FITS Instructor Syllabus

NAV III Cessna SEP Scenario Based Instructor Guide

Version 1.0

Cessna

A Textron Company

FITS Instructor Syllabus
Scenario Based Instructor Guide

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Acknowledgements:

This Syllabus Prepared by

Section 1 - Cessna SEP FITS Introduction

FAA Industry Training Standards (FITS)

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

FITS Mission Statement

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

FITS Imperatives

The FAA Administrators 2004-2008 Flight Plan outlines the FAA and industry's commitment to significantly reduce general aviation accidents; the majority (75%) of which are attributed to pilot error. Compounding the challenge of this initiative is the emergence of a new class of technically advanced general aviation aircraft offering significant improvements in performance and capability. These innovative aircraft are equipped with automated cockpits and attain cruising speeds that require flight management and decision-making skills normally expected from ATP-level pilots. It is imperative that a new training philosophy be implemented that reduces human errors and accelerates the acquisition of higher-level judgment and decision-making skills.

FITS training recognizes the wide variety of technically advanced systems and their differences when compared to the relatively similar layout found in conventional cockpits they replace.

- Within a type of system (ex. different operations of GPS navigators)
- Within categories of advanced technology systems
    - Primary Flight Displays (PFD) and Multi-Function Displays (MFD)
    - Traffic, Weather and Terrain Displays
    - Autopilots

FITS Training Goals (In Priority of Importance)

- Higher Order Thinking
    - Aeronautical Decision Making and Situational Awareness
    - Pattern Recognition (Emergency Procedures) and Decision Making
- Automation Competence
- Planning and Execution
- Procedural Knowledge
- Psychomotor skill

Section 2 - Terminology / Definitions

Key Terms

Cessna FITS Accepted Instructor (CFAI) - An individual recognized by Cessna Aircraft Company to use Cessna's FITS accepted transition program to train purchasers of NAV III equipped Cessna aircraft.

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

Scenario Based Training (SBT) - A training system that uses a highly structured script of real-world experiences to address flight training objectives in an operational environment. Such training can include initial training, transition training, upgrade training, recurrent training, and special training. The appropriate term should appear with the term "Scenario Based," (ex. "Scenario Based Transition Training") to reflect the specific application.

Single Engine Propeller (SEP) - Cessna single engine models, which meet the FITS description for a Technically Advanced Aircraft.

Single Pilot Resource Management (SRM) - The art and science of managing all the resources (both on-board the aircraft and from outside sources) available to a single-pilot (prior and during flight) to ensure the successful outcome of the flight is never in doubt.

Related Terms and Abbreviations

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

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

A **VFR Automated Navigation Leg** is flown on autopilot from 800 ft AGL on the departure until entry to the 45-degree leg in the VFR pattern.

An **IFR Automated Navigation Leg** is flown on autopilot from 800 ft AGL on departure until reaching the decision altitude (coupled ILS approach) or missed approach point (autopilot aided non-precision approach) on the instrument approach. If a missed approach is flown it will be flown using the autopilot and on-board navigation systems.

Automation Competence - The demonstrated ability to understand and operate the automated systems installed in the aircraft.

Automation Surprise - The characteristic of an automated system to provide different types and varieties of cues to pilots than the analog systems they replace, especially in time-critical situations.

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

Critical Safety Tasks / Event - Those mission related tasks / events that, if not accomplished quickly and accurately, may result in injury or substantial aircraft damage.

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

Desired Pilot in Training (PT) Scenario Outcomes

The object of scenario-based training is a change in the thought processes, habits, and behaviors of the students during the planning and execution of the scenario. Since the training is student-centered, the success of the training is measured in the following desired student outcomes:

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

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

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

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

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

Proficiency - The ability to accurately perform a task within a reasonable amount of time. The outcome of the task is never seriously in doubt.

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

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

Training Only Tasks - 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 will be required to demonstrate proficiency in Training Only Tasks.

Section 3 - Cessna SEP FITS Training Philosophy

Cessna Aircraft has built more than 250,000 airplanes ranging from single engine pistons to twin-engine turbofan jets. Through the years, Cessna has also developed a unique sense of need as it relates to pilot training. For example, the **Cessna Pilot Center** flight school concept has taught thousands of pilots to fly and earn advanced certificates and ratings. Cessna has primarily used **Flight Safety International** as its' training partner for the turbine and jet products. With this training experience, Cessna has recognized the need for a new approach to training pilots who fly TAA. Primarily, the Cessna SEP / FITS training is scenario-based rather than task-based. Emphasis is given to the development of critical thinking and flight management skill.

The military and commercial airline communities have used scenario-based training for many years while enjoying great success. Research has proven that learning is **enhanced** when training is both realistic and authentic. Additionally, the underlying skills needed to make good judgment and decisions can be taught. Through the use of Line Oriented Flight Training (**LOFT**) and Cockpit Resource Management (**CRM**), these organizations have created lessons to mimic real-life scenarios as a means of exposing students to realistic operations and critical-decision making opportunities. Cessna has used this approach in training its' own pilots who are on a company approved pilots list. Since the majority of company flights are for transportation, ferry and demonstration purposes, the pilots flying these missions require a higher level of training. Combined with annual recurrent training, new model transition training and a dedicated single-engine operations manual, Cessna has enjoyed a remarkable safety record.

