FAA Industry Training Standards (FITS)

Scenario Based Transition Syllabus and Standards For Cessna Single Engine Piston Aircraft (Version 4.0)

Cessna Pilot Training

Cessna SEP FITS Training Master Syllabus
Scenario Based Transition 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), 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 the 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)
    - Multi-Function Displays
    - Traffic Information
    - Weather Information
    - Terrain Information
    - 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

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 to 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 an 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 near real-time information such as weather, traffic, terrain and flight planning to the cockpit. This information may be displayed on the PFD, MFD or on other related cockpit displays.

Desired Pilot in Training (PT) Scenario Outcomes

The objective of scenario-based training is to change the thought processes, habits, and behaviors of the students 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 student outcomes:

- **Maneuver Grades (Tasks)**
  - **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. Significant instructor effort will be required to successfully execute the maneuver.
  - **Practice** - at the completion of the scenario the PT will be able to plan and execute the scenario activity. Coaching and / or assistance from the CFI will 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.
- **Single Pilot Resource Management (SRM) Grades**
  - **Explain –** the PT can verbally identify, describe, and understand the risks inherent in the flight scenario. The student will need to be prompted to identify risks and make more decisions.
  - **Practice –** the PT is able to identify, understand, and apply SRM principles to the actual flight situation. Coaching, instruction, and / or assistance from the CFI will quickly correct minor deviations and errors identified by the CFI. The student will be an active decision maker.
  - **Manage / Decide –** the PT 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.

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. PT interaction with the simulation and task fidelity for the task to be performed are considered the requirements for effective simulation.

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

Section 3 - Cessna SEP FITS Training Philosophy

Cessna Aircraft has built more than 170,000 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.

Scenario based training has been used by the military and commercial airline communities 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 created lessons to mimic real-life scenarios as a means of exposing pilots 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, 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 is superior avionics, which offer enhanced capabilities. Advanced cockpits and avionics, while generally considered enhancements, **require** increased technical knowledge and finely-tuned automation competence. The training Cessna is providing uses the scenario based method to introduce pilots to the **Garmin G1000** avionics, increasing their comfort level in Cessna SEP. Additionally, aircraft systems training are included to help the pilot recognize the limitations and capabilities of these airplanes. Currently SEP / FITS training is available for the following models equipped with the NAVIII / G1000; **C172 Skyhawk**, the **C182 Skylane** and **C206 Stationair**, **C350**, **C400** both normally aspirated and turbocharged versions.

Throughout each training scenario, the pilot will be challenged with "What If?" discussions as a means to provide the PT 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 PT to ponder. Once again, research has shown these types of discussions help build judgment and offset low experience.

Section 4 - Cessna SEP FITS Transition Syllabus

This is a general outline of the subject material included in the ground sessions and flight training scenarios for pilots transitioning into Cessna SEP airplanes equipped with the G1000.

Goal

The goal of the Cessna transition training is to help pilots become familiar with the G1000 equipped Cessna SEP during both the VFR and IFR operations. Additionally, pilots-in-training will be introduced to aircraft systems and operating characteristics unique to the Cessna SEP they will fly.

SEP Course Prerequisites

Training is provided to the owners of a Garmin-equipped SEP airplane. Cessna recommends each pilot-in-training meet the appropriate recency of experience requirements outlined by 14 CFR sections 61.56 and 61.57. Other pilots who would like to attend this training without the purchase of a new Garmin equipped SEP airplane are encouraged to contact a local Cessna Pilot Center (CPC), Cessna Sales Team Authorized Representative (CSTAR), or the Cessna SEP Manager, Training Administration in Independence, Kansas.

Course Elements

Scenario-based transition flight training (SBT) represents a non-traditional approach to GA pilot training. The most significant shift involves moving from the traditional practice of analyzing a maneuver and breaking it down into manageable sizes, establishing behavioral objectives and measuring performance based on those objectives. Instead, SBT uses the same maneuvers but arranges them into “real world” learning experiences. Practice of the task remains the cornerstone of skill acquisition; however, SBT challenges the pilot to think and be proactive.

Pilots in this course will still be exposed to some task based instruction, but the emphasis will be on SBT. In a sequential method of training the ground sessions will support operations to be conducted in the aircraft. As with the basics of any training endeavor, this course will begin from the known to the unknown and from the simple-to-complex building block concept. The emphasis during training is on pilot decision-making and psychomotor skills. After the completion of training, the pilot goes on to fly in an environment that asks them to use skills, apply knowledge, and make decisions unassisted.

Standards

In every airplane system there are limitations based on two factors:

1. The absolute capability of the equipment to perform a particular function, and
2. The individual pilots ability to use that equipment

Effective training and experience can enable safe operation of an airplane within these 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 as well as those of the airplane.

Throughout the ground school and flight curriculum, emphasis will be placed on operating within airplane and pilot limitations. Risk management and decision-making skills should be consistently integrated into each scenario. A discussion of limitations, as they apply to the pilot's experience level, and with reference to potential problem areas, will enhance the decision making process.

Ground Training

The ground-based segments of the syllabus are an integral part of the SBT course and should be mastered prior to the in-flight training experience. The pilot-in-training (PT) should demonstrate, through oral review, the knowledge to safely operate the specific airplane, using the POH, approved Airplane Flight Manual, and airplane checklists. The instructor shall integrate SRM concepts and techniques in each of these discussions.

