FITS Generic Scenario Based Private/Instrument Certification Syllabus for Piston Aircraft

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INTRODUCTION

How to use this generic FITS Syllabus

This syllabus is an FAA Industry Training Standards (FITS) accepted training method. This generic syllabus is a guide for you to use in developing your specific FITS curriculum. This FITS Syllabus is intended as a guide for aircraft manufacturers, training providers, and flight schools to use in developing a specific FITS curriculum for their aircraft, geographic region, and customer base. This syllabus is unique in several ways. First, it is a syllabus that uses real-world scenarios as the foundation of the training. Flight maneuvers are still a vital part of flight training and flight maneuvers are a part of this syllabus, but the use of real-world scenarios is used to also enhance the pilot's decision making skills. The syllabus presents situations and circumstances that pilots face everyday as learning experiences and lessons. The primary tenant of FITS training is that you prepare for the real world of flying, by acting as a pilot while in training. Therefore, throughout the syllabus, the pilot in training (PT) will take on different tasks or jobs just as if they were already certificated pilots. The second important unique feature of this syllabus and of FITS training is that it is all competency based. When the pilot in training (PT) masters a particular skill area in the syllabus, he/she moves on regardless of how much time it takes to reach that point of mastery. This means that each lesson does not necessarily equal one flight. It may take several flights before the PT masters the elements of the lesson and is ready to move on to the next lesson. Consequently, the amount of total flight hours a PT has when the syllabus is completed may be more or less than the minimum times under current aviation regulations. Please note that FITS training is conducted under the current Federal Aviation Regulations. Although philosophically, FITS is competency based, many training organizations must still require their pilots in training to meet the FAA minimum training hours. Courses under 14 CFR Part 142 and section 141.55(d) may be approved to train to competency and not require an hours minimum.

Regulations

This generic syllabus is adaptable to 14 CFR Parts 142, 141, or 61. Please refer to the appropriate regulations for your specific curriculum requirements.

FITS Acceptance

FITS acceptance is achieved by developing your specific curriculum and submitting it to your local Flight Standards District Office for operations under 14 CFR Part 61, 141, and 142. If you are an OEM (Original Equipment Manufacturer, you should submit your curriculum to the FAA FITS Program Manager, AFS-800, Federal Aviation Administration, 800 Independence Ave. SW, Washington, DC 20591. A cover letter explaining exactly for what courses you are requesting FITS acceptance and under what regulations should accompany the curriculum. *Use of the FITS logo*. Once accepted, you are free to use the FITS Logo on all accepted curriculums and in

advertising about this particular curriculum. The FITS logo cannot be used in relationship to non-FITS products.

There are 4 levels of FITS acceptance:

1. Accepted FITS Flight Syllabus: Will contain all the tenets of FITS and will include flight in an aircraft or at least an Advanced Training Device. Examples of this type of syllabus include initial, transition, and recurrent training syllabi.

2. Accepted FITS Syllabus (No flight): It is not intended to teach the pilot in training (PT) psychomotor pilot skills or full cockpit/aircraft integration in a specific aircraft. It's intended to enhance certain skill sets of the PT. Application of this level of acceptance may be to teach the PT how to use a new glass cockpit display or develop better Single Pilot Resource Management (SRM) skills. A FITS Accepted Syllabus will also contain all the tenets of FITS. A live instructor will lead the training.

3. Accepted FITS Self-Learning Program: This acceptance is between the FITS Accepted Syllabus and FITS Supporting Material. It may be either an interactive CD or on-line course on a specific application or subject. The purpose of this training is to learn a specific piece of equipment or enhance a specific higher order thinking skill. Scenario training and/or testing is required. Since a live instructor is not required, Learner Centered Grading may not be applicable.
    a. If the program is for a piece of equipment (i.e. GPS), the equipment should act like the actual piece of equipment during the interaction with the equipment as much as feasible. After basic training on the equipment, scenarios should be used to demonstrate PT proficiency and knowledge.
    b. For non equipment programs (i.e. ADM development) scenarios with multi-string testing should be used.

4. Accepted FITS Supporting Material: These products do not meet the training tenets of FITS (i.e. may not be scenario based), but the subject is integral to FITS. These products could be accepted on their own technical merit, but only as a part of an Accepted FITS Flight Syllabus or FITS Syllabus. For example, a CBI on risk management could be accepted as and used as a Lesson in a FITS accepted transition syllabus. Original equipment manufacturers (Cessna, Cirrus, Eclipse, etc.) or developers of training materials (Sporty's, Jeppesen, King Schools, etc.) normally develop Accepted FITS Supporting Material.

FITS TERMINOLOGY

Automation Bias – The relative willingness of the pilot to trust and utilize automated systems.
Automation Competence – The demonstrated ability to understand and operate the automated systems installed in the aircraft.
Automation Management – The demonstrated 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 airports in which the aircraft is controlled primarily by the autopilot and the on board navigation systems.
Automation Surprise – Occurs when the automation behaves in a manner that is different from what the operator is expecting.
Candidate Assessment – A system of critical thinking and skill evaluations designed to assess a pilot in training's readiness to begin training at the required level.
Critical Safety Tasks/Events – Those mission related tasks/events that if not accomplished quickly and accurately may result in damage to the aircraft or loss of life.
Data link Situational Awareness Systems – Systems that feed real-time information to the cockpit on weather, traffic, terrain, and flight planning. This information may be displayed on the PFD, MFD, or on other related cockpit displays.
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 unanticipated flight into Instrument Meteorological Conditions (IMC) or other life-threatening situations.
IFR Automated Navigation Leg – A leg flown on autopilot beginning from 500 ft AGL on departure (unless the limitations of the autopilot require a higher altitude, then from that altitude) until reaching the decision altitude or missed approach point on the instrument approach (unless the limitations of the autopilot require a higher altitude, then from that altitude). If a missed approach is flown, it will also be flown using the autopilot and on-board navigation systems.
Light Turbine TAA –is a jet or turboprop Technically Advance Aircraft (TAA) certified for single-pilot operations, weighing 12,500 lbs or less, that may be equipped with cabin pressurization, and may be capable of operating in Class A airspace on normal mission profiles.
Mission Related Tasks – Those tasks required for safe and effective operations within the aircraft's certificated performance envelope.
Multi-Function Display MFD – Any display that combines primarily navigation, systems, and situational awareness information onto a single electronic display.
Primary Flight Display (PFD) – Any display that combines the primary six flight instruments, plus other related navigation and situational awareness information into a single electronic display.
Proficiency-Based Qualification – Aviation task qualification based on demonstrated performance rather than other flight time or experience.
Scenario Based Training – 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," e.g., "Scenario Based Transition Training," to reflect the specific application.

Simulation Training Only – Any use of animation and/or actual representations of aircraft systems to simulate the flight environment. Pilot in training interaction with the simulation and task fidelity for the task to be performed are required for effective simulation.

Single Pilot Resource Management (SRM) – The art and science of managing all 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.

Technically Advanced Aircraft (TAA) – A General Aviation aircraft that contains the following design features: Advanced automated cockpit such as MFD or PFD or other variations of a Glass Cockpit, or a traditional cockpit with GPS navigation capability, moving map display and autopilot. It includes aircraft used in both VFR and IFR operations, with systems certified to either VFR or IFR standards. TAA's may also have automated engine and systems management.

VFR Automated Navigation Leg – A leg flown on autopilot from 1,000 ft AGL on the departure until entry to the 45-degree leg in the VFR pattern.

TRAINING PHILOSOPHY

FITS Training is a scenario-based approach to training pilots. It emphasizes the development of critical thinking and flight management skills, rather than solely on traditional maneuver-based skills. The goal of this training philosophy is the accelerated acquisition of higher-level decision-making skills. Such skills are necessary to prevent pilot-induced accidents.

FITS Training Goals

- Higher Order Thinking Skills
- Aeronautical Decision Making
- Situational Awareness
- Pattern Recognition (Emergency Procedures) and Judgment Skills
- Automation Competence
- Planning and Execution
- Procedural Knowledge
- Psychomotor (Hand-Eye Coordination) Skills
- Risk Management
- Task Management
- Automation Management
- Controlled Flight Into Terrain (CFIT) Awareness

Previous training philosophies assumed that newly certified pilots generally remain in the local area until their aviation skills are refined. This is no longer true with the advent of Technically Advanced Aircraft (TAA). Offering superior avionics and performance capabilities, these aircraft travel faster and further than their predecessors. As a result, a growing number of entry-level pilots are suddenly capable of long distance/high speed travel—and its inherent challenges. Flights of this nature routinely span diverse weather systems and topography requiring advanced flight planning and operational skills. Advanced cockpits and avionics, while generally considered enhancements, require increased technical knowledge and finely tuned automation competence. Without these skills, the potential for an increased number of pilot-induced accidents is daunting. A different method of training is required to accelerate the acquisition of these skills during the training process.

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

Maneuver-based training emphasizes the mastery of individual tasks or elements. Regulations, as well as Practical Test Standards (PTS), drive completion standards. Flight hours and the ability to fly within specified tolerances determine competence. The emphasis is on development of motor skills to satisfactorily accomplish individual maneuvers. Only limited emphasis is placed on decision-making. As a result, when the newly trained pilot flies in the real-world environment, he or she is inadequately prepared to make crucial decisions. Scenario Based Training (SBT) and Single Pilot Resource Management (SRM) are similar to LOFT and CRM training. However, each is tailored to the pilot's training needs. These techniques use the same individual tasks that are found in Maneuver Based Training, but script them into scenarios that mimic real-life cross-country travel. By emphasizing the goal of flying safely, the pilot in training correlates the importance of individual training maneuvers to safe mission accomplishment. In addition, the instructor continuously interjects "What If?" discussions as a means to provide the trainee with increased exposure to proper decision-making. Because the "What If?" discussions are in reference to the scenario, there is a clear connection between decisions made and the final outcome. The "What If?" discussions are designed to accelerate the development of decision-making skills by posing situations for the pilot in training to consider. Once again, research has shown these types of discussions help build judgment and offset low experience.

Questions or situations posed by the instructor must be open-ended (rather than requiring only rote or one-line responses). In addition, the instructor guides the pilot in training through the decision process by: 1) Posing a question or situation that engages the pilot in training in some form of decision-making activity. 2) Examining the decisions made. 3) Exploring other ways to solve the problem. 4) Evaluating which way is best. For example, when the pilot in training is given a simulated engine failure, the instructor might ask questions such as: "What should we do now?" Or, "Why did you pick that place to land?" Or, "Is there a better choice?" Or, "Which place is the safest?" Or, "Why?" These questions force the pilot in training to focus on the decision process. This accelerates the acquisition of improved judgment, which is simply the decision-making process resulting from experience. It is not innate. All of our life experiences mold the judgment tendencies we bring to our flight situations. By introducing decision-making opportunities into routine training lessons, we speed-up acquisition of experience, thus enhancing judgment.

For further information, please reference "Aeronautical Decision Making" in the FAA Aviation Instructor Handbook.

TEACHING METHODS

Scenario Based Training

For Scenario Based Training (SBT) to be effective there must be a purpose for the flight and consequences if it is not completed as planned. It is vital that the pilot in training and the Instructor communicate the following information well in advance of every training flight:

Purpose of flight
Scenario destination(s)
Desired pilot in training learning outcomes
Desired level of pilot in training performance
Desired level of automation assistance
Possible in-flight scenario changes (during later stages of the program)

With the guidance of the Instructor, the pilot in training should make the flight scenario as realistic as possible. This means the pilot in training will know where they are going and what will transpire during the flight. While the actual flight may deviate from the original plan, it allows the pilot in training to be placed in a realistic scenario.

Scenario Planning – Prior to the flight, the Instructor will brief the scenario to be planned. The 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 Instructor can most effectively draw out a pilot in training's knowledge and decision processes. This enables the Instructor to analyze and evaluate the pilot in training's level of understanding. After discussion with the Instructor, the pilot in training will plan the flight to include:

Reason to go flying
Route
Destination(s)
Weather
Notams
Desired pilot in training learning outcomes
Possible alternate scenarios and emergency procedures

Example of Scenario Based Training

Consider the following example: During traditional MBT, the Instructor provides a detailed explanation on how to control for wind drift. The explanation includes a thorough coverage of heading, speed, angle of bank, altitude, terrain, and wind direction plus velocity. The explanation is followed by a demonstration and repeated practice of a specific flight maneuver, such as turns around a point or S turns across the road until the maneuver can be consistently accomplished in a safe and effective manner within a

specified limit of heading, altitude, and airspeed**. *At the end of this lesson, the pilot in training is only capable of performing the maneuver.***

Now, consider a different example: The pilot in training is asked to plan for the arrival at a specific uncontrolled airport. The planning should take into consideration the possible wind conditions, arrival paths, airport information and communication procedures, available runways, recommended traffic patterns, courses of action, and preparation for unexpected situations. Upon arrival at the airport the pilot in training makes decisions (with guidance and feedback as necessary) to safely enter and fly the traffic pattern using proper wind drift correction techniques. This is followed by a discussion of what was done, why it was done, the consequences, and other possible courses of action and how it applies to other airports. ***At the end of this lesson the pilot in training is capable of explaining the safe arrival at any uncontrolled airport in any wind condition.***

The first example is one of traditional learning, where the focus is on the maneuver. The second is an example of scenario-based training, where the focus is on real world performance. Many course developers in flight training have built on the former option. Traditional training methods in many instances are giving way to more realistic and fluid forms of learning. The aviation industry is moving from traditional knowledge-related learning outcomes to an emphasis on increased internalized learning in which learners are able to assess situations and appropriately react. Knowledge components are becoming an important side effect of a dynamic learning experience.

Reality is the ultimate learning situation and scenario-based training attempts to get as close as possible to this ideal. In simple terms, scenario-based training addresses learning that occurs in a context or situation. It is based on the concept of situated cognition, which is the idea that knowledge cannot be known and fully understood independent of its context. ***In other words, we learn better, the more realistic the situation is and the more we are counted on to perform.***

Michael Hebron, a well-known golf instructor, suggests that there is little the expert can do in the way of teaching the learner particular motions of the golf swing. Instead, learning has to be experiential and feedback based; only a handful of basic principles are involved. The same goes, he says, for any and all kinds of learning. ***"It's about learning, not about golf."***

Scenario-based training (SBT) is similar to the experiential model of learning. The adherents of experiential learning are fairly adamant about how people learn. **They would tell us that learning seldom takes place by rote.** Learning occurs because we immerse ourselves in a situation in which we are forced to perform. We get feedback from our environment and adjust our behavior. We do this automatically and with such frequency in a compressed timeframe that we hardly notice we are going through a learning process. Indeed, we may not even be able to recite particular principles or describe how and why we engaged in a specific behavior. Yet, we are still able to replicate the behavior with increasing skill as we practice. If we could ask Mark

MacGuire to map out the actions that describe how he hits a home run, he would probable look at us dumbfounded and say, “I just do it.” On the other hand, I am sure Mark MacGuire could describe in detail the size and characteristics of every one of the baseball diamonds he was playing in as well as the strengths, weaknesses and common practices of every one of the pitchers he faced.

Developing Scenario-Based Training

Scenario-based training best fits an open philosophy of blended and multiple learning solutions in which change and experience are valued and the lines between training and performance improvement are blurred. For scenario-based training to be effective it must generally follow a performance improvement imperative. The focus is on improved outcomes rather than the acquisition of knowledge and skills. Success requires a blended, performance-based, and reinforced solution.

An athletic exercise such as Basketball might prove to be a very good example. Clearly, the team’s objective is to win, which means scoring more points than the other team. That’s the performance objective. Each member of the team also has personal performance goals. The coach can stand at a blackboard and explain defensive and offensive diagrams with players, the rules of the game, and so forth. By doing that, he has identified a set of learning subjects (rules and play patterns) that are best delivered in a traditional fashion.

On the other hand, the application of these subjects and the level of proficiency required in their use can only be learned on the court. The scenario in this example is a scrimmage. During a typical scrimmage, experienced players are mixed with non-experienced players and matched against a similarly constituted practice team. The two teams play a game, and the coaches stop the action at appropriate intervals to offer feedback. Learning takes place in a highly iterative fashion often without the player realizing that specific bits of learning are taking place. The scrimmage provides a player with the opportunity to make several decisions, engage in complex and fast-paced behaviors, and immediately see impact. The coach may have some general ideas of basketball in mind and perhaps some specific learning objectives for the day, but in most cases does not know precisely which of them will be addressed during the scrimmage – that depends on the flow of practice.

Similarly, most flight training consists of both kinds of subjects: those amenable to traditional instructional design techniques and those better approached through scenario-based training. Neither is all that useful without the other. Before a learner can engage in a scenario, he or she needs some basic subject knowledge and skill. However, the strongest adherents of the scenario-based approach suggest very little subject knowledge is needed in order to take advantage of SBT. **The main point is that knowledge without application is worth very little.**

The first step in the scenario design process is to engage a number of subject matter experts in a series of discovery sessions and interactive meetings for the purpose of identifying issues and learning objectives including higher-level and performance objectives. With clearly identified learning objectives, appropriate techniques and where to use them can be specified. In the basketball example, players need some rudimentary knowledge of the game and basic skill in order to make the practice session efficient and effective. Consequently, the required knowledge and skill objects need to be integrated into the actual sessions of practice. So, like a train pulling a number of boxcars, a traditional piece of learning precedes or is integrated into a scenario, with the scenario dictating what information is covered in the traditional piece. If, as described in the scrimmage session above, you don't precisely know what will come up in the practice, you shouldn't waste time in the traditional preparation. It's more efficient to share very basic principles and devote your resources to preparing to teach any situation that may arise. What is important, however, is to establish the boundaries of the scenarios. These are done using performance-based learning objectives (Internalized Responses) as opposed to knowledge-based learning objectives, and are worded as performance objectives rather than skill-based behavior objectives.

For example, in the traditional, more repetitive, intensive flight training sessions, objectives are knowledge-based and tend to be specific and limited. On the other hand, in scenario-based training we are simply trying to determine whether the learner has the minimum necessary knowledge/skill to qualify for the scenario. With scenario-based objectives, we are looking for performance behaviors and indicators of internalized responses, which are usually situational recognition indicators.

We can see this clearly illustrated in an automobile driver-training example (Table 1). The traditional Behavior (skill) objective is knowledge based and the SBT Performance objective is performance-based (responses which are situational recognition indicators).

Table 1: Driving Learning Objectives

Knowledge		**Behavior (Skill)**
Traditional	Know what a STOP sign and a Railroad crossing sign look like and what they mean. Describe the correct parallel parking procedure	Drive an automatic shift car on a county road over a 2-mile route with one RR crossing and 2 full stops. Maneuver the automobile into a normal parallel parking space between 2 other cars.
Internalized Response		**Performance**
Scenario-Based	Appropriately apply the rules of the road for driving in the local area in moderate traffic. Determine the shortest route and apply the appropriate procedures for driving in heavy and complex traffic conditions.	Drive from your garage to the Shopping Center on the same side of town Drive from your garage to a specified address in another town over 50 miles away on the Interstate and an Expressway system.

Scenario design sessions should resemble focus groups in which participants work through a series of issues, from broad scenario outlines to very specific scenario details. Direct participants to address two general areas: content and style.

Sessions to determine content usually ask participants to:

- Share experiences about the subject event
- Describe desirable outcomes
- Share best practices or known instances of consistent achievement of the desired outcomes
- Create indicators of successful outcomes
- Create strategies expected to lead to successful outcomes
- Establish descriptions of successful and unsuccessful performance behaviors related to these strategies (note that outcome measures and performance behaviors will constitute the evaluative criteria for assessing performance in the scenario).

After the content discussion, ask participants to review the look, feel, and flow of the scenario. This is much like the process used for instructional design. Develop a storyboard with a general beginning and end, using the boundaries established earlier. Talk through the scenario in the session and, through iteration, create a flow script from the results.

With these two elements in place, you can begin the actual construction of the scenario. A subcommittee of Flight Instructors and subject matter experts (SME's) should review and revise the scenario to fit into the whole course of instruction.

Scenarios are meant to be real situations. In an ideal world, an assessment team would evaluate behavior and agree on several critical performance dimensions. The key indicators should come from the initial SME's, in which they also create strategies expected to lead to successful outcomes and establish descriptions of successful and unsuccessful performance behaviors. Outcome measures and performance behaviors will constitute the evaluative criteria for assessing performance in the scenario.

Examples of indicators of successful outcomes are whether an airplane arrived and was secured at the destination airport and how safe were all aspects of the flight or were there any regulatory violations. Strategies are clusters of internally consistent behaviors directed toward the achievement of a goal. Performance behaviors are the key behaviors in those strategies. Establishing these dimensions should be a group process and is usually completed in the subject matter expert design session.

Review, obtain learner feedback, and revise**.** All learning, even the most traditional, is iterative. The key to creating a useful scenario is to see it as a learning experience for the designers as well as the learners. This means that results and comments about the learning experience are shared with the SME's and the designer so that they can review and modify the scenarios as necessary. Obtain open –ended qualitative data from the learner and the Flight Instructor about the experience and review the data with the SME's and the designer.

Based on this kind of feedback, scenarios can be revised to better target the learner population. That process mirrors the original design steps. There are some cautions, however, in the revision process. First, there is an old saying: “It doesn’t take a cannon to blow away a tin can.” Basically, revisions should not needlessly complicate the scenario or the technology needed to employ it. It is crucial to weigh the risks of complication against the genuine learning needs. Before any revision, affirm the original purpose statement and the categorization of learning elements.

Also, do not let principles and main points become diluted by revisions. It is tempting to add more items and nuances in a scenario, but doing so further complicates the learning process. Save complexity for a full-scale “capstone” experience. Remember, adding an item in traditional learning complicates the learning process in a linear fashion. In scenarios, complication grows non-linearly with the addition of learning items. So, beware. A rule of thumb is to reduce rather than increase principles and main points in a revision.

Always review success and failure paths for realism. Remember that any change in a scenario item complicates all items on the path following it. Any time a decision node is altered, chances are that the decision nodes and information items following it must change. With every revision, follow and ensure the consistency of associated paths.

Finally, remember that traditional learning elements should service the scenario-based learning elements, which are situated in a real context and based on the idea that knowledge cannot be known and fully understood independent of its context. It is

essential to place boundaries around scenarios to make the transitions between scenarios and traditional learning as efficient as possible.

Table 2: The Main Points

- Scenario-based training (SBT) is situated in a real context and is based on the idea that knowledge cannot be known and fully understood independent of its context.
- SBT accords with a performance improvement and behavior change philosophy of the learning function.
- SBT is different from traditional instructional design and one must be aware of the differences to successfully employ SBT.
- All learning solutions should employ both traditional and scenario-based training.
- Traditional learning elements should service the scenario-based training elements.
- It is essential to place boundaries around scenarios to make the transitions between scenarios and traditional learning as efficient as possible.
- Use interactive discovery techniques with subject matter experts (SME's) and designers to establish the purpose and outcomes of scenarios create the scenarios and appropriate strategies and performance behaviors, and develop learner evaluation criteria.
- SBT occurs by following success and failure paths through a realistic situation. Typically, these paths must be limited to stress the main learning objective. Otherwise the scenario can become too complex and unwieldy.
- Open-ended qualitative learner feedback is key to successful scenario revision, but revisions should not further complicate the scenario unless highly justified.

Kindley, R. (2002). *Scenario-Based E-Learning: A Step Beyond Traditional E-Learning.* Retrieved 02/02/05 from http://www.learningcircuits.org/2002/may2002/kindley.html

Single Pilot Resource Management

Single Pilot Resource Management (SRM) is defined as the art and science of managing all the resources (both on-board the aircraft and from outside sources) available to a single-pilot (prior and during flight) to ensure that the successful outcome of the flight is never in doubt. Most of us remember a favorite Instructor from our past that showed us the best way to solve in-flight problems and unforeseen circumstances. The FITS team has combined much of this collective CFI body of knowledge with some innovative teaching methods to give pilots practical tools to teach aeronautical decision-making and judgment. SRM includes the concepts of Aeronautical Decision Making (ADM), Risk Management (RM), Task Management (TM), Automation Management (AM), Controlled Flight Into Terrain (CFIT) Awareness, and Situational Awareness (SA). SRM training helps the pilot maintain situational awareness by managing the automation and associated aircraft control and navigation tasks. This enables the pilot to accurately assess and manage risk and make accurate and timely decisions. ***This is what SRM is all about, helping pilots learn how to gather information, analyze it, and make decisions.***

Teaching pilots to identify problems, analyze the information, and make informed and timely decisions is one of the most difficult tasks for Instructors. By way of comparison, the training of specific maneuvers is fairly straightforward and reasonably easy to understand. We explain, demonstrate, and practice a maneuver until proficiency is achieved. We are teaching the pilot in training ***"what to think"*** about each maneuver, and sign them off when they demonstrate proficiency. Teaching judgment is harder. Now we are faced with teaching the pilot in training ***"how to think"*** in the endless variety of situations they may encounter while flying out in the "real world." Often, they learn this by watching Instructors. They observe reactions, and more importantly, actions, during flight situations and they often adapt the styles of the Instructor to their own personalities.

Pilots in training may range from 100-hour VFR-only pilots, all the way to multi-thousand hours ATP's. The strength of this format is that the participants learn not only from their Flight Instructor, but from each other as well. The collective knowledge of many pilots, when guided by an experienced CFI, is much greater than the knowledge of each participant, including the Flight Instructor. In these scenarios, there are no right answers, rather each pilot is expected to analyze each situation in light of their experience level, personal minimums, and current physical and mental readiness level, and make their own decision.

The SRM scenarios, developed by the FITS team, incorporate several maneuvers and flight situations into realistic flight scenarios. The scenarios are much like the Line Oriented Flight Training (LOFT) employed by the major corporate and airline training organizations for years. Table 3 gives an example of the performance, standards and conditions using SRM.

Table 3: Single Pilot Resource Management (SRM)

Performance The training task is:	**Standards** The pilot in training will:	**Conditions** The training is conducted during:
1. Task Management (TM)	Prioritize and select the most appropriate tasks (or series of tasks) to ensure successful completion of the training scenario.	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.
2. Automation Management (AM)	Program and utilize the most appropriate and useful modes of cockpit automation to ensure successful completion of the training scenario.	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.
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.	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.
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.	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.
5. Controlled Flight Into Terrain (CFIT) Awareness	Understand, describe, and apply techniques to avoid CFIT encounters: a. During inadvertent encounters with IMC during VFR flight. b. During system and navigation failures and physiological incidents during IFR flight.	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.

The “5P” Check

SRM sounds good on paper, however, it requires a way for pilots to understand and deploy it in their daily flights. This practical application is called the “Five P’s (5P’s)” The 5P’s consist of “the Plan, the Plane, the Pilot, the Passengers, and the Programming”. Each of these areas consists of a set of challenges and opportunities that face a single pilot. And each can substantially increase or decrease the risk of successfully completing the flight based on the pilot’s ability to make informed and timely decisions. The 5P’s are used to evaluate the pilot’s current situation at key decision points during the flight, or when an emergency arises. These decision points include, pre-flight, pre-takeoff, hourly or at the midpoint of the flight, pre-descent, and just prior to the final approach fix or for VFR operations, just prior to entering the traffic pattern.

The 5P’s are based on the idea that the pilots have essentially five variables that impact his or her environment and that can cause the pilot to make a single critical decision, or several less critical decisions, that when added together can create a critical outcome. These variables are the Plan, the Plane, the Pilot, the Passengers, and the Programming. The authors of the FITS concept felt that current decision-making models tended to be reactionary in nature. A change has to occur and be detected to drive a risk management decision by the pilot. For instance, many pilots ascribe to the use of risk management sheets that are filled out by the pilot prior to takeoff. These catalog risks that may be encountered that day and turn them into numerical values. If the total exceeds a certain level, the flight is altered or cancelled. Informal research shows that while these are useful documents for teaching risk factors, they are almost never used outside of formal training programs. The number of pilots who use them before each and every flight approaches zero. The 5P concept is an attempt to take the information contained in those sheets and in the other available models and operationalize it.

The 5P concept relies on the pilot to adopt a “scheduled” review of the critical variables at points in the flight where decisions are most likely to be effective. For instance, the easiest point to cancel a flight due to bad weather is before the pilot and passengers walk out the door and load the aircraft. So the first decision point is Pre-Flight in the flight planning room, where all the information is readily available to make a sound decision, and where communication and FBO services are readily available to make alternate travel plans.

The second easiest point in the flight to make a critical safety decision is just prior to takeoff. Few pilots have ever had to make an “emergency take-off”. While the point of the 5P check is to help you fly, the correct application of the 5P before takeoff is to assist in making a reasoned go-no-go decision based on all the information available. That decision will usually be to “go”, with certain restrictions and changes, but may also be a “no-go”. The key point is that these two points in the process of flying are critical go-no go points on each and every flight.

The third place to review the 5Ps is at the mid point of the flight. Often, pilots may wait until the ATIS is in range to check weather, yet at this point in the flight many good

options have already passed behind the aircraft and pilot. Additionally, fatigue and low altitude hypoxia serve to rob the pilot of much of their energy by the end of a long and tiring flight day. This leads to a transition from a decision-making mode to an acceptance mode on the part of the pilot. If the flight is longer than 2 hours, the 5P check should be conducted hourly.

The last two decision points are just prior to decent into the terminal area and just prior to the final approach fix, or if VFR just prior to entering the traffic pattern, as preparations for landing commence. Most pilots execute approaches with the expectation that they will land out of the approach every time. A healthier approach requires the pilot to assume that changing conditions (the 5Ps again) will cause the pilot to divert or execute the missed approach on every approach. This keeps the pilot alert to all manner of conditions that may increase risk and threaten the safe conduct of the flight. Diverting from cruise altitude saves fuel, allows unhurried use of the autopilot, and is less reactive in nature. Diverting from the final approach fix, while more difficult, still allows the pilot to plan and coordinate better, rather than executing a futile missed approach. Now lets look in detail at each of the “Five P’s”.

The Plan

The “Plan” can also be called the mission or the task. It contains the basic elements of cross country planning, weather, route, fuel, publications currency, etc. Unlike risk management sheets that pilot fill out before a flight, the “Plan” should be reviewed and updated several times during the course of the flight. A delayed takeoff due to maintenance, fast moving weather, and a short notice Temporary Flight Restriction (TFR) may all radically alter the plan. Several excellent flight planning software packages are available that automate this process, allowing the pilot additional time to evaluate and make decisions. Some include real time and graphical TFR depictions. The “plan” is not just about the flight plan, but the entire days events surrounding the flight and allowing the pilot to accomplish the mission. The plan is always being updated and modified and is especially responsive to changes in the other four remaining P’s. If for no other reason, the 5P check reminds the pilot that the day’s flight plan is real life and subject to change at any time.

Obviously the weather is a huge part of any “plan.” The addition of real time data link weather information give the TAA pilot a real advantage in inclement weather, but only if the pilot is trained to retrieve, and evaluate the weather in real time without sacrificing situational awareness. And of course, weather information should drive a decision, even if that decision is to continue on the current “plan.” Pilots of aircraft without datalink weather should get updated weather in-flight through a Flight Service Station and/or Flight Watch.

The Plane

Both the “plan” and the “plane” are fairly familiar to most pilots. The “plane” consists of the usual array of mechanical and cosmetic issues that every aircraft pilot, owner, or operator can identify. For example, Is everything working properly? Is the fuel situation where you expected it to be at that point? Are you using anti-ice equipment? However, with the advent of the Technically Advanced Aircraft (TAA), the “plane” has expanded to include database currency, automation status, and emergency backup systems that were unknown a few years ago. Much has been written about single pilot IFR flight both with, and without, an autopilot. While this is a personal decision, it is just that, a decision. Low IFR in a non-autopilot equipped aircraft may depend on several of the other “P’s” we will discuss. Pilot proficiency, currency, and fatigue are among them. The TAA offers many new capabilities and simplifies the basic flying tasks, but only if the pilot is properly trained and all the equipment is working as advertised.

The Pilot

This is an area all pilots are learning more and more about each day. Flying, especially when used for business transportation, can expose the pilot to high altitude flying, long distance and endurance, and more challenging weather. Technically Advance Aircraft (TAA), simply due to their advanced capabilities can expose a pilot to even more of these stresses. The traditional “IMSAFE” checklist is a good start. However, each of these factors must be taken in consideration of the cumulative effect of all of them together and the insidious effects of low altitude hypoxia. The authors informal survey of TAA pilots show that almost half fly with pulse oxymeters to display the effects of low altitude hypoxia in a graphic manner.

The combination of late night, pilot fatigue, and the effects of sustained flight above 5,000 feet may cause pilots to become less discerning, less critical of information, less decisive and more compliant and accepting. Just as the most critical portion of the flight approaches (for instance a night instrument approach, in the weather, after a four hour flight) the pilot’s guard is down the most. The “5P” process emphasizes that pilot recognize the physiological situation they are placing themselves in at the end of the flight, before they even takeoff, and continue to update their condition as the flight progresses. Once identified, the pilot is in an infinitely better place to make alternate plans that lessen the effect of these factors and provide a safer solution.

The Passengers

One of the key differences between CRM and SRM is the way passengers interact with the pilot. In the airline industry the passengers have entered into a contractual agreement with the pilots company with a clearly defined set of possible outcomes. In corporate aviation, the relationship between crew and passengers is much closer, yet is still governed by a set of operating guidelines and the more formal lines of corporate authority. However, the pilot of a highly capable one engine inoperative aircraft has

entered into a very personal relationship with the passengers, in fact, they sit within an arms reach all of the time.

It may be easy, especially in business travel, for the desire of the passengers to make airline connections or important business meetings to enter into the pilot's decision-making loop. If this is done in a healthy and open way, it is a very positive thing. However, this is not always the case. For instance, imagine a flight to Dulles Airport and the passengers, both close friends and business partners, need to get to Washington D.C. for an important meeting. The weather is VFR all the way to southern Virginia then turns to low IFR as the pilot approaches Dulles. A pilot employing the 5P approach might consider reserving a rental car at an airport in northern North Carolina or southern Virginia to coincide with a refueling stop. Thus, the passengers have a way to get to Washington, and the pilot has an out to avoid being pressured into continuing the flight if the conditions do not improve.

Passengers can also be pilots. The old joke says that when four Certified Flight Instructors (CFI) board a light general aviation, a NOTAM should be posted. There is some truth to this. If no one is designated as pilot in command and unplanned circumstances arise, the decision-making styles of four self confident CFI's may come into conflict. Another situation arises when an owner pilot flies with a former CFI in the right seat on a business trip. Unless a clear relationship is defined and briefed prior to the flight, the owner pilot may feel some pressure to perform for the Individual Learning Manager (possibly beyond his or her capability), and the Individual Learning Manager may feel inhibited from intervening in small decisions until it is clearly evident that the pilot is making poor decisions. This is actually a CRM situation and requires clear pre-flight understanding of roles, responsibilities, and communication. Non-Pilots can also cause the pilot to review the SRM process.

Pilots need to understand that non-pilots may not understand the level of risk involved in the flight. There is an element of risk in every flight. That's why SRM calls it risk management not risk elimination. While a pilot may feel comfortable with the risk present in a night IFR flight, the passengers may not and may manifest this during the flight. The human reaction to fear and uncertainty is as varied as the shapes of our ears. Some become quiet, some talk incessantly, and in extreme cases anger and fear are strongly manifested. This may be the last thing the pilot needs to deal with while shooting the ILS to 400 feet and a mile visibility at midnight.

A pilot employing SRM should ensure that the passengers are involved in the decision-making and given tasks and duties to keep them busy and involved. If, upon a factual description of the risks present, the passengers decide to buy an airline ticket or rent a car, then a good decision has generally been made. This discussion also allows the pilot to move past what he or she "thinks" the passengers want to do and find out what they "actually" want to do. This removes a load of self-induced pressure from the pilot.

The Programming

The TAA adds an entirely new dimension to the way General Aviation aircraft are flown. The Glass Cockpit, GPS, and Autopilot are tremendous boons to reduce pilot workload and increase pilot situational awareness. And frankly, the programming and operation of these devises is fairly simple and straightforward. However, unlike the analog instruments they replace, they tend to capture the pilot's attention and hold it for long periods of time (like a desktop computer). To avoid this phenomenon, the pilot should plan in advance when and where the programming for approaches, route changes, and airport information gathering should be accomplished…as well as times it should not. Pilot familiarity with the equipment, the route, the local air traffic control environment, and their own capabilities vis-à-vis the automation should drive when, where, and how the automation is programmed and used.

