recovery	1. Configuration Changes and Slow Flight 2. Recovery from Power Off Stalls 3. Recovery from Power On Stalls 4. Stall prevention, SA, TM, and DM 5. Steep Turns	1. Perform 2. Perform 3. Perform 4. Manage/Decide 5. Perform
GPS Operation and Programming	1. VFR (non instrument rated PT) a. Direct-To b. Nearest c. Airport Information d. Flight Plan 2. IFR (instrument rated PT) a. Direct-To b. Nearest c. Airport Information d. Approach Select e. Flight Plan	1. Perform 2. Perform
Autopilot Programming, Modes and Annunciations	1. Control Wheel Steering (if installed) 2. LNAV Programming 3. Vertical Speed and Altitude Hold 4. Navigation Modes 5. Coupled Approach Modes 6. Auto Trim Modes 7. Flight Director/PFD Interface	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform 6. Explain 7. Perform

Avionics Operation	1. PFD (if installed) 2. MFD Normal Operation a. Setup Pages b. Navigation Mode c. Checklist Mode 3. Abnormal/Emergency Modes 4. EHSI Operation	1. Perform 2. Perform 3. Perform 4. Perform
Avionics Interface	1. Identification of Data/Power sources 2. Identification of PFD Failure Modes 3. Aircraft Automation management	1. Explain 2. Explain 4. Explain
Data link Situational Awareness Systems and Additional Avionics Setup (NOTE: some or all of these systems may not be installed or available in the aircraft)	1. Data link Weather Setup and operation 2. Data link Traffic Setup and operation 3. Data link Terrain Display and Warning Setup and operation 4. Data link Flight Planning and Traffic Control (CNS) Setup and operation	1. Explain/Practice 2. Perform 3. Explain/Practice 4. Explain/Practice
Emergency Escape maneuvers, Emergency Procedures/Recovery from Unusual Attitudes and Upsets/Use of BRS, if installed	1. PFD Unusual Attitude recovery 2. Backup Instrument Unusual Attitude recovery 3. Autopilot Unusual Attitude recovery 4. BRS 5. Engine failure/Emergency descent 6. RM and DM	1. Perform 2. Perform 3. Explain/Practice 4. Explain/Practice (simulated) 5. Perform 6. Manage/Decide
Descent Planning and Execution	1. Automation Management 2. VNAV Planning 3. Navigation programming 4. Manual Descent 5. Autopilot descent 6. TA, SA, Controlled Flight Into Terrain (CFIT) Avoidance	1. Manage/Decide 2. Perform 3. Perform 4. Perform 5. Perform 6. Manage/Decide
Instrument Approach procedures (IFR Rated Pilot)	1. Manual ILS 2. Coupled ILS 3. Manual VOR 4. Manual GPS 5. Autopilot Assisted VOR/GPS VNAV Approach 6. Manual Missed Approach 7. Autopilot Assisted Missed Approach 8. Procedure Turn 9. Holding 10. TM and DM	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform 6. Perform 7. Perform 8. Perform (Optional) 9. Perform (Optional) 10. Manage / Decide

Landing	1. Before landing procedures 2. IFR Landing Transition 3. Normal Landing 4. Soft and Short field landing 5. Partial Flap Landing 6. Zero Flap landing 7. Crosswind landing 8. Balked landing and Go-Around 9. DM and SA	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform (Optional) 6. Perform (Optional) 7. Perform 8. Perform 9. Manage/decide
Aircraft Shutdown and Securing procedure	1. Aircraft Shutdown and Securing Checklist 2. Aircraft Towing, Ground Handling, and Tie down	1. Perform 2. Explain/Practice

LESSON 5
MASTER SYLLABUS - SCENARIO-BASED TRANSITION
FINAL EVALUATION FLIGHT

OBJECTIVE

The PT will demonstrate knowledge and skill level appropriate and demonstrates judgment, aeronautical decision-making skills and single pilot management skills to effectively, efficiently, and safely operate a technically advanced aircraft in an actual cross country exercise.