Flight Training

Each flight-training lesson consists of a highly scripted scenario. These scenarios increase in complexity as the student progresses through the course. The instructor and PT should use the scenario as a "lesson plan." The intent is for the PT to study the lesson script, prepare a scenario plan, and brief it as part of the preflight preparation.

It is especially important that the pilot learn to "manage" the aircraft in the automated mode, as well as fly the aircraft by hand. Good SRM demands that the PT be able to rely on the autopilot and automated navigation systems during times of high cockpit task loads. Instructors shall ensure that emphasis is given to both automated and manual flight modes as described in each scenario.

The PT should demonstrate the necessary skill and experience required for the specific airplane. Operations shall be accomplished within the tolerances specified in the Practical Test Standards appropriate to the PT's airmen certificate.

Risk Assessment

The following table represents a simple risk assessment matrix that was developed and is used by the Cessna Pilot Training department. The purpose of this risk assessment is to provoke thought in the minds of both the PT and the instructor. The goal when developing this matrix was to have a risk assessment that could be easily used without taking an excessive amount of time to complete, yet it provokes enough thought about the flight to assist in making a competent “Go / No Go” decision. After their training, the pilots are encouraged to use a risk assessment for their own day-to-day operations to help them optimize flight safety.

Dispatch Risk Assessment for SE Flight Operations

Risk Assessment: Check all that apply for form management			√		√
	LOW RISK	**MEDIUM RISK**		**HIGH RISK**	
Pilot					
Currency	IFR	VFR		Not Current	
Duty time (employee only)	≤ 10 Hours	10 to 12 Hours		> 12	
Flight Time	<2 hrs.	2-6 hrs.		>6 hrs.	
Rest in 24 hr.	>8 hrs.	>6 hrs.		<6 hrs.	
Aircraft					
Familiarity	>100 hrs.	50 to 100 hrs.		<50 hrs.	
open squawks	None	non-required/safety related		required equipment	
Environment					
Airport Familiarity	Yes	No		Not found in AFD	
Runway Length	>POH x 1.6	< POH x 1.6 Prohibited			
Runway width	≥ 50ft.	> 30 ft.		<30 ft.	
Services Available	24 hrs.	business hrs.		None	
Fueling Facility	Full Service	Adequate sys. (self-serve)		None	
Approach Procedures	Precision Approach	Non-Precision Approach		None	
Weather	VFR	IFR		MVFR/LIFR	
Precipitation	None	Moderate		Heavy/Frozen	
Winds	<20 kts.	20 to 30		>30 or > Demonstrated	
Operation					
Flight Operation	Positioning/Transportation	Demonstration/Delivery		Instruction/Training	
External Pressure	Low	Med		High	
Can you defend your decision to the NTSB? Yes/No					

Dispatch Risk Assessment for SE Flight Operations

Pilot	All green: All pilot operations conducted in accordance with Singe Engine Operations Manual (SEOM).	Any yellow: The pilot will use extra caution and awareness.	Red: Requires management review and approval with plan.
			Orange: Must Meet FAR and SEOM requirements.
Aircraft	All green: Use the aircraft as planned.	Any yellow: Use the aircraft with increased awareness and safety precautions.	Red: Required/Safety equipment must be fixed
			Orange: Must meet SEOM requirements
Environment	All green: Conduct operations as planned.	Any yellow:Contingency plan required.	Red: MVFR use an IFR flight plan. LIFR see SEOM IFR departure minimums.
			Orange: Requires management review and approval with plan
Operation	All green: Procede with planned operation.	Any yellow: Consider contingency plan options.	Orange: Procede with caution, change plan to reduce pressure if possible

Grading and Evaluation

It is important for the PT and instructor to understand the objective of scenario-based training in the transition course is to change the thought processes, habits, and behavior of the PT.

The Cessna SEP transition-training syllabus is learner centered. It is important that the PT understands the success of the syllabus in the desired PT 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 PT.

The grading will be conducted independently by the pilot in training and the instructor, and then compared during the post flight critique. This method of grading is a way for the instructor and PT to determine the level of knowledge and understanding of the PT. 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. Explain and Practice are used to describe the PT's learning levels below proficiency.

Grading should be progressive. During each flight, the PT should achieve a new level of learning. An example would be if on flight one the pilot in training was at the Explain level for autopilot operation, they should achieve the Practice or Perform level on subsequent flights.

Scenario 1 - VFR Flight
Cessna SEP/G1000 Scenario Based Training

Objective: The Pilot in Training (PT) will develop a basic knowledge and progress towards proficiency in G1000 VFR related functions.

Prerequisites: Attended ground school module 1.

PT Preparation: Review the following:
- Normal operating procedures in the POH and the limitations in the AFM
- Airport information for departure and destination airports
- Route of flight information for both trips
- Aircraft and avionics systems display and procedures
- Complete risk assessment sheet

Briefing Items:

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

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

Safety: The PT and teaching instructors should brief the following safety items:
- Mid-air collision avoidance procedures
- Taxi procedures
- Any abnormal, emergency returns or annunciation to abort the flight
- Transfer of flight Controls

Preflight:

The PT and instructor will plan a short visual cross-country flight of approximately one and a half-hour in duration. The flight will include at least one full stop landing at an airport other than the original departure airport.