The pilot should also consider what his or her capabilities are in response to last minute changes of the approach (and the reprogramming required) and ability to make large-scale changes (a re-route for instance) while hand flying the aircraft. Since formats are not standardized, simply moving from one manufacturer's equipment to another should give the pilot pause and require more conservative planning and decisions.

The SRM Decision Process

The SRM process is simple. At least five times, before and during the flight, the pilot should review and consider the "Plan, the Plane, the Pilot, the Passengers, and the Programming" and make the appropriate decision required by the current situation. It is often said that failure to make a decision is a decision. Under SRM and the 5P's, even the decision to make no changes to the current plan, is made through a careful consideration of all the risk factors present.

Example of Single Pilot Resource Management

The teaching of SRM is best accomplished in a seminar environment. Recently, the authors conducted a set of classroom seminars that presented real time flight scenarios to a room full of qualified pilots of varied experiences. The first scenario presented was a night MVFR/IFR flight from St Augustine Florida to Washington Dulles Airport. The original **"Plan"** called for a non-stop flight with a 45-minute fuel reserve. The **"Plane"** was a well-equipped TAA with a minor navigation light problem that delayed departure by an hour. The **"Passengers"** were one pilot and one non-pilot. The non-pilot seemed nervous about the trip and a little ill. Both passengers needed to get to Washington DC for an important meeting the next day. The **"Pilot"** had spent a full day at a flight refresher clinic, including a two-hour flight and a three-hour class, and felt reasonably refreshed at the 5 PM departure time. And finally, the GPS/MFD, the "**Programming**," combination looked like it would make the flight a snap. However, there were questions about the currency of the database that required the pilot's attention.

The discussion that followed revolved around the reliability of the weather data, the fatigue of the pilot landing at Dulles at 9 PM, alternate ways to get the passengers to their meeting, minimum requirements for aircraft night flight, and a more complete understanding of the benefits and challenges posed by GPS programming and database currency. The 5p's ensured that each pilot looked at the entire picture prior to making the critical decisions that would lay the groundwork for success or failure over four hours later in Washington.

Predictably, the destination weather deteriorated slowly as the flight proceeded northbound. The pilot's fatigue level, low altitude/long duration hypoxia, a succession of minor annoyances caused by the airplane and the passengers, began to become a factor. Again, the pilots applied the 5p's, and many decided to land short of Washington Dulles, check the weather, and secure a rental car as a backup for the Monday morning meeting (in fact many decided this prior to takeoff).

For the purposes of the discussion, this aircraft was equipped with a ballistic parachute system. For those that proceeded to Dulles, the scenario ended with a spatial disorientation incident at 1500 feet, 10 miles short of the airport caused by pilot fatigue, latent hypoxia, and failure to use the autopilot. For many, it was the first time they had considered all the options available, and the criticality of quick and accurate decisions. In the background, another instructor began calling out altitudes and speeds as the aircraft descended to the ground, providing an added dose of realism and pressure. Should the class initiate an unusual attitude recovery, and if it did not work should they attempt another? How much will the passengers help or hinder the pilots thought processes? When, and how, should the ballistic parachute system be deployed, and what are its limitations. This scenario sparked questions about the capabilities and limitations of the autopilot, cockpit automation, and the parachute system. More importantly, it caused the pilots in the room to examine how they should gather critical information, assess the risks inherent in the flight, and take timely action. All agreed that a few accurate decisions before and during the early part of the flight reduced the risk to pilot and passengers.

All these questions were discussed in a lively thirty-minute session following the scenario. In this type of Scenario Based Training, the group discussion is just as important as the actual situation, for it is during the discussion that the pilots are most ready to learn, and begin to develop a mental model of how they might react to situations. Instead of encountering a once in a lifetime, life or death, situation alone on the proverbial dark and stormy night, the participants could examine how the situation had developed, understand the options available to them, and begin to develop a general plan of action well ahead of time.

Learner Centered Grading

The third component of the FITS training method, following each flight scenario, is to use the concept of “learner-centered grading.” Learner centered grading includes two parts: learner self assessment and a detailed debrief by the instructor. The purpose of the self assessment is to stimulate growth in the learner’s thought processes and, in turn, behaviors. The self-assessment is followed by an in-depth discussion between the instructor and the pilot in training which compares the instructor ratings to the pilot in training’s self-assessment.

To improve learning, it is recommended that learners prepare to learn from their experiences both before and after key events. This preparation should increase learning and enhance future performance. Pre-briefs are essential for setting goals. During key events, especially those that require high levels of attention, there may be little time for learning; most individuals allocate the bulk of their cognitive resources to performing the actual task; however, they may also dedicate some cognitive resources to self-monitoring, learning, and correction.

How facilitation and feedback occur is important to the learning process. In order for feedback to be useful for both informational and motivational purposes, it should be designed systematically. For example, the facilitator (Flight Instructor) should avoid lecturing the learner, and should withhold their observations and opinions of the exercise until the learner has given their opinion. The use of closed-ended questions may stymie the usefulness of the feedback process as well, as they encourage one-word/yes/no types of answers that do not elicit opinions of performance or suggestions for improvement. It is more effective to use open-ended questions that probe the learner to assess their own performance. Allotting enough time for the feedback is also important. Debriefs that are rushed often turn into one-way “lectures” due to time constraints.

Referring to prior pre-briefs when conducting subsequent debriefs provides a sense of continuity, reliability, and consistency, all of which are desirable attributes of a feedback source. Reminding learners of goals and lessons learned from prior exercises helps them plan for future events. Learners may also be more receptive to feedback during a debrief if they were appraised of the goal criteria in a pre-brief.

The FITS approach utilizes scenarios to teach Single Pilot Resource Management (SRM) while simultaneously teaching individual tasks such as landings and takeoffs. The authors quickly realized that this required a new approach to the pilot in training's performance measurement. Traditional grading approaches are generally teacher centered and measure performance against an empirical standard. The following example of a traditional flight syllabus demonstrates.

Table 4: A Traditional Grading Scale

. Excellent - the pilot in training has performed in an excellent manner . Good – the pilot in training has exceeded basic requirements . Satisfactory – the pilot in training has met basic standards . Marginal – the pilot in training has failed to perform the task standards . Unsatisfactory – the pilot in training has demonstrated significant performance difficulties

Table 5: A Traditional Lesson

Lesson Tasks	Lesson Sub Tasks	Lesson Grading
. Flight Planning	. Flight Planning . Weight and Balance and Aircraft Performance Calculations	. U, M, S, G, E . U, M, S, G, E
. Normal Preflight and Cockpit Procedures	. Normal Pre-Takeoff Checklist Procedures . GPS/Avionics Programming . MFD /PFD Setup	. U, M, S, G, E . U, M, S, G, E . U, M, S, G, E

This type of grading scale (See Table 4), or something similar, is in wide use throughout the aviation training industry. While it appears to be based on published standards, in reality it is often used as a tool to determine pilot in training progress and provide motivation. Thus, on the first lesson a pilot in training may receive an “Excellent” grade for attempting to plan the flight and accomplishing the weight and balance with a few minor errors. However, by the third flight, that same performance may only earn a “Satisfactory” grade due to lack of pilot in training progress (***note that while performance remained the same, the grade changed***). Additionally, the Flight Instructor awards the grade based on his or her observation of the pilot in training's performance. This observation, while accurate, may not be based on an understanding of the pilot in training’s level of knowledge and understanding of the task. Lastly, the pilot in training has been conditioned since grade school to look at grades as a reward for performance and may feel that there is a link between grades earned and their self-esteem. In reality, none of this aids pilot in training performance in any meaningful way.

The learner centered grading approach addresses these the above concerns. First, the grade is now a “Desired Scenario Outcome.” These outcomes describe pilot in training-learning behavior in readily identifiable and measurable terms. They reflect the pilot in training’s ability to see, understand, and apply the skills and tasks that are learned to the scenario.

For instance, a pilot in training who can “explain” a successful landing has achieved the basic level of competence to begin the learning process. Once the pilot in training can “explain” the effect of crosswind and speed reduction on rudder effectiveness, they have achieved a level of learning that will allow for meaningful “Practice.” The “Perform” level denotes unsupervised practice and self-correction of errors. These grades are equally applicable to the first scenario to the last since they are not lesson dependent.

The grade of “Manage/ Decide” is used solely for SRM grading and the grade of “Perform” is used solely for task grading. A pilot in training who is becoming proficient at aeronautical decision-making and risk management would be graded first at the “Explain” level, then at the “Practice”, and finally at the “Manage/Decide” level. A Manage/Decide or Perform grade does not describe perfection. Rather, these grades simply show a proficient pilot who corrects their own errors so that the outcome of the flight is never in doubt. Realistically, this is the performance level we desire. All pilots make mistakes, it is in learning to identify and correct mistakes that they become proficient pilots.

Desired Outcomes

The objective of scenario-based training is a change in the thought processes, habits, and behaviors of the pilot in training 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 pilot in training outcomes.

(a) Maneuver Grades (Tasks)

- Describe – at the completion of the scenario, the PT will be able to describe the physical characteristics and cognitive elements of the scenario activities. *Instructor assistance is required to successfully execute the maneuver.*
- Explain –at the completion of the scenario the 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 pilot in training will be able to plan and execute the scenario. *Coaching, instruction, and/or assistance from the CFI will correct 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)
- Not Observed – Any event not accomplished or required

(b) Single Pilot Resource Management (SRM) Grades

- Explain – the pilot in training can verbally identify, describe, and understand the risks inherent in the flight scenario. *The pilot in training will need to be prompted to identify risks and make decisions.*
- Practice –the pilot in training 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 pilot in training will be an active decision maker.
- Manage/Decide - the pilot in training can correctly gather the most important data available both within and outside the cockpit, identify possible courses of action, evaluate the risk inherent in each course of action, and make the appropriate decision. *Instructor intervention is not required for the safe completion of the flight.*
- Not Observed – Any event not accomplished or required

Grading will be conducted independently by the pilot in training and the instructor, and then compared during the post flight critique.

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

Grading should be progressive. During each flight, the pilot in training should achieve a new level of learning (e.g. flight one, the automation management area, might be a "describe" item by flight three a "practice" item, and by flight five a "manage-decide" item.

An Example of Learner Centered Grading

Immediately after landing, and before beginning the critique, Flight Instructor Linda asks her pilot in training Brian to grade his performance for the day. Being asked to grade himself is a new experience but he goes along with it. The flight scenario had been a two-leg IFR scenario to a busy class B airport about 60 miles to the east. Brian had felt he had done well in keeping up with programming the GPS and the MFD until he reached the approach phase. He had attempted to program the ILS for runway 7L and had actually flown part of the approach until ATC asked him to execute a missed approach.

When he went to place a grade in that block he noticed that the grades were different. Instead of satisfactory or unsatisfactory he found, “Describe, Explain, Practice, and Perform”. He decided he was at the Perform level since he had not made any mistakes.

When Linda returned Brian discovered that she had graded his flight as well, with a similar grade sheet. Most of their grades appeared to match until the item labeled “programming the approach”. Here, where he had placed a “Perform” Linda had placed a “Explain”. This immediately sparked a discussion. As it turned out, Brian had selected the correct approach, but he had not activated it. Before Linda could intervene, traffic dictated a go around. Her explain grade told Brian that he did not really understand how the GPS worked and he agreed. Now, learning could occur.

In Table 6 on the following page, the desired outcome table denotes a pilot in training near the beginning of training and the grades reflect proficiency of the pilot in training to an expected level of performance in each of these areas. These grades are not self-esteem related since they do not describe a recognized level of prestige (such as A+ or “Outstanding”), rather a level of performance. You can’t flunk a lesson. However, you can fail to demonstrate the required flight and SRM skills. By reflecting on the lesson and grading their own performance, the pilot in training becomes actively involved in the critique process. Pilot in training participation in the process also reduces the self-esteem issue. But most importantly, this establishes the habit of healthy reflection and self-criticism that marks most competent pilots.

Table 6: Learner Centered Scenario Grading-Desired Outcome Table

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

FITS TAA Private/Instrument Syllabus

Preface

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

The complexity of the national airspace under the FAA’s Operational Evolution Plan (OEP) along with the introduction of new cockpit technologies make the idea of “scenario-based” flight training an idea that demands serious consideration from the general aviation community. The challenge is to develop an adaptable flight training system that will not only maintain, but will greatly improve the safety and utility of increasingly complex flight operations. Recognizing that single pilots operating in an IFR, or at least VFR in heavily congested airspace will conduct most of these flight operations; a new training approach has been developed.

This master training syllabus is based on two concepts, Scenario Based Training (SBT) and a concept for risk management called Single Pilot Resource Management (SRM). This training approach, when coupled with state-of-the-art simulation and curricula, is ideally suited to preparing general aviation pilots for operation in an increasingly complex national airspace system. In particular, it provides an effective bridge between the training environment and the actual environment pilots will experience. The concept also provides a way for trainees to integrate various phases of training into a unified flight operation. Rather than, for example, conducting practice instrument approaches repeatedly, scenario-based training enables a pilot to experience the complete transition from enroute to terminal to approach operations and exercise all the decision-making and risk management options available.

GOAL

The goal of the Private/Instrument Syllabus is to take a student with no prior flight experience and develop a pilot with all the skills required to operate the TAA in the National Airspace System under IFR conditions. These skills include the ability to reason effectively and make accurate judgments traditionally expected of pilots with many more hours of flight experience. The syllabus provided integrates Scenario Based Training (SBT) at a very early stage in the program in order to assist the pilot with the development of Single Pilot Resource Management (SRM) skills. However, it does not neglect the basic skills required to fly the aircraft (“stick and rudder skills”), rather it simply integrates them into realistic scenarios. Time spent in a designated “training area” are limited, since time spent in this type of training generally limits the pilots in training exposure to “real world” events that require the use of higher order judgment and decision making skills.

MASTER SYLLABUS

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

PRIVATE/INSTRUMENT TRAINING GUIDES

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

Because the sequence of training may need to be altered to accommodate individual progress or special circumstances, the training syllabus should be flexible. If the prescribed sequence of training is changed, it is the responsibility of the pilot training school or instructor to make sure that all necessary training is accomplished.

COURSE ELEMENTS

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

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

While this Master Syllabus does not utilize the old maneuver based method of learning, it does attempt to provide a coordinated ground/flight sequence of training so that

educational support materials are covered prior to the associated flight lessons. Additionally, the simple-to-complex building-block approach is maintained in that each lesson increases in complexity and the PT is provided the opportunity to practice the maneuver in a real-world flight experience.

STANDARDS

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

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

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

GROUND TRAINING

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

AVIATION TRAINING DEVICE (ATD) TRAINING

Several manufacturers are producing ATDs that are representative of GA TAA. The use of TAA ATDs should be an integral part of the syllabus. Approval for use of an ATD rests with the FAA authority that approves the syllabus. Realistic simulation can and should be a vital part of pilot skill training, ADM and SRM training. In many cases, the skills development that would traditionally be accomplished in the practice area should be accomplished in the ATD and then the PT's mastery of the skill can be validated in the aircraft during a flight scenario.

The ATD also represents an opportunity to plan and control scenarios that are more inherently safer to practice in an ATD. For example, Emergency Escape maneuvers can and should be practiced to completion in the ATD along with a host of system and weather related problems. However, the scenario should be conducted in a realistic flow that allows the student to make decisions and learn from those decisions as the scenario progresses. Any attempt to develop a traditional "Emergency Procedure" ATD session in which emergencies are presented "rapid fire" (one immediately after

another), should be avoided. This type of training simply focuses on wrote memorization and skill development, while leaving little time to develop SRM skills.

FLIGHT TRAINING

Each lesson in the flight-training phase of the SBT course consists of a scripted scenario, and each scenario increases in complexity as the PT progresses through the course. The instructor and PT should use the scenario as a “lesson plan” with the intent for the PT to study the plan and brief it as part of the preflight preparation. The PT should demonstrate the necessary skill and experience required in each specific airplane used in training. Operations must be accomplished within the parameters appropriate for each phase of training. For pilot certification purposes, operations must be accomplished within the appropriate practical test standard.

SCENARIO DEVELOPMENT GUIDE

Scenario development is a key element of the FITS syllabus. The PT ideally will eventually conduct scenario planning with little assistance from the instructor. However, with guidance from the syllabus, the instructor sets the boundaries for each scenario and guides the planning process to ensure that learning outcomes are achieved in an orderly and efficient manner.

Instructors will review the lesson syllabus and decide an appropriate destination for the “out-and-back” scenario. Initially, short VFR cross-countries will be used to get the PT comfortable with the sensation of flight, aircraft technology, and the NAS. Later VFR and IFR scenarios will more deeply explore the aircraft’s performance envelope, the NAS, and automation management.

Prior to completion of the syllabus the PT should explore the aircraft’s maximum as well as minimum speed and performance envelopes, and fly it with full and near legal minimum fuel conditions.

Although not required, the instructor and PT may combine several lessons, especially in the IFR syllabus, to perform a long multi-leg trip into both terrain and airspace that the student is not familiar with. Scenarios should increase in airspace complexity. The student will, by the end of the syllabus, explore and master all classes of airspace including special use airspace and Temporary Flight Restrictions.

I

NSTRUCTOR AND PILOT IN TRAINING (PT) RESPONSIBILITIES

Pre-Scenario Planning - For Scenario based Instruction to be effective; it is vital that the instructor communicate to the student well in advance of the flight the following information:

- Scenario destination(s)
- Desired learning outcomes
- Desired level of PT performance (***describe, explain, perform, manage/decide***, etc.)
- Desired level of automation assistance
- Possible instructor directed in-flight scenario changes (during later stages of the program no preflight notification is required)

Scenario Planning – The Pilot in Training (PT) will plan the flight to include:

- Route
- Destination(s)
- Weather
- NOTAMS
- Desired learning outcomes
- Possible alternate scenarios and emergency procedures
  NOTE: after the basics of flight planning are mastered, the PT will be encouraged to use any automated tools available such as "DUATS" or other flight planning services that they would normally use in their day to day flying.

Pre-Flight Briefing – The student will brief the instructor on the flight scenario including:

- Route, weather, and NOTAMS
- Accomplishment of desired learning outcomes
- Emergency procedures and alternate scenarios

In-Flight – The PT will conduct the scenario plan with minimal intervention from the instructor. Obviously, the first few scenarios will require considerable instructor input. However, as the PT gains experience in both the physical skills associated with flying the aircraft and the mental skills required to demonstrate good decision making and SRM skills, the instructor's role should be minimal.

It is useful for the instructor to let the PT "work out" the solution to lesser problems encountered before intervening or instructing, and instructors should attempt to offer the PT assistance and instruction without actually solving the problem for them. This self-directed learning builds the PT's confidence and poise in the air, and assists them in developing their own ADM and risk management processes. *However*, if safety of flight or the completion of the scenario is in doubt, the instructor should intervene.

Post-Flight – The post-flight review should be led by the PT and should ideally lead off with a discussion of successful maneuvers, decisions, and activities. The PT should then identify those areas where he or she feels help is required and discuss what they would do differently. Based on this analysis, the PT and instructor should discuss methods and alternatives for improvement. Again, early in the syllabus the instructor may take a leading role in the post-flight review, but it is vital that the PT learn to identify performance deficiencies and corrective actions.

SCENARIO GRADING

The Pilot-in-Training plays a role in grading the lesson.

Learner Centered Grading means that after each flight, the Pilot in Training (PT) and instructor will have a discussion of the items that were experienced on the flight and each will evaluate the items. The PT will judge her/his own performance. The instructor, likewise, will judge the PT's performance and then the PT and instructor will compare evaluations. There will be items that both the PT and instructor will agree were performed well and other items that both agree could use improvement. Inevitably, the PT and instructors' evaluations will disagree. This will be a great opportunity to discuss alternate methods, solutions, and techniques that could have been used by the student to have produced a more favorable outcome to the lesson. Mission based flight lessons can have multiple outcomes that are "correct." The PT and instructor will discuss if the outcome of the flight was a safe outcome – which is the primary concern of any flight. Beyond the basic safety of the flight, the PT and instructor will discuss if the outcome of the flight could have been optimized. What would it have taken for the outcome to have been the best? The syllabus calls this the "target" outcome. The instructor will use a "rubric" to grade the lessons based on what is an unacceptable outcome, versus a range of possible acceptable outcomes. Each lesson throughout the syllabus has its own rubric-style grading sheet. A rubric is a form of evaluation often used when there are multiple outcomes to a particular task. Grading of pilots in training should not simply be an instructor's individual opinion. The rubric helps the instructor evaluate the PT's performance.

PTS Tasks

The grade sheets within this Generic syllabus were designed using the Scenario Activity and the associated tasks for the Instrument Pilot PTS. Individual elements of those tasks are not specifically addressed in these grade sheets. This was purposely done so that instructors could tailor the scenario to an individual PT's needs.

Completion Standards

The completion standards of each lesson will vary depending upon the stage of training for the PT. Be sure to make certain that each PT understands what is expected of them for the appropriate lesson should the newly created scenario deviate from those herein. The instructor should ALWAYS reference the current Instrument Pilot PTS for maneuver limitations. Maneuvers are also described in detail in FAA-H-8083-15, the Instrument Flying Handbook.

DISCLAIMER

Non-Precision Approaches

Please be advised that non-precision approaches include VOR approaches, ADF approaches, Localizer approaches, SDF approaches, and LDA approaches. If a lesson calls for a non-precision approach in this syllabus, the instructor should determine which type of approach should be incorporated based upon the PT's training needs, aircraft capability, and the local practice area. It is the instructor's duty to educate the PT on all types of non-precision approaches, their components, and limitations whether they are flown or not. Be advised that the Designated Pilot Examiner or FAA inspector can ask the applicant to demonstrate any approach that the aircraft equipment will support.

Precision Approaches

Please be advised that Precision approaches include ILS approaches, MLS approaches, and WAAS approaches. If a lesson calls for a Precision approach in this syllabus, the instructor should determine which type of approach should be incorporated based upon the PT's training needs, aircraft capability, and the local practice area. It is the instructor's duty to educate the PT on all types of Precision approaches, their components, and limitations whether they are flown or not. Be advised that the Designated Pilot Examiner or FAA inspector can ask the applicant to demonstrate any approach that the aircraft equipment will support.

Equipment

Aircraft being used may not have equipment installed that is mentioned in the lessons (i.e. BRS and NDB), or additional equipment not mentioned (WAAS). The curriculum that is developed using this generic syllabus as a guide must add or remove equipment to meet the needs of specific aircraft.

FITS Private Instrument Flight Scenarios

Flight Training

Flight Training Course Objectives

The PT will obtain the necessary aeronautical knowledge, skill, and experience to meet the requirements for a private pilot certificate (airplane single-engine) and an instrument rating (airplane) and pass the FAA practical tests

Flight Training Course Completion Requirements

The PT must demonstrate through flight tests and school records that the necessary aeronautical knowledge, skill, and experience requirements to obtain a private pilot certificate (airplane single-engine) and an instrument rating (airplane) have been met. Lesson Flight Times are not given for each individual ATD Scenario or Flight Scenario. It is also important to note that the instructor must prepare the PT to satisfactorily meet the objectives of the associated Tasks of each applicable Area of Operation in the FAA Practical Test Standards.

Flight Time - Since the average flight time to attain each rating significantly exceeds the FAA mandated minimum standard, the emphasis in this syllabus is on completion of the scenario and all the scenario sub tasks to the appropriate level of proficiency. On average, ATD sessions should last approximately one hour, and flight scenarios should allot approximately one hour for each cross-country leg flown. The FAA mandated VFR and IFR cross-countries would obviously require more flight time.

ATD Lessons – In the event an ATD is not available for the aircraft, the training events prescribed can be flown as local practice flights in the actual aircraft. Early in the program, these flights may be executed with the PT having only a responsibility for the specific tasks required by the ATD Lesson.

Stage I

Stage Objectives

During this stage, the PT obtains the foundation for all future aviation training. The PT becomes familiar with the training airplane and learns how the airplane controls are used to establish and maintain specific flight attitudes and ground tracks. The PT will learn instrument attitude flying procedures and basic instrument navigation. The PT will also become familiar with stabilized approached while flying instrument approaches visually. In addition, the PT will become proficient in emergency procedures under visual and instrument flight conditions.

Stage Completion Standards
At the completion of this stage, the PT will demonstrate proficiency in basic flight maneuvers and will have successfully performed the instrument flying procedures included in the stage. In addition, the PT will demonstrate knowledge of emergency procedures under visual and instrument flight rules and will have the proficiency required to solo the training airplane at the beginning of Stage II.

Learner Centered Grading - Desired Scenario Outcomes

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

(a) Maneuver, Skill or Task Grades

- Describe – at the completion of the scenario, the PT will be able to describe the physical characteristics and cognitive elements of the scenario activities. *Instructor assistance is required to successfully execute the maneuver.*
- Explain – at the completion of the scenario the learner will be able to describe the scenario activity and understand the underlying concepts, principles, and procedures that comprise the activity. *Instructor assistance is required to successfully execute the maneuver.*
- Practice – at the completion of the scenario the learner will be able to plan and execute the scenario. *Some coaching, instruction, and/or assistance from the instructor is required to correct deviations and errors.*
- Perform – at the completion of the scenario, the learner will be able to perform the activity without assistance from the instructor. *Errors and deviations will be identified and corrected by the learner in an expeditious manner.* At no time will the successful completion of the activity be in doubt. "Perform" will be used to signify that the learner is satisfactorily demonstrating proficiency in piloting and systems operation skills.
- Not Observed – Any event not accomplished or required.

(b) Single Pilot Resource Management (SRM) Grades

- Explain – the learner can verbally identify, describe, and understand the risks inherent in the flight scenario. *The* learner *will need to be prompted to identify risks and make decisions.*
- Practice – the learner is able to identify, understand, and apply SRM principles to the actual flight situation. *Coaching, instruction, and/or assistance from the instructor will quickly correct minor deviations and errors identified by the instructor.* The learner will be an active decision maker.
- Manage/Decide – the learner can correctly gather the most important data available both within and outside the cockpit, identify possible courses of

action, evaluate the risk inherent in each course of action, and make the appropriate decision. *Instructor intervention is not required for the safe completion of the flight.*

- Not Observed – Any event not accomplished or required.

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

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

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

LESSON 1-A
(Aviation Training Device)

Scenario: You want to purchase a new airplane. Before you do, you want to take flying lessons to obtain your private pilot certificate and an Instrument rating. You have found a wonderful certified flight instructor that has given you two computer based lessons before you begin your aircraft training. The purpose of this first computer-based training lesson is to familiarize yourself with the instrument cockpit check and flight instrument systems. During this lesson, you will be introduced to the fundamentals of attitude instrument flying and your certified flight instructor will review how the various flight instruments are used to maintain aircraft control.

Lesson Objectives: The objective of this lesson is for the student to become familiar with available computer-based training (CBT) facilities. The main features of the **Aviation Training Device** (ATD), including instrumentation and controls, will be explained. The student will also be introduced to the instrument cockpit check and flight instruments systems. In addition, the student will be briefly introduced to the fundamentals of attitude instrument flying and review how the various flight instrument are used to maintain aircraft control. **ATD Lessons** – In the event an ATD is not available for the aircraft, the training events prescribed can be flown as local practice flights in the actual aircraft. Early in the program, these flights may be executed with the PT having only a responsibility for the specific tasks required by the ATD Lesson.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards: The Pilot in Training (PT) will be familiar with the features and flight characteristics of the CBT facilities and the ATD. The instructor will determine that the PT has a basic understanding of full panel instrument references as they relate to aircraft control.

Desired Outcome Grading Sheet:

Tasks	Sub Tasks	Desired Performance
Introduce CBT/ATD	1. Orientation & Familiarization 2. Overview of Instruments and Controls	Describe Describe/Explain
Aircraft Systems	1. Instrument Cockpit Check	Describe
Full Panel Instrument	1. Straight and Level 2. Turns 3. Change of Airspeed 4. Constant Airspeed Climbs and Descents	Describe/Explain Describe/Explain Describe/Explain Describe/Explain

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: With your assistance the Pilot in Training (PT) will understand how to perform the instrument cockpit check and all flight instrument systems. You will assist the PT in conducting the instrument cockpit check and demonstrate how each navigation system and flight instrument display's operational status is checked. During this lesson, you will introduce the fundamentals of attitude instrument flying. Discuss the control and performance method and the primary and supporting method and explain how each technique is used during basic attitude instrument flying. You will also review how the various flight instruments are used to maintain aircraft control.

Also, be aware that the PT may not be accustomed to the LCG self assessment method. Extra time in the first few lessons may be spent on the de-brief until the PT has an understanding of LCG.

LESSON 1-B

(Aviation Training Device)

Scenario: As a continuation of the first scenario, you want to purchase a new airplane. Before you do, you want to take flying lessons to obtain your private pilot certificate and an instrument rating. You have found a wonderful certified flight instructor that has given you two computer based lessons before you begin your aircraft training. The purpose of this second computer-based training lesson is to familiarize yourself with basic instrument maneuvers. During this lesson, you will be introduced to more typical instrument maneuvers, including rate climbs/descents, climbing/descending turns, slow slight, stalls/stall recovery, and unusual attitude recoveries.

Lesson Objectives: The objective of this lesson is for the student to become familiar with basic instrument maneuvers. The student will practice the basic instrument maneuvers briefly introduced during Lesson 1-A. In addition, the student will be introduced to more typical instrument maneuvers, including rate climbs/descents, climbing/descending turns, slow slight, stalls/stall recovery, and unusual attitude recoveries. **ATD Lessons** – In the event an ATD is not available for the aircraft, the training events prescribed can be flown as local practice flights in the actual aircraft. Early in the program, these flights may be executed with the PT having only a responsibility for the specific tasks required by the ATD Lesson.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards: The PT will demonstrate basic understanding of the instrument cockpit check and an improving proficiency in basic instrument maneuvers. The instructor will determine through observation and oral questioning that the PT has gained a basic understanding of common instrument maneuvers. The PT should be able to maintain altitude within 200 feet and headings within 15 degrees during level flight. Climb and descent airspeeds will be maintained within 15 knots. In addition, the PT should be able to recognize the approach of stalls, stalls/stall recovery, and demonstrate the correct recovery procedures from unusual flight attitudes.

Desired Outcome Grading Sheet:

Tasks	Sub Tasks	Desired Performance
Aircraft Systems	1. Instrument Cockpit Check	Explain
Basic Maneuvers	1. Straight and Level 2. Turns 3. Rate Climbs 4. Climbing Turns 5. Rate Descents 6. Descending Turns	Practice Practice Explain/Practice Explain/Practice Explain/Practice Explain/Practice
Speed Control	1. Change of Airspeed 2. Constant Airspeed Climbs and Descents 3. Maneuvering during slow flight 4. Power-off stalls 5. Power-on stalls	Practice Practice Explain/Practice Explain/Practice Explain/Practice
Advanced Maneuvers & Procedures	1. Steep Turns 2. Operations in Turbulence 3. Recovery from unusual flight attitudes	Explain Explain/Practice Explain/Practice

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: With your assistance the PT will practice how to perform the instrument maneuvers. You will assist the PT in conducting rate climbs/descents, climbing/descending turns, slow slight, stalls/stall recovery, and unusual attitude recoveries. During stalls and slow flight discuss spin awareness and the importance of coordinated aircraft control.

Also, be aware that the PT may not be accustomed to the LCG self assessment method. Extra time in the first few lessons may be spent on the de-brief until the PT has an understanding of LCG.

LESSON 1

Scenario: You are a crop insurance salesman and a client of yours has a hail damage claim in one of his fields outside a nearby town. You will fly to the town, while enroute you will survey his field by air to assess the damage. After discussing the claim with him, you will return.

Lesson Objectives: The objective of this lesson is for the student to become familiar with controlling the aircraft, aircraft systems, and cross-country flight planning. During the first leg, the PT will use all checklists, identify and locate appropriate check points for a visual cross country flight, relate the movement of the airplane in flight to each of the primary controls. During the return leg, the PT will control the airplane in straight and level, medium bank turns, climbs, and descents.

The PT will participate in planning a short cross-country flight with a full-stop landing and a return to the point of origin. The first leg in the initial orientation flight and the activities listed should be introduced as a part of the normal flight from one airport to another.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards:

OUTBOUND FLIGHT

- No specific performance skills required.
- PT should be comfortable and relaxed at all times.
- Display basic knowledge of aircraft systems and the necessity of checking their operation before flight.
- Become familiar with the control systems and how they are used to maneuver the airplane on the ground and in the air.

RETURN FLIGHT

- Display increased proficiency in preflight activities, ground operations, and coordinated airplane attitude control.
- Perform takeoff with instructor assistance.
- Be familiar with control usage necessary to maintain altitude within 250 feet during airspeed and configuration changes.
- Exhibit understanding of the instrument cockpit check, aircraft systems related to IFR, and attitude control by instrument reference (IR).

Desired Outcome Grading Sheet:

*** Indicates tasks and sub-tasks to be introduced/practiced during the return phase of the flight*

Scenario Tasks	Scenario Sub Tasks	Desired Performance
Flight Planning	1. Scenario Planning 2. Certificates and Documents 3. Airport Diagrams 4. VFR Navigational Chart 5. Preflight SRM briefing 6. Decision making and risk management	Describe Explain Describe Describe Explain Explain
Normal preflight and cockpit procedures	1. Use of Checklists 2. Preflight Inspection 3. ** Minimum equipment list 4. Cockpit management 5. PFD Setup 6. Airplane Servicing 7. BRS Preflight 8. Operation of systems 9. Positive exchange of flight controls	Explain Describe Describe Explain Explain Describe Describe Describe Practice
** Aircraft systems related to IFR operations	1. ** Aircraft flight instrument and navigation equipment 2. ** Preflight check of instruments, equipment, and systems, MFD setup 3. ** Instrument cockpit check 4. Automation management	Describe Describe Describe Explain
Engine Start and Taxi Procedures	1. Engine start 2. ** Airport and runway markings and lighting 3. Radio Communications 4. Taxi 5. ** Cross wind taxi 6. SRM/Situational awareness	Explain Describe Describe Describe Explain Explain
Before Takeoff Checks	1. Normal and abnormal indications 2. ** Wind shear avoidance 3. Aircraft automation management 4. Aeronautical Decision Making and Risk management	Explain Explain Explain Explain

Takeoff	1. Normal takeoff 2. Situational awareness 3. SRM/ and risk management	Describe Explain Explain
Climb procedures	1. Constant speed climbs & climbing turns (IR & VR) 2. Departure procedures 3. Pilotage 4. Situational awareness, task management, and SRM 5. Collision avoidance precautions 6. **Autopilot climb	Describe Explain Describe Explain Explain Describe
Cruise procedure	1. Manual straight and level flight (IR and VR) 2. Power management & basic speed control (VR and IR) 3. Collision avoidance precautions 4. Pilotage 5. Wind Drift corrections 6. Situational awareness, task management, and SRM 7. Standard rate turns to headings (VR and IR) 8. ** Autopilot cruise	Describe Describe Describe Describe Explain Explain Describe Describe
Descent Planning and execution	1. Descents, descending turns, and transition to level flight 2. Collision avoidance precautions 3. Situational awareness, task management and SRM	Describe Explain Explain
Approach Procedures	1. Traffic pattern entry procedures 2. Collision avoidance precautions 3. Situational awareness, task management and SRM 4. ** Wind shear avoidance 5. Communications 6. Normal approach	Explain Explain Explain Explain Explain Explain
Landing	1. Before landing procedures 2. Normal landing 3. After landing procedures	Explain Explain Explain
Taxi and aircraft shutdown and securing procedure	1. Use of Checklist 2. Aircraft ground operations and parking	Explain Explain

	3. BRS Post Flight 4. Securing	Describe Explain

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: During this initial orientation flight, the Pilot in Training (PT) is introduced to the training airplane and its systems. The PT will learn about certificates, documents, checklists, how to conduct the necessary preflight activities, be introduced to functions of the flight controls, and be shown how they are used to maintain specific attitudes. The four fundamental flight maneuvers as well as normal takeoff and landing procedures. Emphasis will be on preflight preparation and procedures with introductory discussion of navigational charts, pilotage, the route of flight and the destination airport. The PT will practice on the return leg and be introduced to basic instrument flying. The instructor should allow the PT time during the cruise portion of the flight to explore the features of the aircraft cabin and the cockpit automation.