The SEP aircraft is an excellent opportunity for Cessna to introduce the FITS training concept to its' customers. The proven design of the Cessna airframe has enjoyed over fifty years of service. These airplanes are exceptionally stable and forgiving, and more importantly, comprise the majority of the past and current training fleet. What makes the SEP TAA aircraft unique are superior avionics, which offer enhanced capabilities. Advanced avionics placed in general aviation cockpits are generally considered enhancements, but **require** increased technical knowledge and finely-tuned automation competence. The training Cessna is providing uses the scenario-based method to introduce pilots to the **NAV III / Garmin 1000** avionics, therefore increasing their comfort and confidence level in Cessna SEP. Additionally, aircraft systems training is included to help the pilot recognize the limitations and capabilities of these airplanes. Currently, SEP / FITS training is available for the following models equipped: **C182 Skylane** and **C206 Stationair** (both normally aspirated and turbocharged versions) that are equipped with the NAV III package. Beginning the second quarter of 2005 the **C172 Skyhawk** will also be available with the NAV III / Garmin 1000**.**

Throughout each training scenario, the pilot will be challenged with "What If?" discussions as a means to provide the student with increased exposure to proper decision-making. Because the "What If?" discussions are in reference to a scenario, there is a vivid connection between decisions made and the final outcome.

The "What If?" discussions are designed to accelerate development of decision-making skills by posing situations for the student to contemplate. Once again, research has shown these types of discussions will improve judgment and counteract low levels of experience.

Section 4 - Cessna SEP Scenario Development Guide

Learning how to properly teach the Cessna SEP Transition Syllabus will enable an instructor to use the same principles and techniques to teach other approved courses in the Cessna family of aircraft.

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

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

The IT and the teaching instructor will discuss the lesson syllabus and decide (in advance) the most likely destination for the departure and return legs of each scenario. The IT must be proficient in the NAV III Cessna so that they are able to concentrate on providing training specific to functions of the system with use of proper teaching techniques.

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

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

Instructor in Training (IT) / Teaching Instructor Responsibilities

Pre-Scenario Planning

For Scenario Based Instruction to be effective, it is vital that the IT and the teaching instructor communicate the following information well in advance of the flight:

- Scenario destination(s)
- Desired student learning outcomes
- Desired level of IT performance
- Desired level of automation assistance
- Possible in-flight scenario changes (during later stages of the program, no pre-flight notification is required)

When an IT is conducting the Instructor Training Syllabus, the teaching instructor should make the situation as realistic as possible. This means the IT will have knowledge of the course to be flown and what will occur during the flight. While the actual flight may deviate from the original plan, it allows the IT to be placed in a realistic situation.

Scenario Planning

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

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

Pre-flight Briefing

The IT will brief the teaching instructor on the flight scenario that he or she expects, which will include:

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

Risk Assessment

The following table represents a risk assessment matrix that was developed and is used by the Cessna training department. The purpose of this risk assessment is to provoke thought on the issues of safety and risk. The goal when developing this matrix was to provide an assessment that would require little time to complete, yet provoke enough consideration about the conditions of the flight to make a competent "Go / No Go" decision. The IT's are encouraged to use this risk assessment for their own day-to-day operations, as well as to give to their students to help them optimize flight safety.

Flight Type	VFR 1	IFR 2				
Flight Conditions	DAY 1		NIGHT 3			
Pilot Rating	CFI 1	Comm 2	INST 3	PVT 4	STUDENT 5	
Rest / Sleep in 24 hr period	>8 HRS 1	6-7 HRS 2		3-5 HRS 4	<3 HRS 5	
Visibility	10-15 Miles 1	6-9 Miles 2		3-5 Miles 4	<3 Miles 5	
Ceiling in feet	>10,000 1	5,000-9,000 2	3,000-4,000 3	1,000-2,000 4	<1,000 5	
Crosswind Component		0-10 KTS 2	11-15 KTS 3	16-19 KTS 4	≥20 KTS 5	
Destination Weather	VFR 1		Marginal VFR 3		IFR 5	
Airport Familiarity	YES 1		NO 2			
Hours in type aircraft	>200 HRS 1	151-199 HRS 2	100-150 HRS 3	50-99 HRS 4	<50 HRS 5	
Flight Time in Previous 12 Hrs	<3 HRS 1		4-5 HRS 3	5-6 HRS 4	>7 HRS 5	

Total ____

VFR pilot on VFR flight

≤26 GO
27-33 Consider alternate actions
34-38 Consult experienced CFI
≥39 NO GO

IFR current pilot on IFR flight

≤31 GO
32-35 Consider alternate action
36-40 Consult experienced CFI
≥41 NO GO

In Flight

The IT will execute the scenario plan with as little intervention from the teaching instructor as possible. Clearly, the first few scenario(s) may require considerable teaching instructor input. The teaching instructor should create situations that expose the IT to the different features of the NAV III Cessna while exercising critical thinking skills.

For example, the teaching instructor may create a situation that requires the pilot to divert. In doing so, the IT will have to use the G1000 features to determine what diversion destinations are appropriate considering the current situation (for example: fuel, weather, services, etc). While identifying these differences, the IT will use critical thinking skills to determine the best course of action for the diversion. As the IT gains the experience required to demonstrate good SRM, a role reversal should occur allowing the IT to act as the instructor. The teaching instructor will then act as the student transitioning to the NAV III Cessna aircraft.