The PT and instructor will perform all weight and balance, performance calculations and discuss the weather briefing received and make a competent go / no-go decision. Additionally, the PT will conduct a risk assessment to identify any potential safety of flight issue. 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 PT, with assistance from the instructor as needed, 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 terrain awareness and traffic information should be encouraged as well. In addition, an effective pre-takeoff briefing shall be conducted.

Leg 1

The PT will perform a normal takeoff and departure to a safe altitude using the manufacturers approved checklist and appropriate climb speeds. When a stabilized climb has been established, the autopilot will be engaged as appropriate. Collision avoidance procedures will continue to be used during the climb to a VFR cruise altitude with the assistance of any equipment installed. Aircraft systems, avionics and autopilot functions will be practiced during cruise, descent and normal landing phase of the flight. The VFR PT will perform a normal descent and pattern entry followed by a normal approach and landing. Continued use of any automation and MFD resources is encouraged including Vertical Navigation.

Sample flight plan route: Independence, Kansas (KIDP) to Miami, Oklahoma (KMIO). Distance is 45 nautical miles. Full stop landing.

Leg 2

A different route will be programmed into the GPS flight plan for the second leg. A takeoff of the PT's choice will be briefed and performed. If any actual crosswind exists the proper procedures shall be used. Once established in cruise flight, leaning procedures will be reviewed and used according to the manufacturer's recommendation. During the second leg, a diversion to another airport due to simulated unexpected circumstances will be made using G1000 resources. A landing of the PT's choice will made at the alternate airport. If any crosswind exists, appropriate landing procedures shall be used. A takeoff of the PT's choice will be briefed and performed for a return trip to the original departure airport. Navigation will be accomplishing using the flight plan features of the G1000. A climb to a safe altitude will allow for the demonstration of appropriate air work maneuvers. The PT will be encouraged to evaluate personal skill levels in steep turns, and other appropriate aeronautical challenges deemed appropriate by the instructor. Upon completion of the maneuvers, a return to the original departure airport will be made. These maneuvers can be completed prior to landing at the diversion destination as well.

Sample flight plan route: Miami, Oklahoma (KMIO) to Tulsa, Oklahoma (KTUL). Distance is 64 nautical miles. Situation required diversion to an appropriate alternate airport selected by the PT followed by a full stop landing. Return leg to Independence, Kansas (KIDP). VFR flight maneuvers enroute, ending with a full stop landing.

Post-flight: The PT will perform all aircraft shutdown and securing procedures. The instructor will provide feedback and critique the performance of the PT.

Desired Pilot in Training (PT) Scenario Outcomes

- **Maneuver Grades (Tasks)**
  - **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. Significant instructor effort will be required to successfully execute the maneuver.
  - **Practice** - at the completion of the scenario the PT will be able to plan and execute the scenario activity. Coaching and / or assistance from the CFI will 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.
- **Single Pilot Resource Management (SRM) Grades**
  - **Explain –** the PT can verbally identify, describe, and understand the risks inherent in the flight scenario. The student will need to be prompted to identify risks and make more decisions.
  - **Practice –** the PT is able to identify, understand, and apply SRM principles to the actual flight situation. Coaching, instruction, and / or assistance from the CFI will quickly correct minor deviations and errors identified by the CFI. The student will be an active decision maker.
  - **Manage / Decide –** the PT can correctly gather the most important data available both within and outside the cockpit, identify possible course 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.

PT Name _____

Ratings Held

Private ☐

Instrument ☐

Commercial ☐

ATP ☐

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.

Maneuver Grades	PT			Instructor		
	Explain	Practice	Perform	Explain	Practice	Perform
Normal Preflight & Cockpit Procedures						
• Checklist Usage	☐	☐	☐	☐	☐	☐
Engine Start & Taxi Procedures						
• Engine Start	☐	☐	☐	☐	☐	☐
• G1000 Setup	☐	☐	☐	☐	☐	☐
• Taxi	☐	☐	☐	☐	☐	☐
Before Takeoff Checklist						
• Normal & Abnormal Indications	☐	☐	☐	☐	☐	☐
• G1000 Setup	☐	☐	☐	☐	☐	☐
• Autopilot Checks	☐	☐	☐	☐	☐	☐
Takeoff						
• Normal/Crosswind	☐	☐	☐	☐	☐	☐
PFD Crosscheck						
• Instrument Interpretation	☐	☐	☐	☐	☐	☐
Flight Maneuvers						
• Steep Turns	☐	☐	☐	☐	☐	☐
• Slow Flight	☐	☐	☐	☐	☐	☐
• Stalls	☐	☐	☐	☐	☐	☐
G1000 Programming						
• Manual COM/NAV Frequency Loading	☐	☐	☐	☐	☐	☐
• Auto COM/NAV Frequency Loading	☐	☐	☐	☐	☐	☐
• Flight Plans	☐	☐	☐	☐	☐	☐
Flight Director Operation						
• Vertical Modes	☐	☐	☐	☐	☐	☐
• Lateral Modes	☐	☐	☐	☐	☐	☐
Autopilot Operation						
• Vertical Modes						
o PIT	☐	☐	☐	☐	☐	☐
o VS	☐	☐	☐	☐	☐	☐
o FLC	☐	☐	☐	☐	☐	☐
o ALT	☐	☐	☐	☐	☐	☐
o VNV	☐	☐	☐	☐	☐	☐
• Lateral Modes						
o ROL	☐	☐	☐	☐	☐	☐
o HDG	☐	☐	☐	☐	☐	☐
o NAV	☐	☐	☐	☐	☐	☐
Situational Awareness Aids						
• SafeTaxi	☐	☐	☐	☐	☐	☐
• TIS/TAS	☐	☐	☐	☐	☐	☐
• Stormscope	☐	☐	☐	☐	☐	☐
• Weather Datalink	☐	☐	☐	☐	☐	☐
• Terrain Awareness/TAWS	☐	☐	☐	☐	☐	☐