LESSON 2-A
(AVIATION TRAINING DEVICE)

Scenario: There is a pancake breakfast fly-in at the small town nearby airport today. You and your certified flight instructor decide to attend. Expect a lot of aircraft to be in the vicinity of this airport during the event. Just prior to the flight, your flight instructor who is a big sail boat fan, asks you if it would be possible to over-fly the boat race that is taking place on a lake along the way. You don't see any problem accommodating this request.

Lesson Objectives: The PT increases attitude instrument flight proficiency by performing steep turns, slow slight, stalls, and recovery from unusual flight attitudes.
ATD Lessons – In the event an ATD is not available for the aircraft, the training events prescribed can be flown as local practice flights in the actual aircraft. Early in the program, these flights may be executed with the PT having only a responsibility for the specific tasks required by the ATD Lesson.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards:
PT will maintain altitude within 200 feet and headings within 15 degrees during level flight. Climb and descent airspeeds will be maintained within 15 knots. In addition, the PT should be able to immediately recognize the approach of stalls and demonstrate the correct recover procedures from stalls and unusual flight attitudes.

Desired Outcome Grading Sheet:

Tasks	Sub Tasks	Desired Performance
Aircraft Systems	1. Instrument cockpit check	Practice
	2. Systems related to IFR Operations	Explain
	3. Flight Instruments and navigation equipment	Explain
Basic Maneuvers	1. Straight and Level	Practice
	2. Turns	Practice
	3. Rate Climbs	Practice
	4. Climbing Turns	Practice
	5. Rate Descents	Practice
	6. Descending Turns	Practice
Speed Control	1. Change of Airspeed	Practice
	2. Constant Airspeed Climbs and Descents	Practice
	3. Maneuvering during slow	Practice

	flight 4. Power-off stalls 5. Power-on stalls	 Practice Practice
Advanced Maneuvers and Procedures	1. Steep Turns 2. Operations in Turbulence 3. Recovery from unusual flight attitudes	Practice Practice Practice

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: Discuss this scenario with the PT. The following questions can be asked: What are some considerations when operating around the small airport? Do you expect extra traffic in the pattern? How will you avoid this traffic? How is this going to change/affect your pattern entry and operation? What about the boat race--are there any special considerations there? During the flight, once established in level flight, call out simulated traffic at 11:00 and 2:00 (obviously headed to the Fly-in as well). Ask the PT how to obtain additional spacing on those aircraft. Suggest that slowing down is one method, and ask the student to slow down to minimum practical air speed. Encourage the PT to fly slower and slower to experience approaching stall and full stall indications. Instruct PT to recover by simply reducing angle of attack. Repeat maneuver as appropriate. Continue toward area lake. Discuss other methods to gain spacing on traffic.

Steep Turns – When nearing the area lake, you would like to take pictures with a camera. Ask questions to stimulate thought: Is there any maneuver that would allow me to take pictures without the wing being in the way? Demonstrate and practice steep turns. More questions: The camera you are using does not have a very good zoom capability. What is the lowest altitude we could legally do this maneuver over the boats? Are you comfortable with that altitude? Why?

Power Off Stall – Pick a road or other distinguishable surface to set-up for a simulated approach and landing. Select an altitude that will allow for a stall and recovery above the MRA (1500 ft AGL or higher). Note: Minimum Reception Altitude (MRA) is the lowest altitude at which an intersection can be determined. At altitudes lower than the MRA, navigational signal coverage is not assured, and you may not be able to identify the intersection. The MRA does not assure obstacle clearance, only navigational signal reception. Enter downwind abeam the selected surface and conduct a normal approach

and landing to that surface, adding flaps and configuring the aircraft for landing at the appropriate points. After turning a simulated final, add full flaps, enter a full power off stall and recover. Practice stalls and other maneuvers as necessary to increase PT proficiency, then proceed to small town airport.

Power-on Stall – Simulate a thin cloud layer ahead. Should we go above it, or below it? If we go above it, how will we get into your home airport? Let's say you choose to go above it— what airspeed will you get you above it in the least distance? Climb at V_X. Once established, encourage PT to gradually increase climb angle until aircraft stalls. Recover as appropriate. Now tell PT you have changed your mind – let's go below it. But expedite descent because cloud layer is fast-approaching. Allow PT to experience the Yellow Arc for post-flight discussion.

Destination Airport – Remind PT of potential traffic in the pattern. Conduct a normal pattern entry into airport. Ask questions to stimulate thought: What radio calls should we make, and where? What is a good altitude to over-fly? Is there any way we could figure out which runway is in use without over-flying? Which is Runway XX? How do you determine runways? Do we use a left-hand pattern for both runways? On downwind, tell the PT that another aircraft just conducted a full stop landing and will have to back-taxi on the runway to get to the ramp. What should we do to our pattern? Conduct a full stop landing and taxi to the ramp completing all appropriate checklists. Emphasize "mission accomplished"— everything that happened is how it might really be! Get ready for some flap jacks!

Leg 2 –Destination to Home – Conduct additional pattern work as necessary to increase PT proficiency in pattern operations. Continue inbound to home airport with a normal pattern entry with pattern practice as appropriate.

LESSON 2

Scenario: The PT will plan a short cross-country flight with the instructor providing feedback. The route of flight is a repeat of the first lesson (if possible). The PT will practice the maneuvers and procedures learned in Lesson 1. When established en route, the instructor will demonstrate (if necessary) basic speed control including flight at low cruise, approach speed, minimum controllable speed (if appropriate), and power on and power off stalls. These maneuvers should be performed en route and integrated into the normal flight profile.

The return flight will be a reverse of Leg 1. The return flight will be flown using Pilotage and Dead Reckoning navigation and control for wind drift. The plan should provide for continued practice of the maneuvers and procedures already learned as well as and introduction into emergency operations and expanded basic attitude instrument flying.

Lesson Objectives:
The student will participate in planning a short visual cross-country flight. The plan will include a review of airspeed control during basic maneuvers. The plan will include traffic patterns, pattern entries and departures. It will also include some basic instrument maneuvers. Emphasis will be directed to proper execution of the listed basic maneuvers and procedures, particularly takeoffs, traffic patterns and landings. The PT will be able to control the path of the aircraft over the ground in all normal flight conditions with corrections for wind drift.

NOTE: *A view-limiting device is required for the dual instrument time allocated to this lesson.*

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards:

OUTBOUND FLIGHT

- Display increased proficiency in coordinated airplane attitude control during basic maneuvers.
    - Altitude within 250’
    - Airspeed within 10 kts.
    - Heading within 10 degrees
- Demonstrate correct communications and traffic pattern procedures.
- Complete landings with instructor assistance.
- Maintain altitude with 250 feet during airspeed transitions and while maneuvering at slow airspeeds.
- Indicate basic understanding of traffic patterns, pattern entries, and departures.
- Demonstrate ability to perform the listed instrument maneuvers.

RETURN FLIGHT

- Display increased proficiency in coordinated airplane attitude control during basic maneuvers.
- Perform unassisted takeoffs.
- Exhibit correct communications and traffic pattern procedures.
- Complete landings with instructor assistance.
- Demonstrate basic understanding of airport operations and collision avoidance procedures.
- Indicate basic understanding of airplane control by use of the flight instruments for rate climbs/descents and climbing/descending turns.

Desired Outcome Grading Sheet:
 # Indicates tasks and sub-tasks to be introduced/practiced during the outbound phase of the flight.

*** Indicates tasks and sub-tasks to be introduced/practiced during the return phase of the flight.*

Scenario Tasks	Scenario Sub Tasks	Desired Performance
Flight Planning	1. Scenario Planning	Describe
	2. Certificates and Documents	Describe
	3. Airport Diagrams	Explain
	4. VFR Navigational Chart	Describe
	5. Preflight SRM briefing	Describe
	6. Decision making and risk management	Describe
	7. # Emergency Operations	Explain
Normal preflight and cockpit procedures	1. Use of Checklists	Describe
	2. Preflight Inspection	Describe
	3. Minimum equipment list	Explain
	4. Cockpit management	Describe
	5. PFD/MFD setup	Describe
	6. BRS Preflight	Practice
	7. Airplane Servicing	Describe
	8. Operation of systems	Explain
	9. Positive exchange of flight controls	Practice
Aircraft systems related to IFR operations	1. Aircraft flight instrument and navigation equipment	Describe
	2. Preflight check of instruments, equipment, systems, & MFD setup	Describe
	3. Instrument cockpit check	Describe
	4. Automation management	Explain
Engine Start and Taxi	1. Engine start	Practice

Procedures	2. Airport and runway markings and lighting 3. Radio Communications 4. Taxi 5. ** Runway incursion avoidance 6. Cross wind taxi 7. SRM/Situational awareness	Practice Practice Practice Describe Describe Explain
Before Takeoff Checks	1. Normal and abnormal indications 2. Wind shear avoidance 3. Aircraft automation management 4. Aeronautical Decision making and risk management	Describe Describe Explain Explain
Takeoff	1. Normal takeoff 2. Situational awareness 3. SRM and risk management	Practice Explain Explain
Climb procedures	1. Constant speed climbs & climbing turns (IR & VR) 2. Constant rate climbs (IR & VR) 3. Departure procedures 4. Pilotage and Dead Reckoning 5. Situational awareness, task management, and SRM 6. Collision avoidance precautions 7. Autopilot climb	Practice Describe Describe Explain Explain Practice Practice
Cruise procedure	1. Manual straight and level flight (IR and VR) 2. Power management & basic speed control (VR and IR) 3. Collision avoidance precautions 4. Pilotage 5. Wind Drift corrections 6. Situational awareness, task management, and SRM	Practice Describe Practice Practice Describe Explain

	7. Standard rate turns to headings (VR and IR) 8. ** Maneuvering during slow flight (IR & VR) 9. ** Steep turns 10. Autopilot cruise 11. ** Lean assist (if so equipped) 12. ** Best economy vs. best power	Practice Describe Describe Describe Describe Practice
Descent Planning and execution	1. Descents, descending turns, and transition to level flight 2. # Rate descents (IR and VR) 3. # Wind drift in turns 4. Collision avoidance precautions 5. Situational awareness, task management and SRM	Explain Describe Describe Explain Explain
Approach Procedures	1. Traffic pattern entry procedures 2. Collision avoidance precautions 3. Situational awareness, task management and SRM 4. Wind shear avoidance 5. Communications 6. Normal approach	Describe Explain Explain Describe Explain Explain
Landing	1. Before landing procedures 2. Normal landing 3. Land and Hold Short Operations (LAHSO) 4. After landing procedures	Explain Describe Describe Practice
Taxi and aircraft shutdown and securing procedure	1. Use of Checklist 2. Aircraft ground operations and parking 3. BRS Post Flight 4. Securing 5. ** Instrument post flight procedures	Practice Practice Practice Practice Describe

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: Discuss this scenario with the PT. The following questions can be asked: What are some considerations when operating around the small airport? Do you expect extra traffic in the pattern? How will you avoid this traffic? How is this going to change/affect your pattern entry and operation? What about the boat race--are there any special considerations there? During the flight, once established in level flight, call out simulated traffic at 11:00 and 2:00 (obviously headed to the Fly-in as well). Ask the PT how to obtain additional spacing on those aircraft. Suggest that slowing down is one method, and ask the student to slow down to minimum practical air speed. Encourage the PT to fly slower and slower to experience approaching stall and full stall indications. Instruct PT to recover by simply reducing angle of attack. Repeat maneuver as appropriate. Continue toward area lake. Discuss other methods to gain spacing on traffic.

Steep Turns – When nearing the area lake, you would like to take pictures with a camera. Ask questions to stimulate thought: Is there any maneuver that would allow me to take pictures without the wing being in the way? Demonstrate and practice steep turns. More questions: The camera you are using does not have a very good zoom capability. What is the lowest altitude we could legally do this maneuver over the boats? Are you comfortable with that altitude? Why?

Power Off Stall – Pick a road or other distinguishable surface to set-up for a simulated approach and landing. Select an altitude that will allow for a stall and recovery above the MRA (1500 ft AGL or higher). Note: Minimum Reception Altitude (MRA) is the lowest altitude at which an intersection can be determined. At altitudes lower than the MRA, navigational signal coverage is not assured, and you may not be able to identify the intersection. The MRA does not assure obstacle clearance, only navigational signal reception. Enter downwind abeam the selected surface and conduct a normal approach and landing to that surface, adding flaps and configuring the aircraft for landing at the appropriate points. After turning a simulated final, add full flaps, enter a full power off stall and recover. Practice stalls and other maneuvers as necessary to increase PT proficiency, then proceed to small town airport.

Power-on Stall – Simulate a thin cloud layer ahead. Should we go above it, or below it? If we go above it, how will we get into your home airport? Let's say you choose to go above it—what airspeed will you get you above it in the least distance? Climb at V_X. Once established, encourage PT to gradually increase climb angle until aircraft stalls.

Recover as appropriate. Now tell PT you have changed your mind – let's go below it. But expedite descent because cloud layer is fast-approaching. Allow PT to experience the Yellow Arc for post-flight discussion.

Destination Airport – Remind PT of potential traffic in the pattern. Conduct a normal pattern entry into airport. Ask questions to stimulate thought: What radio calls should we make, and where? What is a good altitude to over-fly? Is there any way we could figure out which runway is in use without over-flying? Which is Runway XX? How do you determine runways? Do we use a left-hand pattern for both runways? On downwind, tell the PT that another aircraft just conducted a full stop landing and will have to back-taxi on the runway to get to the ramp. What should we do to our pattern? Conduct a full stop landing and taxi to the ramp completing all appropriate checklists. Emphasize "mission accomplished"— everything that happened is how it might really be! Get ready for some flap jacks!

Leg 2 –Destination to Home – Conduct additional pattern work as necessary to increase PT proficiency in pattern operations. Continue inbound to home airport with a normal pattern entry with pattern practice as appropriate.

LESSON 3-A
(AVIATION TRAINING DEVICE)

Scenario: You will meet a friend at another airport to share conversation and a cup of coffee. The temperature is just at freezing. The weather is overcast at both your departure and destination airport.

Lesson Objectives: The PT will be introduced to procedures for flying specific maneuvers under partial panel conditions, as well as related systems or equipment malfunctions. **ATD Lessons** – In the event an ATD is not available for the aircraft, the training events prescribed can be flown as local practice flights in the actual aircraft. Early in the program, these flights may be executed with the PT having only a responsibility for the specific tasks required by the ATD Lesson.

Pre-Flight Briefing Procedures: During this flight, the instructor will brief the PT on some of the malfunctions that could occur in an abnormal or emergency. The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standard:
The instructor will determine through oral quizzing that the PT understands the change in instrument reference necessary to maintain aircraft control while using partial panel.

Desired Outcome Grading Sheet:

Tasks	Sub Tasks	Desired Performance
Aircraft Systems	1. Instrument Failure 2. Systems Failure 3. Loss of Gyro Attitude and/or Heading Indicators	Explain Explain Explain
Basic Maneuvers (Partial Panel)	1. Straight and Level 2. Standard-Rate Turns 3. Rate Climbs 4. Climbing Turns 5. Rate Descents 6. Descending Turns	Practice Practice Practice Practice Practice Practice
Speed Control (Partial Panel)	1. Change or Airspeed 2. Constant Airspeed climbs 3. Constant Airspeed descents 4. Maneuvering during slow flight 5. Power-off stalls 6. Power-on stalls	Practice Practice Practice Practice Practice Practice
Advanced Maneuvers &	1. Recovery from unusual flight	Practice

Procedures (Partial Panel)	attitudes 2. Magnetic Compass turns 3. Timed turns to Magnetic compass headings	 Practice Practice

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: During the partial-panel navigation portion of the flight, the instructor should have the PT demonstrate constant rate/airspeed climbs and descents as well as turns to headings and other instrument flight maneuvers. Discuss how the failure of the primary flight instrument indicators affects the instrument scan for both the control and performance method and the primary and supporting method. Throughout the flight, the instructor should be reinforcing the importance of pre-planning and the efficient use of SRM.

LESSON 3

Scenario: You and three family members are planning on flying to a nearby city in order to tour a famous museum. The plan is to fly to the airport where a friend will meet you and take everyone to the museum. This is a short cross-country flight to an airport that has not been visited. The PT will participate in planning a short cross-country flight with a full stop landing and a return to the point of origin.

Lesson Objectives: Review maneuvers to gain proficiency and provide for an introduction to stalls from various flight attitudes in order to increase understanding of airplane control during normal and critical flight conditions. Allow the student to explain significant navigation features including the destination airport. Provide opportunity for limited normal landing and takeoff practice at both airports. Practice unusual attitude recovery procedures.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards:

OUTBOUND FLIGHT

- Display increased proficiency in coordinated airplane attitude control during basic maneuvers.
- Perform unassisted takeoffs.
- Demonstrate correct traffic pattern and communication procedures.
- Complete landings with a minimum of instructor assistance.
- Demonstrate the ability to recognize and recover from stalls during attitude instrument flight.

- Stalls will be performed so that:
    - Airspeed never exceeds cruise speed.
    - No secondary stalls are incurred.
    - Control manipulation is prompt, positive, and coordinated.

RETURN FLIGHT

- Display increased proficiency in coordinated airplane attitude control.
- Demonstrate ability to maintain aircraft control during stalls and slow flight.
- Demonstrate ability to recognize loss of attitude and/or heading indicators.
- Indicate ability to control aircraft without attitude instruments.
- Exhibit basic ability to control the airplane during slow flight and stalls/stall recovery by instrument reference.
- Display increased proficiency and skill in recovering from unusual attitudes.
- Demonstrate spin awareness.
- Indicate ability to conduct in-flight emergency procedures.

- Exhibit basic understanding and ability to control wind drift.
- Indicate increasing proficiency and student confidence in stall maneuvers.

Desired Outcome Grading Sheet:
# Indicates tasks and sub-tasks to be introduced/practiced during the outbound phase of the flight.

** Indicates tasks and sub-tasks to be introduced/practiced during the return phase of the flight.

Scenario Tasks	Scenario Sub Tasks	Desired Performance
Flight Planning	1. Scenario Planning	Practice
	2. Certificates and Documents	Perform
	3. Airport Diagrams	Practice
	4. VFR Navigational Chart	Practice
	5. Preflight SRM briefing	Practice
	6. Decision making and risk management	Explain
	7. Emergency Operations	Describe
Normal preflight and cockpit procedures	1. Use of Checklists	Explain
	2. Preflight Inspection	Explain
	3. Minimum equipment list	Explain
	4. Cockpit management	Explain
	5. PFD/MFD setup	Explain
	6. BRS Preflight	Perform
	7. Airplane Servicing	Explain
	8. Operation of systems	Explain
	9. Positive exchange of flight controls	Perform
Aircraft systems related to IFR operations	1. Aircraft flight instrument and navigation equipment	Explain
	2. PFD setup	Explain
	3. Preflight check of instruments, equipment, systems & MFD setup	Explain
	4. Instrument cockpit check	Explain
	5. Automation management	Explain
Engine Start and Taxi Procedures	1. Engine start	Practice
	2. Airport and runway markings and lighting	Practice
	3. Radio Communications	Practice
	4. Taxi	Practice
	5. Runway incursion avoidance	Explain
	6. Cross wind taxi	Explain
	7. SRM/Situational awareness	Explain
Before Takeoff Checks	1. Normal and abnormal indications	Explain
	2. Wind shear avoidance	Explain

	3. Aircraft automation management 4. Aeronautical Decision making and risk management	Describe/Explain Explain
Takeoff	1. Normal takeoff 2. Situational awareness 3. SRM/ and risk management	Practice Explain Explain
Climb procedures	1. Constant speed climbs & climbing turns (IR & VR) 2. Constant rate climbs (IR & VR) 3. Departure procedures 4. Pilotage 5. Situational awareness, task management, and SRM 6. Collision avoidance precautions 7. Autopilot climb	Practice Explain Explain Practice Explain Practice Practice
Cruise procedure	1. Manual straight and level flight (IR and VR) 2. Power management & basic speed control (VR and IR) 3. Collision avoidance precautions 4. Pilotage 5. Wind Drift corrections 6. Situational awareness, task management, and SRM 7. Standard rate turns to headings (VR and IR) 8. Maneuvering during slow flight (IR & VR) 9. Unusual attitude recovery (VR & IR) 10. Steep turns 11. Power-off stalls (IR and VR) 12. Power-on stalls (IR and VR) 13. Operations in Turbulence 14. **Magnetic compass turns 15. **Wake turbulence avoidance 16. **System and equipment malfunctions 17. **Demonstrated stalls (secondary, accelerated, trim, cross-control) 18. **Spin awareness 19. **Flight at slow airspeeds with realistic distractions 20. Lean assist (if so equipped) 21. Best economy vs. best power 22. Autopilot cruise	Practice Explain Practice Practice Explain Explain Practice Explain Explain Explain Describe Describe Describe Describe Describe Describe Describe Describe Describe Describe Explain Explain
Descent Planning and	1. Descents, descending turns, and	Practice

execution	transition to level flight 2. Rate descents (IR and VR) 3. Wind drift in turns 4. Collision avoidance precautions 5. Situational awareness, task management and SRM	 Explain Explain Practice Practice
Approach Procedures	1. Traffic pattern entry procedures 2. Collision avoidance precautions 3. Situational awareness, task management and SRM 4. Wind shear avoidance 5. Communications 6. Normal approach 7. ** Emergency approach and landing 8. ** Emergency descent	Explain Practice Practice Explain Practice Practice Describe Describe
Landing	1. Before landing procedures 2. Normal landing 3. Land and Hold Short Operations (LAHSO) 4. After landing procedures	Practice Explain/Practice Explain Practice
Taxi and aircraft shutdown and securing procedure	1. Use of Checklist 2. Aircraft ground operations and parking 3. BRS Post Flight 4. Securing 5. Instrument post flight procedures	Practice Practice Perform Practice Explain

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: The first leg in the initial orientation flight and the activities listed should be introduced as a part of the normal flight from one airport to another. By Lesson Three, the PT should be allowed to conduct the basic preflight planning, departure, and enroute portion of the flight. The instructor should limit instruction during this phase to filling gaps in the PT's knowledge, correcting incorrect procedures and techniques, and introducing new learning tasks. During the stop at the destination, the instructor should conduct a mini critique of the outbound leg and should expect PT improvement in planning and execution on the return leg. The instructor will need to

introduce the concept of wind correction during the approach and landings at the destination and upon the return to the departure point. Normal landing instruction and practice should begin. The mini critique should be used to correct PT performance and landing performance should improve upon return to the departure airport.

LESSON 4-A
(Aviation Training Device)

Scenario: You are a bush pilot in Alaska. Today you are hauling a load of diphtheria vaccine into Red Dog, a native village in the Alaska bush. Red Dog has two runways—one is gravel (in the summer) or ice (in the winter), or mud (during break-up). The other is grass (in the summer) or snow (winter) and short (1500'), and normally only used by bush aircraft or when strong winds prevent using the longer runway. (Insert a nearby

airport that is similar and will simulate Red Dog.) The weather is marginal VFR for your entire flight with unreported wind conditions. The native population is in dire need of the vaccine—it's your job to get it there.

Lesson Objectives: The student is given an opportunity to practice VOR orientation, radial interception, and tracking procedures. VOR time, speed, and distance computations are also introduced. In addition, the student is taught the procedural differences between NDB homing and the interception and tracking of NDB bearings. Intercepting and tracking DME Arcs will also be introduced.

ATD Lessons – In the event an ATD is not available for the aircraft, the training events prescribed can be flown as local practice flights in the actual aircraft. Early in the program, these flights may be executed with the PT having only a responsibility for the specific tasks required by the ATD Lesson.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards:
The student will demonstrate an understanding of the procedures used to perform VOR time, speed, and distance computations, and the interception and tracking of VOR radials and DME arcs. The student also will understand the use of the NDB for homing and NDB bearing interception and tracking.

Desired Outcome Grading Sheet:

Tasks	Sub Tasks	Desired Performance
VOR Navigation	1. VOR Accuracy Test	Practice
	2. VOR Orientation	Explain
	3. Intercepting and tracking VOR Radials	Explain
	4. VOR Time, Speed, and Distance computations	Explain
	5. Intercepting and tracking DME Arcs	Describe/Explain
NDB Navigation	1. NDB Orientation	Describe
	2. NDB Homing	Describe/Explain
	3. Intercepting and Tracking NDB bearings	Describe

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: Always make certain the PT can mentally fly the maneuver before expecting them to be able to physically perform it. Once the PT is able to mentally perform the VOR and NDB maneuvers, let the PT attempt to fly the navigation procedures. Continually reinforce the PT's use of SRM throughout the flight. At appropriate moments, have the PT assess the situation for you and inform you of their next two intentions. Have them explain what purpose each frequency set in the navigational and communications equipment serves. These are some of the ways you can get them to think ahead of the aircraft, not just for the next task, but for the task to follow. When introducing the DME Arc, have the PT intercept the arc from both sides and make sure they can explain why the two intercepting procedures are different. Familiarize the student with any traffic/terrain awareness systems by explaining how to interpret the display and how to use that information to remain clear of any potential collision hazards. Make sure the student is also aware of the systems limitations.

LESSON 4
Flight Review

Scenario: You and three family members are planning on flying to a nearby city in order to tour a famous museum. The plan is to fly to the airport where a friend will meet you and take everyone to the museum. This is a short cross-country flight to an airport. The PT will participate in planning a short cross-country flight with a full stop landing and a return to the point of origin.

Lesson Objectives: This is a short cross-country flight, preferably to the airport visited during scenario three with a return to the point of departure. The PT will plan a short cross-country flight with a full stop landing and a return to the point of origin. The PT should be allowed to conduct the basic preflight planning, departure, en route and arrival portion of the flight, including any IFR clearances. The instructor should limit instruction during this phase to correcting incorrect procedures and techniques. During the stop at the cross-country destination, the instructor should conduct a mini critique of the outbound leg and should expect PT improvement in planning and execution on the return leg. The mini critique should be used to correct PT performance and landing performance should improve upon return to the departure airport.

If conducted by an instructor other than the PT's regularly assigned instructor: PT will review basic flight operation. Instructor will evaluate knowledge and skill level to determine if the PT is progressing normally. Emphasis will be on safety of flight considerations during preflight activities, ground operations, basic aircraft control, airport operations, and basic attitude instrument flying.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards:

- Demonstrate good understanding of preflight activities and safe operating practices.
- Exhibit normal (for this stage of training) knowledge and proficiency in performance of the assigned maneuvers and procedures.
- Be able to safely maintain altitude within 200 feet, headings within 15 degrees, and climb/descent airspeeds within 15 knots.
- Accurately control the airplane by both visual and instrument reference during basic maneuvers.
- Show a basic understanding of aircraft systems.

Desired Outcome Grading Sheet:

Scenario Tasks	Scenario Sub Tasks	Desired Learning Outcome
Flight Planning	1. Scenario Planning 2. Certificates and Documents 3. Preflight SRM briefing 4. Decision making and risk management	Practice Perform Practice Explain/practice
Normal preflight and cockpit procedures	1. Use of Checklists 2. Preflight Inspection 3. Minimum equipment list 4. Cockpit management 5. PFD setup 6. MFD setup 7. Airplane Servicing 8. Positive exchange of flight controls 9. Automation management	Practice Practice Practice Practice Explain Describe Perform Perform Explain
Engine Start and Taxi Procedures	1. Engine start 2. Airport and runway markings and lighting 3. Radio Communications 4. Taxi 5. Runway incursion avoidance 6. SRM/Situational awareness 7. Cross wind Taxi	Practice Practice Practice Practice Practice Explain/practice Practice
Before Takeoff Checks	1. Normal and abnormal indications 2. Aeronautical Decision making and risk management 3. Wind shear avoidance 4. Aircraft automation management	Explain Explain/practice Practice Practice
Takeoff	1. Normal takeoff 2. Situational awareness 3. SRM/ and risk management	Practice Practice Practice
Climb procedures	1. Constant speed climbs & climbing turns (IR & VR) 2. Departure procedures 3. Constant Rate Climb 4. Pilotage 5. Situational awareness, task management, and SRM 6. Collision avoidance precautions 7. Autopilot climb	Practice Practice Practice Practice Practice Practice Practice
Cruise procedure	1. Manual straight and level flight (IR and VR)	Practice

	2. Power management & basic speed control (VR and IR)	Practice
	3. Collision avoidance precautions	Practice
	4. Wind Drift corrections	Practice
	5. Situational awareness, task management, and SRM	Practice
	6. Standard rate turns to headings (VR and IR)	Practice
	7. Maneuvering during slow flight (IR & VR)	Practice
	8. Unusual attitude recovery (VR & IR)	Practice
	9. Power-off stalls (IR and VR)	Explain
	10. Power-on stalls (IR and VR)	Explain
	11. Spin awareness	Explain
	12. Autopilot cruise	Practice
	13. Lean assist (if so equipped)	Practice
	14. Best economy vs. best power	Practice
	15. Steep Turns	Explain
	16. Pilotage	Practice
	17. Magnetic Compass Turns	Explain
	18. Operations in Turbulence	Explain
	19. Systems and equipment malfunctions	Explain
	20. Flight at slow speeds with realistic distractions	Practice
	21. Demonstration Stalls (secondary, accelerated, trim, cross-control)	Explain
	22. Wake turbulence avoidance	Practice
Descent Planning and execution	1. Descents, descending turns, and transition to level flight	Practice
	2. Rate descents (IR & VR)	Explain
	3. Wind drift in turns	Practice
	4. Collision avoidance precautions	Practice
	5. Situational awareness, task management and SRM	Practice
Approach Procedures	1. Traffic pattern entry procedures	Practice
	2. Emergency descent	Explain
	3. Emergency Approach and landing	Explain
	4. Wind shear avoidance	Practice
	5. Collision avoidance precautions	Practice
	6. Situational awareness, task management and SRM	Practice
	7. Communications	Practice
	8. Normal approach	Practice

Landing	1. Before landing procedures 2. Normal landing 3. Land & Hold short operations (LAHSO) 4. After landing procedures	Practice Practice Practice Practice
Taxi and aircraft shutdown and securing procedure	1. Use of Checklist 2. Aircraft ground operations and parking 3. Securing 4. Instrument Post flight procedures	Practice Practice Perform Practice

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: With your assistance the PT will perform the necessary preflight preparation. Only if necessary, you should assist the PT conduct the instrument cockpit check and allow the student to handle all ATC communications, including IFR clearances, and provide assistance when necessary. Assist if necessary the PT in setting up the navigational equipment to be used and explain the clearances associated with the departure, arrival and approach. While flying the different segments of the cross country, emphasize the cognitive aspect of the procedures by asking the PT to tell you what steps to take while you fly the airplane. This method assures that the PT's first exposure to an instrument cross country is a mental task rather than a physical one. The PT will learn much quicker once they learn to manage the process through a well developed SRM approach.

LESSON 5-A
(AVIATION TRAINING DEVICE)

Scenario: A friend of yours is a contractor and needs to pick up some architectural prints in a city 60 miles from your location. They need these prints today or they will loose a large client and the traffic going into the city would prohibit travel by car before close of business. You were planning to fly in that direction anyhow to gain some additional IFR experience, so you offer to fly your friend to the closest airport nearest the engineering firm. The weather is IFR with similar conditions at the destination airport.

Lesson Objectives:
The PT increases attitude instrument flight proficiency by performing steep turns, slow flight, stalls, and recovery from unusual flight attitudes. VOR navigation procedures are reviewed and localizer navigation procedures are introduced. **ATD Lessons** – In the event an ATD is not available for the aircraft, the training events prescribed can be flown as local practice flights in the actual aircraft. Early in the program, these flights may be executed with the PT having only a responsibility for the specific tasks required by the ATD Lesson.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards:
The PT will maintain altitude within 200 feet and headings within 15 degrees during level flight. Climb and descent airspeeds will be maintained within 15 knots. In addition, the PT should be able to immediately recognize the approach of stalls and demonstrate the correct recovery procedures form unusual flight attitudes. The PT will also exhibit understanding of VOR navigation and Localizer identification and tracking.

Desired Outcome Grading Sheets:

Tasks	Sub Tasks	Desired Performance
Aircraft Systems	1. Instrument cockpit check	Practice
	2. Aircraft flight instruments and navigation equipment	Practice
	3. Preflight check of instruments, equipment, and systems	Practice
Maneuvers	1. Straight and Level	Practice
	2. Standard rate turns	Practice
	3. Rate climbs	Practice
	4. Climbing turns	Practice
	5. Rate Descents	Practice

	6. Descending turns	Practice
Speed Control	1. Change of Airspeed 2. Constant Airspeed climbs 3. Constant Airspeed descents 4. Maneuvering During Slow flight (partial panel) 5. Power-off stalls (partial panel) 6. Power-on stalls (partial panel)	Practice Practice Practice Practice Practice Practice
Advanced Maneuvers and Procedures	1. Steep turns (partial panel) 2. Recovery from unusual flight attitudes (partial panel). 3. Operations in turbulence (partial panel)	Practice Practice Practice
Navigation	1. VOR Navigation 2. Localizer Identification and Tracking	Explain Explain

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: During this lesson you will concentrate on developing the PT's attitude instrument flying skills. Review maneuvers in VFR and IFR conditions if possible. Continually question the PT as to the status of the flight and what the next sequence of events should be. By asking questions and getting them to think ahead you can shape their ADM process and help them develop the SRM skills so important in today's IFR environment. Take time enroute to discuss any advanced navigational and avionics features of the airplane. Review VOR usage and introduce localizer navigation. Point out appropriate times to begin preparing for the next phase of the flight. This is a critical period of the flight and if managed correctly can make all the difference in being prepared for the approach or not. Help the PT as necessary to assure a smooth transition from the cruise phase to the approach and landing segment. Review the differences between a localizer approach and a VOR approach. Emphasize the additional sensitivity of the localizer and the importance of small, calculated corrections for the wind. After the landing ask the PT how they feel the first leg went and what they learned from it. Ask them what they would have done differently and how the flight could have been improved. With the lessons learned from the first leg, the PT should have a better idea of what to expect on the second leg. Concentrate on the same points on the return trip and help the PT better manage the flight home. Condition the PT to perform

the 5 Ps at the appropriate times to encourage a conscious effort of managing the flight and maintaining the big picture perspective.

LESSON 5

Scenario: Your class reunion is being held over the weekend at a hotel in a neighboring town. You decide that you would rather fly to the event since the hotel is located within the terminal airport area and a free shuttle service is provided. You also want to pick up two friends, each at different airports, and fly them to the reunion with you. You decide that you will leave Saturday afternoon before an approaching cold front is due to arrive late Saturday night.

Lesson Objectives:
This will be a cross-country flight with landings at another airport other than the point of departure. At least one of the airports should have an operating control tower with Class C or D airspace. PT will practice Dead Reckoning navigation and will be introduced to basic radio aids to navigation, basic system failures, emergency operations, and basic instrument procedures. PT will be introduced to short and soft field operations. Provide an opportunity for normal landing and takeoff practice at each airport as required. Provide post flight feedback at the end of each leg along with a preview of the next phase of flight.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standard:

OUTBOUND FLIGHT

- Exhibit understanding of attitude instrument flying.
- Indicate good understanding of local airport and airspace rules as well as systems and equipment malfunctions and related emergency procedures.
- Demonstrate continued progress in instrument proficiency, both full and partial panel.
- Exhibit basic understanding of instrument system and equipment malfunctions.
- Display an understanding of basic SRM skills.

RETURN FLIGHT

- Competently perform preflight duties and all other procedures and maneuvers listed in the lesson. Altitude will be maintained within 150 feet, headings within 15 degrees, and airspeed within 10 knots.
- Exhibit good knowledge of the demonstrated stalls and a basic understanding of VOR navigation.
- Display an understanding of basic SRM skills.