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

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

Post Flight

The post flight review should include a discussion between the IT and the teaching instructor encompassing the flight scenario. Generally, the teaching instructor should lead the discussion with questions that generate reflective thinking on how the overall flight was conducted. The teaching instructor should use this time to assist the IT in evaluating his or her own performance, judgment, and decision-making skills. Typically, the student who is receiving training will lead the discussion with a self-critique, thus allowing themselves to draw their own conclusions based on their performance. Based on this analysis, the IT and teaching instructor should discuss methods for improvement, even on those items that were considered successful. In the beginning, the teaching instructor may take a leading role in the post flight review demonstrating to the IT the proper method to conduct the post flight. However, it is vital that the IT learns to identify performance deficiencies, problem solving, and how to administer corrective actions.

Grading and Evaluation

It is important for the IT to understand that the objective of scenario-based training used throughout the instructor course is to change the thought processes, habits, and behavior of the IT.

The Cessna SEP Instructor Training Syllabus is learner centered. It is important that the IT understands the success of the syllabus in the desired outcomes described in Section 2. These desired outcomes are not based on the traditional standards, but instead are based on the knowledge and skill level of the IT.

The performance parameters in each task of the appropriate PTS will be used as a reference and the IT will be graded as: PROFICIENT or NORMAL PROGRESS.

In order to successfully complete the Cessna FITS Instructor Syllabus, the IT must attain the Perform, Manage / Decide level in all areas of training. Any maneuver or procedure completed with less than this level must be completed until the desired outcome is attained.

Section 5 – Cessna FITS Instructor Syllabus

Scenario 1 – Standardization & Review Flight
Cessna SEP Scenario Based Instructor Training

Objective: The Instructor in Training (IT) will demonstrate proficiency in avionics and aircraft system equipment location and normal operating procedures for both VFR and IFR flight.

Prerequisites: Completion of ground school module 1.

IT Preparation: Review the following:
- Normal operating procedures in the POH and the limitations in the AFM
- Airport and appropriate VFR & IFR information for departure, destination, and alternate airports
- Route of flight information for trip legs
- Aircraft and avionics systems display and procedures
- Complete risk assessment matrix

Briefing Items:

Initial Introduction
IT should have a clear understanding of the Pilot in Command concept and how command is transferred. This should include a detailed pre-takeoff briefing procedure and format. Additional items include:
- Weather and personal minimums
- Flight Profile
- Pre-Takeoff Briefing

Single Pilot Resource Management (SRM)
- Checklist procedures
- Avionics systems to be used during this flight
- Communication procedures
- Operating procedures in a single pilot environment

Safety: The following safety items should be briefed to the IT:
- Mid-air collision avoidance procedures
- Taxi procedures
- Personal minimums
- Risk factors for the flight

Preflight:

The IT will plan a combination VFR and IFR cross-country flight of approximately two hours in duration. The flight will include at least one full stop landing at an airport other than the original departure airport.

The IT will perform all weight and balance, performance calculations and discuss the weather briefing received and make a competent go / no-go decision. Additionally, the IT will conduct a risk

assessment to identify any potential safety of flight issues. The instructor will provide the necessary guidance to ensure the overall plan provides for the entire scenario activities and sub-activities listed for this lesson. The IT is evaluated on his / her ability to plan a comprehensive flight with attention to all required scenario activities.

The IT will perform all preflight procedures, engine start-up, avionics set-up, taxi, and before-takeoff procedures for each leg of the scenario. This will include GPS flight plan programming for the flight, autopilot functionality, and proper PFD and MFD setup. The use of any safety sensing devices such as enhanced ground proximity warning / alert system and traffic awareness system should also be encouraged. In addition, an effective pre-takeoff briefing shall be conducted.

The IT should plan and conduct descents from different altitudes on each leg using any appropriate automation. Enough landings should be accomplished to provide the IT with the knowledge and skill to perform as an instructor.

Leg 1

The IT will perform a normal takeoff and departure to a safe altitude using the manufacturer's approved checklist and appropriate climb speeds. When a stabilized climb has been established, the autopilot will be engaged at 800 feet AGL. Collision avoidance procedures will continue to be used during the climb to a VFR cruise transition with the assistance of any equipment installed. VFR maneuvers will be performed on this leg of the flight to ensure proficiency in basic stick and rudder skills. Aircraft systems, avionics, and autopilot functions will be practiced during cruise, descent, and normal landing phase of the flight. The VNAV function will be used in addition to any other form of automation that is appropriate. The IT will perform a normal descent and pattern transition followed by a normal approach and landing. Continued use of any automation and MFD resources are encouraged.

The VFR flight will be from the Independence airport (KIDP) to Pittsburg, Kansas (KPTS). The distance is approximately 51 N.M. to the northeast of KIDP. VFR maneuvers such as steep turns, slow flight, and stalls will be performed by the IT on this leg of the flight. An emphasis will be placed on using a standardized teaching format for transitioning pilots from a conventional cockpit to a glass cockpit.

Leg 2

A different route will be programmed into the GPS for the return trip. This leg will be either a simulated or actual IFR flight. The IT will perform a short field takeoff and departure to a safe altitude using the manufacturer's approved checklist and appropriate climb speeds. When a stabilized climb has been established, the autopilot will be engaged with an emphasis placed on the use of any vertical command capabilities. Collision avoidance procedures will be used during the climb in simulated or actual IFR conditions and while in cruise with the assistance of installed equipment. Aircraft systems, avionics and autopilot functions will be practiced during cruise, descent, and approach phase of the flight. The VNAV function will be used as well as any other appropriate form of automation. The IT will request or select an appropriate IFR approach procedure. The continued use of any other automation is encouraged.