Maneuver Grades (continued)	**PT**			**Instructor**		
	Explain	Practice	Perform	Explain	Practice	Perform
Landing						
• Before Landing Checklist	☐	☐	☐	☐	☐	☐
• Normal/Crosswind	☐	☐	☐	☐	☐	☐
Aircraft Shutdown & Securing						
• Shutdown Checklist	☐	☐	☐	☐	☐	☐

Single Pilot Resource Management Grades	**PT**			**Instructor**		
	Explain	Practice	Manage /Decide	Explain	Practice	Manage /Decide
Scenario Planning						
• Flight Planning	☐	☐	☐	☐	☐	☐
• Weight & Balance	☐	☐	☐	☐	☐	☐
• Determining Performance	☐	☐	☐	☐	☐	☐
Climb Procedures						
• Autopilot Climb	☐	☐	☐	☐	☐	☐
• Checklist Usage	☐	☐	☐	☐	☐	☐
• Division of Attention	☐	☐	☐	☐	☐	☐
Cruise Procedures						
• Autopilot Cruise	☐	☐	☐	☐	☐	☐
• Checklist Usage	☐	☐	☐	☐	☐	☐
• Lean Assist	☐	☐	☐	☐	☐	☐
• Division of Attention	☐	☐	☐	☐	☐	☐
Descent Planning & Execution						
• VNAV Programming	☐	☐	☐	☐	☐	☐
• Autopilot Descent	☐	☐	☐	☐	☐	☐
• CFIT Avoidance	☐	☐	☐	☐	☐	☐
• Checklist Usage	☐	☐	☐	☐	☐	☐

Notes:_____
_____
_____
_____
_____
_____

Date_____

Flight Time/Briefing Time_____/_____

CFI_____

PT_____

Scenario 2 - IFR Flight or VFR Flight
Cessna SEP/G1000 Scenario Based Training

Objective: The PT will demonstrate a basic knowledge and proficiency in avionics and aircraft system equipment location and normal operating procedures while flying in the IFR environment. If the PT is not instrument rated, this lesson will be used as additional training for VFR operations. If a turbo charged aircraft was purchased, optional training can be provided to introduce flight above a cabin pressure altitude of 14,000 feet MSL.

Prerequisites: Completion of flight lesson 1 and ground school module 2.

PT Preparation: Review the following:
- Normal operating procedures in the POH and the limitations in the AFM
- A workbook on the systems and procedures (if applicable)
- Airport and appropriate information for departure, destination and alternate airports
- Route of flight information for trip legs
- Aircraft and avionics systems display and procedures
- Complete risk assessment sheet

Briefing Items:

Initial Introduction
The PT should have a clear understanding of the required equipment for flight in the NAS.

Single Pilot Resource Management (SRM)
- Checklist procedures
- Avionics systems to be used during this flight including all required preflight checks
- Operating procedures and considerations while in a single pilot environment

Safety: The PT and teaching instructor should brief the following safety items:
- CFIT avoidance procedures and G1000 setup
- Airport diagrams, and use of automated tools for taxi procedures
- Use of supplemental oxygen (if required)
- Any abnormal, emergency returns or annunciation to abort the flight
- Transfer of flight Controls

Preflight:

The PT and instructor will perform all weight and balance, performance calculations and discuss the weather briefing received and make a competent go / no-go decision. Additionally, a risk assessment will be conducted to recognize specific management of any risks identified. The instructor will provide the necessary guidance to ensure that the overall plan will complete the scenario activities and sub-activities listed for this lesson.

The flight plan will be a short IFR or VFR cross-country flight (as appropriate) of approximately two hours in duration. Instrument pilots need to include at least one autopilot-assisted non-precision

approach to a missed approach followed by a precision approach to a full stop landing at an airport other than the original departure airport.

The PT 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, autopilot functionality, and proper PFD and MFD setup. The use of any safety sensing devices such as terrain awareness and traffic information should be encouraged as well. In addition, an effective pre-takeoff briefing shall be conducted.

Leg 1

The PT will perform a normal takeoff and departure to a safe altitude using the manufacturers approved checklist and appropriate climb speeds. When a stabilized climb has been established, the flight director and/or 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 / actual IFR or VFR conditions (as appropriate) and while in cruise with the assistance of the equipment installed. 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 IFR PT will request or select an appropriate IFR approach procedure. The continued use of any automation and G1000 resources is encouraged.

Sample flight plan route: Independence, Kansas (KIDP) to Miami, Oklahoma (KMIO). Distance is 45 nautical miles. RNAV GPS 17 (LNAV/VNAV) approach using base leg entry. Full stop landing.

Leg 2

A different route will be programmed into the GPS flight plan for the next leg. A takeoff of the pilot's choice will be briefed and performed. If any actual crosswind exists the proper procedures shall be used. After cruise flight is established, leaning procedures will be reviewed and used according to the manufacturer's recommendation. The flight will continue to a different airport as previously planned. Upon arrival at the destination, the IFR PT will select an approach with vectors to final. Either simulated or actual vectors will be given to the PT. A missed approach will be executed at the missed approach point with a continuation to the "alternate" airport. An approach will be selected which will require the IFR PT fly a course reversal, and circle to land to a full stop.