Desired Outcome Grading Sheet:
# Indicates tasks and sub-tasks to be introduced/practiced during the outbound phase of the flight

** Indicates tasks and sub-tasks to be introduced/practiced during the return phase of the flight

Scenario Tasks	Scenario Sub Tasks	Desired Performance
Flight Planning	1. Scenario Planning	Practice
	2. Certificates and Documents	Perform
	3. Airport Diagrams	Perform
	4. VFR Navigational Chart	Perform
	5. Pilotage	Perform
	6. Dead Reckoning navigation	Practice
	7. Preflight SRM briefing	Practice
	8. Decision making and risk management	Practice
	9. Emergency Operations	Practice
Normal preflight and cockpit procedures	1. Use of Checklists	Practice
	2. Preflight Inspection	Practice
	3. Minimum equipment list	Perform
	4. Cockpit management	Practice
	5. Airplane Servicing	Perform
	6. Operation of systems	Explain
	7. Positive exchange of flight controls	Perform
Aircraft systems related to IFR operations	1. Aircraft flight instrument and navigation equipment	Explain
	2. PFD setup	Practice
	3. Preflight check of instruments, equipment, systems & MFD setup	Explain
	4. Instrument cockpit check	Explain
	5. Automation management	Explain
Engine Start and Taxi Procedures	1. Engine start	Practice
	2. Airport and runway markings and lighting	Practice
	3. Radio Communications	Practice
	4. Taxi	Practice
	5. Runway incursion avoidance	Practice
	6. Cross wind taxi	Practice
	7. SRM/Situational awareness	Practice
Before Takeoff Checks	1. Normal and abnormal indications	Practice
	2. Wind shear avoidance	Practice
	3. Aircraft automation management	Practice
	4. Aeronautical Decision making and risk management	Practice

Takeoff	1. Normal takeoff 2. ** Short-field takeoff and climb 3. **Soft-field takeoff and climb 4. Situational awareness 5. SRM/ and risk management	Practice Describe Describe Practice Practice
Climb procedures	1. Constant speed climbs & climbing turns (IR & VR) 2. Constant rate climbs (IR & VR) 3. Departure procedures 4. Pilotage 5. Situational awareness, task management, and SRM 6. Collision avoidance precautions 7. Autopilot climb	Practice Practice Practice Practice Practice Practice Practice
Cruise procedure	1. Manual straight and level flight (IR and VR) 2. Power management & basic speed control (VR and IR) 3. Collision avoidance precautions 4. Pilotage 5. # Dead Reckoning navigation 6. Wind Drift corrections 7. Situational awareness, task management, and SRM 8. Medium Banked Standard rate turns to headings (VR and IR) 9. Maneuvering during slow flight (IR & VR) 10. Unusual attitude recovery (VR & IR) 11. Operations in Turbulence 12. Magnetic compass turns 13. Wake turbulence avoidance 14. System and equipment malfunctions 15. Demonstrated stalls (secondary, accelerated, trim, cross-control) 16. Spin awareness 17. Flight at slow airspeeds with realistic distractions 18. # Timed turns to magnetic compass headings 19. Autopilot cruise 20. Lean assist (if so equipped) 21. Best economy vs. best power	Perform Perform Perform Practice Practice Practice Practice Practice Practice Practice Practice Practice Practice Practice Explain Practice Practice Explain Perform Practice Practice
Training Maneuvers & Procedures	1. Steep turns 2. Power-off stalls (IR and VR)	Describe Describe

	3. Power-on stalls (IR and VR) 4. **VOR Accuracy Test 5. **VOR Orientation 6. ** Intercepting and Tracking VOR radials	Describe Describe Practice Practice
Descent Planning and execution	1. Descents, descending turns, and transition to level flight 2. Rate descents (IR and VR) 3. Wind drift in turns 4. Collision avoidance precautions 5. Situational awareness, task management and SRM	Practice Practice Practice Practice Practice
Approach Procedures	1. Traffic pattern entry procedures 2. Collision avoidance precautions 3. Situational awareness, task management and SRM 4. Wind shear avoidance 5. Communications 6. Normal approach 7. Emergency approach and landing 8. Emergency descent	Practice Practice Practice Practice Perform Practice Explain Explain
Landing	1. Before landing procedures 2. Normal landing 3. ** Short-field approach and landing 4. ** Soft-field approach and landing 5. Land and Hold Short Operations (LAHSO) 6. After landing procedures	Perform Practice Describe Describe Practice Perform
Taxi and aircraft shutdown and securing procedure	1. Use of Checklist 2. Aircraft ground operations and parking 3. Securing 4. Instrument post flight procedures	Perform Perform Perform Perform

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: Discuss the scenario with the PT. Have the PTexplain their GO/NO GO decision, how the cold front in the above scenario could effect their fuel/cross-country planning, and any fuel stops they might need.

Departing Home: Soft field takeoff with climb to cruise altitude. Assist PT in opening flight plan on departure. Cruise: Review pilotage, introduce dead-reckoning, and keep up with flight log. Descent: Introduce descent planning and airport arrival procedures. Pattern: Practice short field landings and takeoffs. When complete, taxi off runway to close flight plan and open plan for next leg.

Leg 2
Ground Ops: Inform the PT that weather has moved in and there is now a low overcast layer reported at 2500 ft AGL. Ask questions to stimulate thought, such as: How will this effect our flight? What can we do to get more weather information? How can we find out what the weather will be at our destination? What will be our new cruise altitude? Departure: Have PT execute a short field takeoff and climb. Let PT decide when and how to open their flight plan. Give as little instructor input as necessary. Cruise: PT should level-off at the appropriate cruise altitude based on simulated low weather. When half-way into leg one, begin to hint that the weather is deteriorating. Make comments such as: “The visibility is getting worse” or “Boy, that overhead cloud layer appears to be getting closer.” Let the PT choose which action to take. Descent and Pattern Work: Have PT enter the pattern and execute a soft-field landing. Pick up passenger #1.

Leg 3
Departure: Execute a soft-field takeoff and climb. Have PT climb to cruise altitude and open the flight plan with little or no instructor guidance. Discuss emergency malfunctions pertinent to the flight.

LESSON 6-A
(AVIATION TRAINING DEVICE)

Scenario: You are a real estate tycoon with a very important meeting in city half way across the state. The purpose of the meeting is to negotiate the acquisition of a 50-unit apartment complex. If you negotiate well, your company stands to make a lot of money.

Lesson Objectives:
Introduce the PT to the GPS navigation trainer. PT should exhibit a basic understanding of GPS principles, navigation procedures, and operations. **ATD Lessons** – In the event an ATD is not available for the aircraft, the training events prescribed can be flown as local practice flights in the actual aircraft. Early in the program, these flights may be executed with the PT having only a responsibility for the specific tasks required by the ATD Lesson.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards: The PT will demonstrate a basic knowledge of GPS operating principles. In addition, the PT should exhibit the ability to maintain orientation while using the GPS navigation trainer.

Desired Outcome Grading Sheet:

Tasks	Sub Tasks	Desired Performance
Training equipment	GPS Navigation Trainer Operation Principles	Practice
Navigation	1. GPS Orientation 2. GPS Navigation 3. Direct 4. Flight Plan 5. Nearest	Explain Explain Practice Explain Practice
Approach	Basic GPS Approach	Explain

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide

guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: During this lesson you will concentrate on developing the PT's mental picture of IFR cross-countries. Spend extra time with the PT during the pre-briefing to cover the cross-country flight planning. Have them describe what they believe should happen during each phase of the flight. Continually question the PT as to the status of the flight and what the next sequence of events should be. By asking questions and getting them to think ahead you can shape their ADM process and help them develop the SRM skills so important in today's IFR environment. Take time enroute to discuss any advanced navigational and avionics features of the airplane. Introduce the PT to the GPS navigation and be sure to demonstrate its use and explain the limitations of each piece of equipment. Discuss how this automation can be managed in a way to relieve the PT's workload and help operate the airplane more efficiently. Do not allow the PT to get behind the airplane. Point out appropriate times to begin preparing for the next phase of the flight.

LESSON 6

Scenario: Your class reunion is being held over the weekend at a hotel in a neighboring town. You decide that you would rather fly to the event since the hotel is located within the terminal airport area and a free shuttle service is provided. You also want to pick up two friends, each at different airports, and fly them to the reunion with you. You decide that you will leave Saturday afternoon before an approaching cold front is due to arrive late Saturday night.

Lesson Objectives: This is a cross-country flight with landings a another airport, other than the departure airport, that will provide the opportunity for actual crosswind takeoff and landing practice. This scenario should be a repeat trip from Lesson 5 in reverse direction. The PT will learn the basic procedures for crosswind takeoffs, landing from a forward slip, and go-around from a rejected landing. GPS navigation will be reviewed. During this flight the instructor may begin to introduce emergency and abnormal procedures. The instructor should observe both good procedural knowledge as well as solid decision making and risk management based on factual analysis of the problem presented.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards:

OUTBOUND FLIGHT

- Demonstrate competence in airport operations.
- Accomplish emergency procedures with minimal assistance.
- Indicate increasing proficiency and precision in ground tracking by controlling for wind drift in all phases of flight.
- Demonstrate ability to accurately interpret and utilize VOR for orientation and navigation.
- Exhibit basic understanding of NDB procedures and related techniques.
- Display increasing SRM skills to include in-flight decision-making,

RETURN FLIGHT

- Explain the proper procedures for crosswind control during taxi, takeoffs, and landings.
- Explain the correct procedure for executing a go-around from a missed approach in the training airplane.
- Demonstrate an ability to maintain aircraft control during the forward slip.
- Indicate basic proficiency in VOR navigation and orientation.
- Exhibit increasing knowledge of NDB orientation and navigation.
- Display increasing SRM skills to include in-flight decision-making.

Desired Outcome Grading Sheet:
# Indicates tasks and sub-tasks to be introduced/practiced during the outbound phase of the flight.

** Indicates tasks and sub-tasks to be introduced/practiced during the return phase of the flight.

Scenario Tasks	Scenario Sub Tasks	Desired PT performance
Flight Planning	1. Scenario Planning	Practice
	2. Certificates and Documents	Perform
	3. Airport Diagrams	Perform
	4. VFR Navigational Chart	Perform
	5. Pilotage	Perform
	6. Dead Reckoning navigation	Explain
	7. Preflight SRM briefing	Practice
	8. Decision making and risk management	Practice
	9. Emergency Operations	Practice
Normal preflight and cockpit procedures	1. Use of Checklists	Perform
	2. Preflight Inspection	Perform
	3. Minimum equipment list	Perform
	4. Cockpit management	Practice
	5. Airplane Servicing	Perform
	6. Operation of systems	Practice
	7. Positive exchange of flight controls	Perform
Aircraft systems related to IFR operations	1. Aircraft flight instrument and navigation equipment	Practice
	2. PFD setup	Practice
	3. Preflight check of instruments, equipment, and systems, MFD setup	Explain
	4. Instrument cockpit check	Practice
	5. VOR Accuracy Test	Describe
	6. Automation Management	Explain
Engine Start and Taxi Procedures	1. Engine start	Practice
	2. Airport and runway markings and lighting	Practice
	3. Radio Communications	Perform
	4. # ATC light signals	Describe
	5. Taxi	Practice
	6. Runway incursion avoidance	Practice
	7. Cross wind taxi	Practice
	8. SRM/Situational awareness	Practice
Before Takeoff Checks	1. Normal and abnormal indications	Practice
	2. Wind shear avoidance	Practice

	3. Aircraft automation management 4. Aeronautical Decision making and risk management	Practice Practice
Takeoff	1. Normal takeoff 2. Short-field takeoff and climb 3. Soft-field takeoff and climb 4. # Crosswind takeoff and climb 5. Situational awareness 6. SRM/ and risk management	Perform Explain Explain Describe Practice Practice
Climb procedures	1. Constant speed climbs & climbing turns (IR & VR) 2. Constant rate climbs (IR & VR) 3. Departure procedures 4. Pilotage 5. Situational awareness, task management, and SRM 6. Collision avoidance precautions	Perform Practice Practice Practice Practice Practice
Cruise procedure	1. Manual straight and level flight (IR and VR) 2. Power management & basic speed control (VR and IR) 3. Collision avoidance precautions 4. Pilotage 5. Dead Reckoning navigation 6. Ground Track / Wind Drift corrections 7. Situational awareness, task management, and SRM 8. Medium Banked Standard rate turns to headings (VR and IR) 9. Maneuvering during slow flight (IR & VR) 10. Unusual attitude recovery (VR & IR) 11. Operations in Turbulence 12. Magnetic compass turns 13. Wake turbulence avoidance 14. System and equipment malfunctions 15. Demonstrated stalls (secondary, accelerated, trim, cross-control) 16. Spin awareness 17. Flight at slow airspeeds with realistic distractions 18. Timed turns to magnetic compass headings 19. GPS operations & procedures 20. GPS Orientation 21. GPS Fixes	Perform Practice Practice Practice Explain Practice Practice Practice Practice Practice Practice Practice Practice Explain Practice Practice Practice Practice Describe Describe Describe

	22. GPS Direct 23. GPS flight planning and basic "T" approach 24. Nearest function on the GPS	Describe Describe Describe
Training Maneuvers & Procedures	1. Steep turns 2. Power-off stalls (IR and VR) 3. Power-on stalls (IR and VR) 4. VOR Orientation 5. Intercepting and Tracking VOR radials 6. Emergency descents and climbs using radio aids or radar directives	Explain Explain Explain Explain Explain Describe
Descent Planning and execution	1. Descents, descending turns, and transition to level flight 2. Rate descents (IR and VR) 3. Wind drift in turns 4. Collision avoidance precautions 5. Situational awareness, task management and SRM	Practice Practice Practice Perform Manage/Decide
Approach Procedures	1. Traffic pattern entry procedures 2. Collision avoidance precautions 3. Situational awareness, task management and SRM 4. Wind shear avoidance 5. Communications 6. Normal approach 7. Emergency approach and landing 8. Emergency descent 9. Aborted approach (go-around) to landing 10. Forward slips 11. VOR approach (VR)	Practice Perform Manage/Decide Perform Perform Practice Practice Practice Practice Describe Describe
Landing	1. Before landing procedures 2. Normal landing 3. Short-field approach and landing 4. Soft-field approach and landing 5. Crosswind approach and landing 6. Land and Hold Short Operations (LAHSO) 7. After landing procedures	Perform Practice Explain Explain Describe Practice Perform
Taxi and aircraft shutdown and securing procedure	1. Use of Checklist 2. Aircraft ground operations and parking 3. Securing 4. Instrument post flight procedures	Perform Perform Perform Perform

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: Simulate ATIS as having a temporary crane at approach end of landing runway. Discuss the location of the crane. Reiterate any challenges the temporary crane presents and how a forward slip could be used after clearing this obstacle. VFR pattern should be flown with a high final until clearing the crane, then slip to normal glide path, so as to land in the normal touchdown zone. Landing should be to a full stop. Practice normal and crosswind landings emphasizing the use of slips for crosswind and glide path corrections. Also emphasize the importance of a stabilized approach, recognition of the need for a go around, and proper go-around procedures.

En-route – Practice maneuvers previously introduced as per the syllabus to ensure student understanding. When listening to ATIS, simulate a gusty wind condition. Discuss techniques for dealing with gusty winds and wind shear. Home Airport – Fly the pattern as though gusty winds and wind shear actually exist.

Diversion to unplanned airport: About half-way into last leg, begin to simulate engine roughness. Make popping sounds and simulate power loss by pulling back the throttle a couple hundred RPM's every few minutes. Try to let the PT come up with a solution to the problem. Ask questions to stimulate thought, such as: Can we trouble shoot this problem? Should we continue on our course? What are our available alternates? Should we declare an emergency? If so, how would we do that? Have the PT plan a diversion to unplanned airport (or other suitable airport). Guide them through the problem and their decision making process. Ask appropriate questions to stimulate thought.

LESSON 7-A
(AVIATION TRAINING DEVICE)

Scenario: You just won a lottery jackpot of $10 Million! Because the amount is so large, you have to fly to the lottery headquarters and claim your money. You are so excited that you can hardly think. Therefore, as a precaution, you are bringing your Flight Instructor along with you just in case you need him/her.

Lesson Objectives:
The PT increases attitude instrument flight proficiency during this review of full and partial panel procedures. Emphasis will be on the correct procedures for steep turns, slow flight, stalls, and recovery from unusual flight attitudes. **ATD Lessons** – In the event an ATD is not available for the aircraft, the training events prescribed can be flown as local practice flights in the actual aircraft. Early in the program, these flights may be executed with the PT having only a responsibility for the specific tasks required by the ATD Lesson.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards: The PT will maintain altitude within 150 feet during level flight. Climb and descent airspeeds will be maintained within 15 knots. In addition, the PT should be able to immediately recognize the approach of stalls and demonstrate the correct recovery procedures form unusual flight attitudes. The PT will also exhibit understanding of ILS, localizer, and NDB approach procedures.

Desired Outcome Grading Sheet:

Tasks	Sub Tasks	Desired Performance
Maneuvers (Full and Partial Panel)	1. Straight and level	Practice
	2. Standard-rate turns	Practice
	3. Rate climbs	Practice
	4. Climbing turns	Practice
	5. Rate Descents	Practice
	6. Descending turns	Practice
Speed Control (Full and Partial Panel)	1. Change of airspeed	Practice
	2. Constant airspeed climbs	Practice
	3. Constant airspeed descents	Practice
	4. Slow flight and stalls	Practice
Advanced Maneuvers and Procedures	1. Recovery from unusual flight attitudes (full & partial panel)	Practice
	2. Steep turns	Practice
	3. Operations in turbulence	Practice

Navigation	1. ILS Approach 2. Localizer Tracking 3. Localizer Approach 4. Localizer Identification 5. NDB Approach	Practice Practice Practice Practice Practice

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: When demonstrating unusual flight attitudes, be sure to discuss situations or events that can increase the likelihood of entering an unusual flight attitude. Point out to PT the primary difference between the two different types of unusual attitudes; in one situation you are trying to maintain control of the aircraft, in the other you are trying not to over control it. Always emphasize good coordination and smooth application of the appropriate control inputs. Steep turns, slow flight, and stalls: PT should be able to set-up and execute all maneuvers without instructor input while maintaining this segment's completion standards.

LESSON 7

Scenario: You have made plans to make a late afternoon flight to a city close by to meet a friend for dinner. Your friend has agreed to pick you up at the airport at 5:00 sharp, and must return to work no later than 8:00. Weather for the route is 4000 broken with isolated rain showers. When you look out the window, the sun is shining through the clouds here and there across the whole area, with some scattered areas of virga, and the winds are out of the south at 10 kts. There are no NOTAMS affecting your flight.

Lesson Objectives:
This is a cross-country flight to an airport with a basic GPS approach, using the direct feature of the GPS. If the PT demonstrates proficiency in basic cruise maneuvers, the autopilot should be used to allow instruction in GPS procedures and programming as well as aircraft automation management. Review correct procedures for a go-around from a rejected landing, ATC light signals, and radar communications.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standard:
- Perform takeoffs and landings smoothly, while maintaining good directional control. Approaches will be stabilized, and airspeed will be within 5 knots of that desired.
- Perform a go-around from rejected landing with minimal instructor assistance.
- Demonstrate basic understanding of NDB orientation and navigation.
- Exhibit basic knowledge of ATC light signals and communication procedures.
- Indicate basic knowledge of localizer procedures.

Desired Outcome Grading Sheet:
# Indicates tasks and sub-tasks to be introduced/practiced during the outbound phase of the flight.

** Indicates tasks and sub-tasks to be introduced during the return phase of the flight.

Scenario Tasks	Scenario Sub Tasks	Desired Performance
Flight Planning	1. Scenario Planning	Practice
	2. Certificates and Documents	Perform
	3. Airport Diagrams	Perform
	4. VFR Navigational Chart	Perform
	5. Pilotage	Perform
	6. Dead Reckoning navigation	Explain/Practice
	7. Preflight SRM briefing	Practice
	8. Decision making and risk	Practice

	management 9. Emergency Operations	 Practice
Normal preflight and cockpit procedures	1. Use of Checklists 2. Preflight Inspection 3. Minimum equipment list 4. Cockpit management 5. Airplane Servicing 6. Operation of systems 7. Positive exchange of flight controls	Perform Perform Perform Practice Perform Practice Perform
Aircraft systems related to IFR operations	1. Aircraft flight instrument and navigation equipment 2. PFD setup 3. Preflight check of instruments, equipment, and systems, MFD setup 4. Instrument cockpit check 5. VOR Accuracy Test	Practice Practice Practice Practice Explain/Practice
Engine Start and Taxi Procedures	1. Engine start 2. Airport and runway markings and lighting 3. Radio Communications 4. # ATC light signals 5. Taxi 6. Runway incursion avoidance 7. Cross wind taxi 8. SRM/Situational awareness	Perform Perform Practice Practice Perform Perform Practice Practice
Before Takeoff Checks	1. Normal and abnormal indications 2. Wind shear avoidance 3. Aircraft automation management 4. Aeronautical Decision making and risk management	Practice Practice Practice Practice
Takeoff	1. Normal takeoff 2. Short-field takeoff and climb 3. Soft-field takeoff and climb 4. Crosswind takeoff and climb 5. Situational awareness 6. SRM/ and risk management	Perform Practice Practice Explain Practice Practice
Climb procedures	1. Constant speed climbs & climbing turns (IR & VR) 2. Constant rate climbs (IR & VR) 3. Departure procedures 4. Pilotage 5. Situational awareness, task management, and SRM 6. Collision avoidance precautions	Perform Practice Practice Perform Manage/Decide Perform
Cruise procedure	1. Manual straight and level flight (IR and VR)	Perform

	2. Power management & basic speed control (VR and IR)	Perform
	3. Collision avoidance precautions	Perform
	4. Pilotage	Perform
	5. Dead Reckoning navigation	Practice
	6. Ground Track / Wind Drift corrections	Practice
	7. Situational awareness, task management, and SRM	Manage/Decide
	8. Medium Banked Standard rate turns to headings (VR and IR)	Perform
	9. Maneuvering during slow flight (IR & VR)	Practice
	10. Unusual attitude recovery (VR & IR)	Practice
	11. Operations in Turbulence	Practice
	12. Magnetic compass turns	Practice
	13. Wake turbulence avoidance	Perform
	14. System and equipment malfunctions	Practice
	15. Demonstrated stalls (secondary, accelerated, trim, cross-control)	Practice
	16. Spin awareness	Practice
	17. Flight at slow airspeeds with realistic distractions	Practice
	18. Timed turns to magnetic compass headings	Practice
	19. GPS operations & procedures	Describe
	20. GPS Orientation	Describe
	21. GPS Fixes	Describe
	22. GPS Direct	Describe
	23. # GPS flight planning and basic “T” approach	Describe
	24. Nearest function on the GPS	Describe
	25. # GPS overlay approach	Explain
	26. NDB orientation and navigation.	Explain/Practice
Training Maneuvers & Procedures	1. Steep turns	Practice
	2. Power-off stalls (IR and VR)	Practice
	3. Power-on stalls (IR and VR)	Practice
	4. VOR Orientation	Practice
	5. Intercepting and Tracking VOR radials	Practice
	6. Emergency descents and climbs using radio aids or radar directives	Practice
Descent Planning and execution	1. Descents, descending turns, and transition to level flight	Perform
	2. Rate descents (IR and VR)	Practice
	3. Wind drift in turns	Practice

	4. Collision avoidance precautions 5. Situational awareness, task management and SRM	Perform Manage/Decide
Approach Procedures	1. Traffic pattern entry procedures 2. Collision avoidance precautions 3. Situational awareness, task management and SRM 4. Wind shear avoidance 5. Communications 6. Normal approach 7. Emergency approach and landing 8. Emergency descent 9. Aborted approach (go-around) to landing 10. Forward slips 11. VOR approach (VR) 12. Localizer Identification 13. Localizer Tracking	Perform Perform Manage/Decide Perform Perform Perform Practice Practice Practice Explain Describe Describe Describe
Landing	1. Before landing procedures 2. Normal landing 3. Short-field approach and landing 4. Soft-field approach and landing 5. Crosswind approach and landing 6. Land and Hold Short Operations (LAHSO) 7. After landing procedures	Perform Practice Practice Practice Explain Perform Perform
Taxi and aircraft shutdown and securing procedure	1. Use of Checklist 2. Aircraft ground operations and parking 3. Securing 4. Instrument post flight procedures	Perform Perform Perform Perform

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: While enroute, introduce a GPS approach. The PT should have a basic understanding of the GPS, its functions, and its operations. This training session should find the PT becoming more self-reliant and confident in the decision

making processes of the flight. As the instructor, it is up to you to provide the positive motivation and feedback that will help develop the PT's SRM skills. Learning to trust his/her own judgment, independent of your input, is essential to training a safe and competent instrument pilot. Introduce the autopilot, its functions, and how to use it if you haven't mentioned it before this flight. The emphasis up until now has been on developing the PT's fundamentals, both cognitive and physical. This means that not only should the PT demonstrate the ability to perform each task but they should also be able to manage and apply sound SRM practices prior to, during, and after each task. The desired outcome of all the training conducted so far is to prepare the PT for the more fluid and dynamic environment encountered in IFR cross-country operations. Approach this training lesson with that in mind. Based on their performance, have they reached a level of learning adequate for the next phase of training? Question the PT in a way that will allow you to determine their decision making capabilities and the level of their SRM development. Is the PT planning sufficiently ahead of the airplane and applying good SRM throughout the flight? Has the PT demonstrated the desired performance level for each task covered? The PT must be aware of the learning progression you are striving for and understand what they have to do to achieve it.

LESSON 8-A
(AVIATION TRAINING DEVICE)

Scenario: Today is a beautiful autumn day and you along with a friend want to view the fall foliage from the sky. The weather is cool but clear. You will fly for an hour and return to your home airport. You do not expect a stop during this flight.

Lesson Objectives:
Review VFR navigation procedures and use of navigation facilities to determine position. Lost procedures will be introduced. **ATD Lessons** – In the event an ATD is not available for the aircraft, the training events prescribed can be flown as local practice flights in the actual aircraft. Early in the program, these flights may be executed with the PT having only a responsibility for the specific tasks required by the ATD Lesson.

NOTE: *A view-limiting device is required for the dual instrument time allocated to this lesson.*

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards:
At the completion of this lesson, the PT will exhibit a basic understanding of how to navigate using Dead Reckoning procedures. The PT also will be able to determine position by using the appropriate navigation facilities and will demonstrate the knowledge needed to execute emergency operations using radio aids and radar directives.

Desired Outcome Grading Sheet:

Tasks	Sub Tasks	Desired Performance
Navigation	1. Dead Reckoning 2. Position Fix by navigation facilities 3. Diversion to an alternate	Practice Practice Practice
Emergency Procedures	1. Lost Procedures 2. Emergency descents and climbs using radio aids or radar directives (IR)	Explain Explain

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and

discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: During the climb from take-off airport, the PT should demonstrate the ability to navigate and maneuver the aircraft on course. Allow the PT to initially use all available means (GPS, VOR, etc.). Once on course, take away all navigation aids in order to effectively evaluate their pilotage and dead reckoning skills. Have PT open their flight plan by selecting the proper frequency and going through the appropriate radio calls. Ask questions to stimulate thought and further evaluate their abilities to successfully navigate to airport, such as: What is our Groundspeed? What will be our ETA or ETE to the destination? After we reach the first destination, how much flight time will we have left? Evaluate the accuracy of PT's answers by using the GPS GS and ETE readouts (if appropriate).

Basic Instrument/Lost procedure: If this lesson is conducted in the aircraft, have the PT put on view limiting device and tell them they just entered the clouds. If this lesson is conducted in an ATD, bring the visuals to IVR conditions. PT should elect to do a 180 degree turn without being prompted. Practice basic instrument flying maneuvers as per the PTS in order to evaluate student's skills. Lost Procedure: Take the view limiting device off and have PT start lost procedures working simple to complex (map only to navigation aids). PT should be able to locate their position using their map. After they identify their position, let them use navigational aids in order to verify their location.

LESSON 8

Scenario: A friend of yours is a contractor and needs to pick up some architectural prints in a city 60 miles from your location. They need these prints today or they will loose a large client and the traffic going into the city would prohibit travel by car before close of business. You were planning to fly in that direction anyway to gain some additional IFR experience. You offer to fly your friend to the airport nearest the architectural firm and drop your friend off. You will then fly to another airport 40 miles away as intended earlier and practice flying approaches. You will return to the city and pick up your friend and both of you will fly home together. The weather is marginal VFR along the entire route of flight.

Lesson Objectives: This is a cross-country flight with approaches and landings at 2 airports other than the point of departure. PT will use the DIRECT feature of the GPS and will be introduced to the radar vectors to final for a GPS approach at one airport and an overlay approach at another. Emphasis will be on GPS orientations and use. Maneuvers and procedures directed toward correction of any faulty tendencies to prepare the pilot in training (PT) for the Stage I Check. The PT should be conducting all planning for the flight and executing the basic flight scenario without aid from the instructor. Sound judgment and decision-making should be displayed during all phases of flight.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standard:

OUTBOUND FLIGHTS

- Demonstrate proficiency in the listed instrument and emergency procedures.
- Perform basic VOR and NDB orientation and navigation procedures.
- Exhibit understanding of GPS orientation and use.

RETURN FLIGHTS

- Demonstrate proficiency in wake turbulence avoidance, runway incursion avoidance, and collision avoidance procedure.
- Exhibit basic understanding of NDB and VOR navigation and orientation.
- Ability to utilize GPS for VFR navigation.
- Demonstrate increased competency in basic instrument maneuvers and procedures, including control of the airplane during unusual attitude recoveries and emergency climbs and descents.
- Control altitude within 150 feet during level turns, straight-and-level flight, and slow flight. Stall recoveries should be coordinated with a minimum loss of altitude.
- Display the correct recovery techniques form stalls.

Desired Outcome Grading Sheet:

# Indicates tasks and sub-tasks to be introduced during the outbound phase of the flight.

** Indicates tasks and sub-tasks to be introduced during the return phase of the flight.

Scenario Tasks	Scenario Sub Tasks	Desired Performance
Flight Planning	1. Scenario Planning	Perform
	2. Certificates and Documents	Perform
	3. Airport Diagrams	Perform
	4. VFR Navigational Chart	Perform
	5. Pilotage	Perform
	6. Dead Reckoning navigation	Practice
	7. Preflight SRM briefing	Perform
	8. Decision making and risk management	Manage/Decide
	9. Emergency Operations	Practice
Normal preflight and cockpit procedures	1. Use of Checklists	Perform
	2. Preflight Inspection	Perform
	3. Minimum equipment list	Perform
	4. Cockpit management	Perform
	5. Airplane Servicing	Perform
	6. Operation of systems	Perform
	7. Positive exchange of flight controls	Perform
Aircraft systems related to IFR operations	1. Aircraft flight instrument and navigation equipment	Perform
	2. PFD setup	Perform
	3. Preflight check of instruments, equipment, and systems, MFD setup	Practice
	4. Instrument cockpit check	Perform
	5. VOR Accuracy Test	Perform
Engine Start and Taxi Procedures	1. Engine start	Perform
	2. Airport and runway markings and lighting	Perform
	3. Radio Communications	Perform
	4. ATC light signals	Perform
	5. Taxi	Perform
	6. Runway incursion avoidance	Perform
	7. Cross wind taxi	Practice
	8. SRM/Situational awareness	Manage/Decide
Before Takeoff Checks	1. Normal and abnormal indications	Practice
	2. Wind shear avoidance	Practice
	3. Aircraft automation management	Practice

	4. Aeronautical Decision making and risk management	Manage/Decide
Takeoff	1. Normal takeoff 2. Short-field takeoff and climb 3. Soft-field takeoff and climb 4. Crosswind takeoff and climb 5. Situational awareness 6. SRM/ and risk management	Perform Explain Explain Practice Manage/Decide Manage/Decide
Climb procedures	1. Constant speed climbs & climbing turns (IR & VR) 2. Constant rate climbs (IR & VR) 3. Departure procedures 4. Pilotage 5. Situational awareness, task management, and SRM 6. Collision avoidance precautions	Perform Perform Perform Perform Manage/Decide Perform
Cruise procedure	1. Manual straight and level flight (IR and VR) 2. Power management & basic speed control (VR and IR) 3. Collision avoidance precautions 4. Pilotage 5. Dead Reckoning navigation 6. Ground Track / Wind Drift corrections 7. Situational awareness, task management, and SRM 8. Medium Banked Standard rate turns to headings (VR and IR) 9. Maneuvering during slow flight (IR & VR) 10. Unusual attitude recovery (VR & IR) 11. Operations in Turbulence 12. Magnetic compass turns 13. Wake turbulence avoidance 14. System and equipment malfunctions 15. Demonstrated stalls (secondary, accelerated, trim, cross-control) 16. Spin awareness 17. Flight at slow airspeeds with realistic distractions 18. Timed turns to magnetic compass headings 19. GPS operations & procedures 20. GPS Orientation 21. GPS Fixes	Perform Perform Perform Perform Practice Perform Manage/Decide Perform Perform Perform Perform Practice Perform Practice Perform Perform Explain Explain Explain

	22. GPS Direct 23. GPS flight planning and basic "T" approach 24. Nearest function on the GPS 25. GPS overlay approach	Describe Explain Describe Describe
Training Maneuvers & Procedures	1. Steep turns 2. Power-off stalls (IR and VR) 3. Power-on stalls (IR and VR) 4. VOR Orientation 5. NDB Orientation 6. Intercepting and Tracking VOR radials 7. Emergency descents and climbs using radio aids or radar directives	Practice Practice Practice Practice Practice Practice Practice
Descent Planning and execution	1. Descents, descending turns, and transition to level flight 2. Rate descents (IR and VR) 3. Wind drift in turns 4. Collision avoidance precautions 5. Situational awareness, task management and SRM	Perform Perform Perform Perform Manage/Decide
Approach Procedures	1. Traffic pattern entry procedures 2. Collision avoidance precautions 3. Situational awareness, task management and SRM 4. Wind shear avoidance 5. Communications 6. Normal approach 7. Emergency approach and landing 8. Emergency descent 9. Aborted approach (go-around) to landing 10. Forward slips 11. VOR approach (VR) 12. Localizer Identification 13. Localizer Tracking	Perform Perform Manage/Decide Perform Perform Perform Practice Practice Practice Practice Explain Explain Explain
Landing	1. Before landing procedures 2. Normal landing 3. Short-field approach and landing 4. Soft-field approach and landing 5. Crosswind approach and landing 6. Land and Hold Short Operations (LAHSO) 7. After landing procedures	Perform Practice Practice Practice Practice Perform Perform
Taxi and aircraft	1. Use of Checklist	Perform

shutdown and securing procedure	2. Aircraft ground operations and parking 3. Securing 4. Instrument post flight procedures	Perform Perform Perform

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: When conducting the GPS approach, have the PT talk you through the approach before they perform it. Ask PT what type of wind correction angle and rate of descent do they expect will be necessary for the approach. As they fly the approach, have them describe their actions and explain why they are doing what they are doing. Just as before, it is more important the PT understands why they are doing something than it is for them to actually be able to perform it. Continue to stress the importance of performing the 5 Ps at the appropriate time and maintaining situational awareness during all stages of the flight.

At this stage in training the PT should be able to gather and analyze all relevant information to the flight and use good aeronautical decision making to determine whether the flight can be completed as planned. It would be a good idea at this point to review that process and verify the PT is confident and proficient in the performance of those tasks. Periodically point out to the PT the cognitive aspects of the flight. Show how the application of the 5 Ps and good SRM provides them with a practical and reliable method to manage every flight. Based on the PT's performance, have they reached a level of learning adequate for the next phase of training? Question the PT in a way that will allow you to determine their decision making capabilities and the level of their SRM development. Is the PT planning sufficiently ahead of the airplane and applying good SRM throughout the flight? Has the PT demonstrated the desired performance level for each task covered? Stress to the PT that you will be evaluating them in these areas and make sure they approach the training with that in mind. The PT must be aware of the learning progression you are striving for and understand what they have to do to achieve it.

LESSON 9
(Pre-check)

Scenario: You and two friends are planning a trip from your home airport to another city 100 miles away to watch a daytime baseball game. The weather to the game is VFR and is forecast for the return flight.