SCENARIO 5

The PT and the Instructor will work together to plan a detailed cross-country flight to multiple airports. The flight profile will include samples of the maneuvers and procedures listed in the course syllabus with an emphasis on judgment and decision-making in ambiguous situations.

PREREQUISITES

- Complete Lesson 4

PILOT IN TRAINING PREPARATION

- Review previous lessons
- Review the POH/AFM
- Plan flight profile using the maneuvers and procedures listed in the course syllabus

BRIEFING ITEMS
(PT)

A. INITIAL INTRODUCTION
   a. Weather
   b. Pilot in Command

B. SRM
   a. Flight profile
   b. Decision making

C. SAFETY
   a. Mid-air collision avoidance procedures
   b. Appropriate NOTAMS
   c. Airport diagrams and taxi procedures
   d. Instrument approach procedures
   e. Emergency procedures

Scenario Five

(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)

Learner Centered Grading - Desired Scenario Outcomes

(1) The objective of scenario-based training is a change in the thought processes, habits, and behaviors of the learners during the planning and execution of the scenario. Since the training is learner centered, the success of the training is measured in the following desired outcomes.

(a) Maneuver, Skill or Task Grades

- Describe – at the completion of the scenario, the PT will be able to describe the physical characteristics and cognitive elements of the scenario activities. *Instructor assistance is required to successfully execute the maneuver.*
- Explain – at the completion of the scenario the learner will be able to describe the scenario activity and understand the underlying concepts, principles, and procedures that comprise the activity. *Instructor assistance is required to successfully execute the maneuver.*
- Practice – at the completion of the scenario the learner will be able to plan and execute the scenario. *Some coaching, instruction, and/or assistance from the instructor are required to correct deviations and errors.*
- Perform – at the completion of the scenario, the learner will be able to perform the activity without assistance from the instructor. *Errors and deviations will be identified and corrected by the learner 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 learner is satisfactorily demonstrating proficiency in piloting and systems operation skills.
- Not Observed – Any event not accomplished or required.

(b) Single Pilot Resource Management (SRM) Grades

- Explain – the learner can verbally identify, describe, and understand the risks inherent in the flight scenario. *The* learner *will need to be prompted to identify risks and make decisions.*
- Practice – the learner is able to identify, understand, and apply SRM principles to the actual flight situation. *Coaching, instruction, and/or assistance from the instructor will quickly correct minor deviations and errors identified by the instructor.* The learner will be an active decision maker.
- Manage/Decide – the learner can 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. *Instructor intervention is not required for the safe completion of the flight.*

- Not Observed – Any event not accomplished or required.

(2) Grading will be conducted independently by the learner and the instructor, and then compared during the post flight critique.

(3) Learner centered grading is a vital part of the FITS concept. Traditional syllabi and curriculum have depended on a grading scale designed to maximize learner management and ease of instructor use. Thus the traditional: "excellent, good, fair, poor" or "exceeds standards, meets standards, needs more training" often meet the instructor's needs but not the learner's. The learner centered grading described above is a way for the instructor and learner to determine the learner's level of knowledge and understanding. "Perform" is used to describe proficiency in a skill item such as an approach or landing. "Manage-Decide" is used to describe proficiency in the SRM area such as ADM.

(4) Grading should be progressive. During each flight, the learner should achieve a new level of learning (e.g. flight one, the automation management area, might be an "explain" item, by flight three a "practice" item, and by flight five a "manage-decide" item.