Sample flight plan route: Miami, Oklahoma (KMIO) to Pittsburg, Kansas (KPTS). Distance is 33 nautical miles. Vectors to RNAV GPS 22 (LNAV+V) approach followed by a missed approach. After the missed, continue to Chanute, Kansas (KCNU) for a VOR approach terminating with a circle to land full stop.

Leg 3

A final leg will be programmed into the GPS as a return flight to the original airport. IFR departure instructions as well as airways will be used if possible and appropriate. Leaning procedures will be reviewed and used. The approach will be one that has not previously been covered and utilize a procedure turn as the entry transition.

Sample flight plane route: Chanute, Kansas (KCNU) to Independence for an ILS 35 approach and a full stop

Post-flight: The PT will perform all aircraft shutdown and securing procedures. The instructor will provide feedback and critique the performance of the IFR PT.

Desired Pilot in Training (PT) Scenario Outcomes

- **Maneuver Grades (Tasks)**
  - **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. Significant instructor effort will be required to successfully execute the maneuver.
  - **Practice** - at the completion of the scenario the PT will be able to plan and execute the scenario activity. Coaching and / or assistance from the CFI will 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.
- **Single Pilot Resource Management (SRM) Grades**
  - **Explain –** the PT can verbally identify, describe, and understand the risks inherent in the flight scenario. The student will need to be prompted to identify risks and make more decisions.
  - **Practice –** the PT is able to identify, understand, and apply SRM principles to the actual flight situation. Coaching, instruction, and / or assistance from the CFI will quickly correct minor deviations and errors identified by the CFI. The student will be an active decision maker.
  - **Manage / Decide –** the PT can correctly gather the most important data available both within and outside the cockpit, identify possible course 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.

PT Name_____

Ratings Held

Private ☐

Instrument ☐

Commercial ☐

ATP ☐

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.

Maneuver Grades	**PT**			**Instructor**		
	Explain	Practice	Perform	Explain	Practice	Perform
Normal Preflight & Cockpit Procedures						
• Checklist Usage	☐	☐	☐	☐	☐	☐
o Oxygen System Checks	☐	☐	☐	☐	☐	☐
Engine Start & Taxi Procedures						
• Engine Start	☐	☐	☐	☐	☐	☐
• G1000 Setup	☐	☐	☐	☐	☐	☐
• Taxi	☐	☐	☐	☐	☐	☐
Before Takeoff Checklist						
• Normal & Abnormal Indications	☐	☐	☐	☐	☐	☐
• G1000 Setup	☐	☐	☐	☐	☐	☐
• Autopilot Checks	☐	☐	☐	☐	☐	☐
Takeoff						
• Normal/Crosswind	☐	☐	☐	☐	☐	☐
PFD Crosscheck						
• Instrument Interpretation	☐	☐	☐	☐	☐	☐
G1000 Programming						
• COM/NAV Frequency Loading	☐	☐	☐	☐	☐	☐
• Flight Plans	☐	☐	☐	☐	☐	☐
• Instrument Procedure Loading	☐	☐	☐	☐	☐	☐
Flight Director Operation						
• Vertical Modes	☐	☐	☐	☐	☐	☐
• Lateral Modes	☐	☐	☐	☐	☐	☐
Autopilot Operation						
• Vertical Modes						
o PIT	☐	☐	☐	☐	☐	☐
o VS	☐	☐	☐	☐	☐	☐
o FLC	☐	☐	☐	☐	☐	☐
o ALT	☐	☐	☐	☐	☐	☐
o VNV	☐	☐	☐	☐	☐	☐
• Lateral Modes						
o ROL	☐	☐	☐	☐	☐	☐
o HDG	☐	☐	☐	☐	☐	☐
o NAV	☐	☐	☐	☐	☐	☐
o APR	☐	☐	☐	☐	☐	☐
Instrument Approach Procedures (if applicable)						
• ILS	☐	☐	☐	☐	☐	☐
• VOR	☐	☐	☐	☐	☐	☐
• GPS / RNAV	☐	☐	☐	☐	☐	☐
• DME Arcs	☐	☐	☐	☐	☐	☐
• Holding/Procedure Turns	☐	☐	☐	☐	☐	☐
• Missed Approach	☐	☐	☐	☐	☐	☐

Maneuver Grades (continued)	**PT**			**Instructor**		
	Explain	Practice	Perform	Explain	Practice	Perform
Situational Awareness Aids						
• SafeTaxi	☐	☐	☐	☐	☐	☐
• TIS/TAS	☐	☐	☐	☐	☐	☐
• Stormscope	☐	☐	☐	☐	☐	☐
• Weather Datalink	☐	☐	☐	☐	☐	☐
• Terrain Awareness/TAWS	☐	☐	☐	☐	☐	☐
Landing						
• Before Landing Checklist	☐	☐	☐	☐	☐	☐
• Normal/Crosswind	☐	☐	☐	☐	☐	☐
Aircraft Shutdown & Securing						
• Shutdown Checklist	☐	☐	☐	☐	☐	☐