Lesson Objectives: Prior to this flight, the instructor will administer and grade the Pre-solo Written Exam. To help gain proficiency and confidence, the PT will practice the listed review procedures including emergency operations and basic instrument maneuvers during the lesson. To prepare the PT for the Solo Phase Check, emphasis will be directed toward correction of any faulty tendencies. This flight should be conducted as an out and back flight scenario with a major emphasis on traffic pattern entry, approach, and landing. Special emphasis should be placed on proper wind corrections in the pattern, correct procedures, stabilized approaches, and safe and effective landings.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standard:

- Pass the Pre-solo Written Exam with a minimum score of 80% and review each incorrect response with the instructor to ensure complete PT understanding.
- Demonstrate the ability and readiness for supervised solo flight in the traffic pattern.
- Exhibit understanding of attitude instrument flying.
- Indicate good understanding of local airport and airspace rules as well as systems and equipment malfunctions and related emergency procedures.

Desired Outcome Grading Sheet: (Check Item)

Scenario Tasks	Scenario Sub Tasks	Desired Performance
Preflight Preparation and Procedures	1. Use of Checklists	Perform
	2. Preflight Inspection	Perform
	3. Cockpit management	Perform
	4. Certificates and documents	Perform
	5. Minimum equipment list	Perform
	6. Airplane servicing	Perform
	7. VOR accuracy check	Perform
	8. Instrument cockpit check	Perform
	9. Operation of systems	Perform
	10. Positive exchange of flight controls	Perform
Basic Piloting Skills	1. Radio Communications	Perform

	2. ATC Light Signals	Perform
	3. Airport and runway marking and lighting	Perform
	4. Wind shear avoidance	Perform
	5. Collision avoidance	Perform
	6. Wake turbulence avoidance	Perform
	7. Normal takeoff and climb	Perform
	8. Cross-wind takeoff and climb	Perform
	9. Straight-and-level flight (VR and IR)	Perform
	10. Change of airspeed and configuration (VR and IR)	Perform
	11. Climbs, descents, and transition to level flight (VR and IR)	Perform
	12. Medium banked turns	Perform
	13. Control for wind drift across the ground	Perform
	14. Slow flight and stalls (VR and IR)	Perform
	15. Spin awareness	Perform
	16. Recovery from unusual attitudes (VR and IR)	Perform
	17. Traffic Pattern	Perform
	18. Slip-to-Landing	Perform
	19. Go-around	Perform
	20. Normal approach and landing	Perform
	21. Cross-wind approach and landing	Perform
	22. Post flight procedure	Perform
Instrument piloting skills	1. Rate climbs and descents	Perform
	2. Magnetic compass turns (IR)	Perform
	3. Use of Navigation systems	Perform
Emergency operations	1. Emergency descent	Perform
	2. Emergency approach and landing	Perform
	3. Systems and equipment malfunctions	Perform
	4. Emergency equipment and survival gear	Perform

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: Monitor the PT during pre-flight and try to give as little input as possible. Quiz the PT on aircraft/engine components and systems. Normal takeoff and cruise climb (appropriate target IAS) should be conducted. Have PT practice flight maneuvers and fundamentals of flight as necessary to check skill acquisition. Practice normal and crosswind landings emphasizing the importance of a stabilized approach, recognition of the need for a go around, and proper go-around procedures.

Stage II

Stage Objectives: This stage allows the PT to expand the skills learned in the previous stage. The PT will further develop the knowledge and skill necessary to plan and conduct VFR cross-country flights using pilotage, Dead Reckoning, and radio navigation systems. In addition, the PT will be introduced to instrument holding and approach procedures in preparation for conducting IFR cross-country flights in Stage III.

Stage Completion Standard: This stage is complete when the PT can accurately plan and conduct VFR cross-country flights. In addition, the PT will have the proficiency to safely demonstrate consistent results in performing short-field and soft-field takeoffs and landings. The PT will also be able to accurately perform holding patterns and demonstrate a basic understanding and competence in IFR approach procedures.

Single Pilot Resource Management: During Stage II, the instructor's focus in the flight planning area should now have evolved to the role of coach and mentor. The instructor should plan to introduce the complete variety of emergency and abnormal procedures in realistic settings. Initially, emergency maneuvers should be briefed and planned by the instructor. Eventually, the instructor should introduce the emergency scenarios on an unannounced basis.

The focus of PT learning during this phase is PT situational awareness, judgment, and decision-making, as well as correct performance of the emergency procedures contained in the POH. The instructor should have a plan for the introduction and completion of the emergency situation and act as a facilitator to help the PT prioritize the tasks required, utilize available automation and other resources, and bring the scenario to a successful conclusion.

SRM Example scenario: 20 miles from the mid-scenario destination airport at 5000 feet, the instructor announces that the aircraft engine is beginning to run roughly and electrical power from one of the generators is lost. At the PT's pace, guide the PT through the decision chain to include:

- Continue to destination or land now
  - Is the electrical power problem and engine roughness related
  - What systems have we lost, will we lose
  - How does the weather effect our decision
  - What procedures are provided in the POH
  - Are there other resources available (ATC assistance, Flight Service, Data link Information, Automated Checklists)
- What is the PT's plan of action if the PT makes it to this point in the analysis, the instructor should introduce more situational complexity such as:
  - Simulated IFR weather condition (accomplished under the hood)
  - Engine roughness turns to an engine fire
  - Complete loss of electrical power.

Notes to the Instructor: The object here is to help the PT learn how to manage the entire situation in real time, and at a pace that will ensure that the PT understands the scenario and has the time to make good decisions. The instructor should provide the scenario, ask pertinent questions, observe the PT's behavior, and correct procedural errors as they happen. At the post-flight critique, the PT should lead the discussion of the emergency explaining his or her rationale for the decisions made. The instructor's role during the critique is to reinforce good behaviors and help the PT find other alternatives for poor decisions or confusing situations. Emphasis should be placed on the use of cockpit automation and available resources.

LESSON 10

Scenario: You are employed by an aerial survey company that uses on-board sensors to map property boundaries. This requires the pilot to fly the aircraft accurately over prominent landmarks at a precise altitude while correcting for winds. Some survey tasks require you to orbit over a specific landmark and maintain a constant radius from the landmark. There may be other survey aircraft working the same area, so it is important to be heads-up and prepared to take evasive action if necessary. A tough job—but the pay is good.

Lesson Objectives: This is progress check to be followed by a solo flight. The chief instructor, the assistant chief instructor, or the designated check instructor will evaluate the PT's performance in the areas of preflight preparation, VFR piloting skills, basic attitude instrument flying, and emergency procedures. The PT will exhibit an understanding of navigation systems. Additionally, the PT's ability to exercise sound judgment and aircraft control in preparation for the initial solo will be assessed.

During the dual portion of the lesson, the instructor will review takeoff, traffic pattern, and landing procedures to check the PT's readiness for solo flight. In the second portion of the lesson, the PT will fly the first supervised solo flight in the local traffic pattern. Emphasis will be on the correct procedures and techniques for the PT's first solo. Maneuvers and procedures directed toward correction of any faulty tendencies in preparation for solo flight.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards:

DUAL PHASE

- Be able to demonstrate complete understanding of factors related to preflight preparation including airplane documentation and operation of systems.
- Exhibit proficiency in traffic pattern operations and basic VFR ground and flight maneuvers.
- Be accurate in attitude instrument flying and handle simulated emergency situations promptly, utilizing proper judgment.
- Exhibit basic understanding of instrument navigation systems.
- Display the correct recovery techniques form stalls and unusual attitudes.
- Be able to compensate for the effects of wind (wind drift) and maintain an appropriate and acceptable ground track.
- Be able to initiate emergency climbs and descents by instrument reference using radio navigation facilities, radio communications, and radar services.
- Perform stabilized landing approaches with touchdown at or near the appropriate touchdown area on the runway.

- Overall proficiency should indicate readiness for the first solo flight in the traffic pattern.

SOLO PHASE

- Display the ability to solo the training airplane safely in the traffic pattern. At no time will the safety of the flight be in question.
- Complete solo flight in the local traffic pattern as directed by the instructor.

Desired Outcome Grading Sheet:

Flight Phase	Scenario Sub Tasks	Desired Performance
Dual	1. Use of Checklists	Perform
	2. Preflight Inspection	Perform
	3. Certificates and Documents	Perform
	3. Engine Starting	Perform
	4. Radio Communications	Perform
	5. ATC Light Signals	Perform
	6. Airport and Runway Marking and Lighting	Perform
	7. Wind Shear Avoidance	Perform
	8. Collision Avoidance	Perform
	9. Wake Turbulence	Perform
	10. Ground Track/Wind Drift Correction	Perform
	11. Normal and/or Crosswind Takeoffs	Perform
	12. Traffic Patterns	Perform
	13. Go-Around From a Rejected Landing	Perform
	14. Normal and/or Crosswind Landings	Perform
Solo	1. Radio communications	Perform
	2. Taxiing	Perform
	3. Before takeoff check	Perform
	4. Normal takeoffs and climbs (3)	Perform
	5. Traffic patterns	Perform
	6. Normal approaches and landings (3)	Perform
	7. After landing procedures	Perform
	8. Parking and securing	Perform

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: The chief flight instructor, assistant chief flight instructor, or the designated check instructor who conducts the Stage I Check should develop a logical plan of action. While all listed tasks in each area of operation should be evaluated, tasks with similar objectives may be combined. For example, a rectangular course may be combined with an airport traffic pattern. If the elements in one task have already been evaluated in another task, they need not be repeated. In addition, certain tasks may be evaluated orally. Such tasks include those that cannot realistically be evaluated on the scheduled flight. An example is night flying.

The Practical Test Standards (PTS) requires FAA inspectors and designated pilot examiners to develop a written “plan of action” for the conduct of practical tests. The instructions include provisions for changing the sequence or combining tasks as required facilitating an orderly, efficient evaluation. These instructions in the PTS contain practical guidance for instructors conducting Stage Checks.

LESSON 11-A
(AVIATION TRAINING DEVICE)

Scenario: You plan on attending a nearby FAA Safety Seminar. You had plans to pickup a friend at a nearby airport and then continue onto to another airport where the seminar is being held. Your former Flight Instructor at a distant flight school also wishes to attend the same seminar. Since all of the planes at his school have been rented for the day, he asks you if he could tag along and whether you could pick him up at his home field. There is a non-precision approach available at the first airport and a precision approach available at your destination. The weather is IFR with low ceilings at your arrival airport for the seminar. Since this is a major event, there is a chance that many aircraft will be flying in to attend, and you feel more confident having a CFI aboard in case of any holding instructions.

Lesson Objectives: Introduce VOR holding patterns and practice the correct entry procedures. **ATD Lessons** – In the event an ATD is not available for the aircraft, the training events prescribed can be flown as local practice flights in the actual aircraft. Early in the program, these flights may be executed with the PT having only a responsibility for the specific tasks required by the ATD Lesson.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards: At the completion of this lesson, the PT will have the necessary skill and knowledge to maintain orientation while executing the correct entries for VOR holding patterns. The PT will maintain altitude within 100 feet and airspeeds within 10 knots of that desired. The PT will apply proper wind correction for maintain course during holding.

Desired Outcome Grading Sheet:

Tasks	Sub Tasks	Desired Performance
Holding	1. VOR holding	Explain
	2. Standard and nonstandard holding patterns	Explain

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide

guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: The PT and instructor will depart the home airport IFR and proceed to their first destination. During this leg the PT will be expected to utilize all aircraft systems, avionics, and autopilot functions during climb, cruise, descent, and approach. While enroute to the first airport of intended landing, the instructor will advise the PT that they are ahead of their ETA and ask the PT what course of action should be taken. A holding pattern will be requested at an IAF, if possible, and the PT will advise the instructor as to how long they will be required to hold there and what actions they will take to transition to the approach and landing.

LESSON 11-B
(AVIATION TRAINING DEVICE)

Scenario: Your employer wants you to pick up some business equipment from two separate towns and return it to the company by the end of the day. You decide that instead of spending the entire day driving, and possibly missing your dinner engagements with your spouse, you would rather pilot your own plane to accomplish the task. The weather has been IFR all day with periods of light rain.

Lesson Objectives: Introduce NDB holding patterns and practice the various entry procedures for standard and nonstandard holds. **ATD Lessons** – In the event an ATD is not available for the aircraft, the training events prescribed can be flown as local practice flights in the actual aircraft. Early in the program, these flights may be executed with the PT having only a responsibility for the specific tasks required by the ATD Lesson.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards:
At the completion of this lesson, the PT will have the necessary skill and knowledge to maintain orientation while executing the correct entries for NDB holding patterns. The PT will maintain altitude within 100 feet and airspeed within 10 knots of that desired. The PT will apply proper wind correction to maintain course during holding.

Desired Outcome Grading Sheet:

Tasks	Sub Tasks	**Desired Performance**
Navigation	1. VOR holding a. Standard and nonstandard holding patterns 2. NDB holding a. Standard and nonstandard holding patterns	Practice Explain

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: The PT and instructor will depart the original airport IFR and proceed to their first destination. During this flight the PT will be expected to utilize all aircraft systems, avionics, and autopilot functions during climb, cruise, descent, and approach. While enroute to the first airport of intended landing, the instructor will advise the PT that they are ahead of their ETA and ask the PT what course of action should be taken. A holding pattern will be requested at an IAF, if possible, and the PT will advise the instructor as to how long they will be required to hold there and what actions they will take to transition to the approach and landing.

LESSON 11

Scenario: Your job today is to survey a road intersection at a certain lat/long position and the borders of the section that surround that ground reference. Because of the equipment on board the aircraft, your fuel is somewhat limited, so plan to gas-up at an airport near the survey site between missions.

Lesson Objectives: The scenario will be conducted as an out and back cross-country flight to an airport of the PT's choosing. The PT will be primarily responsible for planning and completing all required learning objectives The PT will develop procedures for dealing with in flight emergencies. Review wind drift techniques, slow flight, and stall recognition. Emphasis will be on emergency procedures.

Pre-Flight Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standard:

OUTBOUND FLIGHT

- Explain runway conditions that necessitate the use of soft field and short field takeoff and landing techniques.
- Demonstrate the correct procedure to be used under existing or simulated conditions, although proficiency may not be at the private pilot practical test level.
- Ground track during while correcting for wind drift will be accurate within 100 feet.
- Practice the listed maneuvers to gain proficiency and confidence, and introduce airplane control by instruments reference during emergency situations.

RETURN FLIGHT:

- Perform short and soft field takeoffs and landings smoothly, while maintaining food directional control. Approaches will be stabilized, and airspeed will be within 5 knots of that desired.
- Display the ability to initiate emergency climbs and descents by instrument reference using radio communications, navigation facilities, and radar services.
- Exhibit ability to determine position using pilotage and Dead Reckoning.

Desired Outcome Grading Sheet:

Scenario Tasks	Scenario Sub Tasks	Desired Performance
Flight Planning	1. Scenario Planning 2. Certificates and Documents 3. Airport Diagrams 4. VFR Navigational Chart 5. Pilotage	Perform Perform Perform Perform Perform

	6. Dead Reckoning navigation 7. Preflight SRM briefing 8. Decision making and risk management 9. Emergency Operations	Practice Perform Perform Perform
Normal preflight and cockpit procedures	1. Use of Checklists 2. Preflight Inspection 3. Minimum equipment list 4. Cockpit management 5. Airplane Servicing 6. Operation of systems 7. Positive exchange of flight controls	Perform Perform Perform Perform Perform Perform Perform
Aircraft systems related to IFR operations	1. Aircraft flight instrument and navigation equipment 2. PFD setup 3. Preflight check of instruments, equipment, and systems, MFD setup 4. Instrument cockpit check 5. VOR Accuracy Test	Perform Perform Perform Perform Perform
Engine Start and Taxi Procedures	1. Engine start 2. Airport and runway markings and lighting 3. Radio Communications 4. ATC light signals 5. Taxi 6. Runway incursion avoidance 7. Cross wind taxi 8. SRM/Situational awareness	Perform Perform Perform Perform Perform Perform Perform Manage/Decide
Before Takeoff Checks	1. Normal and abnormal indications 2. Low level wind shear avoidance/precautions 3. Aircraft automation management 4. Aeronautical Decision making and risk management	Perform Perform Practice Manage/Decide
Takeoff	1. Normal takeoff 2. Short-field takeoff and climb 3. Soft-field takeoff and climb 4. Crosswind takeoff and climb 5. Situational awareness 6. SRM/ and risk management	Perform Perform Perform Perform Manage/Decide Manage/Decide
Climb procedures	1. Constant speed climbs & climbing turns (VR) 2. Constant rate climbs (VR) 3. Departure procedures 4. Pilotage 5. Situational awareness, task	Perform Perform Perform Perform Manage/Decide

	management, and SRM Collision avoidance precautions	 Perform
Cruise procedure	1. Manual straight and level flight (VR) 2. Power management & basic speed control (VR) 3. Collision avoidance precautions 4. Pilotage 5. Dead Reckoning navigation 6. Ground Track/Wind Drift corrections 7. Situational awareness, task management, and SRM 8. Medium Banked Standard rate turns to headings (VR and IR) 9. Maneuvering during slow flight (VR) 10. Unusual attitude recovery (VR) 11. Operations in Turbulence 12. Magnetic compass turns 13. Wake turbulence avoidance 14. System and equipment malfunctions 15. Demonstrated stalls (secondary, accelerated, trim, cross-control) 16. Spin awareness 17. Flight at slow airspeeds with realistic distractions 18. Timed turns to magnetic compass headings 19. GPS operations & procedures 20. GPS Orientation 21. GPS Fixes 22. GPS Direct 23. GPS flight planning and basic “T” approach 24. Nearest function on the GPS 25. GPS overlay approach	Perform Perform Perform Perform Practice Perform Manage/Decide Perform Perform Perform Perform Perform Perform Perform Practice Perform Perform Perform Practice Explain Practice Explain Practice Explain Explain
Training Maneuvers & Procedures	1. Steep turns 2. Power-off stalls (VR) 3. Power-on stalls (VR) 4. VOR Orientation 5. Intercepting and Tracking VOR radials 6. Emergency descents and climbs using radio aids or radar directives	Practice Perform Perform Practice Practice Practice
Descent Planning and execution	1. Descents, descending turns, and transition to level flight	Perform

	2. Rate descents (VR) 3. Wind drift in turns 4. Collision avoidance precautions 5. Situational awareness, task management and SRM	Perform Perform Perform Manage/Decide
Approach Procedures	1. Traffic pattern entry procedures 2. Collision avoidance precautions 3. Situational awareness, task management and SRM 4. Wind shear avoidance 5. Communications 6. Normal approach 7. Emergency approach and landing 8. Emergency descent 9. Aborted approach (go-around) to landing 10. Forward slips 11. VOR approach (VR) 12. Localizer Identification 13. Localizer Tracking	Perform Perform Manage/Decide Perform Perform Perform Perform Perform Perform Perform Practice Practice Practice
Landing	1. Before landing procedures 2. Normal landing 3. Short-field approach and landing 4. Soft-field approach and landing 5. Crosswind approach and landing 6. Land and Hold Short Operations (LAHSO) 7. After landing procedures	Perform Perform Practice Practice Perform Perform Perform
Taxi and aircraft shutdown and securing procedure	1. Use of Checklist 2. Aircraft ground operations and parking 3. Securing 4. Instrument post flight procedures	Perform Perform Perform Perform

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: You can simulate unusual flight attitudes as an emergency situation and be sure to discuss situations or events that can increase the likelihood of entering an unusual flight attitude. Point out to PT the primary difference between the two different types of unusual attitudes; in one situation you are trying to maintain control of the aircraft, in the other you are trying not to over control it. Always emphasize good coordination and smooth application of the appropriate control inputs. Steep turns, slow flight, and stalls: PT should be able to set-up and execute all maneuvers without instructor input while maintaining this segment's completion standards. The object here is to help the PT learn how to manage the entire situation in real time, and at a pace that will ensure that the PT understands the scenario and has the time to make good decisions. The instructor should ask pertinent questions, observe the PT's behavior, and correct procedural errors as they happen. At the post-flight critique, the PT should lead the discussion of the emergency explaining his or her rationale for the decisions made. The instructor's role during the critique is to reinforce good behaviors and help the PT find other alternatives for poor decisions or confusing situations. Emphasis should be placed on the use of available resources to help mitigate the simulated emergencies.

LESSON 12-A
(AVIATION TRAINING DEVICE)

Scenario: As a birthday present to your Mother, you have agreed to fly her to visit a sister for the weekend. You will drop her off at an airport 200 miles away on Friday, then return to pick her back up on Sunday. The weather is marginal VFR along the route. Sunday's forecast is about the same.

Lesson Objective: Introduce intersection and localizer holding patterns and practice the correct entry procedures for each type hold. **ATD Lessons** – In the event an ATD is not available for the aircraft, the training events prescribed can be flown as local practice flights in the actual aircraft. Early in the program, these flights may be executed with the PT having only a responsibility for the specific tasks required by the ATD Lesson.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards: At the completion of this lesson, the PT will have the necessary skill and knowledge to maintain orientation while executing the correct entries for the various intersection holding patterns. The PT will maintain altitude within 100 feet and airspeeds within 10 knots of that desired. The PT will apply proper wind correction to maintain course during holding.

Desired Outcome Grading Sheet:

Tasks	Sub Tasks	Desired Performance
Holding	1. VOR Holding	Practice
	2. NDB Holding	Practice
	3. VOR intersection holding	Explain
	4. NDB intersection holding	Explain
	5. Localizer holding	Explain
	6. Hold Entries	Explain
	7. Standard and Nonstandard holding patterns	Explain
	8. Partial panel holding	Explain
	9. Automated Avionics Interface	Describe

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a

situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: The PT and instructor will depart the original airport IFR and proceed to destination. During this leg the PT will be expected to utilize all aircraft systems, avionics, and autopilot functions during climb, cruise, descent, and approach. While enroute to airport of intended landing, the instructor will advise the PT that they are ahead of their ETA and ask the PT what course of action should be taken. A holding pattern will be requested at an IAF, if possible, and the PT will advise the instructor as to how long they will be required to hold there and what actions they will take to transition to the approach and landing.

LESSON 12

Scenario: You plan on attending another FAA Safety Seminar that will be held at an airport approximately 100 miles from home. You had plans to pickup a friend at a nearby airport and then continue onto to the seminar. There is a non-precision approach available at the first airport and a precision approach available at your destination. The weather is IFR with low ceilings at your first arrival airport. Since this is a major event, there is a chance that many aircraft will be flying in to attend, and you feel more confident having a pilot friend along with you.

Lesson Objectives: Review cross-country procedures and introduce techniques to be used during a diversion to an alternate. Review the use of navigation facilities and radar services to determine position. Diversion should occur on the first leg of a two leg cross-country. In addition, review instrument and emergency operations with emphasis on procedures for determining position when lost. Partial Panel flight due to loss of attitude and heading information should be reviewed during this flight. Partial Panel in a TAA can be induced by covering all or part of the PFD/MFD. Each individual TAA may be certified with a set of backup flight instruments that usually include an attitude indicator, altimeter, and airspeed indicator. The attitude indicator may be powered electrically or by vacuum. During partial panel flight it is important that the all-electric TAA pilot be aware of the life span of the batteries and understand the concept of electrical load shedding to preserve the battery.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards:

OUTBOUND FLIGHT

- Demonstrate skill in the use of navigation systems and radar services under visual and simulated instrument conditions.
- Demonstrate the ability to navigate by pilotage and Dead Reckoning.
- Exhibit ability to fix position and initiate diversion to alternate.
- Display knowledge of techniques for determining ground speed, ETA, and fuel consumption.

RETURN FLIGHT

- Demonstrate the skill to perform cross-country flight safely as the sole occupant of the airplane, including use of navigation systems and radar services under simulated instrument conditions.
- Include a point of landing at least a straight-line distance of more than 50 nautical miles from the original point of departure.

- Demonstrate complete preflight planning, weather analysis, use of FAA publications and charts, adherence to the preflight plan and the use of pilotage, Dead Reckoning, radio communication, and navigation systems.

Desired Outcome Grading Sheet:
***NOTE**: A view-limiting device is required for the dual instrument time allocated to this flight.*

# Indicates tasks and sub-tasks to be introduced during the outbound phase of the flight.

** Indicates tasks and sub-tasks to be introduced during the return phase of the flight.

Scenario Tasks	Scenario Sub Tasks	Desired Performance
Flight Planning	1. Scenario Planning	Perform
	2. Certificates and Documents	Perform
	3. Airport Diagrams	Perform
	4. VFR Navigational Chart	Perform
	5. Pilotage	Perform
	6. Dead Reckoning Navigation	Practice
	7. Preflight SRM briefing	Perform
	8. Decision making and risk management	Manage/Decide
	9. Automated Avionics Interface	Explain
	10. Emergency Operations	Perform
Normal preflight and cockpit procedures	1. Use of Checklists	Perform
	2. Preflight Inspection	Perform
	3. Minimum equipment list	Perform
	4. Cockpit management	Perform
	5. Airplane Servicing	Perform
	6. Operation of systems	Perform
	7. Positive exchange of flight controls	Perform
Aircraft systems related to IFR operations	1. Aircraft flight instrument and navigation equipment	Perform
	2. PFD setup	Perform
	3. Preflight check of instruments, equipment, systems, & MFD setup	Perform Perform
	4. Instrument cockpit check	Perform
	5. VOR Accuracy Test	
Engine Start and Taxi Procedures	1. Engine start	Perform
	2. Airport and runway markings and lighting	Perform
	3. Radio Communications	Perform
	4. ATC light signals	Perform
	5. Taxi	Perform

	6. Runway incursion avoidance 7. Cross wind taxi 8. SRM/Situational awareness	Perform Perform Manage/Decide
Airport Operations	1. Controlled airports 2. Use of ATIS 3. Use of approach and departure control 4. Go-arounds 5. CTAF (FSS or UNICOM) airports	Practice Practice Practice Practice Explain
Before Takeoff Checks	1. Normal and abnormal indications 2. Low level wind shear avoidance/precautions 3. Aircraft automation management 4. Aeronautical Decision making and risk management	Perform Perform Perform Manage/Decide
Takeoff	1. Normal takeoff 2. Short-field takeoff and climb 3. Soft-field takeoff and climb 4. Crosswind takeoff and climb 5. Situational awareness 6. SRM/ and risk management	Perform Practice Practice Perform Manage/Decide Manage/Decide
Climb procedures	1. Constant speed climbs & climbing turns (IR & VR) 2. Constant rate climbs (IR & VR) 3. Departure procedures 4. Pilotage 5. Situational awareness, task management, and SRM 6. Collision avoidance precautions	Perform Perform Perform Perform Manage/Decide Perform
Cruise procedure	1. Manual straight and level flight (IR and VR) 2. Power management & basic speed control (VR and IR) 3. Collision avoidance precautions 4. Pilotage 5. Dead Reckoning navigation 6. Departure 7. Opening flight plan 8. Course interception 9. Position fix by navigation facilities 10. Flight on federal airways 11. Collision avoidance precautions 12. Closing the flight plan 13. Ground Track/Wind Drift corrections 14. Situational awareness, task management, and SRM	Perform Perform Practice Perform Perform Practice Practice Practice Practice Practice Practice Perform Manage/Decide Perform

	15. Medium Banked Standard rate turns to headings (VR and IR) 16. Maneuvering during slow flight (IR & VR) 17. Unusual attitude recovery (VR & IR) 18. Operations in Turbulence 19. Magnetic compass turns 20. Wake turbulence avoidance 21. System and equipment malfunctions 22. Demonstrated stalls (secondary, accelerated, trim, cross-control) 23. Spin awareness 24. Flight at slow airspeeds with realistic distractions 25. Timed turns to magnetic compass headings 26. GPS operations & procedures 27. GPS Orientation 28. GPS Fixes 29. GPS Direct 30. GPS flight planning and basic "T" approach 31. Nearest function on the GPS 32. GPS overlay approach 33. Diversion to an alternate 34. Determine ground speed, ETA, and fuel consumption 35. Position fix by navigation facilities 36. VOR Navigation 37. NDB Navigation 38. IFR Cross Country Procedures	Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Practice Perform Practice Perform Practice Practice Practice Practice Practice Explain Explain Practice Practice Practice
Training Maneuvers & Procedures	1. Steep turns 2. Power-off stalls (IR and VR) 3. Power-on stalls (IR and VR) 4. VOR Orientation 5. Intercepting and Tracking VOR radials 6. VOR tracking (IR) 7. NDB Homing (IR) 8. Use of Radar Services (IR)	Perform Perform Perform Perform Perform Practice Practice Practice
Emergency operations	1. Systems and equipment malfunctions 2. Emergency descent 3. Emergency approach and landing 4. Emergency equipment and survival gear	Explain Perform Perform Perform

	5. Emergency descents and climbs using radio aids or radar directives 6. Lost procedures 7. Partial panel procedures	Practice Practice Practice
Descent Planning and Execution	1. Descents, descending turns, and transition to level flight 2. Rate descents (IR and VR) 3. Wind drift in turns 4. Collision avoidance precautions 5. Situational awareness, task management and SRM	Perform Perform Perform Perform Manage/Decide
Approach Procedures	1. Traffic pattern entry procedures 2. Collision avoidance precautions 3. Situational awareness, task management and SRM 4. Wind shear avoidance 5. Communications 6. Normal approach 7. Emergency approach and landing 8. Emergency descent 9. Aborted approach (go-around) to landing 10. Forward slips 11. VOR approach (VR) 12. Localizer Identification 13. Localizer Tracking	Perform Perform Manage/Decide Perform Perform Perform Perform Perform Perform Perform Perform Perform Practice
Landing	1. Before landing procedures 2. Normal landing 3. Short-field approach and landing 4. Soft-field approach and landing 5. Crosswind approach and landing 6. Land and Hold Short Operations (LAHSO) 7. After landing procedures	Perform Perform Practice Practice Perform Perform Perform
Taxi and aircraft shutdown and securing procedure	1. Use of Checklist 2. Aircraft ground operations and parking 3. Securing 4. Instrument post flight procedures	Perform Perform Perform Perform

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a

situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: The PT should be at a point where they are able to conduct an IFR cross-country without much assistance from you. Also, advise them that they will be expected to perform all tasks within the limits outlined in the instrument PTS. Occasional deviations may occur, but it will be the PT's responsibility to recognize and correct them. You will not be providing any input during the course of the flight unless it is absolutely necessary for you to do so. Additionally, make sure the PT understands that they should strive for a Manage/Decide level of SRM and all decisions regarding the flight should be made by them without your prompting or assistance.

LESSON 13-A
(AVIATION TRAINING DEVICE)

Scenario: You are doing a checkout to rent an airplane from your local FBO. You have rented from this FBO before and just need to show them you are familiar with this airplane.

Lesson Objectives: Review the different intersection holds including standard and nonstandard holding patterns. Introduce the PT to departure procedures, DPs, STARs, and review the use of radar services. **ATD Lessons** – In the event an ATD is not available for the aircraft, the training events prescribed can be flown as local practice flights in the actual aircraft. Early in the program, these flights may be executed with the PT having only a responsibility for the specific tasks required by the ATD Lesson.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards: Review the different intersection holds including standard and nonstandard holding patterns. Introduce the PT to DPs, STARs, and the use of radar services.

Desired Outcome Grading Sheet:

Tasks	Sub Tasks	Desired Performance
IFR Departure Procedures & Clearances	1. Use of DPs 2. Use of Radar	Explain Explain
Holding	1. Intersection holding 2. VOR and DME holding	Practice Practice
IFR Arrival procedures and clearances	1. Use of STARs 2. Use of Radar	Explain Explain

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: The PT and instructor will depart the original airport IFR and proceed to their first destination. During this leg the PT will be expected to utilize all aircraft systems, avionics, and autopilot functions during climb, cruise, descent, and approach. While enroute to the first airport of intended landing, the instructor will advise the PT that they have holding instructions from ATC. Practice several different holding patterns, standard and non-standard. The PT will advise the instructor what actions they will take to transition to the approach and landing. Introduce STAR's and DP's at airports in Class C or D airspace if possible.

LESSON 13-B
(AVIATION TRAINING DEVICE)

Scenario: You plan a trip to an airport approximately 100 miles south of your home airport where you plan on picking up a few friends and returning them back home for the weekend. There is a front approaching your destination airport that will bring rain showers and moderate icing conditions. Your plan is to arrive at the airport and pickup your friends before the weather arrives. One of your friends does notify you that he may be a little late due to traffic.

Lesson Objectives: The PT will review procedures for VOR, NDB, DME, localizer, and intersection holding patterns. Emphasis will be on the correct entry for standard and nonstandard holds. **ATD Lessons** – In the event an ATD is not available for the aircraft, the training events prescribed can be flown as local practice flights in the actual aircraft. Early in the program, these flights may be executed with the PT having only a responsibility for the specific tasks required by the ATD Lesson.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards:
At the completion of this lesson, the PT will demonstrate proficiency executing the various holding patterns. The PT will maintain altitude within 100 feet and airspeeds within 10 knots of that desired. The PT will apply proper wind correction to maintain course while holding.

Desired Outcome Grading Sheet:

Tasks	Sub Tasks	Desired Performance
Holding	1. ILS and Localizer Hold	Practice
	2. VOR Hold	Practice
	3. NDB Hold	Practice
	4. Intersection Hold	Practice
	5. Standard and Nonstandard Hold	Practice

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide

guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: The PT and instructor will depart the original airport IFR and proceed to their first destination. During this leg the PT will be expected to utilize all aircraft systems, avionics, and autopilot functions during climb, cruise, descent, and approach. While enroute to the first airport of intended landing, the instructor will advise the PT that they have holding instructions from ATC. Practice several different holding patterns, standard and non-standard. The PT will advise the instructor what actions they will take to transition to the approach and landing.

LESSON 13

Scenario: You wish to fly to two different airports in order to practice instrument approaches and to practice holding patterns. The first airport has both precision and non-precision approaches, while the second airport only has a precision approach.

Lesson Objectives: This scenario will consist of an instrument flight to a local IFR-capable airport conducted in simulated or actual IFR conditions. Intercepts and holding should be interspersed throughout the flight as opportunities permit. Prior coordination with ATC will aid in scenario execution. Landing and mid-flight critique are at the discretion of the instructor/PT. Diversion back to the point of origin is acceptable. Review VOR intercept and tracking and review standard and nonstandard holding patterns for VOR and NDBs. Emphasis will be on proper holding pattern entry.

***NOTE**: A view-limiting device is required for the dual instrument time allocated to this fligh.t*

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion standards:

- Demonstrate understanding of VOR holding procedures.
- Demonstrate understanding of NDB holding procedures.
- Exhibit ability to enter patterns correctly.
- Maintain orientation while in the holding pattern.
- During holding, the PT should maintain altitude within 100 feet and airspeed within 10 knots of that desired.

Desired Outcome Grading Sheet:
# Indicates tasks and sub-tasks to be introduced during the outbound phase of the flight.