Scenario Activities	Scenario Sub-Activities	Desired PT Scenario Outcome
Flight Planning	1. Scenario Planning 2. Weight and Balance and Aircraft Performance Calculations 3. Preflight SRM Briefing 4. Decision-Making (DM) and Risk Management (RM)	1. Perform 2. Perform 3. Perform 4. Manage/Decide
Normal Preflight and Cockpit procedures	1. Normal Pre-Takeoff Checklist Procedures 2. GPS Programming 3. MFD Setup 4. PFD Setup	1. Perform 2. Perform 3. Perform 4. Perform
Engine Start and Taxi Procedures	1. Engine Start 2. Taxi 3. SRM/Situational Awareness (SA)	1. Perform 2. Perform 3. Manage/Decide
Before Takeoff Checks	1. Normal and Abnormal Indications 2. Aircraft Automation Management 3. DM and RM	1. Perform 2. Manage/Decide 3. Manage/Decide
Takeoff (T/O)	1. Normal T/O 2. Crosswind T/O 3. Aborted T/O 4. Soft Field/Short Field T/O 5. SA 6. DM and RM	1. Perform 2. Perform 3. Perform 4. Perform 5. Manage/Decide 6. Manage/Decide

Climb procedures	1. Manual Climb 2. Autopilot Climb 3. Navigation programming 4. Power management 5. SA, Task management (TM), and DM	1. Perform 2. Perform 3. Perform 4. Perform 5. Manage/Decide
Cruise Procedures	1. Lean Assist (if so equipped) 2. Best Power vs. Best Economy 3. Manual Cruise 4. Autopilot Cruise 5. Navigation programming 6. Automated navigation leg 7. TM, SA, and DM	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform 6. Perform 7. Manage/Decide
Control Performance Instrument /Visual Crosscheck Note: All items will be accomplished enroute during the scenario	1. Straight and level 2. Normal Turns 3. Climbing and Descending Turns	1. Perform 2. Perform 3. Perform
Low Speed Envelope and Steep Turns Note 1: Slow Flight and Stall Recovery may be accomplished enroute or in a practice area Note 2: Emphasis will be placed on stall prevention and recovery	1. Configuration Changes and Slow Flight 2. Recovery from Power Off Stalls 3. Recovery from Power On Stalls 4. Stall prevention, SA, TM, and DM 5. Steep Turns	1. Perform 2. Perform 3. Perform 4. Manage/Decide 5. Perform
GPS Operation and Programming	1. VFR (non instrument rated PT) a. Direct-To b. Nearest c. Airport Information d. Flight Plan 2. IFR (instrument rated PT) a. Direct-To b. Nearest c. Airport Information d. Approach Select e. Flight Plan	1. Perform 2. Perform
Autopilot Programming, Modes and Annunciations	1. Control Wheel Steering (if installed) 2. LNAV Programming 3. Vertical Speed and Altitude Hold 4. Navigation Modes 5. Coupled Approach Modes 6. Auto Trim Modes 7. Flight Director/PFD Interface	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform 6. Explain 7. Perform

Avionics Operation	1. PFD (if installed) 2. MFD Normal Operation a. Setup Pages b. Navigation Mode c. Checklist Mode 3. Abnormal/Emergency Modes 4. EHSI Operation	1. Perform 2. Perform 3. Perform 4. Perform
Avionics Interface	1. Identification of Data/Power sources 2. Identification of PFD Failure Modes 3. Aircraft Automation management	1. Explain 2. Explain 3. Explain
Data link Situational Awareness Systems and Additional Avionics Setup (NOTE: some or all of these systems may not be installed or available in the aircraft)	1. Data link Weather Setup and operation 2. Data link Traffic Setup and operation 3. Data link Terrain Display and Warning Setup and operation 4. Data link Flight Planning and Traffic Control (CNS) Setup and operation	1. Explain/Practice 2. Perform 3. Explain/Practice 4. Explain/Practice
Emergency Escape Maneuvers, Emergency Procedures/Recovery from Unusual Attitudes and Upsets/Use of BRS, if installed	1. PFD Unusual Attitude recovery 2. Backup Instrument Unusual Attitude recovery 3. Autopilot Unusual Attitude recovery 4. BRS 5. Engine failure/Emergency descent 6. RM and DM	1. Perform 2. Perform 3. Explain/Practice 4. Explain/Practice (simulated) 5. Perform 6. Manage/Decide
Descent Planning and Execution	1. Automation Management 2. VNAV Planning 3. Navigation programming 4. Manual Descent 5. Autopilot descent 6. TA, SA, Controlled Flight Into Terrain (CFIT) Avoidance	1. Manage/Decide 2. Perform 3. Perform 4. Perform 5. Perform 6. Manage/Decide
Instrument Approach procedures (IFR Rated Pilot)	1. Manual ILS 2. Coupled ILS 3. Manual VOR 4. Manual GPS 5. Autopilot Assisted VOR/GPS VNAV Approach 6. Manual Missed Approach 7. Autopilot Assisted Missed Approach 8. Procedure Turn 9. Holding 10. TM and DM	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform 6. Perform 7. Perform 8. Perform (Optional) 9. Perform (Optional) 10. Manage / Decide