Single Pilot Resource Management Grades	**PT**			**Instructor**		
	Explain	Practice	Manage /Decide	Explain	Practice	Manage /Decide
Scenario Planning						
• Flight Planning	☐	☐	☐	☐	☐	☐
• Weight & Balance	☐	☐	☐	☐	☐	☐
• Determining Performance	☐	☐	☐	☐	☐	☐
Climb Procedures						
• Autopilot Climb	☐	☐	☐	☐	☐	☐
• Checklist Usage	☐	☐	☐	☐	☐	☐
• Division of Attention	☐	☐	☐	☐	☐	☐
• Oxygen Usage (if applicable)	☐	☐	☐	☐	☐	☐
Cruise Procedures						
• Autopilot Cruise	☐	☐	☐	☐	☐	☐
• Checklist Usage	☐	☐	☐	☐	☐	☐
• Lean Assist	☐	☐	☐	☐	☐	☐
• Division of Attention	☐	☐	☐	☐	☐	☐
• Oxygen Usage (if applicable)	☐	☐	☐	☐	☐	☐
Descent Planning & Execution						
• VNAV Programming	☐	☐	☐	☐	☐	☐
• Autopilot Descent	☐	☐	☐	☐	☐	☐
• CFIT Avoidance	☐	☐	☐	☐	☐	☐
• Checklist Usage	☐	☐	☐	☐	☐	☐

Notes:_____
_____
_____

Date_____

Flight Time/Briefing Time_____/_____

CFI_____

PT_____

Scenario 3 – G1000 Abnormal/Emergency Considerations
Cessna SEP/G1000 Scenario Based Training

Objective: The PT will demonstrate proficiency in the ability to recognize any failures of avionics and aircraft systems and to apply corrective action in both the VFR and IFR environment. Additionally, the PT will demonstrate the ability to make sound decisions (higher order thinking), control the aircraft, and use all available resources while dealing with these failures (SRM).

Prerequisites: Completion of flight lesson 2.

VFR / IFR PT Preparation: Review the following
- Abnormal / emergency procedures in the POH and the limitations in the AFM
- Effects of equipment failure on autopilot operation
- The manuals referencing the systems and procedures
- Complete risk assessment sheet

Briefing Items:

Initial Introduction
The PT should have a basic understanding of the capabilities, redundancy and limitations of the avionics. The PT should also have knowledge of what area in the checklist will be used to address any avionics issues.

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 PT and teaching instructors should brief the following safety items:
- Airport diagrams and taxi procedures
- Memory items on the pilot's checklist
- NOTAMs appropriate to the flight
- Prioritizing all abnormal / emergency operations
- Transfer of flight Controls

Preflight:

The VFR and IFR PT will plan a two-leg flight. In the event additional training is required, both legs of the scenario will be flown as planned and the emergency procedures described below will be performed on additional legs. If the PT is proficient in all of the scenario one and two scenario activities, the instructor will introduce unplanned emergency procedures to the PT in order to teach the emergency procedures as well as decision making and SRM.

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

be conducted to recognize specific management of any risks identified. The instructor will provide the necessary guidance to ensure that the overall plan will complete the scenario activities and sub-activities listed for this lesson. The PT 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 terrain awareness and traffic information should be encouraged as well. In addition, an effective pre-takeoff briefing shall be conducted.

Leg 1 and 2

The VFR and IFR PT will perform a normal takeoff and departure to a safe altitude using the manufacturers approved checklist and appropriate climb speeds.

Once airborne and stabilized in cruise flight the instructor will introduce (simulate) one of the following:

- Failure of the PFD or MFD (by use of dimming) with continued flight on the remaining display using the flight director where applicable.
- Failure of the AHRS and ADC (by use of dimming or instrument cover) with continued flight on the standby flight instruments and MFD.

This failure will be simulated by using the procedures outlined in Garmin's Guidance for DE's and CFI's. Following a display failure, the VFR PT may select an appropriate alternate airport and use the remaining display to navigate to the airport and land. An IFR PT will be required to fly a cross panel approach followed by a full stop landing.

The next leg will begin by departing with the system fully operational. Once established in cruise flight, an AHRS and ADC failure will be simulated using Garmin's recommended procedures for the Cessna NAV III aircraft or an appropriate instrument cover. A VFR PT may select an appropriate alternate airport to navigate to and land by use of the standby flight instruments and the MFD, as well as remaining autopilot modes. The IFR PT can anticipate selecting an alternate airport and flying an approach to a full stop landing using similar methods.

Sample flight plan route: Independence, Kansas (KIDP) to Olathe, Kansas (KOJC). After failure, divert to Chanute, Kansas (KCNU) using a GPS 36 approach with PFD failure followed by a full stop landing. Next leg is KCNU to Bartlesville, Oklahoma (KBVO). After failure, divert to KIDP and land using the ILS 35 approach.

Post-flight: The PT will perform all aircraft shutdown and securing procedures. The instructor will provide feedback and critique the performance of the VFR and IFR PT.

Desired Pilot in Training (PT) Scenario Outcomes

- **Maneuver Grades (Tasks)**
  - **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. Significant instructor effort will be required to successfully execute the maneuver.
  - **Practice** - at the completion of the scenario the PT will be able to plan and execute the scenario activity. Coaching and / or assistance from the CFI will 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.
- **Single Pilot Resource Management (SRM) Grades**
  - **Explain –** the PT can verbally identify, describe, and understand the risks inherent in the flight scenario. The student will need to be prompted to identify risks and make more decisions.
  - **Practice –** the PT is able to identify, understand, and apply SRM principles to the actual flight situation. Coaching, instruction, and / or assistance from the CFI will quickly correct minor deviations and errors identified by the CFI. The student will be an active decision maker.
  - **Manage / Decide –** the PT can correctly gather the most important data available both within and outside the cockpit, identify possible course 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.