The flight will be either a simulated or actual IFR flight from KPTS to Coffeyville, Kansas (KCFV). The distance is approximately 41 N.M. to the southwest of KPTS. Upon reaching KCFV, the GPS-A approach will be flown, including the full missed approach procedure. While holding, the IT will be asked to fly direct to KIDP for the ILS 35 approach via the procedure turn at VOVRY intersection to a full stop with a soft field landing. The goal for this flight will be for the IT to demonstrate proficiency in IFR flight and to instill a standardized format for training transitioning pilots to fly the NAV III Cessna aircraft in the IFR environment.

Post-Flight: The IT will perform all aircraft shutdown and securing procedures. The teaching instructor will lead a guided discussion on learner-centered grading criteria as well as areas of proficiency and normal progress for the IT.

Legend

Describe: at the completion of the scenario, the IT will be able to describe the physical characteristics and cognitive elements of the scenario activities.

Explain: at the completion of the scenario, the IT will be able to describe the scenario activity and understand the underlying concepts, principles, and procedures that comprise the activity.

Practice: at the completion of the scenario, the IT will be able to practice the scenario activity with little input from the teaching instructor. The IT, with coaching and/or assistance from the teaching instructor, will quickly correct minor deviations and errors identified by the teaching instructor.

Perform: at the completion of the scenario, the IT will be able to perform the activity without assistance from the teaching instructor. Errors and deviations will be identified and corrected by the IT in an expeditious manner. At no time will the successful completion of the activity be seriously in doubt. Perform will be used to signify that the IT is satisfactorily demonstrating proficiency in traditional piloting and systems operation skills.

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

Using This Syllabus

Both an **X** and a check mark (☐) will be entered under the appropriate desired outcome. The definitions of the desired outcomes are listed above. The X signifies where the IT believes himself to be with respect to the scenario activity. The check mark will represent the teaching instructor's opinion of where the IT ranks among the desired outcomes.

IT Name_____

Scenario Activities	Describe	Explain	Practice	Perform	Manage/Decide
• Flight Planning o Scenario Planning o Wt. & Balance / Aircraft Performance o Aircraft Speeds / Configuration o Conduct Flight / SRM Briefing	_____	_____	_____	_____	_____
• Normal Preflight & Cockpit Proc. o Normal Pre-Takeoff Checklist o G1000 Setup	_____	_____	_____	_____	
• Engine Start & Taxi Procedures o Engine Start o G1000 Setup o Taxi	_____	_____	_____	_____	
• Before Takeoff Checks o Normal & Abnormal Indications o G1000 Setup o Map Inset (Terrain)	_____	_____	_____	_____	
• Takeoff o Normal/Crosswind o Short field/Soft field	_____	_____	_____	_____	
• Climb Procedures o Autopilot Climb o Power Management o Use of G1000 Features o Division of Attention	_____	_____	_____	_____	_____
• Cruise Procedures o Lean Assist o Autopilot Cruise o Division of Attention	_____	_____	_____	_____	_____
• PFD / Instrument Crosscheck o Straight & Level o Normal Turns o Climbs & Descents	_____	_____	_____	_____	
• G1000 Programming o General Programming o Communications o Ground Based Navigation o IFR Functions & Procedures o Terminal Area Procedures	_____	_____	_____	_____	
• Autopilot Operation o VS & Altitude Hold o Navigation Modes o PFD Interface	_____	_____	_____	_____	
• Data Link Situational Awareness o TIS o Strike Finder o Terrain Awareness	_____	_____	_____	_____	

- Slow Flight, Stalls, Steep Turns _____ _____ _____ _____ _____
  - Slow Flight Recovery
  - Power-Off Stall Recovery
  - Stall Prevention
  - Steep Turns
- Descent Planning & Execution _____ _____ _____ _____ _____
  - Automation Management
  - VNAV Planning
  - Navigation Programming
  - Autopilot Descent / Arrival
  - CFIT Avoidance
- Instrument Approach Procedures _____ _____ _____ _____
  - Coupled ILS
  - GPS Approach
  - Missed Approach
  - Holding
- Landing _____ _____ _____ _____
  - Before Landing Proc.
  - Normal/Crosswind
  - Short field/Soft field
- Aircraft Shutdown & Securing Proc. _____ _____ _____ _____
  - Checklist Usage
  - Aircraft Tie-down

Notes

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_____

Lesson Date_____
Flight Time/Briefing Time_____/_____
Teaching Instructor_____
IT _____

Scenario 2 – IFR Flight
Cessna SEP Scenario Based Instructor Training

Objective: The IT will use the information acquired from Scenario 1 and will demonstrate instructional knowledge relating to IFR flight in the NAV III Cessna aircraft.

Prerequisites: Completion of ground school module 2. Demonstrate proficiency in Scenario 1.