Landing	1. Before landing procedures 2. IFR Landing Transition 3. Normal Landing 4. Soft and Short field landing 5. Partial Flap Landing 6. Zero Flap landing 7. Crosswind landing 8. Balked landing and Go-Around 9. DM and SA	1. Perform 2. Perform 3. Perform 4. Perform 5. Perform (Optional) 6. Perform (Optional) 7. Perform 8. Perform 9. Manage/decide
Aircraft Shutdown and Securing procedure	1. Aircraft Shutdown and Securing Checklist 2. Aircraft Towing, Ground Handling, and Tie down	1. Perform 2. Explain/Practice

Section 5 - FITS Master Training Outcomes List

TAA 00	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 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 state, 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		a. Understand, describe, and apply techniques to avoid CFIT encounters: b. During inadvertent encounters with Instrument meteorological Conditions during VFR flight c. During system and navigation failures and physiological incidents during IFR flight

TAA 01	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	a. 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	a. 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. DM and RM	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 02	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 POH for the specific training scenario to be flown.

TAA 03	Engine Start and Taxi Procedures	
Unit Objective – Demonstrate the proper Engine Start and taxi procedures for the TAA		
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 (SA)	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 04	Before Takeoff Checks	
Unit Objective – demonstrate the proper pre-takeoff procedures for the TAA		
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 b. Identify normal and abnormal systems indications using the MFD and the POH
2. Aircraft Automation Management	a. Pre-arrival – eLearning b. Actual aircraft preflight	Correctly configure and program the PFD /MFD /HSI /GPS/ Autopilot for the departure
3. DM and RM		Make the correct go / no-go decision based on the status of the aircraft, pilot, and the weather

TAA 05	Takeoff	
Unit Objective – demonstrate the proper takeoff procedures for the TAA		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Normal takeoff	a. Preflight briefing b. In-Flight from lineup on the runway through flap reduction	Perform a normal takeoff within the FAA Practical Test Standards (PTS) parameters.
2. Crosswind takeoff		Perform a crosswind takeoff within the PTS parameters.
3. Aborted takeoff		Perform the aborted takeoff procedure within the PTS parameters.
4. Soft Field/Short field Takeoff		Perform a Soft Field/Short Field Takeoff within the PTS parameters.
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. DM and RM		Decide to continue or abort any given takeoff based on the actual situation or a simulated scenario created by the instructor.

TAA 06	Climb Procedures	
Unit Objective – demonstrate the proper climb procedures for the TAA		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Manual Climb	a. Preflight 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 parameters. b. Establishes pitch within the PTS parameters.
2. Autopilot Climb		a. Perform an autopilot-flown climb and level off within the PTS parameters. b. Establishes pitch attitude within the PTS parameters.
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 07	Cruise procedures	
Unit Objective – demonstrate the proper cruise procedures for the TAA		
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 parameters. b. Maintains altitude, within the PTS parameters.

4. Autopilot Cruise		a. Perform an autopilot assisted cruise within the PTS standards (for manual cruise) b. Maintains altitude within the PTS parameters. 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		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	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 TAA		
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. Preflight briefing b. In-Flight	a. Perform the maneuver by sole reference to the window within the PTS parameters. b. Perform the maneuver by sole reference to the PFD within the PTS parameters. c. Establishes airspeed and altitude within the PTS parameters.