PT Name_____

Ratings Held

Private ☐

Instrument ☐

Commercial ☐

ATP ☐

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.

Maneuver Grades	**PT**			**Instructor**		
	Explain	Practice	Perform	Explain	Practice	Perform
Normal Preflight & Cockpit Procedures						
• Checklist Usage	☐	☐	☐	☐	☐	☐
Engine Start & Taxi Procedures						
• Engine Start	☐	☐	☐	☐	☐	☐
• G1000 Setup	☐	☐	☐	☐	☐	☐
• Taxi	☐	☐	☐	☐	☐	☐
Before Takeoff Checklist						
• Normal & Abnormal Indications	☐	☐	☐	☐	☐	☐
• G1000 Setup	☐	☐	☐	☐	☐	☐
• Autopilot Checks	☐	☐	☐	☐	☐	☐
Takeoff						
• Normal/Crosswind	☐	☐	☐	☐	☐	☐
PFD Crosscheck						
• Instrument Interpretation	☐	☐	☐	☐	☐	☐
G1000 Programming						
• COM/NAV Frequency Loading	☐	☐	☐	☐	☐	☐
• Flight Plans	☐	☐	☐	☐	☐	☐
• Instrument Procedure Loading	☐	☐	☐	☐	☐	☐
Flight Director Operation						
• Vertical Modes	☐	☐	☐	☐	☐	☐
• Lateral Modes	☐	☐	☐	☐	☐	☐
Autopilot Operation						
• Vertical Modes						
o PIT	☐	☐	☐	☐	☐	☐
o VS	☐	☐	☐	☐	☐	☐
o FLC	☐	☐	☐	☐	☐	☐
o ALT	☐	☐	☐	☐	☐	☐
o VNV	☐	☐	☐	☐	☐	☐
• Lateral Modes						
o ROL	☐	☐	☐	☐	☐	☐
o HDG	☐	☐	☐	☐	☐	☐
o NAV	☐	☐	☐	☐	☐	☐
o APR	☐	☐	☐	☐	☐	☐
o BC	☐	☐	☐	☐	☐	☐
Instrument Approach Procedures with Failures (if applicable)						
• ILS	☐	☐	☐	☐	☐	☐
• VOR	☐	☐	☐	☐	☐	☐
• GPS/RNAV	☐	☐	☐	☐	☐	☐
• DME Arcs	☐	☐	☐	☐	☐	☐
• Holding/Procedure Turns	☐	☐	☐	☐	☐	☐
• Missed Approach	☐	☐	☐	☐	☐	☐

Maneuver Grades (continued)	**PT**			**Instructor**		
	Explain	Practice	Perform	Explain	Practice	Perform
Situational Awareness Aids						
• TIS/TAS	☐	☐	☐	☐	☐	☐
• Stormscope	☐	☐	☐	☐	☐	☐
• Weather Datalink	☐	☐	☐	☐	☐	☐
• Terrain Awareness/TAWS	☐	☐	☐	☐	☐	☐
Landing						
• Before Landing Checklist	☐	☐	☐	☐	☐	☐
• Landing with Failures	☐	☐	☐	☐	☐	☐
Aircraft Shutdown & Securing						
• Shutdown Checklist	☐	☐	☐	☐	☐	☐

Single Pilot Resource Management Grades	**PT**			**Instructor**		
	Explain	Practice	Manage /Decide	Explain	Practice	Manage /Decide
Scenario Planning						
• Flight Planning	☐	☐	☐	☐	☐	☐
• Weight & Balance	☐	☐	☐	☐	☐	☐
• Determining Performance	☐	☐	☐	☐	☐	☐
• Diversion	☐	☐	☐	☐	☐	☐
Climb Procedures						
• Autopilot Climb	☐	☐	☐	☐	☐	☐
• Checklist Usage	☐	☐	☐	☐	☐	☐
• Division of Attention	☐	☐	☐	☐	☐	☐
Cruise Procedures						
• Autopilot Cruise	☐	☐	☐	☐	☐	☐
• Checklist Usage	☐	☐	☐	☐	☐	☐
• Lean Assist	☐	☐	☐	☐	☐	☐
• Division of Attention	☐	☐	☐	☐	☐	☐
Emergency Procedures						
• Display Failure	☐	☐	☐	☐	☐	☐
• AHRS/ADC Failure	☐	☐	☐	☐	☐	☐
• Flying on Standby Instruments	☐	☐	☐	☐	☐	☐
• Checklist Usage	☐	☐	☐	☐	☐	☐
Descent Planning & Execution						
• VNAV Programming	☐	☐	☐	☐	☐	☐
• Autopilot Descent	☐	☐	☐	☐	☐	☐
• CFIT Avoidance	☐	☐	☐	☐	☐	☐
• Checklist Usage	☐	☐	☐	☐	☐	☐

Notes:_____

Date_____

Flight Time/Briefing Time_____/_____

CFI_____

PT_____

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) Avoidance		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	Scenario 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 Planning	Preflight Planning	a. Review the required elements of the appropriate flight-training scenario b. Obtain and analyze an FAA approved weather briefing appropriate to the scenario to be flown c. File a flight plan (VFR/IFR) for the scenario to be flown
2. Weight and Balance and Determining Aircraft Performance	a. Classroom Training b. Preflight Planning	Perform weight and balance and performance computations for the specific training scenario to be flown without error
3. 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