** Indicates tasks and sub-tasks to be introduced during the return phase of the flight.

Scenario Tasks	Scenario Sub Tasks	Desired PT performance
Flight Planning	1. Scenario Planning	Perform
	2. Certificates and Documents	Perform
	3. Airport Diagrams	Perform
	4. VFR Navigational Chart	Perform
	5. Pilotage	Perform
	6. Dead Reckoning navigation	Perform
	7. Preflight SRM briefing	Perform
	8. Decision making and risk	Manage/Decide

	management 9. Emergency Operations	 Perform
Normal preflight and cockpit procedures	1. Use of Checklists 2. Preflight Inspection 3. Minimum equipment list 4. Cockpit management 5. Use of ATIS 6. Airplane Servicing 7. Operation of systems 8. Positive exchange of flight controls	Perform Perform Perform Perform Perform Perform Perform Perform
Aircraft systems related to IFR operations	1. Aircraft flight instrument and navigation equipment 2. PFD setup 3. Preflight check of instruments, equipment, systems, & MFD setup 4. Instrument cockpit check 5. VOR Accuracy Test	Perform Perform Perform Perform Perform
Engine Start and Taxi Procedures	1. Engine start 2. Airport and runway markings and lighting 3. Radio Communications 4. ATC light signals 5. Taxi 6. Runway incursion avoidance 7. Cross wind taxi 8. SRM/Situational awareness	Perform Perform Perform Perform Perform Perform Perform Manage/Decide
Airport Operations	1. Controlled airports 2. Use of approach and departure control 3. Use of ATIS 4. Go-around 5. CTAF (FSS or UNICOM) airports	Practice Practice Practice Practice Practice
Before Takeoff Checks	1. Normal and abnormal indications 2. Low level wind shear avoidance/precautions 3. Aircraft automation management 4. Aeronautical Decision making and risk management	Perform Perform Perform Manage/Decide
Takeoff	1. Normal takeoff 2. Short-field takeoff and climb 3. Soft-field takeoff and climb 4. Crosswind takeoff and climb 5. Situational awareness 6. SRM/ and risk management	Perform Practice Practice Perform Manage/Decide Manage/Decide
Climb procedures	1. Constant speed climbs & climbing turns (IR & VR)	Perform

	2. Constant rate climbs (IR & VR) 3. Departure procedures 4. Situational awareness, task management, and SRM 5. Collision avoidance precautions	Perform Perform Manage/Decide Perform
Cruise procedure	1. Manual straight and level flight (IR and VR) 2. Power management & basic speed control (VR and IR) 3. Collision avoidance precautions 4. Ground Track/Wind Drift corrections 5. Situational awareness, task management, and SRM 6. Standard rate turns to headings (VR and IR) 7. Maneuvering during slow flight (IR & VR) 8. Unusual attitude recovery (VR & IR) 9. Operations in Turbulence 10. Magnetic compass turns 11. Wake turbulence avoidance 12. System and equipment malfunctions 13. Demonstrated stalls (secondary, accelerated, trim, cross-control) 14. Spin awareness 15. Flight at slow airspeeds with realistic distractions 16. Timed turns to magnetic compass headings 17. GPS operations & procedures 18. GPS Orientation 19. GPS Fixes 20. GPS Direct 21. GPS flight planning and basic “T” approach 22. Nearest function on the GPS 23. Diversion to an alternate 24. Determine ground speed, ETA, and fuel consumption 25. Position fix by navigation facilities	Perform Perform Perform Perform Manage/Decide Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Practice Perform Practice Practice Practice Perform
Navigation	1. Pilotage 2. Dead Reckoning navigation 3. Departure 4. Opening flight plan 5. Course interception 6. Position fix by navigation facilities	Perform Perform Perform Perform Perform Perform

	7. Flight on federal airways 8. Collision avoidance precautions 9. Closing the flight plan 10. VOR Navigation 11. VOR Orientation 12. Intercepting and Tracking VOR radials 13. VOR tracking (IR) 14. NDB Navigation 15. NDB Homing (IR)	Perform Perform Perform Perform Perform Perform Practice Practice Practice
Training Maneuvers & Procedures	1. Steep turns 2. Power-off stalls (IR and VR) 3. Power-on stalls (IR and VR) 4. Use of Radar Services (IR)	Perform Perform Perform Perform
Emergency operations	1. Systems and equipment malfunctions 2. Emergency descent 3. Emergency approach and landing 4. Emergency equipment and survival gear 5. Emergency descents and climbs using radio aids or radar directives 6. Lost procedures	Practice Perform Perform Perform Perform Practice
Holding Procedures	1. VOR holding 2. NDB holding 3. Standard holding 4. Non-standard holding 5. Holding entry	Describe Describe Describe Describe Describe
Descent Planning and execution	1. Descents, descending turns, and transition to level flight 2. Rate descents (IR and VR) 3. Wind drift in turns 4. Collision avoidance precautions 5. Situational awareness, task management and SRM	Perform Perform Perform Perform Manage/Decide
Approach Procedures	1. Traffic pattern entry procedures 2. Collision avoidance precautions 3. Situational awareness, task management and SRM 4. Wind shear avoidance 5. Communications 6. Normal approach 7. Emergency approach and landing 8. Emergency descent 9. Aborted approach (go-around) to landing	Perform Perform Manage/Decide Perform Perform Perform Perform Perform Perform

	10. Forward slips 11. VOR approach (VR) 12. Localizer Identification 13. Localizer Tracking 14. GPS overlay approach	Perform Perform Perform Perform Practice
Landing	1. Before landing procedures 2. Normal landing 3. Go-around procedures 4. Short-field approach and landing 5. Soft-field approach and landing 6. Crosswind approach and landing 7. Land and Hold Short Operations (LAHSO) 8. After landing procedures	Perform Perform Perform Perform Perform Perform Perform Perform
Taxi and aircraft shutdown and securing procedure	1. Use of Checklist 2. Aircraft ground operations and parking 3. Securing 4. Instrument post flight procedures	Perform Perform Perform Perform

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: During this lesson you should be concentrating on the PT's understanding of IFR procedures, their ability to apply those procedures, and their ability to manage the flight in an orderly and efficient manner.

LESSON 14

Scenario: You can use the same scenario as in Lesson 13 but choose two different airports to practice approaches. If that is not possible, then fly different approaches than in Lesson 13.

Lesson Objectives: The PT will now have made the transition to primarily IFR procedures. The cross-country scenarios should be agreed upon between the PT and instructor to ensure that the PT experiences as wide a variety of instrument approach procedures and airspace as possible. The advanced situational awareness provided by the TAA should make this possible at a much earlier stage of training than in conventional aircraft. Practice NDB holding and VOR intersection holds. Emphasis will be on orientation and entry procedures for VOR intersection holds.

NOTE: *A view-limiting device is required for the dual instrument time allocated to this flight.*

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards:

- Demonstrate understanding of intersection holds.
- Exhibit ability to interpret instruments to establish position relative to the intersection.
- Maintain orientation while holding at an intersection.
- Maintain altitude during the hold within 100 feet of the assigned altitude and airspeed within 10 knots of the desired airspeed.

Desired Outcome Grading Sheet:
# Indicates tasks and sub-tasks to be introduced during the outbound phase of the flight.

** Indicates tasks and sub-tasks to be introduced during the return phase of the flight.

Scenario Tasks	Scenario Sub Tasks	Desired Performance
Flight Planning	1. Scenario Planning	Perform
	2. Certificates and Documents	Perform
	3. Airport Diagrams	Perform
	4. VFR Navigational Chart	Perform
	5. Pilotage	Perform
	6. Dead Reckoning navigation	Perform
	7. Preflight SRM briefing	Perform
	8. Decision making and risk	Manage/Decide

	management 9. Emergency Operations	 Perform
Normal preflight and cockpit procedures	1. Use of Checklists 2. Preflight Inspection 3. Minimum equipment list 4. Cockpit management 5. Use of ATIS 6. Airplane Servicing 7. Operation of systems 8. Positive exchange of flight controls	Perform Perform Perform Perform Perform Perform Perform Perform
Aircraft systems related to IFR operations	1. Aircraft flight instrument and navigation equipment 2. PFD setup 3. Preflight check of instruments, equipment, systems, & MFD setup 4. Instrument cockpit check 5. VOR Accuracy Test	Perform Perform Perform Perform Perform
Engine Start and Taxi Procedures	1. Engine start 2. Airport and runway markings and lighting 3. Radio Communications 4. ATC light signals 5. Taxi 6. Runway incursion avoidance 7. Cross wind taxi 8. SRM/Situational awareness	Perform Perform Perform Perform Perform Perform Perform Manage/Decide
Airport Operations	1. Controlled airports 2. Use of approach and departure control 3. Use of ATIS 4. Go-around 5. CTAF (FSS or UNICOM) airports	Perform Perform Perform Perform Perform
Before Takeoff Checks	1. Normal and abnormal indications 2. Low level wind shear avoidance/precautions 3. Aircraft automation management 4. Aeronautical Decision making and risk management	Perform Perform Perform Manage/Decide
Takeoff	1. Normal takeoff 2. Short-field takeoff and climb 3. Soft-field takeoff and climb 4. Crosswind takeoff and climb 5. Situational awareness 6. SRM/ and risk management	Perform Perform Perform Perform Manage/Decide Manage/Decide
Climb procedures	1. Constant speed climbs & climbing turns (IR & VR)	Perform

	2. Constant rate climbs (IR & VR) 3. Departure procedures 4. Situational awareness, task management, and SRM 5. Collision avoidance precautions	Perform Perform Manage/Decide Perform
Cruise procedure	1. Manual straight and level flight (IR and VR) 2. Power management & basic speed control (VR and IR) 3. Collision avoidance precautions 4. Ground Track/Wind Drift corrections 5. Situational awareness, task management, and SRM 6. Medium Banked Standard rate turns to headings (VR and IR) 7. Maneuvering during slow flight (IR & VR) 8. Unusual attitude recovery (VR & IR) 9. Operations in Turbulence 10. Magnetic compass turns 11. Wake turbulence avoidance 12. System and equipment malfunctions 13. Demonstrated stalls (secondary, accelerated, trim, cross-control) 14. Spin awareness 15. Flight at slow airspeeds with realistic distractions 16. Timed turns to magnetic compass headings 17. GPS operations & procedures 18. GPS Orientation 19. GPS Fixes 20. GPS Direct 21. GPS flight planning and basic “T” approach 22. Nearest function on the GPS 23. Diversion to an alternate 24. Determine ground speed, ETA, and fuel consumption 25. Position fix by navigation facilities	Perform Perform Perform Perform Manage/Decide Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform
Navigation	1. Pilotage 2. Dead Reckoning navigation on Departure 3. Opening flight plan	Perform Perform Perform

	4. Course interception 5. Position fix by navigation facilities 6. Flight on federal airways 7. Collision avoidance precautions 8. Closing the flight plan 9. VOR Navigation 10. VOR Orientation 11. Intercepting and Tracking VOR radials 12. VOR tracking (IR) 13. NDB Navigation 14. NDB Homing (IR)	Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform
Training Maneuvers & Procedures	1. Steep turns 2. Power-off stalls (IR and VR) 3. Power-on stalls (IR and VR) 4. Use of Radar Services (IR)	Perform Perform Perform Perform
Emergency operations	1. Emergency descent 2. Emergency approach and landing 3. Systems and equipment malfunctions 4. Emergency equipment and survival gear 5. Emergency descents and climbs using radio aids or radar directives 6. Lost procedures	Perform Perform Perform Perform Perform Perform
Holding Procedures	1. VOR holding 2. NDB holding 3. Standard holding 4. Nonstandard holding 5. Holding entry 6. # Localizer holding 7. # Partial panel holding	Explain Explain Explain Explain Explain Describe Describe
Descent Planning and execution	1. Descents, descending turns, and transition to level flight 2. Rate descents (IR and VR) 3. Wind drift in turns 4. Collision avoidance precautions 5. Situational awareness, task management and SRM	Perform Perform Perform Perform Manage/Decide
Approach Procedures	1. Traffic pattern entry procedures 2. Collision avoidance precautions 3. Situational awareness, task management and SRM 4. Wind shear avoidance 5. Communications 6. Normal approach	Perform Perform Manage/Decide Perform Perform Perform

	7. Emergency approach and landing 8. Emergency descent 9. Aborted approach (go-around) to landing 10. Forward slips 11. VOR approach (VR) and (IR) 12. Localizer Identification 13. Localizer Tracking 14. GPS overlay approach	Perform Perform Perform Perform Perform Perform Perform Perform
Landing	1. Before landing procedures 2. Normal landing 3. Go-around procedures 4. Short-field approach and landing 5. Soft-field approach and landing 6. Crosswind approach and landing 7. Land and Hold Short Operations (LAHSO) 8. After landing procedures	Perform Perform Perform Perform Perform Perform Perform Perform
Taxi and aircraft shutdown and securing procedure	1. Use of Checklist 2. Aircraft ground operations and parking 3. Securing 4. Instrument post flight procedures	Perform Perform Perform Perform

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: During this lesson you should be concentrating on the PT's understanding of IFR procedures, their ability to apply those procedures, and their ability to manage the flight in an orderly and efficient manner.

LESSON 15
(Review Flight)

Scenario: You are an aircraft salesperson who is taking a potential customer on a demonstration flight in the Piper Warrior. (NOTE: You should substitute your type training aircraft for Piper Warrior.) Your goal is to show the customer how easy the Warrior is to operate and also display some of its handling characteristics. You have decided to take the customer on a short cross country with two landings at different airports. During the flight to the first airport you will demonstrate basic aircraft handling and advanced maneuvers. Upon reaching the second airport, you plan to demonstrate both normal and power off landings. During the return trip you plan to demonstrate whatever the customer wishes to see. Obviously, you want to make a good impression with this customer.

Lesson Objectives: This flight review, conducted by an instructor other than the PT's regularly assigned instructor, will evaluate knowledge and skill level to determine of the PT is progressing normally. The PT will plan a VFR/IFR 2-leg flight plan to an airport at least 50 miles distant from the airport of origin. The PT will plan when and where to execute all maneuvers required during the review flight. Close coordination is required between the assigned review flight instructor and the PT prior to the flight. The emphasis will be on safety of flight considerations during short and soft field procedures, VFR navigation, attitude instrument flying, holding pattern procedures, and simulated emergency operations.

***NOTE**: A view-limiting device is required for the dual instrument time allocated to this lesson.*

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards:

- Demonstrate a sound understanding of preflight activities and safe operating practices.
- Exhibit normal (for this stage of training) knowledge and proficiency in performance of the assigned maneuvers and procedures.
- Be able to safely maintain attitude within 100 feet, headings within 10 degrees, and climb/descent airspeeds within 10 knots.
- Accurately control the airplane by instrument reference during basic attitude instrument maneuvers, while navigating by use of navigation systems, and using holding pattern procedures.
- Show a good understanding of aircraft systems used for this stage of training.

Desired Outcome Grading Sheet:
# Indicates tasks and sub-tasks to be introduced during the outbound phase of the flight.

** Indicates tasks and sub-tasks to be introduced during the return phase of the flight.

Scenario Tasks	Scenario Sub Tasks	Desired Performance
Flight Planning	1. Scenario Planning	Perform
	2. Certificates and Documents	Perform
	3. Airport Diagrams	Perform
	4. VFR Navigational Chart	Perform
	5. Pilotage	Perform
	6. Dead Reckoning navigation	Perform
	7. Preflight SRM briefing	Perform
	8. Decision making and risk management	Manage/Decide
	9. Emergency Operations	Perform
Normal preflight and cockpit procedures	1. Use of Checklists	Perform
	2. Preflight Inspection	Perform
	3. Minimum equipment list	Perform
	4. Cockpit management	Perform
	5. Use of ATIS	Perform
	6. Airplane Servicing	Perform
	7. Operation of systems	Perform
	8. Positive exchange of flight controls	Perform
Aircraft systems related to IFR operations	1. Aircraft flight instrument and navigation equipment	Perform
	2. PFD setup	Perform
	3. Preflight check of instruments, equipment, systems, & MFD setup	Perform
	4. Instrument cockpit check	Perform
	5. VOR Accuracy Test	Perform
Engine Start and Taxi Procedures	1. Engine start	Perform
	2. Airport and runway markings and lighting	Perform
	3. Radio Communications	Perform
	4. ATC light signals	Perform
	5. Taxi	Perform
	6. Runway incursion avoidance	Perform
	7. Cross wind taxi	Perform
	8. SRM/Situational awareness	Manage/Decide
Airport Operations	1. Controlled airports	Perform
	2. Use of approach and departure control	Perform
	3. CTAF (FSS or UNICOM) airports	Perform

	4. Use of ATIS 5. Go-around	Perform Perform
Before Takeoff Checks	1. Normal and abnormal indications 2. Low level wind shear avoidance/precautions 3. Aircraft automation management 4. Aeronautical Decision making and risk management	Perform Perform Perform Manage/Decide
Takeoff	1. Normal takeoff 2. Short-field takeoff and climb 3. Soft-field takeoff and climb 4. Crosswind takeoff and climb 5. Situational awareness 6. SRM/ and risk management	Perform Perform Perform Perform Manage/Decide Manage/Decide
Climb procedures	1. Constant speed climbs & climbing turns (IR & VR) 2. Constant rate climbs (IR & VR) 3. Departure procedures 4. Situational awareness, task management, and SRM 5. Collision avoidance precautions	Perform Perform Perform Manage/Decide Perform
Cruise procedure	1. Manual straight and level flight (IR and VR) 2. Power management & basic speed control (VR and IR) 3. Collision avoidance precautions 4. Ground Track/Wind Drift corrections 5. Situational awareness, task management, and SRM 6. Medium Banked Standard rate turns to headings (VR and IR) 7. Maneuvering during slow flight (IR & VR) 8. Unusual attitude recovery (VR & IR) 9. Operations in turbulence 10. Magnetic compass turns 11. Wake turbulence avoidance 12. System and equipment malfunctions 13. Demonstrated stalls (secondary, accelerated, trim, cross-control) 14. Spin awareness 15. Flight at slow airspeeds with realistic distractions 16. Timed turns to magnetic compass headings 17. GPS operations & procedures	Perform Perform Perform Perform Manage/Decide Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform

	18. GPS Orientation 19. GPS Fixes 20. GPS Direct 21. GPS flight planning and basic "T" approach 22. Nearest function on the GPS 23. GPS overlay approach 24. Diversion to an alternate 25. Determine ground speed, ETA, and fuel consumption 26. Position fix by navigation facilities	Perform Perform Perform Perform Perform Perform Perform
Navigation	1. Pilotage 2. Dead Reckoning navigation 3. Departure 4. Opening flight plan 5. Course interception 6. Position fix by navigation facilities 7. Flight on federal airways 8. Collision avoidance precautions 9. Closing the flight plan 10. VOR Navigation 11. VOR Orientation 12. Intercepting and Tracking VOR radials 13. VOR tracking (IR) 14. NDB Navigation 15. NDB Homing (IR)	Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform
Training Maneuvers & Procedures	1. Steep turns 2. Power-off stalls (IR and VR) 3. Power-on stalls (IR and VR) 4. Use of Radar Services (IR)	Perform Perform Perform Perform
Emergency operations	1. Systems and equipment malfunctions 2. Emergency descent 3. Emergency approach and landing 4. Emergency equipment and survival gear 5. Emergency descents and climbs using radio aids or radar directives 6. Lost procedures	Perform Perform Perform Perform Perform Perform
Holding Procedures	1. VOR holding 2. NDB holding 3. Standard holding 4. Nonstandard holding 5. Holding entry 6. Localizer holding	Practice Practice Practice Practice Practice Explain

	7. Partial panel holding	Explain
Descent Planning and execution	1. Descents, descending turns, and transition to level flight	Perform
	2. Rate descents (IR and VR)	Perform
	3. Wind drift in turns	Perform
	4. Collision avoidance precautions	Perform
	5. Situational awareness, task management and SRM	Manage/Decide
Approach Procedures	1. Traffic pattern entry procedures	Perform
	2. Collision avoidance precautions	Perform
	3. Situational awareness, task management and SRM	Manage/Decide
	4. Wind shear avoidance	Perform
	5. Communications	Perform
	6. Normal approach	Perform
	7. Emergency approach and landing	Perform
	8. Emergency descent	Perform
	9. Aborted approach (go-around) to landing	Perform
	10. Forward slips	Perform
	11. VOR approach (VR)	Perform
	12. Localizer Identification	Perform
	13. Localizer Tracking	Perform
Landing	1. Before landing procedures	Perform
	2. Normal landing	Perform
	3. Go-around procedures	Perform
	4. Short-field approach and landing	Perform
	5. Soft-field approach and landing	Perform
	6. Crosswind approach and landing	Perform
	7. Land and Hold Short Operations (LAHSO)	Perform
	8. After landing procedures	Perform
Taxi and aircraft shutdown and securing procedure	1. Use of Checklist	Perform
	2. Aircraft ground operations and parking	Perform
	3. Securing	Perform
	4. Instrument post flight procedures	Perform

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide

guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: Utilize opportunities to practice decision- making. This does not mean that every item in the briefings should be discussed at length. You will need to select which opportunities will be discussed to limit the briefings to a reasonable length. Flight safety should not be compromised in an effort to provide a better emergency situation and practice. Additionally, when the local area does not require special departure procedures, you should add departure considerations for training purposes.

LESSON 16
Local Area SOLO

Scenario: There is no scenario for this solo flight other than the problems, maneuvers, or scenarios the instructor might present to you. The key to your successful solo flight is to study and have confidence in your abilities. Have fun and Good Luck!

Lesson Objectives: This flight should be a solo practice o a nearby airport. Prior to the flight, both the PT and instructor should carefully consider the complexity of the airspace and traffic situation of the airport. Also, both the PT and the instructor should be confident in the PT's ability to handle the flight and any unplanned diversions. Practice flight maneuvers and procedures agreed upon by the PT and instructor with special emphasis on correcting any deficient areas. The lesson also should further develop the PT's knowledge, skill, and confidence during solo pilot operations. Emphasis will be on the correction of any deficient skill or knowledge areas. Specific maneuvers or procedures are assigned by the flight instructor.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion standards:

- Practice the assigned maneuvers and procedures.
- Improve any weak performance areas determined previously.
- Perform each assigned maneuver and procedure with proper coordination and precision according to the criteria established in the FAA Practical Test Standards.

Desired Outcome Grading Sheet:
** Indicates tasks and sub-tasks to be introduced/practiced during the return phase of the flight

Scenario Tasks	Scenario Sub Tasks	Desired Performance
Flight Planning	1. Scenario Planning	Perform
	2. Certificates and Documents	Perform
	3. Airport Diagrams	Perform
	4. VFR Navigational Chart	Perform
	5. Pilotage	Perform
	6. Dead Reckoning navigation	Perform
	7. Preflight SRM briefing	Perform
	8. Decision making and risk management	Manage/Decide
	9. Emergency Operations	Perform
Normal preflight and	1. Use of Checklists	Perform

cockpit procedures	2. Preflight Inspection 3. Minimum equipment list 4. Cockpit management 5. Use of ATIS 6. Airplane Servicing 7. Operation of systems 8. Positive exchange of flight controls	Perform Perform Perform Perform Perform Perform Perform
Aircraft systems related to IFR operations	1. Aircraft flight instrument and navigation equipment 2. PFD setup 3. Preflight check of instruments, equipment, systems, & MFD setup 4. Instrument cockpit check 5. VOR Accuracy Test	Perform Perform Perform Perform Perform
Engine Start and Taxi Procedures	1. Engine start 2. Airport and runway markings and lighting 3. Radio Communications 4. ATC light signals 5. Taxi 6. Runway incursion avoidance 7. Cross wind taxi 8. SRM/Situational awareness	Perform Perform Perform Perform Perform Perform Perform Manage/Decide
Airport Operations	1. Controlled airports 2. Use of approach and departure control 3. CTAF (FSS or UNICOM) airports 4. Use of ATIS 5. Go-around	Perform Perform Perform Perform Perform
Before Takeoff Checks	1. Normal and abnormal indications 2. Low level wind shear avoidance/precautions 3. Aircraft automation management 4. Aeronautical Decision making and risk management	Perform Perform Perform Manage/Decide
Takeoff	1. Normal takeoff 2. Short-field takeoff and climb 3. Soft-field takeoff and climb 4. Crosswind takeoff and climb 5. Situational awareness 6. SRM/ and risk management	Perform Perform Perform Perform Manage/Decide Manage/Decide
Climb procedures	1. Constant speed climbs & climbing turns (VR) 2. Constant rate climbs (VR) 3. Departure procedures 4. Situational awareness, task	Perform Perform Perform Manage/Decide

	management, and SRM 5. Collision avoidance precautions	 Perform
Cruise procedure	1. Manual straight and level flight (VR) 2. Power management & basic speed control (VR) 3. Collision avoidance precautions 4. Ground Track/Wind Drift corrections 5. Situational awareness, task management, and SRM 6. Medium Banked Standard rate turns to headings (VR) 7. Maneuvering during slow flight (VR) 8. Unusual attitude recovery (VR) 9. Operations in Turbulence 10. Magnetic compass turns 11. Wake turbulence avoidance 12. System and equipment malfunctions 13. Demonstrated stalls (secondary, accelerated, trim, cross-control) 14. Spin awareness 15. Flight at slow airspeeds with realistic distractions 16. Timed turns to magnetic compass headings 17. GPS operations & procedures 18. GPS Orientation 19. GPS Fixes 20. GPS Direct 21. GPS flight planning and basic “T” approach 22. Nearest function on the GPS 23. GPS overlay approach 24. Diversion to an alternate 25. Determine ground speed, ETA, and fuel consumption 26. Position fix by navigation facilities	Perform Perform Perform Perform Manage/Decide Perform
Navigation	1. Dead Reckoning navigation 2. Departure 3. Opening flight plan 4. Course interception 5. Position fix by navigation facilities 6. Flight on federal airways 7. Collision avoidance precautions 8. Closing the flight plan	Perform Perform Perform Perform Perform Perform Perform Perform

	9. VOR Navigation 10. Pilotage 11. VOR Orientation 12. Intercepting and Tracking VOR radials 13. VOR tracking (IR) 14. NDB Navigation 15. NDB Homing (VR)	Perform Perform Perform Perform Perform Perform Perform
Training Maneuvers & Procedures	1. Steep turns 2. Power-off stalls (VR) 3. Power-on stalls (VR) 4. Use of Radar Services (VR)	Perform Perform Perform Perform
Emergency operations	1. 74. Systems and equipment malfunctions 2. Emergency descent 3. Emergency approach and landing 4. Emergency equipment and survival gear 5. Emergency descents and climbs using radio aids or radar directives 6. Lost procedures	Perform Perform Perform Perform Perform Perform
Holding Procedures	1. VOR holding 2. NDB holding 3. Standard holding 4. Nonstandard holding 5. Holding entry 6. Localizer holding 7. Partial panel holding	Perform Practice Perform Perform Practice Practice Practice
Descent Planning and execution	1. Descents, descending turns, and transition to level flight 2. Rate descents (VR) 3. Wind drift in turns 4. Collision avoidance precautions 5. Situational awareness, task management and SRM	Perform Perform Perform Perform Manage/Decide
Approach Procedures	1. Traffic pattern entry procedures 2. Collision avoidance precautions 3. Situational awareness, task management and SRM 4. Wind shear avoidance 5. Communications 6. Normal approach 7. Emergency approach and landing 8. Emergency descent 9. Aborted approach (go-around) to landing	Perform Perform Manage/Decide Perform Perform Perform Perform Perform Perform

	10. Forward slips 11. VOR approach (VR) 12. Localizer Identification 13. Localizer Tracking	Perform Perform Perform Perform
Landing	1. Before landing procedures 2. Normal landing 3. Go-around procedures 4. Short-field approach and landing 5. Soft-field approach and landing 6. Crosswind approach and landing 7. Land and Hold Short Operations (LAHSO) 8. After landing procedures	Perform Perform Perform Perform Perform Perform Perform Perform
Taxi and aircraft shutdown and securing procedure	1. Use of Checklist 2. Aircraft ground operations and parking 3. Securing 4. Instrument post-flight procedures	Perform Perform Perform Perform

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: Review items as deemed necessary by the instructor.

LESSON 17-A

Scenario: You are going on three different job interviews. The interviews are taking place in different cities on the same day. You are able to accomplish this easily as each interview is only scheduled for one hour. The first interview is at 9 AM sharp and 150 nautical miles (NM) away from your current home. The second interview is 50 NM from

the first city. The third and last interview of the day is at 4 PM and is the closest to your home airport.

Lesson Objectives: This scenario is a dress rehearsal for the PTs long VFR cross-country. This flight should be of at least 150 nautical miles total distance (100 nautical miles if the cross-country training flight is conducted under 14 CFR part 141), with landings at a minimum of three points, including one segment of the flight consisting of a straight-line distance of at least 50 nautical miles between the take-off and landing locations. All of the regulatory requirements for the long cross-country should be complied with. The PT should conduct the flight with minimal assistance from the instructor. The PT should brief every aspect of the flight to the instructor. The instructor should plan enroute and terminal emergency and/or diversion scenarios both during the preflight briefing and during the actual flight.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards: At the completion of this lesson the PT will demonstrate the ability to correctly conduct a solo cross-country flight. The PT will be able to navigate by Dead Reckoning and with the aid of navigation systems.

Desired Outcome Grading Sheet:

Tasks	Sub Tasks	Desired Performance
Preflight Preparation	1. Sectional / Terminal Area Charts	Explain
	2. Flight Publications	Explain
	3. Route Selection	Explain
	4. Weather Information	Explain
	5. Fuel Requirements	Explain
	6. Performance and Limitations	Explain
	7. Weight and Balance	Explain
	8. Navigation Log	Explain
	9. FAA Flight Plan	Explain
	10. Aeromedical Factors	Explain
Cross-country flight	1. Opening the Flight Plan	Practice
	2. VOR and NDB Navigation	Practice
	3. Position Fix by navigation facilities	Practice
	4. Dead Reckoning	Practice
	5. Use of unfamiliar airports	Practice
	6. Estimates of Groundspeed	Practice
	7. Estimates of ETA	Practice

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: You should consider teaching at least two methods for getting aviation weather. Discuss the appropriateness of each method and any other methods that may be used. Choosing the best method for obtaining the weather provides another opportunity to practice judgment and decision-making skills. Contingency planning can provide a measure of safety and it can provide an additional opportunity to practice decision-making skills. Factors that could be discussed include how many contingencies should be preplanned, what type of contingencies should planned, what can cause a contingency plan to be used, and how detailed does the contingency plan need to be. Having the PT talk through a contingency plan could help the PT understand the value of contingency planning rather than just having to accept that contingency planning is helpful. Establishing, practicing, and maintaining good cross-country planning practices are important to aviation safety. Are these good habits being practiced for every flight including training flights? If good habits were being used in the previous lessons, the topics introduced in the lesson are not new but rather they are being shifted from you to the PT.

LESSON 17
(**Solo cross-country**)

Scenario: In the last lesson, you went on three different job interviews and now all three companies want you back again for a second round of interviews. You should be able to replicate the scenario used in Lesson 17-A.

Lesson Objectives:
Use previous experience and training to complete solo cross-country. This flight should be of at least 150 nautical miles total distance (100 nautical miles if the solo cross-country training flight is conducted under 14 CFR part 141), with landings at a minimum of three points, including one segment of the flight consisting of a straight-line distance of at least 50 nautical miles between the take-off and landing locations. Emphasize planning and following the plan, including alternatives for cross-country procedures.

Preflight Preparation and Risk Assessment:
- Required documents and endorsements
- Aero medical factors
- Weather information
- Route selection
- Aircraft performance and limitations
- Weight and balance
- Fuel requirements
- Basic VFR weather minimums and airspace rules
- Cockpit management, decision making, and judgment
- Sectional / Terminal Area charts
- Flight publications
- Enroute communications
- ATC services available to pilots
- Use of the flight log
- Navigation log
- VFR position report
- Emergency operations
- Lost procedures
- Diversion
- Lost communications
- ATC light signals
- FAA flight plan

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them. Ensure that the PT has his/her logbook signed at the airports of landing. Also, an

instructor must check the PTs flight planning and the PT must be signed off for the flight.

Completion Standards:

- Demonstrate cross-country proficiency by completing the flight as planned and without incident.
- Review the completed navigation log during the post flight evaluation to determine whether it was completed and used correctly.
- The cross-country flight must include a distance of over 150 n.m (100 n.m. if the solo cross-country training flight is conducted under 14 CFR part 141). with landings at a minimum of three points, including at least one segment of the flight consisting of a straight-line distance of at least 50 n.m. between take-off and landing locations.

Desired Outcome Grading Sheet:

Scenario Tasks	Scenario Sub Tasks	Desired Performance
Flight Planning	1. Scenario Planning	Perform
	2. Certificates and Documents	Perform
	3. Airport Diagrams	Perform
	4. VFR Navigational Charts	Perform
	5. Pilotage	Perform
	6. Dead Reckoning navigation	Perform
	7. Preflight SRM briefing	Perform
	8. Decision making and risk management	Manage/Decide
	9. Emergency Operations	Perform
Normal preflight and cockpit procedures	1. Use of Checklists	Perform
	2. Preflight Inspection	Perform
	3. Minimum equipment list	Perform
	4. Cockpit management	Perform
	5. Use of ATIS/AWOS/ASOS	Perform
	6. Airplane Servicing	Perform
	7. Operation of systems	Perform
	8. Positive exchange of flight controls	Perform
Aircraft systems related to Cross Country operations	1. Aircraft flight instrument and navigation equipment	Perform
	2. PFD setup	Perform
	3. Preflight check of instruments, equipment, systems, & MFD setup	Perform
	4. Instrument cockpit check	Perform
	5. VOR Accuracy Check	Perform
Engine Start and Taxi Procedures	1. Engine start	Perform
	2. Airport and runway markings and	Perform

	lighting 3. Radio Communications 4. ATC light signals 5. Taxi 6. Runway incursion avoidance 7. Cross wind taxi 8. SRM/Situational awareness	 Perform Perform Perform Perform Perform Manage/Decide
Airport Operations	1. Controlled airports 2. Use of approach and departure control 3. CTAF (FSS or UNICOM) airports 4. Use of ATIS 5. Go-around	Perform Perform Perform Perform Perform
Before Takeoff Checks	1. Normal and abnormal indications 2. Low level wind shear avoidance/precautions 3. Aircraft automation management 4. Aeronautical Decision making and risk management	Perform Perform Perform Manage/Decide
Takeoff	1. Normal takeoff 2. Short-field takeoff and climb 3. Soft-field takeoff and climb 4. Crosswind takeoff and climb 5. Situational awareness 6. SRM/ and risk management	Perform Perform Perform Perform Manage/Decide Manage/Decide
Climb procedures	1. Constant speed climbs & climbing turns (VR) 2. Constant rate climbs (VR) 3. Departure procedures 4. Situational awareness, task management, and SRM 5. Collision avoidance precautions	Perform Perform Perform Manage/Decide Perform
Cruise procedure	1. Manual straight and level flight (VR) 2. Power management & basic speed control (VR and IR) 3. Collision avoidance precautions 4. Ground Track/Wind Drift corrections 5. Situational awareness, task management, and SRM 6. Medium Banked Standard rate turns to headings (VR) 7. Maneuvering during slow flight (VR) 8. Unusual attitude recovery (VR)	Perform Perform Perform Perform Manage/Decide Perform Perform Perform

	9 Operations in Turbulence	Perform
	10. Magnetic compass turns	Perform
	11. Wake turbulence avoidance	Perform
	12. System and equipment malfunctions	Perform
	13. Demonstrated stalls (secondary, accelerated, trim, cross-control)	Perform
	14. Spin awareness	Perform
	15. Flight at slow airspeeds with realistic distractions	Perform
	16. Timed turns to magnetic compass headings	Perform
	17. GPS operations & procedures	Perform
	18. GPS Orientation	Perform
	19. GPS Fixes	Perform
	20. GPS Direct	Perform
	21. GPS flight planning and basic "T" approach	Perform
	22. Nearest function on the GPS	Perform
	23. GPS overlay approach	Perform
	24. Diversion to an alternate	Perform
	25. Determine ground speed, ETA, and fuel consumption	Perform
Navigation	1. Dead Reckoning navigation	Perform
	2. Departure	Perform
	3. Opening flight plan	Perform
	4. Course interception	Perform
	5. Position fix by navigation facilities	Perform
	6. Flight on federal airways	Perform
	7. Collision avoidance precautions	Perform
	8. Closing the flight plan	Perform
	9. VOR Navigation	Perform
	10. Pilotage	Perform
	11. VOR Orientation	Perform
	12. Intercepting and Tracking VOR radials	Perform
	13. VOR tracking (VR)	Perform
	14. NDB Navigation	Perform
	15. NDB Homing (VR)	Perform
Training Maneuvers & Procedures	1. Steep turns	Perform
	2. Power-off stalls (VR)	Perform
	3. Power-on stalls (VR)	Perform
	4. Use of Radar Services (VR)	Perform
Emergency operations	1. Emergency descent	Perform
	2. Systems and equipment malfunctions	Perform

	3. Emergency approach and landing 4. Emergency equipment and survival gear 5. Emergency descents and climbs using radio aids or radar directives 6. Lost procedures	Perform Perform Perform Perform
Holding Procedures	1. VOR holding 2. NDB holding 3. Standard holding 4. Nonstandard holding 5. Holding entry 6. Localizer holding 7. Partial panel holding	Perform Perform Perform Perform Perform Perform Perform
Descent Planning and execution	1. Descents, descending turns, and transition to level flight 2. Rate descents (VR) 3. Wind drift in turns 4. Collision avoidance precautions 5. Situational awareness, task management and SRM	Perform Perform Perform Perform Manage/Decide
Approach Procedures	1. Traffic pattern entry procedures 2. Collision avoidance precautions 3. Situational awareness, task management and SRM 4. Wind shear avoidance 5. Communications 6. Normal approach 7. Emergency approach and landing 8. Emergency descent 9. Aborted approach (go-around) to landing 10. Forward slips 11. VOR approach (VR) 11. Localizer Identification 12. Localizer Tracking	Perform Perform Manage/Decide Perform Perform Perform Perform Perform Perform Perform Perform Perform
Landing	1. Before landing procedures 2. Normal landing 3. Go-around procedures 4. Short-field approach and landing 5. Soft-field approach and landing 6. Crosswind approach and landing 7. Land and Hold Short Operations (LAHSO) 8. After landing procedures	Perform Perform Perform Perform Perform Perform Perform Perform
Taxi and aircraft shutdown and securing	1. Use of Checklist 2. Aircraft ground operations and	Perform Perform

procedure	parking 3. Securing 4. Instrument post flight procedures	 Perform Perform

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: The 14 CFR part 61 and part 141 appendix B regulatory requirements for 3 solo takeoffs, landings, and traffic patterns at a controlled airport may be completed in other flight lessons. This is a private pilot certification requirement that does not necessarily have to be accomplished during a specific flight lesson.