TAA 09	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 TAA		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Configuration changes 2. Slow Flight	a. Preflight briefing b. In-Flight	Demonstrate slow flight within the PTS parameters 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
4. 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 10	Descent Planning and Execution	
Unit Objective – demonstrate the proper descent procedures for the TAA		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1.Automation management	a. Preflight 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 then 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 parameters.
5. Autopilot Descent		Perform an autopilot descent within PTS parameters (for a manual descent)
6. Task Management, Situational Awareness, CFIT Avoidance		Identify the most important data available.

TAA 11	Landings	
Unit Objective – demonstrate landing procedures in the TAA.		
Performance The training task is:	Conditions The training is conducted during:	Standards The pilot in training will:
1. Before landing procedures	a. Pre-arrival – "eLearning" b. Preflight 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
f. 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 parameters. .
4.Soft and Short Field landing		Perform Soft and Short field landings within the PTS parameters.
5.Partial Flap landing		Perform a partial flap landing within the PTS parameters.
6.Zero Flap landing		Perform a zero flap landing within the PTS parameters.
7.Crosswind landing		Perform a crosswind landing within the PTS parameters.
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 parameters.
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 12	Aircraft Shutdown and Securing procedures	
Unit Objective – demonstrate proficiency shutting down and securing the TAA		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Aircraft Shutdown & Securing Checklist	Post-flight	Demonstrate proficiency properly concluding a flight including engine shutdown and securing
2. Aircraft Towing, Ground Handling, and Tiedown		Demonstrate proficiency properly concluding a flight including aircraft storage

TAA 13	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. Preflight 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 14	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	a. 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…	a. Preflight 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 15	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 16	Automated Avionics Operation and Systems Interface	
Unit Objective – demonstrate proper use of the Avionics Interface including normal, abnormal, and emergency operations of the TAA 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	a. In-flight	Demonstrate proper use of the PFD during autopilot
2. Multi Function Display Normal Operation Setup Pages Navigation Modes Traffic Mode Weather Modes Checklist Modes	b. Preflight c. In-flight d. 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. Preflight 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 17	Datalink Situational Awareness Systems and Additional Avionics Setup
Unit Objective –demonstrate proper use of the EHSI and its interface with other installed avionics.	

Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Data Link Weather Setup and Operation	a. Preflight 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. Data Link Traffic Setup and Operation	a. Preflight 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. Preflight 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. Data Link Flight Plan and Traffic Control Systems Setup and Operation	a. Preflight 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 18 Emergency Escape Maneuvers/ Recovery from Unusual Attitudes and Upsets/Use of Ballistic Parachute Recovery System (BRS)		
Unit Objective – demonstrate unusual attitude/upset recovery in the TAA 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 parameters.
2. Backup Instruments	In-flight	Demonstrate unusual attitude recovery using backup instruments to PTS parameters.
3. Autopilot – Limitations of it use for recovery	a. Preflight b. In-flight	Demonstrate unusual attitude recovery using the autopilot to PTS parameters.
4. Upset Training	In-flight	Demonstrate upset recovery using the PFD
5. BRS Preflight In-flight Activation Post Deployment Procedures Reasons for Deployment	a. Preflight 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. Preflight 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, RM, and DM	a. Preflight 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 19 Instrument Approach Procedures (IFR Rated Pilots Only)		
Unit Objective – demonstrate IFR procedure proficient in the TAA 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. Preflight Briefing c. In-Flight	Perform the approach within the PTS parameters.
2. Coupled ILS		Perform the approach within the PTS parameters (for a manual approach).
3. Manual VOR		Perform the approach within the PTS parameters.
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 parameters.
7. Autopilot Flown Missed Approach		Perform the missed approach within the PTS parameters (for a manual missed approach).
8. Procedure Turn		Demonstrate Procedure to PTS parameters.
9. Holding		Demonstrate Instrument Holding to PTS parameters.
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 HIS to maintain situational awareness during IFR procedures