IT Preparation: Review the following:
- Previous lesson
- Areas of weakness
- Normal and emergency procedures in the Cessna NAV III POH
- Airport and appropriate IFR information for departure, destination, and alternate airports
- Route of flight information for trip legs
- Complete risk assessment matrix

Briefing Items:

Initial Introduction
- Weather and personal minimums
- Flight Profile
- Pre-Takeoff Briefing

Single Pilot Resource Management (SRM)
- Checklist procedures.
- Avionics systems to be used during this flight
- Communication procedures
- Operating procedures in a single pilot environment

Safety: The following safety items should be briefed to ITs:
- Mid-air collision avoidance procedures
- Taxi procedures
- Personal minimums
- Risk factors for the flight

Preflight:

The IT should be able to demonstrate instructional knowledge in the special emphasis areas of the Practical Test Standards and corrective actions related to the unique functions of the NAV III Cessna. The teaching instructor will begin to be more of a facilitator of learning than the end authority of all subject matter.

The IT should be able to select and teach the proper start-up procedure using appropriate techniques. Emphasis should be placed on teaching how to identify the proper start, taxi, and run-up procedures and the differences compared traditional aircraft. The IT will teach the proper set up of the avionics while continuously identifying differences. The teaching instructor shall also evaluate the IT's fundamental knowledge of the avionics and practical use given the flight scenarios. The IT will use instructional techniques to lead the discussion on avionics setup to

include PFD navigation setup, MFD setup relating to the appropriate display for the VFR or IFR leg being conducted, and use of the GPS.

The teaching instructor shall determine if the IT has acquired the knowledge and skill level that meets or exceeds the CFI and CFII PTS in a TAA. Emphasis shall be placed on the IT's ability to safely act as the instructor while using critical thinking skills. The lesson shall be conducted as a multiple leg IFR cross country in which the IT controls the aircraft. The IT shall act as though he or she is demonstrating the maneuver to the teaching instructor for the first time, where the teaching instructor has already been briefed on the maneuver, but has never conducted that particular maneuver.

The IT shall plan the cross-country flight from the position of a flight instructor developing a scenario-based lesson to conduct with a student in a TAA. Prior to the lesson, the IT shall brief the teaching instructor on all aspects of the scenario. The cross-country based scenario should be at least 3 legs, including instrument approaches at each airport, and conducted in a manner that emphasizes judgment and decision-making.

The first leg of the flight will be an IFR departure from KIDP to Claremore, Oklahoma (KGCM). The distance is approximately 51 N.M to the southeast of KIDP. Along the route, proficiency in operation of the G1000 from an instructional perspective will be evaluated. Upon reaching KGCM, the VOR/DME-A approach will be conducted utilizing the DME Arc transition. The missed approach procedure will be executed, followed by the RNAV 35 approach with the procedure turn. A full stop landing will end this leg of the flight.

The second leg will be an IFR departure from KGCM to Tulsa, Oklahoma (KTUL). The distance is approximately 17 N.M. from KGCM. An ILS approach via radar vectors will be performed followed by a full stop landing, which will conclude this leg of the flight.

The third leg will consist of a return trip to KIDP, which is a distance of 55 N.M. Upon reaching KIDP, a GPS approach will be flown with a procedure turn and the flight will conclude with a full stop landing.

Post-Flight: The IT will perform all aircraft shutdown and securing procedures. The IT will act as the instructor while debriefing about the entire flight. A review of the IT's instructional decisions will lead to a discussion of what could have been instructed differently.

Legend

Describe: at the completion of the scenario, the IT will be able to describe the physical characteristics and cognitive elements of the scenario activities.

Explain: at the completion of the scenario, the IT will be able to describe the scenario activity and understand the underlying concepts, principles, and procedures that comprise the activity.

Practice: at the completion of the scenario, the IT will be able to practice the scenario activity with little input from the teaching instructor. The IT, with coaching and/or assistance from the teaching instructor, will quickly correct minor deviations and errors identified by the teaching instructor.

Perform: at the completion of the scenario, the IT will be able to perform the activity without assistance from the teaching instructor. Errors and deviations will be identified and corrected by the IT in an expeditious manner. At no time will the successful completion of the activity be seriously in doubt. Perform will be used to signify that the IT is satisfactorily demonstrating proficiency in traditional piloting and systems operation skills.

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

Using This Syllabus

Both an **X** and a check mark (☐) will be entered under the appropriate desired outcome. The definitions of the desired outcomes are listed above. The X signifies where the IT believes himself to be with respect to the scenario activity. The check mark will represent the teaching instructor's opinion of where the IT ranks among the desired outcomes.

IT Name_____

Scenario Activities	Describe	Explain	Practice	Perform	Manage/Decide
• Flight Planning o Scenario Planning o Wt. & Balance / Aircraft Performance o Aircraft Speeds / Configuration o Conduct Flight / SRM Briefing	_____	_____	_____	_____	_____
• Normal Preflight & Cockpit Proc. o Normal Pre-Takeoff Checklist o G1000 Setup	_____	_____	_____	_____	
• Engine Start & Taxi Procedures o Engine Start o G1000 Setup o Taxi	_____	_____	_____	_____	
• Before Takeoff Checks o Normal & Abnormal Indications o G1000 Setup o Map Inset (Terrain)	_____	_____	_____	_____	
• Takeoff o Normal/Crosswind o Short field/Soft field	_____	_____	_____	_____	
• Climb Procedures o Autopilot Climb o Power Management o Use of G1000 Features o Division of Attention	_____	_____	_____	_____	_____
• Cruise Procedures o Lean Assist o Autopilot Cruise o Division of Attention	_____	_____	_____	_____	_____
• PFD / Instrument Crosscheck o Straight & Level o Normal Turns o Climbs & Descents	_____	_____	_____	_____	
• G1000 Programming o General Programming o Communications o Ground Based Navigation o IFR Functions & Procedures o Terminal Area Procedures	_____	_____	_____	_____	
• Autopilot Operation o VS & Altitude Hold o Navigation Modes o PFD Interface	_____	_____	_____	_____	
• Data Link Situational Awareness o TIS o Strike Finder o Terrain Awareness	_____	_____	_____	_____	