LESSON 18-A
(AVIATION TRAINING DEVICE)

Scenario: This is your $100 hamburger flight. You and a friend are flying over to a nearby town that is known for their hamburgers at a particular restaurant near the airport. The weather is marginal VFR along your route. The forecast for your return leg is marginal VFR with some areas IFR.

Lesson Objectives:
The objective of this lesson is to practice non-precision VOR approach procedures. In addition, the PT will be introduced to partial panel and no-gyro radar vectoring during non-precision approach procedures. **ATD Lessons** – In the event an ATD is not available for the aircraft, the training events prescribed can be flown as local practice flights in the actual aircraft. Early in the program, these flights may be executed with the PT having only a responsibility for the specific tasks required by the ATD Lesson.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards: The objective of this lesson is to practice non-precision VOR approach procedures. In addition, the PT will be introduced to partial panel and no-gyro radar vectoring during non-precision approach procedures.

Desired Outcome Grading Sheet:

Tasks	Sub Tasks	Desired Performance
IFR Approaches	1. VOR Approaches	Practice
	2. Straight-in approach procedures	Practice
	3. Circling approach procedures	Practice
	4. Missed approach procedures	Practice
	5. Landing from a straight-in or circling approach procedure	Practice
	6. Partial panel non-precision instrument approach procedures	Explain
	7. No-gyro radar vectoring and approach procedures	Explain

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a

situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: Continually question the PT as to the status of the flight and what the next sequence of events should be. By asking questions and getting them to think ahead you can shape their ADM process and help them develop the SRM skills so important in today's IFR environment. Do not allow the PT to get behind the airplane. Point out appropriate times to begin preparing for the approaches. Help the PT as necessary to assure a smooth transition from the cruise phase to the approach and landing segment. Fly several different VOR approaches if possible. Condition the PT to perform the 5 Ps at the appropriate times to encourage a conscious effort of managing the flight and maintaining the big picture perspective.

LESSON 18-B
(AVIATION TRAINING DEVICE)

Scenario: You plan on flying your daughter and her friend to a famous resort town for some rest and relaxation. You have arranged to pick your daughter's friend up at an airport approximately 25 miles from your home base. The weather looked like it would be fair this morning, but the fog that you thought would not be a factor in planning has been slow to burn off. You elect to conduct the flight IFR and decide to takeoff. There is only a non-precision approach at the airport where your daughter's friend is located. Your alternate airport does have an ILS should the fog be too thick to land. There are some thunderstorms within the vicinity of the resort town.

Lesson Objective: The objective of this lesson is to practice non-precision NDB approach procedures. In addition, the PT will review partial panel and no-gyro radar vectoring during non-precision approach procedures.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards: Prior to beginning the final approach segment, the PT will maintain the specified altitude within 100 feet, heading or course within 10 degrees, and airspeed within 10 knots. On the final approach segment, the PT should apply proper correction to maintain course and maintain an altitude that is plus 100 feet, minus 0 feet of the MDA to the MAP.

Desired Outcome Grading Sheet:

Tasks	Sub Tasks	Desired Performance
IFR Approaches	1. NDB Approach	Explain
	2. Straight-in approach procedures	Explain
	3. Circling approach procedures	Explain
	4. Missed approach procedures	Explain
	5. Landing from a straight-in or circling approach procedure	Explain
	6. Partial panel non-precision instrument approach procedures	Explain
	7. No-gyro radar vectoring and approach procedures	Explain

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and

discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: Continually question the PT as to the status of the flight and what the next sequence of events should be. By asking questions and getting them to think ahead you can shape their ADM process and help them develop the SRM skills so important in today's IFR environment. Do not allow the PT to get behind the airplane. Point out appropriate times to begin preparing for the approaches. Help the PT as necessary to assure a smooth transition from the cruise phase to the approach and landing segment. Fly several different NDB approaches if possible. Condition the PT to perform the 5 Ps at the appropriate times to encourage a conscious effort of managing the flight and maintaining the big picture perspective.

LESSON 18

Scenario: Your employer wants you to pick up some business equipment from two separate towns and return it to the company by the end of the day. You decide that instead of spending the entire day driving, and possibly missing your dinner engagements with your spouse, you would rather pilot your own plane to accomplish the task. You arrange with the other factories' representatives involved to meet you at the local airports so that you may retrieve the equipment and return home. The weather has been IFR all day with periods of light rain.

Lesson Objectives: Once the solo cross country is complete (Lesson 17), the PT should be completing all flight and scenario planning to FAA Practical Test Standards parameters without assistance. This scenario should be conducted as an out and back to learn non-precision approach procedures. Choosing a destination within 30 miles of the airport of origin will allow the PT time to practice basic instrument maneuvers, then to transition to the approach from the enroute structure. Practice VOR and NDB approaches to include:

- Straight-in approach procedures
- Circling approach procedures
- Missed approach procedures.
- Landing from a straight-in or circling approach procedure

***NOTE**: A view-limiting device is required for the dual instrument time allocated to this flight.*

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion standards:

OUTBOUND FLIGHTS

- Explain and use the information displayed on the approach charts.
- Execute several initial and intermediate approach segments to arrive at the final approach fix.
- Allow, while on the final approach segment, less than full-scale deflection of the CDI (or within 10 degrees in the case of an RMI).
- Complete the final approach and letdown to the missed approach point.
- Demonstrate the missed approach procedure, as published on the appropriate chart.

RETURN FLIGHT

- Maintain altitude within 100 feet on the initial and intermediate approach segments.
- Maintain altitude + 100 feet, - 0 feet of the MDA at the MAP.

- Demonstrate the missed approach procedure, as published on the appropriate chart.
- Exhibit ability to properly execute circling approach procedures.

Desired Outcome Grading Sheet:

Scenario Tasks	Scenario Sub Tasks	Desired Performance
Flight Planning	1. Scenario Planning	Perform
	2. Certificates and Documents	Perform
	3. Airport Diagrams	Perform
	4. VFR Navigational Chart	Perform
	5. Pilotage	Perform
	6. Dead Reckoning navigation	Perform
	7. Preflight SRM briefing	Manage/Decide
	8. Decision making and risk management	Manage/Decide
	9. Emergency Operations	Perform
Normal preflight and cockpit procedures	1. Use of Checklists	Perform
	2. Preflight Inspection	Perform
	3. Minimum equipment list	Perform
	4. Cockpit management	Perform
	5. Use of ATIS	Perform
	6. Airplane Servicing	Perform
	7. Operation of systems	Perform
	8. Positive exchange of flight controls	Perform
Aircraft systems related to IFR operations	1. Aircraft flight instrument and navigation equipment	Perform
	2. PFD setup	Perform
	3. Preflight check of instruments, equipment, systems, & MFD setup	Perform
	4. Instrument cockpit check	Perform
	5. VOR Accuracy Test	Perform
Engine Start and Taxi Procedures	1. Engine start	Perform
	2. Airport and runway markings and lighting	Perform
	3. Radio Communications	Perform
	4. ATC light signals	Perform
	5. Taxi	Perform
	6. Runway incursion avoidance	Perform
	7. Cross wind taxi	Perform
	8. SRM/Situational awareness	Manage/Decide
Airport Operations	1. Controlled airports	Perform
	2. Use of approach and departure control	Perform
	3. CTAF (FSS or UNICOM) airports	Perform

Before Takeoff Checks	1. Normal and abnormal indications 2. Low level wind shear avoidance/precautions 3. Aircraft automation management 4. Aeronautical Decision making and risk management	Perform Perform Perform Manage/Decide
Takeoff	1. Normal takeoff 2. Short-field takeoff and climb 3. Soft-field takeoff and climb 4. Crosswind takeoff and climb 5. Situational awareness 6. SRM/ and risk management	Perform Perform Perform Perform Manage/Decide Manage/Decide
Climb procedures	1. Constant speed climbs & climbing turns (IR & VR) 2. Constant rate climbs (IR & VR) 3. Departure procedures 4. Situational awareness, task management, and SRM 5. Collision avoidance precautions	Perform Perform Perform Manage/Decide Perform
Cruise procedure	1. Manual straight and level flight (IR and VR) 2. Power management & basic speed control (VR and IR) 3. Collision avoidance precautions 4. Ground Track/Wind Drift corrections 5. Situational awareness, task management, and SRM 6. Medium Banked Standard rate turns to headings (VR and IR) 7. Maneuvering during slow flight (IR & VR) 8. Unusual attitude recovery (VR & IR) 9. Operations in Turbulence 10. Magnetic compass turns 11. Wake turbulence avoidance 12. System and equipment malfunctions 13. Demonstrated stalls (secondary, accelerated, trim, cross-control) 14. Spin awareness 15. Flight at slow airspeeds with realistic distractions 16. Timed turns to magnetic compass headings 17. GPS operations & procedures 18. GPS Orientation 19. GPS Fixes	Perform Perform Perform Perform Manage/Decide Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform

	20. GPS Direct 21. GPS flight planning and basic "T" approach 22. Nearest function on the GPS 23. GPS overlay approach 24. Diversion to an alternate 25. Determine ground speed, ETA, and fuel consumption	Perform Perform Perform Perform Perform Perform
Navigation	1. Dead Reckoning navigation 2. Departure 3. Opening flight plan 4. Course interception 5. Position fix by navigation facilities 6. Flight on federal airways 7. Collision avoidance precautions 8. Closing the flight plan 9. VOR Navigation 10. VOR Orientation 11. Dead Reckoning 12. Intercepting and Tracking VOR radials 13. VOR tracking (IR) 14. NDB Navigation 15. NDB Homing (IR)	Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform
Training Maneuvers & Procedures	1. Steep turns 2. Power-off stalls (IR and VR) 3. Power-on stalls (IR and VR) 4. Use of Radar Services (IR)	Perform Perform Perform Perform
Emergency operations	Emergency descent 1. Emergency approach and landing 2. Systems and equipment malfunctions 3. Emergency equipment and survival gear 4. Emergency descents and climbs using radio aids or radar directives 5. Lost procedures	Perform Perform Perform Perform Perform Perform
Holding Procedures	1. VOR holding 2. NDB holding 3. Standard holding 4. Nonstandard holding 5. Holding entry 6. Localizer holding 7. Partial panel holding	Perform Perform Perform Perform Perform Perform Perform
Descent Planning and execution	1. Descents, descending turns, and transition to level flight	Perform

	2. Rate descents (IR and VR) 3. Wind drift in turns 4. Collision avoidance precautions 5. Situational awareness, task management and SRM	Perform Perform Perform Manage/Decide
Approach Procedures	1. Traffic pattern entry procedures 2. Collision avoidance precautions 3. Situational awareness, task management and SRM 4. Wind shear avoidance 5. Communications 6. Normal approach 7. Emergency approach and landing 8. Emergency descent 9. Aborted approach (go-around) to landing 10. Forward slips 11. VOR approach (VR) 12. VOR approach (IR) 13. Straight-in approach procedures 14. Circling approach procedures 15. Missed approach procedures. 16. Landing from a straight-in or circling approach procedure 17. # NDB approaches 18. Straight-in approach procedures 19. Circling approach procedures 20. Missed approach procedures 21. Landing from a straight-in or circling approach procedure 22. Localizer Identification 23. Localizer Tracking	Perform Perform Manage/Decide Perform Perform Perform Perform Perform Perform Perform Perform Describe Describe Describe Describe Describe Describe Describe Describe Perform Perform Perform
Landing	1. Before landing procedures 2. Normal landing 3. Go-around procedures 4. Short-field approach and landing 5. Soft-field approach and landing 6. Crosswind approach and landing 7. Land and Hold Short Operations (LAHSO) 8. After landing procedures	Perform Perform Perform Perform Perform Perform Perform Perform
Taxi and aircraft shutdown and securing procedure	1. Use of Checklist 2. Aircraft ground operations and parking 3. Securing 4. Instrument post flight procedures	Perform Perform Perform Perform

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: While the quantity of approaches flown is important, the quality of the instruction will determine the learning effectiveness. Thus, it may be more important to accomplish four or five complete approaches than to try to hurry the PT through several more. Flight on the backup instruments should be introduced on every flight by use of a PFD/MFD cover. Review and practice VOR approaches, including related instrument approach procedures such as circling and missed approaches. Review NDB non-precision instrument approach procedure (if the TAA is so equipped), including circling and missed approaches. Emphasize VOR approach procedures.

LESSON 19-A
(AVIATION TRAINING DEVICE)

Scenario: The day of the big game has arrived. You and two friends are headed to the Super Bowl. You planned your flight last night and although there is a front passing, it is not anticipated to be IFR. Because you've have a lot of baggage and your two friends aren't exactly small people, you've decided to carry just enough fuel to meet the VFR day minimums. Because of this, you will be required to make a fuel stop between your departure and destination airport. The weather at both your departure point and your destination is MVFR.

Lesson Objectives: The PT will review ILS and localizer approach procedures and be introduced to Back Course approach procedures. **ATD Lessons** – In the event an ATD is not available for the aircraft, the training events prescribed can be flown as local practice flights in the actual aircraft. Early in the program, these flights may be executed with the PT having only a responsibility for the specific tasks required by the ATD Lesson.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards: Prior to beginning the final approach segment, the PT will maintain the specified altitude within 100 feet, heading or course within 10 degrees, and airspeed within 10 knots, of the desired values. On the final approach segment, the PT should apply proper correction to maintain less than full-scale deflection of either the localizer or glide slope indications and avoid descent below the DA or MDA before initiating a missed approach procedure or transitioning to a normal landing.

Desired Outcome Grading Sheet:

Tasks	Sub Tasks	Desired Performance
ILS Approaches	1. Straight-in approach procedures 2. Circling approach procedures 3. Missed approach procedures 4. Landing from a straight--in or circling approach procedure	Practice Practice Practice Practice
Localizer Approaches	1. Front Course 2. Back Course	Practice Explain

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and

discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: Review the differences between a localizer approach and a ILS approach. Emphasize the sensitivity of the localizer and the importance of small, calculated corrections for the wind. After the landing ask the PT how they feel the first leg went and what they learned from it. Ask them what they would have done differently and how the flight could have been improved. With the lessons learned from the first leg, the PT should have a better idea of what to expect on the second leg. Concentrate on the same points on the return trip and help the PT better manage the flight home. Condition the PT to perform the 5 Ps at the appropriate times to encourage a conscious effort of managing the flight and maintaining the big picture perspective.

LESSON 19-B
(AVIATION TRAINING DEVICE)

Scenario: You and a friend decide that you would like to go to dinner at an airport known for their great food. The restaurant doesn't open till 6:00PM and the airport is approximately 60 miles away by air. The weather all day has been MVFR, but is forecast to become IFR this evening. You do not have a time restriction on the return, but you friend must be back no later than 9:00PM for a previous engagement. The only available approach at the destination airport is a precision approach. However, another airport close to your destination airport has a non-precision approach.

Lesson Objective: The PT will review both precision and non-precision instrument approach procedures. Emphasis will be directed toward correction of any faulty tendencies to prepare the PT for the Stage III/End-of-Course Flight Check. **ATD Lessons** – In the event an ATD is not available for the aircraft, the training events prescribed can be flown as local practice flights in the actual aircraft. Early in the program, these flights may be executed with the PT having only a responsibility for the specific tasks required by the ATD Lesson.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standard: Prior to beginning the final approach segment, the PT will maintain the specified altitude within 100 feet, heading or course within 10 degrees, and airspeed within 10 knots of the desired values. On the final approach segment, the PT should apply proper correction to maintain the approach course, allow less than full-scale deflection of course deviation indications or within +/- 10 degrees in the case of an RMI, and avoid descent below the DA or MDA before initiating a missed approach procedure or transitioning to a normal landing.

Desired Outcome Grading Sheet:

Tasks	Sub Tasks	Desired Performance
Instrument Approaches	1. ILS Approach	Practice
	2. VOR Approach	Practice
	3. NDB Approach	Practice
	4. GPS Approach	Practice
	5. Localizer Approach	Practice
	6. Front Course	Practice
	7. Back Course	Practice

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired

outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: Use this scenario to reinforce the PT's application of good aeronautical decision making and risk management. As in previous lessons, emphasize the importance of planning ahead, utilizing all available resources, and managing the flight in a way that allows it to be conducted in the safest, most efficient manner possible. The PT must think in a cause and affect manner. Stress to them that every decision made during the flight eliminates some possibilities and creates new ones. A constant reassessing must take place during the flight so the PT can manage the risk and demonstrate sound aeronautical decision making. The PT should also be demonstrating an increased proficiency in their radio communications procedures and should be able to request and receive ATC instructions and clearances without much assistance from you. At this point in their training, they have performed each task expected of them in this flight and you should not have to give much direction of what to say or ask from ATC. Encourage the PT's non-reliance on you in this area. A good indicator of the PT's confidence is how well they handle the communications between themselves and ATC.

LESSON 19
Progress check
(Partial panel approach procedure omitted)

Scenario: You plan a trip to an airport approximately 100 miles south of your home airport where you plan on picking up a few friends and returning them back home for the weekend. There is a front approaching your destination airport that will bring rain showers and MVFR conditions. Your plan is to arrive at the airport and pick up your friends before the weather arrives. One of your friends does notify you that he may be a little late due to traffic. The destination airport has a precision approach procedure.

Lesson Objectives: The chief instructor, assistant chief instructor, or a designated check instructor will evaluate PT proficiency in the listed maneuvers and procedures. The main emphasis areas will be basic piloting skills in VFR/IFR operations, VFR/IFR cross-country procedures, and basic instrument procedures, including precision and non-precision instrument approaches. The flight will be planned as a VFR/IFR cross-country. The PT should plan the first leg using VFR procedures and the second leg with IFR procedures. The PT should plan the entire flight including all scenario tasks required by the instructor.

***NOTE**: A view-limiting device is required for the dual instrument time allocated to this flight.*

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion standards:

- Exhibit ability to conduct a VFR cross-country flight with a diversion to an alternate airport.
- Perform private pilot maneuvers at a proficiency level consistent with the criteria established in the FAA Private Pilot Practical Test Standards.
- Demonstrate proficiency in the listed instrument maneuvers and operations with very minor deviations from the criteria published in the FAA Instrument Rating Practical Test Standards.

Desired Outcome Grading Sheet:

Scenario Tasks	Scenario Sub Tasks	Desired Performance
Preflight preparation	1. Certificates and documents	Perform
	2. Weather information	Perform
	3. Performance and limitations	Perform
	4. Cross-country flight planning	Perform
	5. Operation of systems	Perform

	6. Aero medical factors	Manage/Decide
Cross-country flying	1. Pilotage and Dead Reckoning 2. Radio navigation 3. Diversion and lost procedures	Perform Perform Perform
Basic piloting skills	1. Preflight inspection 2. Cockpit management 3. Radio communications 4. ATC light signals 5. Collision avoidance precautions 6. Land and hold short operations (LAHSO) 7. Low-level wind shear precautions 8. Wake turbulence avoidance 9. Airport and runway markings and lighting 10. Takeoffs, landings, and go-around 11. Soft field takeoff and climb 12. Basic maneuvers (VR and IR) 13. Recovery from unusual attitudes (IR) 14. Using radio communications, navigation facilities, and radar services (IR) 15. Slow flight and stalls 16. Flight at slow airspeeds with realistic distractions, and the recognition and recovery from stalls entered from straight flight and turns. 17. Spin awareness 18. Steep turns 19. Wind drift correction 20. Emergency procedures 21. Post flight procedures	Perform Perform
Instrument	1. VOR holding 2. NDB holding 3. Localizer holding 4. VOR approaches 5. NDB approaches 6. Localizer approaches 7. ILS approaches 8. GPS/GPS overlay approaches 9. Circling approach procedures 10. Straight-in approach procedures 11. Missed approach procedures 12. Partial panel non-precision instrument approach procedures	Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use

this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: The FAA Practical Test Standards (PTS) requires FAA inspectors and designated pilot examiners to develop a written “plan of action” for the conduct of practical tests. The instructions include provisions for changing the sequence of combining tasks as required to facilitate an orderly, efficient evaluation. These instructions in the PTS contain practical guidance for instructors conducting Stage or Progress Checks. The inspector and designated examiner “plan of action” should include a preflight meeting with the PT to tell them what will be expected of them. This meeting should take place early enough that the PT has time to plan the entire scenario. The plan should also include “mini scenarios” that allow the inspector/designated examiner to introduce unexpected emergency and abnormal procedures that could result in a diversion set in a realistic context. The chief flight instructor, assistant chief flight instructor, or the designated check instructor who conducts this Stage II Check should develop a logical plan of action. While all listed tasks in each area of operation should be evaluated, tasks with similar objectives may be combined. If the elements in one task have already been evaluated in another task, they need not be repeated. In addition, certain tasks may be evaluated orally. Such tasks include those that cannot realistically be evaluated on the scheduled flight. An example is night flying.

STAGE III

STAGE OBJECTIVES
The objective of this stage is to develop the PT's IFR cross-country procedures and to increase proficiency to the level required of an instrument rated pilot. The PT will also be introduced to the special considerations involved in night operations.

STAGE COMPLETION STANDARD
At completion of the stage, the PT must be able to demonstrate all IFR flight maneuvers and procedures at the proficiency level of an instrument rated pilot, as outlined in the current FAA Instrument Rating Practical Test Standards. The PT will also be able to demonstrate private pilot maneuvers at the proficiency level specified in the FAA Private Pilot Practical Test Standards.

***NOTE**: This note is applicable to the following dual flight lessons in Stage III of the Private/Instrument Flight Syllabus. These flight lessons include review assignments that are intended as a guide for both PTs and instructors.*

LESSON 20

Scenario: You are planning to take your spouse to dinner tonight in a new restaurant in a neighboring state. Your night currency has run out, so you plan to do at least three takeoffs and landings at you local airport tonight before picking up your spouse. You believe that three takeoffs and landings will be adequate, but you want to get in as many landings as you can in a 1-hour flight. There is little traffic in the evening and the tower is very helpful. This should be fun.

Lesson Objectives: This scenario will consist of a night out and back flight to an airport with appropriate night lighting and instrument approach facilities. This flight should build confidence in the PTs ability to fly at night and solely on instruments. The scenario should introduce the special operational considerations associated with night flying and practice night traffic pattern, approaches, and landings. This lesson will stress the importance of including instrument references for maintaining attitude and emphasize the physiological factors and additional planning associated with the night environment.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion standards:

OUTBOUND FLIGHTS

- Demonstrate an understanding of the importance of attitude control.
- Control altitude within 150 feet during level turns, straight-and-level flight, and slow flight. Stall recoveries should be coordinated with a minimum loss of altitude.
- Complete 5 takeoffs and landings to a full-stop with each landing involving flight in the traffic pattern.
- All landing approaches should be stabilized with touchdown at a predetermined area on the runway.

RETURN FLIGHT

- Demonstrate an understanding of night cross-country preparation and flight procedures, including ability to maintain attitude by instrument reference.
- Navigation should be accurate, and simulated emergency situations should be handled promptly, utilizing proper judgment.
- Total distance of more than 100 nautical miles required.
- In addition, the flight must include a point of landing at least a straight-line distance of more than 50 nautical miles from the original point of departure.
- Complete 5 takeoffs and landings to a full stop with each involving flight in the traffic pattern.

- Landing approaches stabilized with touchdown at or near the appropriate touchdown area on the runway.

Desired Outcome Grading Sheet:

Scenario Tasks	Scenario Sub Tasks	Desired Performance
Night preparation	1. Aero medical factors 2. Flight planning considerations 3. Use of checklists 4. Preflight inspection 5. Preparation and equipment 6. Minimum equipment list	Manage/Decide Perform Perform Perform Perform Perform
Night-flight	1. Normal takeoffs and climbs 2. Normal approaches and landings 3. Short field takeoffs and landings 4. Soft field takeoffs and landings 5. VFR navigation 6. Unusual attitude recoveries 7. Controlled airports 8. Use of ATIS, approach, and departure control 9. Go-around	Perform Perform Perform Perform Perform Perform Perform Perform Perform
Night cross-country preparation	1. Weather information 2. Route selection 3. Altitude selection 4. Fuel requirements 5. Performance and limitations 6. Cockpit management	Perform Perform Perform Perform Perform Perform
Night cross-country flight	1. Pilotage & Dead Reckoning 2. Radio navigation 3. Use of unfamiliar airports 4. Collision avoidance precautions 5. Lost procedures	Perform Perform Perform Perform Perform

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide

guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: 10 night takeoffs and landings to a full stop with each involving flight in the traffic pattern are required under 14 CFR part 141 appendix B (airplane single-engine course). Prior to the flight, review the PT's preflight planning and discuss the anticipated flow of the flight. Briefly cover the departure and arrival procedures associated with each airport the flight is planned to and ask the PT to identify critical transition points along the route and the procedures to be performed when reaching those points. By asking these questions up front you can get the PT focused on the SRM aspects of the flight and have them mentally map out the flight before they become involved in its actual conduct. This will help them stay ahead of the flight and recognize when they are getting behind or when they have failed to accomplish a task that should have been completed by a certain point in the flight. It also gives you a better idea of their preparedness and allows you to know if the PT is applying the lessons learned from previous flights.

Lesson 21
Solo

Scenario: You decide to sell your house and as a marketing technique, you would like to take a few arial photos of your house. You have talked a friend into coming along with you to photograph your house from the air while you fly the airplane.

Lesson Objectives: Practice VFR flight maneuvers and procedures assigned by the instructor with special emphasis on improving any deficient areas. An additional goal will be to further develop the PT's knowledge and skill in preparation for the private pilot practical test. Specific maneuvers or procedures will be assigned by the flight instructor.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion standards: The lesson is complete when the PT has practiced the assigned VFR maneuvers and procedures. The PT should improve any weak performance areas determined previously by instructor. The PT will perform each assigned maneuver and procedure with proper coordination and precision according to the criteria established in the FAA Private Pilot Practical Test Standards.

Desired Outcome Grading Sheet:

Scenario Tasks	Scenario Sub Tasks	Desired Performance
Flight Planning	1. Scenario Planning	Perform
	2. Certificates and Documents	Perform
	3. Airport Diagrams	Perform
	4. VFR Navigational Chart	Perform
	5. Pilotage	Perform
	6. Dead Reckoning navigation	Perform
	7. Preflight SRM briefing	Manage/Decide
	8. Decision making and risk management	Manage/Decide
	9. Emergency Operations	Perform
Normal preflight and cockpit procedures	1. Use of Checklists	Perform
	2. Preflight Inspection	Perform
	3. Minimum equipment list	Perform
	4. Cockpit management	Perform
	5. Use of ATIS	Perform
	6. Airplane Servicing	Perform
	7. Operation of systems	Perform
	8. Positive exchange of flight controls	Perform
Aircraft systems related	1. Aircraft flight instrument and	Perform

to IFR operations	navigation equipment 2. Preflight check of instruments, equipment, and systems 3. Instrument cockpit check 4. VOR Accuracy Test	 Perform Perform Perform
Engine Start and Taxi Procedures	1. Engine start 2. Airport and runway markings and lighting 3. Radio Communications 4. ATC light signals 5. Taxi 6. Runway incursion avoidance 7. Cross wind taxi 8. SRM/Situational awareness	Perform Perform Perform Perform Perform Perform Perform Manage/Decide
Airport Operations	1. Controlled airports 2. Use of approach and departure control 3. CTAF (FSS or UNICOM) airports	Perform Perform Perform
Before Takeoff Checks	1. Normal and abnormal indications 2. Low level wind shear avoidance/precautions 3. Aircraft automation management 4. Aeronautical Decision making and risk management	Perform Perform Perform Manage/Decide
Takeoff	1. Normal takeoff 2. Short-field takeoff and climb 3. Soft-field takeoff and climb 4. Crosswind takeoff and climb 5. Situational awareness 6. SRM/ and risk management	Perform Perform Perform Perform Manage/Decide Manage/Decide
Climb procedures	1. Constant speed climbs & climbing turns (VR) 2. Constant rate climbs (VR) 3. Departure procedures 4. Situational awareness, task management, and SRM 5. Collision avoidance precautions	Perform Perform Perform Manage/Decide Perform
Cruise procedure	1. Manual straight and level flight (VR) 2. Power management & basic speed control (VR) 3. Collision avoidance precautions 4. Ground Track/Wind Drift corrections 5. Situational awareness, task management, and SRM	Perform Perform Perform Perform Manage/Decide

	6. Medium Banked Standard rate turns to headings (VR)	Perform
	7. Maneuvering during slow flight (VR)	Perform
	8. Unusual attitude recovery (VR)	Perform
	9. Operations in Turbulence	Perform
	10. Magnetic compass turns	Perform
	11. Wake turbulence avoidance	Perform
	12. System and equipment malfunctions	Perform
	13. Demonstrated stalls (secondary, accelerated, trim, cross-control)	Perform
	14. Spin awareness	Perform
	15. Flight at slow airspeeds with realistic distractions	Perform
	16. Timed turns to magnetic compass headings	Perform
	17. GPS operations & procedures	Perform
	18. GPS Orientation	Perform
	19. GPS Fixes	Perform
	20. GPS Direct	Perform
	21. GPS flight planning and basic “T” approach	Perform
	22. Nearest function on the GPS	Perform
	23. GPS overlay approach	Perform
	24. Diversion to an alternate	Perform
	25. Determine ground speed, ETA, and fuel consumption	Perform
Navigation	1. Dead Reckoning navigation	Perform
	2. Departure	Perform
	3. Opening flight plan	Perform
	4. Course interception	Perform
	5. Position fix by navigation facilities	Perform
	6. Flight on federal airways	Perform
	7. Collision avoidance precautions	Perform
	8. Closing the flight plan	Perform
	9. VOR Navigation	Perform
	10. VOR Orientation	Perform
	11. Intercepting and Tracking VOR radials	Perform
	12. VOR tracking (VR)	Perform
	13. Pilotage	Practice
	14. NDB Navigation	Perform
	15. NDB Homing (VR)	Perform
Training Maneuvers & Procedures	1. Steep turns	Perform
	2. Power-off stalls (VR)	Perform

	3. Power-on stalls (IR and VR) 4. Use of Radar Services (VR)	Perform Perform
Emergency operations	1. Emergency descent 2. Emergency approach and landing 3. Systems and equipment malfunctions 4. Emergency equipment and survival gear 5. Emergency descents and climbs using radio aids or radar directives 6. Lost procedures	Perform Perform Perform Perform Perform Perform
Holding Procedures	1. VOR holding 2. NDB holding 3. Standard holding 4. Nonstandard holding 5. Holding entry 6. Localizer holding 7. Partial panel holding	Perform Perform Perform Perform Perform Perform Perform
Descent Planning and execution	1. Descents, descending turns, and transition to level flight 2. Rate descents (VR) 3. Wind drift in turns 4. Collision avoidance precautions 5. Situational awareness, task management and SRM	Perform Perform Perform Perform Manage/Decide
Approach Procedures	1. Traffic pattern entry procedures 2. Collision avoidance precautions 3. Situational awareness, task management and SRM 4. Wind shear avoidance 5. Communications 6. Normal approach 7. Emergency approach and landing 8. Emergency descent 9. Aborted approach (go-around) to landing 10. Forward slips 11. VOR approach (VR) 12. Straight-in approach procedures 13. Circling approach procedures 14. Missed approach procedures. 15. Landing from a straight-in or circling approach procedure 16. NDB approaches 17. Straight-in approach procedures 18. Circling approach procedures	Perform Perform Manage/Decide Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform

	19. Missed approach procedures 20. Landing from a straight-in or circling approach procedure 21. Localizer Identification 22. Localizer Tracking	Perform Perform Perform Perform
Landing	1. Before landing procedures 2. Normal landing 3. Go-around procedures 4. Short-field approach and landing 5. Soft-field approach and landing 6. Crosswind approach and landing 7. Land and Hold Short Operations (LAHSO) 8. After landing procedures	Perform Perform Perform Perform Perform Perform Perform Perform
Taxi and aircraft shutdown and securing procedure	1. Use of Checklist 2. Aircraft ground operations and parking 3. Securing 4. Instrument post flight procedures	Perform Perform Perform Perform

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: Review items as deemed necessary by the instructor.

LESSON 22

Scenario: You have decided that because of rising insurance and the fuel consumption rates of your personal aircraft, that you will sell your airplane. A friend of yours is interested in purchasing the airplane but wants to check out the airplane, including the handling characteristics and the avionics package. You collectively decide to take the airplane on an extended cross country so that your friend can get a feel for the airplane and learn some of the programming for instrument approaches. You will describe to your friend how to program the avionics and use the autopilot. Your friend only has the day available for this flight and unfortunately the weather has been IFR and isn't forecast to improve.

Lesson Objectives: This scenario is planned as a day and night out and back cross-country with emphasis on increased proficiency in instrument approaches, including GPS procedures. The PT will review partial panel and no-gyro radar vectoring approach procedures. Emphasis will be on correction of any deficient skill of knowledge areas. The enroute portion of the flight will be used to introduce a completely automated navigation leg and Datalink Situational Awareness Systems (if installed and operating).

Partial Panel Notes
Partial Panel in a TAA can be induced by covering all or part of the PFD/MFD. Each individual TAA is certified with a set of backup flight instruments that usually include an attitude indicator, altimeter, and airspeed indicator. The attitude indicator may be powered electrically or by vacuum. During partial panel flight it is important that the all-electric TAA pilot be aware of the life span of the batteries and understand the concept of electrical load shedding to preserve the battery.

Review VFR cross-country flight planning operations, including weather analysis and performance calculations. In addition, the PT will gain proficiency in cross-country procedures and the proper techniques to be used during flights out of the local training area, including use of VOR, NDB, and radar services under simulated instrument flight conditions. The lesson also will review instrument and emergency operations. Emphasis will be on the importance of VFR cross-country navigation procedures and how they relate to IFR operations on a flight that includes a point of landing at least a straight-line distance of more than 50 nautical miles from the original point of departure.

NOTE: *A view-limiting device is required for the dual instrument time allocated to this lesson.*

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion standards:

OUTBOUND FLIGHT

- Demonstrate proficiency in executing precision and non-precision approaches, including GPS procedures.
- Maintain, while on the final approach segment, less than 3/4-scale deflection of course deviation indications.
- Demonstrate ability to allow less than 3/4-scale deflection of the glide slope indicator.
- Exhibit ability to perform circling and missed approach procedures.
- Display skill in flying partial panel and no-gyro radar approaches.

RETURN FLIGHT

- Demonstrate the skill to perform cross-country flight safely, including use of navigation systems and radar services under simulated instrument conditions.
- Include a point of landing at least a straight-line distance of more than 50 nautical miles from the original point of departure.
- Demonstrate complete preflight planning, weather analysis, use of FAA publications and charts, adherence to the preflight plan, and the use of pilotage, Dead Reckoning, radio communication, and navigation systems.