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. Checklist Usage	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 all checklists in the proper sequence and without error

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. G1000 Setup	a. Pre-Arrival e-Learning b. 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
3. Taxi	a. Pre-Arrival e-Learning b. Pre-flight Briefing c. Actual Aircraft Pre-flight	a. Understand the proper technique to control the aircraft b. Successfully taxi aircraft

SEP 5	Before Takeoff Checklist	
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. G1000 Setup	a. Pre-Arrival e-Learning b. Actual Aircraft Pre-flight	Correctly configure and program the PFD / MFD / GPS for departure
3. Autopilot Checks	Actual Aircraft Pre-flight	Correctly configure the autopilot according to the AFM Supplement

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 retraction	Perform a normal takeoff within the PTS
2. Crosswind takeoff		Perform a crosswind takeoff within the PTS
3. Aborted takeoff		Perform the aborted takeoff procedure within the PTS

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. Autopilot Climb		Perform an autopilot-flown climb and level off within the PTS
2. Checklist Usage		Use the checklist
3. Division of Attention		Divide attention between in cockpit and outside activities

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. Autopilot Cruise	a. Pre-Arrival e-Learning b. In Cruise Flight	a. Perform an autopilot assisted cruise within the PTS b. Maintain altitude within the PTS c. Demonstrate the aircraft reaction to course changes programmed into the GPS
2. Checklist Usage		Use the checklist
3. Lean Assist		Use the Lean Assist function on the MFD to lean the aircraft as recommended by the POH

SEP 9	PFD 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. Instrument Evaluation	a. Classroom training b. In-flight	a. Perform the maneuver by sole reference to the PFD within the PTS b. Establishes airspeed and altitude within the PTS

SEP 10	Flight Maneuvers	
Unit Objective – demonstrate proper interpretation from the flight indications found on the PFD during various flight maneuvers.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Steep Turns	a. Pre-flight Briefing b. In-flight	Demonstrate steep turns within the PTS
2. Slow Flight		Demonstrate slow flight within the PTS
3. Stall		Demonstrate a recovery from a planned Power-Off Stall with minimum altitude loss

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. Autopilot Descent		Perform an autopilot descent within PTS
4. 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 landing within the PTS
4. Zero Flap landing		Perform a zero flap landing within the PTS
5. Crosswind landing		Perform a crosswind landing within the PTS
6. 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

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:
1. Aircraft Shutdown Checklist	Post-flight	Demonstrate proficiency properly concluding a flight including engine shutdown and securing

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 and corrective actions a. ADC failure b. AHRS failure	a. Pre-Arrival e-learning b. Classroom c. Pre-flight c. 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 display 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	G1000 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: -Nearest Function -Airport Information/ Frequency Loading -Flight Plan Function	In-flight	Demonstrate proficiency using the GPS including the Nearest, and Airport Information functions
2. IFR: -Nearest Function -Airport Information/ Frequency Loading -Instrument Procedure Loading -Flight Plan Function	a. Pre-flight b. In-flight	a. Demonstrate proficiency using the GPS including the 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 Modes	In-flight	Demonstrate proper use of the following modes: a. Vertical Speed b. Altitude Pre-select c. Altitude Hold d. Glide slope Coupling
2. Lateral Modes	In-flight	Demonstrate proper use of the following modes: a. ROL b. HDG c. NAV d. APR e. BC

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	a. Pre-flight b. In-flight c. Post-flight	Demonstrate proper use of the avionics interface during normal operations
3. Abnormal and Emergency Indications and Operations	a. Pre-flight b. In-flight c. Post-flight	Demonstrate proper use of the avionics interface during abnormal and emergency operations
4. HSI Operation	a. Pre-flight b. In-flight	Demonstrate proper setup, use, and operation using different NAV sources and Bearing Pointers

SEP 18	Situational Awareness Aids	
Unit Objective – demonstrate proper use of the datalink systems 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. TIS/TAS 2. Stormscope 3. Weather Datalink 4. Terrain Awareness/TAWS	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 Procedures	
Unit Objective – demonstrate success in recognizing and dealing with component failures.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Display failure	In-flight	Demonstrate recognition of the failures and deal with them appropriately
2. AHRS/ADC Failure	a. Pre-flight b. In-flight	Demonstrate recognition of failures and deal with them appropriately
3. Flying on Standby Instruments	a. Pre-flight b. In-flight	Demonstrate the ability to fly solely by reference to standby instruments
4. Checklist Usage	a. Pre-flight b. In-flight	Demonstrate use of the checklist during emergencies

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. ILS Approach	a. Pre-flight b. In-flight c. Post-flight	Perform the approach within the PTS
2. VOR / GPS Approach (including DME Arcs)		a. Program and activate the VOR / GPS approach in a timely manner b. Perform the GPS / VOR approach within the PTS
3. Missed Approach		Perform the missed approach within the PTS standard
4. Holding/Procedure Turns		Demonstrate holding and procedure turns to PTS
5. Task Management and Decision making	In-flight	Demonstrate proper planning and prioritization of time between avionics programming and execution of IFR procedures
6. Situational Awareness	In-flight	Demonstrate proper use of the PFD and MFD to maintain situational awareness during IFR procedures