- Descent Planning & Execution _____ _____ _____ _____ _____
  - Automation Management
  - VNAV Planning
  - Navigation Programming
  - Autopilot Descent / Arrival
  - CFIT Avoidance
- Instrument Approach Procedures _____ _____ _____ _____
  - Coupled ILS
  - VOR Approach
  - GPS Approach
  - Missed Approach
  - Holding
- Landing _____ _____ _____ _____
  - Before Landing Proc.
  - Normal/Crosswind
  - Short field/Soft field
- Aircraft Shutdown & Securing Proc. _____ _____ _____ _____
  - Checklist Usage
  - Aircraft Tie-down

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Lesson Date_____
Flight Time/Briefing Time_____/_____
Teaching Instructor_____
IT _____

Scenario 3 – Abnormal and Emergency Flight
Cessna SEP Scenario Based Instructor Training

Objective: The IT will correlate information from Scenarios 1 and 2 and will be introduced to teaching abnormal and emergency procedures in flight.

Prerequisites: Completion of ground school module 3. Demonstrate proficiency in Scenario 2.

IT Preparation: Review the following:
- Previous lesson
- Areas of weakness
- Normal and emergency procedures in the Cessna NAV III POH
- Airport and information for departure and destination airports
- Complete risk assessment matrix

Briefing Items:

Initial Introduction
ITs should have a clear understanding of the capabilities, redundancy, and limitations to the NAV III avionics package. The IT should know what information is lost if a certain LRU fails. In addition, they should also have knowledge of what section in the checklist can be used to address any avionics issues. Additional items include:
- Weather and personal minimums
- Flight Profile
- Pre-Takeoff Briefing

Single Pilot Resource Management (SRM)
- Checklist procedures
- Avionics systems to be used during this flight including all required preflight checks
- Appropriate use of the autopilot where task management is high
- Decision-making and risk management during abnormal / emergency flight situations

Safety: The following safety items should be briefed to ITs:
- Airport diagrams, taxi procedures, and LAHSO operations
- Memory items on the pilot's checklist
- NOTAMs appropriate to the flight
- Prioritizing all abnormal / emergency operations

Preflight:

This scenario will emphasize the IT's instructional knowledge relating to avionics interface and the use of the automation while the teaching instructor introduces abnormal and emergency procedures. The IT will use the autopilot for most of this flight to gain proficiency in operating the various avionics in the aircraft, and enable him or her to teach while flying the aircraft. The teaching instructor shall continue to ask questions that evaluate the IT's judgment and decision making skills while instructing.

In Flight:

While in cruise, the IT will be required to demonstrate understanding of isolated system failures. The teaching instructor shall not unrealistically overload the IT, but instead will develop a realistic scenario. One leg will involve the loss of the PFD, and the other leg will involve the loss of the ARHS and ADC. During each leg, the IT shall conduct a minimum of one instrument approach. The teaching instructor must continue to facilitate the discussion of the differences when transitioning a pilot from conventional cockpits to glass cockpits, and how teaching in a NAV III Cessna differs. The teaching instructor shall make every effort to provide the IT with the most variations in airspace, especially complex airspace in which the IT may have little experience.

Each leg will emphasize the IT's use of critical thinking skills. Throughout the flight, the teaching instructor will introduce different emergencies and situations that will reinforce the IT's correlation of systems interface and related corrective actions.

The first leg of the flight will include an IFR departure to Chanute, Kansas (KCNU). The distance is approximately 31 N.M. from KIDP. Somewhere along the route of flight the teaching instructor will simulate an AHRS and ADC failure by dimming the PFD. The IT will continue the flight to KCNU and perform the GPS-A approach with the simulated failure by using the backup instruments as well as the MFD and the autopilot. A no-flap landing will conclude this leg of the flight.

The second leg will involve a return flight to KIDP, beginning with a soft field takeoff. Along the route of flight, the teaching instructor will simulate a PFD failure by dimming the display. The IT will continue the flight to KIDP and perform the ILS 35 approach with the simulated failure by using the reversionary mode and the autopilot. A short field landing will conclude the flight.

Post-Flight: The IT will perform all aircraft shutdown and securing procedures. The IT should also lead a discussion of the flight, analyzing possible alternative decisions that could have been made to increase proficiency and safety. The teaching instructor should be cautioned not to give the IT answers, but instead guide them in discovering the alternatives, options, and factors they did not consider.

Legend

Describe: at the completion of the scenario, the IT will be able to describe the physical characteristics and cognitive elements of the scenario activities.

Explain: at the completion of the scenario, the IT will be able to describe the scenario activity and understand the underlying concepts, principles, and procedures that comprise the activity.

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IT Name_____

Scenario Activities	Describe	Explain	Practice	Perform	Manage/Decide
• Flight Planning o Scenario Planning o Wt. & Balance / Aircraft Performance o Aircraft Speeds / Configuration o Conduct Flight / SRM Briefing	_____	_____	_____	_____	_____
• Normal Preflight & Cockpit Proc. o Normal Pre-Takeoff Checklist o G1000 Setup	_____	_____	_____	_____	
• Engine Start & Taxi Procedures o Engine Start o G1000 Setup o Taxi	_____	_____	_____	_____	
• Before Takeoff Checks o Normal & Abnormal Indications o G1000 Setup o Map Inset (Terrain)	_____	_____	_____	_____	
• Takeoff o Normal/Crosswind o Short field/Soft field	_____	_____	_____	_____	
• Climb Procedures o Autopilot Climb o Power Management o Use of G1000 Features o Division of Attention	_____	_____	_____	_____	_____
• Cruise Procedures o Lean Assist o Manual Cruise o Autopilot Cruise o Division of Attention	_____	_____	_____	_____	_____
• PFD / Instrument Crosscheck o Straight & Level Flight o Normal Turns o Climbs & Descents	_____	_____	_____	_____	
• G1000 Programming o General Programming o Communications o Ground Based Navigation o IFR Functions & Procedures o Terminal Area Procedures	_____	_____	_____	_____	
• Autopilot Operation o VS & Altitude Hold o Navigation Modes o PFD Interface	_____	_____	_____	_____	
• Data Link Situational Awareness o TIS o Strike Finder o Terrain Awareness	_____	_____	_____	_____	

- Emergency Escape Procedures _____ _____ _____ _____ _____
  - Autopilot Only Flight
  - Pilot Decision Making
- System Malfunctions _____ _____ _____ _____ _____
  - PFD/MFD Failure
  - AHRS/ADC Failure
- Descent Planning & Execution _____ _____ _____ _____ _____
  - Automation Management
  - VNAV Planning
  - Navigation Programming
  - Autopilot Descent / Arrival
  - CFIT Avoidance
- Instrument Approach Procedures _____ _____ _____ _____
  - GPS Approach
  - Coupled ILS
- Landing _____ _____ _____ _____
  - Before Landing Proc.
  - Cross Panel PFD Landing
  - Cross Panel MFD Landing
- Aircraft Shutdown & Securing Proc. _____ _____ _____ _____
  - Checklist Usage
  - Aircraft Tie-down

Notes

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Lesson Date_____
Flight Time/Briefing Time_____/_____
Teaching Instructor_____
IT _____

Section 6 - FITS Master Learning Outcomes List

SEP 1	Single Pilot Resource Management (SRM)	
Unit Objective – Demonstrate safe and efficient operations by adequately managing all available resources.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Task Management (TM)	Note: All tasks under SRM will be embedded into the curriculum and the training will occur selectively during all phases of training. SRM will be graded as it occurs during the training scenario syllabus.	Prioritize and select the most appropriate tasks (or series of tasks) to ensure successful completion of the training scenario.
2. Automation Management (AM)		Program and utilize the most appropriate and useful modes of cockpit automation to ensure successful completion of the training scenario.
3. Risk Management (RM) and Aeronautical Decision Making (ADM)		Consistently make informed decisions in a timely manner based on the task at hand and a thorough knowledge and use of all available resources.
4. Situational Awareness (SA)		Be aware of all factors such as traffic, weather, fuel 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.

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

SEP 3	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 e-Learning 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 e-Learning b. Pre-flight Briefing c. Actual Aircraft Pre-flight	a. Perform PFD initialization. b. Perform autopilot pre-flight checks. c. Program all the GPS and MFD according to the Cessna POH for the specific training scenario to be flown.

SEP 4	Engine Start and Taxi Procedures	
Unit Objective – Demonstrate the proper engine start and taxi procedures for the SEP.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Engine Start	a. Pre-Arrival e-Learning 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 e-Learning b. Actual Aircraft Pre-flight	*a. Understand the proper technique to control the aircraft using appropriate technique.* b. Successfully taxi aircraft.
3. SRM / Situational Awareness	a. Pre-Arrival e-Learning b. Pre-flight Briefing c. Actual Aircraft Pre-flight	a. Understand the capability of the G1000 to aid in low visibility / congested airport taxi situations. b. Demonstrate the proper visual clearing techniques during all taxi operations.

SEP 5	Before Takeoff Checks	
Unit Objective – demonstrate the proper pre-takeoff procedures for the SEP.		
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 e-Learning 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 e-Learning b. Actual Aircraft Pre-flight	Correctly configure and program the PFD / MFD / GPS / Autopilot for the departure.
3. Aeronautical Decision Making / Risk Management		Make the correct go / no-go decision based on the status of the aircraft, pilot, and weather.

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

SEP 7	Climb Procedures	
Unit Objective – demonstrate the proper climb procedures for the SEP.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Manual Climb	a. Pre-flight Briefing b. In-flight from flap retraction until after initial level off at cruise altitude.	a. Perform a hand-flown climb and level off within the PTS standards. b. Establishes pitch within the PTS standards.
2. Autopilot Climb		a. Perform an autopilot-flown climb and level off within the PTS standards. b. Establishes pitch attitude within the PTS standards.
3. Navigation Programming		Program the GPS / MFD to comply with the flight planned course and all ATC clearances.
4. Power management		Set appropriate power / engine leaning settings by reference to the MFD.
5. Situational Awareness, Task Management, and Decision Making		a. Identify all traffic, hazardous terrain, and potentially hazardous situations as they occur by reference to visual clearing and the MFD. 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.

SEP 8	Cruise procedures	
Unit Objective – demonstrate the proper cruise procedures for the SEP.		
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 e-Learning b. In Cruise Flight	Lean the engine using the Lean Assist procedures on the MFD.
3. Manual Cruise	In Cruise Flight	a. Perform hand flown manual cruise within the PTS standards. b. Maintain altitude within the PTS standards.
4. Autopilot Cruise		a. Perform an autopilot assisted cruise within the PTS standards (for manual cruise). b. Maintain altitude within the PTS standards. c. Demonstrate the aircraft reaction to course changes programmed into the GPS.
5. Navigation Programming		Program flight plan changes within 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 800 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 800 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 situations as they occur by reference to visual clearing and the MFD. 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.

SEP 9	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 SEP.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Straight and level 2. Normal Turns 3. Climbing and Descending Turns 4. Steep Turns (45 degree)	a. Pre-flight Briefing b. In-flight	a. Perform the maneuver by sole reference to the PFD within the PTS standards. b. Perform the maneuver by sole reference to the PFD within the PTS standards. c. Establishes airspeed and altitude within the PTS standards.

SEP 10	Low Speed Envelope	
Unit Objective – recognize the onset of low speed flight regimes and demonstrate the proper use of flight controls and Visual or PFD derived cues to perform basic low speed flight maneuvers in the SEP.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Configuration changes 2. Slow Flight	a. Pre-flight Briefing b. In-flight	Demonstrate slow flight within the PTS standard with the flaps in all possible flap positions and detents.
3. Recovery from Power-Off Stall		Demonstrate a recovery from a planned Power-Off 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.

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

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

SEP 13	Aircraft Shutdown and Securing procedures	
Unit Objective – demonstrate proficiency shutting down and securing the SEP.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
l. Aircraft Shutdown and Securing Checklist	Post-flight	Demonstrate proficiency properly concluding a flight including engine shutdown and securing.
2. Aircraft Towing, Ground Handling, and Tie down		Demonstrate proficiency properly concluding a flight including aircraft storage.

SEP 14	Automated Avionics Interface	
Unit Objective – demonstrate proficiency interfacing the avionics for flight operations.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Identification of Data / Power Sources a. ADC failure b. AHRS failure c. Alternator / battery failure	a. Pre-Arrival e-learning b. Classroom c. Pre-flight d. In-flight	a. Understand data / power source failure modes that affect operation of the PFD / MFD. 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.

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

SEP 16	Autopilot Programming, Modes, and Annunciators	
Unit Objective – demonstrate proper use of the autopilot.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1.Vertical Speed and Altitude Hold	In-flight	Demonstrate proper use of the vertical speed and altitude hold.
2.Navigation Modes	In-flight	Demonstrate proper use of the navigation modes of the autopilot.
3.Coupled Approach Modes	In-flight	Demonstrate proper use of the coupled approach modes of the autopilot.

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

SEP 18 Datalink Situational Awareness Systems and Additional Avionics Setup		
Unit Objective – demonstrate proper use of the datalink system and it's interface with other installed avionics.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Weather Setup and Operation	a. Pre-flight b. In-flight	a. Demonstrate the proper setup of the information and related displays. b. Demonstrate the proper decision making skills based on the information presented

SEP 19 Emergency Escape Maneuvers/ Recovery from Unusual Attitudes and Upsets		
Unit Objective – demonstrate unusual attitude / upset recovery in the SEP.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. PFD	In-flight	Demonstrate unusual attitude recovery using the PFD to PTS standards.
2. Backup Instruments	In-flight	Demonstrate unusual attitude recovery using backup instruments to PTS standards.
3. Autopilot Limitations for Recovery Use	a. Pre-flight b. In-flight	Demonstrate unusual attitude recovery using the autopilot to PTS standards.
4. Engine Failure / Emergency Descent	a. Pre-flight b. In-flight	Demonstrate procedures to be used during engine failure or situations requiring an emergency descent.
5. Emergency Escape Maneuvers, Risk Management, and Decision Making	a. Pre-flight b. In-flight	a. Understand the capabilities of the PFD, and Autopilot. 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.

SEP 20 Instrument Approach Procedures (IFR Rated Pilots Only)		
Unit Objective – demonstrate IFR proficiency in the SEP 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 e-Learning b. Pre-flight Briefing c. In-Flight	Perform the approach within the PTS standards.
2. Coupled ILS		Perform the approach within the PTS standards (for a manual approach).
3. Manual VOR		Perform the approach within the PTS standards.
4. Manual GPS		a. Program and activate the GPS approach in a timely manner. b. Perform the approach within the PTS standards.
5. Coupled VOR / GPS Approach		a. Program and activate the VOR / GPS approach in a timely manner. b. Perform the GPS/VNAV approach within the PTS standards (for a manual approach).
6. Manual Missed Approach		Perform the missed approach within the PTS standards.
7. Autopilot Flown missed Approach		Perform the missed approach within the PTS standards (for a manual missed approach).
8. Procedure Turn		Demonstrate procedure to PTS standards.
9. Holding		Demonstrate holding to PTS standards.
10. Task Management and Decision making	In-flight	Demonstrate proper planning and prioritization of time between avionics programming and execution of IFR procedures.
11. Situational Awareness	In-flight	Demonstrate proper use of the PFD and MFD to maintain situational awareness during IFR procedures.