Desired Outcome Grading Sheet:

Scenario Tasks	Scenario Sub Tasks	Desired Performance
Flight Planning	1. Scenario Planning	Perform
	2. Certificates and Documents	Perform
	3. Airport Diagrams	Perform
	4. VFR Navigational Chart	Perform
	5. Pilotage	Perform
	6. Dead Reckoning navigation	Perform
	7. Preflight SRM briefing	Manage/Decide
	8. Decision making and risk management	Manage/Decide
	9. Emergency Operations	Perform
Normal preflight and cockpit procedures	1. Use of Checklists	Perform
	2. Preflight Inspection	Perform
	3. Minimum equipment list	Perform
	4. Cockpit management	Perform
	5. Use of ATIS	Perform
	6. Airplane Servicing	Perform
	7. Operation of systems	Perform
	8. Positive exchange of flight controls	Perform
Aircraft systems related to IFR operations	1. Aircraft flight instrument and navigation equipment	Perform
	2. Preflight check of instruments,	Perform

	equipment, and systems 3. Instrument cockpit check 4. VOR Accuracy Test 5. Datalink Situational Awareness Systems	 Perform Perform Describe
Engine Start and Taxi Procedures	1. Engine start 2. Airport and runway markings and lighting 3. Radio Communications 4. ATC light signals 5. Taxi 6. Runway incursion avoidance 7. Cross wind taxi 8. SRM/Situational awareness	Perform Perform Perform Perform Perform Perform Perform Manage/Decide
Airport Operations	1. Controlled airports 2. Use of approach and departure control 3. CTAF (FSS or UNICOM) airports	Perform Perform Perform
Before Takeoff Checks	1. Normal and abnormal indications 2. Low level wind shear avoidance/precautions 3. Aircraft automation management 4. Aeronautical Decision making and risk management	Perform Perform Perform Manage/Decide
Takeoff	1. Normal takeoff 2. Short-field takeoff and climb 3. Soft-field takeoff and climb 4. Crosswind takeoff and climb 5. Situational awareness 6. SRM/ and risk management	Perform Perform Perform Perform Manage/Decide Manage/Decide
Climb procedures	1. Constant speed climbs & climbing turns (IR & VR) 2. Constant rate climbs (IR & VR) 3. Departure procedures 4. Situational awareness, task management, and SRM 5. Collision avoidance precautions	Perform Perform Perform Manage/Decide Perform
Cruise procedure	1. Manual straight and level flight (IR and VR) 2. Power management & basic speed control (VR and IR) 3. Collision avoidance precautions 4. Ground Track/Wind Drift corrections 5. Situational awareness, task management, and SRM	Perform Perform Perform Perform Manage/Decide

	6. Medium Banked Standard rate turns to headings (VR and IR)	Perform
	7. Maneuvering during slow flight (IR & VR)	Perform
	8. Unusual attitude recovery (VR & IR)	Perform
	9. Operations in Turbulence	Perform
	10. Magnetic compass turns	Perform
	11. Wake turbulence avoidance	Perform
	12. System and equipment malfunctions	Perform
	13. Demonstrated stalls (secondary, accelerated, trim, cross-control)	Perform
	14. Spin awareness	Perform
	15. Flight at slow airspeeds with realistic distractions	Perform
	16. Timed turns to magnetic compass headings	Perform
	17. GPS operations & procedures	Perform
	18. GPS Orientation	Perform
	19. GPS Fixes	Perform
	20. GPS Direct	Perform
	21. GPS flight planning and basic “T” approach	Perform
	22. Nearest function on the GPS	Perform
	23. GPS overlay approach	Perform
	24. Diversion to an alternate	Perform
	25. Determine ground speed, ETA, and fuel consumption	Perform
Navigation	Automated Navigation Leg	Explain/ Practice
	1. Dead Reckoning navigation	Perform
	2. Departure	Perform
	3. Opening flight plan	Perform
	4. Course interception	Perform
	5. Position fix by navigation facilities	Perform
	6. Flight on federal airways	Perform
	7. Collision avoidance precautions	Perform
	8. Closing the flight plan	Perform
	9. VOR Navigation	Perform
	10. VOR Orientation	Perform
	11. Intercepting and Tracking VOR radials	Perform
	12. VOR tracking (IR)	Perform
	13. Pilotage	Perform
	14. NDB Navigation	Perform
	15. NDB Homing (IR)	Perform

Training Maneuvers & Procedures	1. Steep turns 2. Power-off stalls (IR and VR) 3. Power-on stalls (IR and VR) 4. Use of Radar Services (IR)	Perform Perform Perform Perform
Emergency operations	1. Emergency descent 2. Emergency approach and landing 3. Systems and equipment malfunctions 4. Emergency equipment and survival gear 5. Emergency descents and climbs using radio aids or radar directives 6. Lost procedures	Perform Perform Perform Perform Perform Perform
Holding Procedures	1. VOR holding 2. NDB holding 3. Standard holding 4. Nonstandard holding 5. Holding entry 6. Localizer holding 7. Partial panel holding	Perform Perform Perform Perform Perform Perform Perform
Descent Planning and execution	1. Descents, descending turns, and transition to level flight 2. Rate descents (IR and VR) 3. Wind drift in turns 4. Collision avoidance precautions 5. Situational awareness, task management and SRM	Perform Perform Perform Perform Manage/Decide
Approach Procedures	1. Traffic pattern entry procedures 2. Collision avoidance precautions 3. Situational awareness, task management and SRM 4. Wind shear avoidance 5. Communications 6. Normal approach 7. Emergency approach and landing 8. Emergency descent 9. Aborted approach (go-around) to landing 10. Forward slips 11. VOR approach (VR) 12. VOR approach (IR) 13. Straight-in approach procedures 14. Circling approach procedures 15. Missed approach procedures. 16. NDB approaches 17. Straight-in approach procedures	Perform Perform Manage/Decide Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform

	18. Circling approach procedures 19. Missed approach procedures 20. Localizer Identification 21. Localizer Tracking 22. ILS Approach 23. Localizer Approach	Perform Perform Perform Perform Perform Perform
Landing	1. Before landing procedures 2. Normal landing 3. Go-around procedures 4. Short-field approach and landing 5. Soft-field approach and landing 6. Crosswind approach and landing 7. Land and Hold Short Operations (LAHSO) 8. After landing procedures	Perform Perform Perform Perform Perform Perform Perform Perform
Taxi and aircraft shutdown and securing procedure	1. Use of Checklist 2. Aircraft ground operations and parking 3. Securing 4. Instrument post flight procedures	Perform Perform Perform Perform

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: Practicing of all the types of approaches and procedures listed in this lesson and in the remaining flights of Stage III may be impractical. In that case, the instructor should emphasize practice of only those approaches or procedures that appear to be the most difficult for the PT.

LESSON 23-A
(AVIATION TRAINING DEVICE)

Scenario: You plan on flying your parents to a family reunion approximately 100 miles from your home airport. Your mother has always been a nervous flyer and also has some flu-like symptoms. Their attendance is critical as the reunion is in their honor. The weather has been MVFR to IFR all day with thunderstorms approaching your destination airport. These storms are forecast to not be a factor upon your arrival. Your plan would be to attend the reunion and get your parents back home before nightfall.

Lesson Objectives: The PT will plan and conduct a short IFR cross-country flight using the ATD. In addition, IFR emergency procedures will be emphasized. The Emergency Escape Maneuver, which combines the use of the autopilot and other aircraft automated systems and possibly BRS deployment (if installed and the situation warrants), will be introduced and discussed. **ATD Lessons** – In the event an ATD is not available for the aircraft, the training events prescribed can be flown as local practice flights in the actual aircraft. Early in the program, these flights may be executed with the PT having only a responsibility for the specific tasks required by the ATD Lesson.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards:
At the completion of this flight, the PT will be able to explain the emergency operations or procedures that may be encountered on an IFR flight. Additionally, the PT will know the methods used to calculate ETAs and comply with course changes that many be issued by ATC or necessitated by enroute weather.

Desired Outcome Grading Sheet:

Tasks	Sub Tasks	Desired Performance
IFR Cross-Country flight planning	1. Weather information	Explain
	2. Aircraft performance, limitations, and systems related to IFR operations	Explain
	3. Appropriate navigational charts	Practice
	4. Filing an IFR flight plan	Explain
	5. Preflight check of instruments, equipment, and systems	Explain
	6. IFR takeoff preparations	Explain
	7. Decision making & risk management	Explain
ATC clearances	1. Clearance copying	Explain
	2. Clearance read-back	Explain
IFR Departure	1. Use of DPs	Explain

Procedures	2. Use of Radar 3. SRM/Situational awareness	Explain Explain
IFR Enroute Procedures	1. VOR navigation 2. NDB navigation 3. Holding 4. Enroute Course Changes 5. Calculating ETAs 6. Automated Navigation Leg 7. SRM/Situational awareness and task management	Practice Practice Practice Practice Practice Explain/ Practice Explain
Systems and Equipment Malfunctions	Loss of Gyro attitude and/or heading indicators	Explain
IFR Arrival procedures	1. Use of STARs 2. Use of Radar 3. VOR Approach 4. NDB Approach 5. ILS Approach 6. Circling Approach Procedures 7. Missed Approach Procedures 8. Landing form a straight-in or circling approach procedure 9. SRM/Situational awareness and task management	Explain Practice Practice Practice Practice Practice Practice Practice Explain
Emergency Procedures	1. Loss of communications 2. Radio failure 3. Icing 4. Emergency Escape Maneuver 5. BRS Use Scenario 6. Low fuel supply 7. Engine failure	Explain Explain Explain Explain/practice Explain/Practice Explain Explain

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: Potential emergency situations will be reviewed and new ones introduced to the PT. This should enhance their SRM skills and further develop the PT's

knowledge so that the PT is capable of managing all the resources available to them and can conduct the flight in the safest, most efficient way possible.

LESSON 23

Scenario: You have an important business meeting at a nearby airport today. Your boss has advised that if you don't attend this meeting, the company will miss an opportunity to make a lot of money. So there is no question about it—you have to be there. A series of recent torrential rains have left most of the rivers and streams in the local area near or at flood stage. Due to this fact, there are numerous road closures and impassable bridges which would significantly lengthen the driving time to the destination. Therefore, as a newly certificated pilot, you elect to fly. You arrange for a taxi to pick you up at the airport at a specific time for the meeting in town. The weather for today is MVFR, but forecast for improving conditions.

Lesson Objectives: The scenario will consist of an out and back cross-country scenario conducted under simulated IFR conditions. The full range of IFR approaches and a variety of ATC environments should be experienced. The instructor should plan all emergency scenarios so they allow the PT a realistic time period for resolution and do not detract from the approach activity. Review IFR cross-country procedures, including IFR flight planning. The lesson will also familiarize the PT with IFR departure, enroute, and arrival procedures. Emphasis will be on preflight planning and IFR cross-country procedures. The PT will gain increased proficiency in basic instrument maneuvers including GPS, VOR and NDB orientation. The PT will review intercepting and tracking VOR and NDB radials and bearings. In addition, the PT also will increase proficiency and confidence in partial panel maneuvers and procedures. Included is a review systems and equipment malfunctions and emergency procedures. Emphasis will be on instrument approaches.

***NOTE*:** *A view-limiting device is required for the dual instrument time allocated to this lesson.*

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion standards:

OUTBOUND FLIGHT

- Display understanding of IFR cross-country flight planning procedures.
- Exhibit ability to obtain IFR clearances.
- Demonstrate ability to explain the departure, enroute, and arrival procedures performed.
- Demonstrate ability to fly both non-precision and precision approaches with only minor deviations beyond the criteria established in the instrument rating Practical Test Standards.
- Demonstrate ability to conduct IFR cross-country flight with only minimum help from the instructor.

RETURN FLIGHT

- Maintain altitude within 100 feet, headings within 10 degrees, airspeed within 10 knots, and climb and descent rates + or – 100 feet per minute of the desired values with full panel instrument reference.
- Demonstrate prompt recovery procedures from stalls and unusual attitudes.
- Exhibit knowledge of instrument systems malfunctions and partial panel procedures.
- Demonstrate proficiency in VOR and NDB orientation and tracking.
- Exhibit skill in executing holding patterns as well as precision and non-precision approach procedures.
- Maintain, while on the final approach segment, less than 3/4-scale deflection of course deviation indications, airspeed within 10 knots, and appropriate altitudes.
- Display ability to properly perform partial panel and no-gyro radar approaches.
- Exhibit knowledge of instrument and system failures.
- Demonstrate proficiency in partial panel procedures.
- Be able to explain emergency operations or procedures that may be encountered on an IFR flight.

Desired Outcome Grading Sheet:

Scenario Task	Scenario Sub-Task	Desired Performance
IFR cross-country flight planning	1. Weather information 2. Aircraft performance, limitations, and systems related to IFR operations 3. Appropriate navigational charts 4. Cockpit management 5. SRM	Perform Perform Perform Perform Manage/Decide
	1. Filing an IFR flight plan 2. Voice communications 3. IFR takeoff preparations	Perform Perform Perform
IFR departure procedures and clearances	1. Air Traffic control clearances a. Clearance copying b. Clearance read back 2. Use of DPs 3. Use of Radar 4. SRM	Perform Perform Perform Perform Perform Manage/Decide
IFR enroute procedures and clearances	1. GPS navigation 2. VOR navigation 3. NDB navigation 4. Holding 5. Enroute course changes 6. Determining ETAs 7. SRM	Perform Perform Perform Perform Perform Perform Manage/Decide
IFR arrival procedures	1. Use of STARs	Perform

and clearances	2. Use of radar 3. VOR/VORTAC/ approach 4. NDB approach 5. ILS approach 6. GPS approach 7. Circling approach procedures 8. Missed approach procedures 9. Landing from a straight-in or circling approach procedure 10. Canceling an IFR flight plan 11. SRM	Perform Perform Perform Perform Perform Perform Perform Perform Perform Manage /Decide
Full Panel Instrument --- Holding and Approaches	1. VOR holding 2. NDB holding 3. Intersection holding 4. VOR approach 5. NDB approach 6. Localizer approach 7. ILS approach 8. GPS approach Circling approaches 9. Missed approaches	Perform Perform Perform Perform Perform Perform Perform Perform Perform
Partial panel instrument	1. Rate climbs and descents 2. Recovery from unusual attitudes 3. Timed turns to magnetic compass headings' 4. Magnetic compass turns 5. VOR intercept and tracking 6. NDB intercept and tracking 7. Non-precision instrument approach procedures 8. No-gyro radar vectoring and approach procedures.	Perform Perform Perform Perform Perform Perform Perform Perform
Simulated emergency procedures	1. Loss of communications 2. Radio failure 3. Icing 4. Low fuel supply 5. Engine failure 8. Emergency Escape Maneuver 6. BRS Use Scenario 7. SRM	Perform Perform Perform Perform Perform Perform Explain Manage/Decide

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a

situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: Use this scenario to reinforce the PT's application of good aeronautical decision making and risk management. As in the last lesson, emphasize the importance of planning ahead, utilizing all available resources, and managing the flight in a way that allows it to be conducted in the safest, most efficient manner possible. When flying the various approaches, have the PT talk you through the approach before they perform it. Ask them what type of wind correction angle and rate of descent do they expect will be necessary for the approach. As they fly the approach, have them describe their actions and explain why they are doing what they are doing. Continue to stress the importance of performing the 5 Ps at the appropriate time and maintaining situational awareness during all stages of the flight.

LESSON 24
(Review Flight)

Scenario: You plan on attending a concert in a nearby town. You have plans to pick up a friend at a nearby airport and then continue onto to the concert. There is a non-precision approach available at the first airport and a precision approach available at your destination. The weather is IFR with low ceilings at your destination airport. Since this is a major event, there is a chance that many aircraft will be flying in to attend. You make it a special point of reviewing holding procedures, just in case.

Lesson Objectives: This flight review, conducted by an instructor other than the PT's regularly assigned instructor, will evaluate knowledge and skill level at the mid-point of Stage III to determine if the PT is progressing normally. This scenario will be planned by the PT as a local out and back flight to or from class B, C, and/or D airspace. Emphasis, will be on safety of flight considerations during simulated instrument flight, stressing basic instrument maneuvers, both full and partial panel, emergency operations, holding patterns and instrument approach procedures, including circling and missed approaches.

NOTE: *A view-limiting device is required for the dual instrument time allocated to this lesson*

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion standards:

- Demonstrate sound understanding of preflight activities and safe operating practices related to flight under instrument flight rules.
- Exhibit normal (for this stage of training) knowledge and proficiency in performance of the assigned maneuvers and procedures
- Be able to safely maintain altitude within 100 feet, headings within 10 degrees, climb/descent airspeeds within 10 knots, and descent rates within 100 feet of that desired.
- Accurately control the airplane by instrument reference during basic attitude instrument maneuvers or procedures, including partial panel and simulated emergency operations.
- Show a good understanding of aircraft systems for flight under both visual and instrument conditions.

Desired Outcome Grading Sheet:

Scenario Task	Scenario Sub-Task (Full and Partial Panel)	Desired Performance
Instrument preflight	1. Preflight preparation	Perform

and cockpit procedures	2. Instrument cockpit check 3. Cockpit management 4. ATC clearances and procedures 5. SRM	Perform Perform Perform Manage/Decide
Holding	1. Holding procedures	Perform
Instrument approach procedures	1. VOR approaches 2. NDB approaches 3. Localizer approaches 4. ILS approaches 5. GPS/GPS overlay approaches 6. Circling approach procedures 7. Missed approach procedures 8. Partial panel non-precision instrument approach procedures	Perform Perform Perform Perform Perform Perform Perform Perform
Emergencies	1. Emergency operations (Loss of communications, gyro attitude and/or heading indicators) 2. SRM	Perform Manage/Decide

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: Use this scenario to reinforce the PT's application of good aeronautical decision making and risk management. As in the last lesson, emphasize the importance of planning ahead, utilizing all available resources, and managing the flight in a way that allows it to be conducted in the safest, most efficient manner possible. When flying the various approaches, have the PT talk you through the approach before they perform it. Ask them what type of wind correction angle and rate of descent do they expect will be necessary for the approach. As they fly the approach, have them describe their actions and explain why they are doing what they are doing. Continue to stress the importance of performing the 5 Ps at the appropriate time and maintaining situational awareness during all stages of the flight.

LESSON 25

Scenario: You are planning a flight to an airport almost 300 miles away from your home airport to visit your Grandparents. You want to bring a sibling along and will have to make a fuel stop along the way to your final destination. Current local weather is reported as 3500 BKN and 5 miles visibility with winds light and variable. Scattered rain showers have been reported in the vicinity of the destination airport.

Lesson Objectives: Review IFR cross-country procedures. The PT should gain proficiency in departure, enroute, emergency, and arrival procedures. This scenario will be conducted along 250 NM or more of charted airways or ATC directed routing with one segment at least a straight-line distance of 100 NM between airports with an instrument approach at each airport. The flight will involve approaches at no less than 3 airports with different kinds of approach navigation systems.

NOTE: *A view-limiting device is required for the dual instrument time allocated to this lesson.*

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion standards:

- Demonstrate instrument pilot proficiency in IFR cross-country procedures as outlined in the current FAA Instrument Rating Practical Test Standards.
- Demonstrate proficiency in instrument approach procedures with very minor deviations from the criteria published in the FAA Instrument Rating Practical Test Standards.
- Exhibit increased proficiency in IFR emergency procedures.
- Exhibit sound judgment and decision-making as well as use of available cockpit resources.

Desired Outcome Grading Sheet:

Scenario Tasks	Scenario Sub Tasks (Full and Partial Panel)	Desired Performance
IFR cross-country flight planning	1. Aircraft performance, limitations, and systems related to IFR Operations	Perform
	2. Filing an IFR Flight Plan	Perform
	3. Weather information	Perform
	4. SRM	Manage/Decide
Instrument preflight and cockpit procedures	1. Preflight preparation	Perform
	2. Instrument cockpit check	Perform
	3. Cockpit management	Perform
	4. ATC clearances and procedures	Perform

	5. Clearance copying 6. Clearance read back	Perform Perform
IFR departure procedures and clearances	1. Use of DPs 2. Use of Radar 3. SRM	Perform Perform Manage/Decide
IFR enroute procedures and clearances	1. VOR navigation 2. NDB navigation 3. Holding 4. Enroute course changes 5. Determining ETAs 6. Datalink Situational Awareness Systems 7. Automated navigation leg 8. SRM	Perform Perform Perform Perform Perform Explain/Perform Perform Manage/Decide
IFR arrival procedures	1. Holding procedures 2. Use of STARs 3. Use of radar 4. Canceling an IFR flight plan 5. SRM	Perform Perform Perform Perform Manage/Decide
Instrument approach procedures	1. VOR approaches 2. NDB approaches 3. Localizer approaches 4. ILS approaches 5. GPS/GPS overlay approaches 6. Circling approach procedures 7. Missed approach procedures 8. Partial panel non-precision instrument approach procedures 9. Landing from a straight-in or circling approach procedure	Perform Perform Perform Perform Perform Perform Perform Perform Perform
Emergencies	1. Emergency operations (Loss of gyro attitude and/or heading indicators) 2. Loss of communications 3. Radio failure 4. Icing 5. Low fuel supply 6. Engine failure 7. Systems and Equipment malfunctions 8. Emergency Escape Maneuver 9. BRS Use Scenario 10. SRM	Perform Perform Perform Perform Perform Perform Perform Perform Explain Manage/Decide

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use

this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: This flight should be used to further develop the PT's SRM skills. Abnormal and emergency scenarios require far more situational awareness, risk management, and decision making considerations than normal operations. It is during these times that a pilot's SRM skills will become so important. Have the PT consider all the risks associated with flying into deteriorating weather and ask them what they can do to minimize risk. Make certain the PT understands why each recommended course of action helps to increase the safety of the flight and why other courses of action can actually increase the dangers involved. For example, ask the PT to react to a hypothetical inadvertent icing encounter by testing their knowledge of the aircraft systems that can be effected. Also, have the PT verbally go over how each flight instrument operates and what actions should be taken if the airplane is accumulating ice. Make sure the PT applies the recommended procedures such as turning on any anti-icing or deicing systems, activates any stand-bye systems, reports the situation to ATC and applies good SRM to safely and efficiently remove the airplane from the icing environment. Have them also consider other aspects of flying in icing conditions, such as disturbed airflow over the wings and control surfaces, increased weight of the airplane, and potential propeller imbalances. It is important that the PT considers all of the effects icing has on the airplane as well.

One other important result of this flight should be the PT's ability to demonstrate autonomy in the decision making aspects of the cross-country. If during the approach the visibility prohibits a landing, make certain that the PT realizes the different options available including holding and (or) flying to an alternate airport with a precision approach. You can help the PT when necessary, but emphasize the fact that you will be expecting them to make most of the decisions during the flight.

LESSON 26

Scenario: You plan on flying your parents to a hotel for the weekend in a city 50 NM from your home airport. Your will drop them off to return to the same airport two days later to pick them up. The weather has been IFR all day with thunderstorms approaching your destination airport. These storms are forecast to not be a factor upon your arrival.

Lesson Objectives: Review cross-country procedures and the proper techniques to be used during flight, including use of VOR, NDB, GPS, and radar services for navigation, diversion, and lost procedures. In addition, the PT will review instrument and emergency operations. Scenario emphasis will be on IFR cross-country navigation procedures that include a point of landing at least a straight-line distance of more than 50 nautical miles from the original point of departure.

NOTE: *A view-limiting device is required for dual instrument time allocated to this lesson.*

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion standards:

- Demonstrate proficiency in performing cross-country flight operations to the level outlined in the current FAA Private Pilot and Instrument Rating Practical Test Standards.
- Include a point of landing at least a straight-line distance of more than 50 nautical miles from the original point of departure.
- Demonstrate complete preflight planning, weather analysis, use of FAA publications and charts, and other available resources in adhering to the preflight plan.

Desired Outcome Grading Sheet:

Scenario Tasks	Scenario Sub Tasks	Desired Performance
Cross-country flight	1. Departure	Perform
	2. Opening flight plan	Perform
	3. Course interception	Perform
	4. Pilotage and Dead Reckoning	Perform
	5. VOR navigation	Perform
	6. NDB navigation	Perform
	7. Power settings and mixture control	Perform
	8. Diversion and lost procedures estimates of groundspeed and ETA	Perform

	9. Position fix by navigation facilities 10. Flight on federal airways 11. Collision avoidance precautions 12. Closing the flight plan 13. SRM	Perform Perform Perform Perform Manage/Decide
Instrument flight	1. VOR tracking (IR) 2. NDB homing (IR) 3. Use of radar services (IR) 4. GPS approach	Perform Perform Perform Perform
Airport operations	1. Controlled airports 2. Use of ATIS 3. Use of approach and departure control 4. Go-Arounds 5. CTAF (FSS or UNICOM) airports	Perform Perform Perform Perform Perform

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: As the instructor you should be able to monitor the PT's performance and assess their level of proficiency in each task associated with this flight. Prior to the flight, ask the PT to explain how they planned the cross-country. Ask specific questions regarding special use airspace, federal airways, IFR enroute charts, terminal procedures publications, and instrument approach procedures charts. During the flight confirm that they are able to maintain good situational awareness. The PT should be able to make decisions well ahead of time and evaluate several different options available to them. Make sure the PT does not overlook important facts or data and they do not operate the airplane in a reactive manner. Part of staying ahead of the plane and being forward thinking is using the automation installed in the aircraft. Observe the PT's interaction with the avionics and navigation equipment and ask them to explain why they are using the systems in the manner being utilized. Emphasize that good SRM practices can head off potential problems and will always keep the pilot one step ahead of the airplane. Throughout the PT's instrument flight training, continue to encourage the PT to exercise more and more independence in their actions so that they have the self confidence necessary to perform competently in the IFR system.

LESSON 27
(Local Scenario)

Scenario: In Lesson 26, you flew your parents to a hotel for the weekend in a city 50 NM from your home airport. It has been two days later and now you plan your flight to pick up your parents. You also plan to have lunch with your parents before the three of you return back to your home airport.

Lesson Objectives: This scenario can be flown either as a local area flight or as an out and back flight scenario. Demonstrate proficiency in full and partial panel instrument flight maneuvers, as well as holding ad approach procedures. The lesson is intended to review and evaluate the PT's readiness for the Stage III/End–of–Course flight Check.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion standards:

- Maintain altitude within 100 feet, headings, within 10 degrees, airspeed within 10 knots, and climbs or descent rates within 100 feet per minute of the desired values.
- Demonstrate holding and approach procedure proficiency equal to or better than the FAA Instrument Rating Practical Test Standards criteria.

Desired Outcome Grading Sheet:

Scenario Tasks	Scenario Sub Tasks	Desired Performance
Preflight	Instrument Cockpit Check	Perform
Full and Partial Panel instrument	1. Straight and level	Perform
	2. Standard-rate turns	Perform
	3. Constant airspeed climbs and descents	Perform
	4. Rate climbs	Perform
	5. Constant airspeed descents	Perform
	6. Rate descents	Perform
	7. Climbing and descending turns	Perform
	8. Recovery from unusual flight attitudes	Perform
	9. Steep turns	Perform
	10. Maneuvering during slow flight	Perform
	11. Timed turns to magnetic compass headings	Perform
	12. Magnetic compass turns	

IFR departure procedures and clearances	1. Use of DPs 2. Use of radar 3. SRM	Perform Perform Manage/Decide
IFR arrival procedures and clearances	1. Use of STARs 2. Use of radar 3. Holding 4. VOR approach 5. NDB approach 6. ILS approach 7. GPS approach 8. Circling approach procedures 9. Missed approach procedures 10. Landing from a straight-in or circling approach procedure	Perform Perform Perform Perform Perform Perform Perform Perform Perform Perform

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: As the instructor you should be able to monitor the PT's performance and assess their level of proficiency in each task associated with this flight. Prior to the flight, ask the PT to explain how they planned the cross-country. Ask specific questions regarding special use airspace, federal airways, IFR enroute charts, terminal procedures publications, and instrument approach procedures charts. During the flight confirm that they are able to maintain good situational awareness. The PT should be able to make decisions well ahead of time and evaluate several different options available to them. Make sure the PT does not overlook important facts or data and they do not operate the airplane in a reactive manner. Part of staying ahead of the plane and being forward thinking is using the automation installed in the aircraft. Observe the PT's interaction with the avionics and navigation equipment and ask them to explain why they are using the systems in the manner being utilized. Emphasize that good SRM practices can head off potential problems and will always keep the pilot one step ahead of the airplane. Throughout the PT's instrument flight training, continue to encourage the PT to exercise more and more independence in their actions so that they have the self confidence necessary to perform competently in the IFR system.

LESSON 28

Scenario: You and two friends will be traveling from your local airport today to fly around the northern part of your home state. You will be renting a Piper PA-28-161 or similar aircraft from the local FBO on the field. You plan to depart home around 11:00 a.m. and fly to an airport about 50 miles away to have lunch.

Lesson Objectives: This scenario should be conducted as a short out and back flight to replicate the profile expected during the End-of-Course Flight Check and evaluate the PT's proficiency to determine private-level performance areas in which additional practice or knowledge may be required. Since this is the second last instructional flight prior to the Private Pilot Maneuvers Check, emphasis will be on correction of any deficient maneuvers, procedures, or knowledge areas.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards:

- Each maneuver and procedure should be performed at the proficiency level of a private pilot.
- Mastery of the airplane should be evident and the successful outcome of each task performed should never be in question.
- Any maneuvers or procedures that do not meet this standard should be reviewed with the PT and assigned additional practice.
- PT should exhibit a sound understanding of the knowledge, skill, and proficiency requirements for private pilot certification.

Desired Outcome Grading Sheet:

Scenario Tasks	Scenario Sub Tasks	Desired Performance
Normal preflight and cockpit procedures	1. Ground operations 2. Normal takeoffs 3. SRM	Perform Perform Manage/Decide
Training Maneuvers and Procedures	1. Wind drift corrections 2. Power-off stalls 3. Power-on stalls 4. Maneuvering during slow flight 5. Using radio communications, navigation systems/facilities, and radar services 6. Unusual attitude recoveries	Perform Perform Perform Perform Perform Perform
Landings	1. Short field takeoffs and landings 2. Forward slips to landing	Perform Perform

	3. Go-around from a rejected landing 4. Normal landings	Perform Perform
Taxi and aircraft shutdown and securing procedure	1. After landing procedures 2. Parking and securing 3. SRM	Perform Perform Manage/Decide
Emergency operations	1 Emergency descents and climbs using radio aids or radar directives	Perform

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: Every aspect of the flight will be a review of previously covered tasks and procedures. The PT should be at a point where they are able to conduct Private Pilot Maneuvers Check, without any assistance from you. Also, advise them that they will be expected to perform all tasks within the limits outlined in the instrument PTS. Occasional deviations may occur, but it will be the PT's responsibility to recognize and correct them. You will not be providing any input during the course of the flight unless it is absolutely necessary. Additionally, make sure the PT understands that they should be at a Manage/Decide level of SRM and all decisions regarding the flight should be made by them without your prompting or assistance.

LESSON 29

Scenario: This flight will be conducted in accordance with the scenario established in the Private Pilot Practical Test Standards and Instrument Rating Practical Test Standards as a practice before your check ride.. Good luck.

Lesson Objectives: Practice flight maneuvers and procedures assigned by the instructor in preparation for the Stage III/End-of-Course Flight Check. Further develop the PT's knowledge, skill, and confidence in preparation for the practical test. Emphasis will be on correction of any deficient skill of knowledge areas. Specific maneuvers and/or procedures will be assigned by the flight instructor.

Pre-Flight Briefing Procedures: The instructor will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion standards:

- The lesson is complete when the PT has practiced the assigned maneuvers and procedures.
- The PT should improve any weak performance area determined previously.
- Perform each assigned maneuver and procedures with proper coordination and precision according to the criteria established in the FAA Private Pilot Practical Test Standards.

Desired Outcome Grading Sheet:

Scenario Tasks	Scenario Sub Tasks	Desired Performance
Preflight and Taxi	1. Ground operations	Perform
Takeoffs	1. Normal takeoffs	Perform
In flight maneuvers	1. Ground Track/Wind drift corrections 2. Maneuvering during slow flight 3. Power-off stalls 4. Power-on stalls	Perform Perform Perform Perform
Landings	1. Short field takeoffs and landings; 2. Soft field takeoffs and landings 3. Crosswind takeoffs and landings 4. Forward slips to a landing 5. Normal landings	Perform Perform Perform Perform Perform

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use

this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: During this review flight you should not be required to assist the PT in any way. It is important for the PT to not only demonstrate proficiency in all the tasks, but to show SRM independence. In other words, the PT must prove that they not only can perform each task within the standards established by the FAA but they can also manage all aspects of a Private Pilot Maneuvers Check, without any assistance from their instructor. It is this concept of cockpit self-reliance that must be stressed to the PT. Let them know that it is just as important for them to show you that they can conduct the flight free from any help from you as it is to demonstrate they can perform each task to the expected level of performance. Their ability to safely plan, manage, and execute the mission has been the objective of all the training they've received and that is what you will be looking to see them demonstrate.

LESSON 30

Stage III/End-of-Course flight check for Private and Instrument

Scenario: This flight will be conducted in accordance with the scenario established in the Private Pilot Practical Test Standards and Instrument Rating Practical Test Standards.

Lesson Objectives: This scenario will be flown as an out and back cross-country flight. If at all possible, one leg will be flown under VFR and the other under IFR. The PT is responsible for all planning and performing of the required maneuvers. The FAA inspector/designated examiner plan for this flight should include a pre-briefing the day prior to the flight to inform the PT of the desired profile. This scenario should be conducted into and out of class B, C, and or D airspace, if at all possible.

This end-of-course check, conducted by the chief instructor, the assistant chief instructor, or the designated check instructor, will evaluate private pilot and instrument rating flight proficiency to determine the PT's ability to act safely and competently as pilot in command under IFR. This check also will evaluate the PT's decision-making and judgment in both VFR and IFR operations. This is the final test in preparation for the private pilot and instrument rating practical tests.

NOTE: *A view-limiting device is required for the dual instrument time allocated to this lesson.*

Pre-Flight Briefing Procedures: The inspector/designated examiner will discuss the objective of the lesson and determine whether the student is adequately prepared for the activity. Each line item will be briefly covered and the student should have a clear understanding of how the training activity will be conducted and what standards will be expected of them.

Completion Standards

- PT will follow step-by-step procedures published on the approach chart for each approach.
- Descents to the MDA or DA will be at the proper rate, so as to arrive at a position from which a normal circling or straight-in landing can be made.
- Missed approach procedures will follow the published procedure or the controller's instructions.
- Display complete understanding of VFR and IFR procedures.
- Demonstrate the necessary knowledge and skill to operate safely as pilot in command.
- Exhibit sound judgment and effective use of available cockpit resources.
- Performance will meet or exceed the minimum performance requirements outlined in the current FAA Private and Instrument Practical Test Standards for each maneuver of procedure.

Instrument Pilot Desired Outcome Grading Sheet:

Scenario Tasks	Scenario Sub tasks	Desired Performance
Preflight preparation	1. Weather information	Perform
	2. Cross-country flight planning	Perform
	3. SRM	Manage/Decide
Preflight procedures	1. Aircraft systems related to IFR operations	Perform
	2. Aircraft flight instruments and navigation equipment	Perform
	3. Instrument cockpit check	Perform
	4. SRM	Manage/Decide
Air traffic control clearances and procedures	1. Air traffic control clearances	Perform
	2. Compliance with departure, enroute, and arrival procedures and clearances	Perform
	3. Holding procedures	Perform
	4. SRM	Manage/Decide
Flight by reference to instruments	1. Straight-and level flight	Perform
	2. Change of airspeed	Perform
	3. Constant airspeed climbs and descents	Perform
	4. Rate climbs and descents	Perform
	5. Timed turns to magnetic compass headings	Perform
	6. Steep turns	Perform
	7. Recovery from unusual flight attitudes	Perform
Navigation aids	1. Intercepting and tracking VOR radials	Perform
	2. Intercepting the tracking NDB bearings	Perform
Instrument approach procedures	1. VOR instrument approach procedure	Perform
	2. NDB instrument approach procedure	Perform
	3. ILS instrument approach procedure	Perform
	4. Missed approach procedure	Perform
	5. Circling approach procedure	Perform
	6. Landing from a straight-in or circling approach procedure	Perform
	7. GPS approach	Perform
Emergency operations	1. Loss of communications	Perform
	2. Loss of gyro attitude and/or heading indicators	Perform
	3. SRM	Manage/Decide
Post flight Procedures	1. Checking instruments and equipment	Perform

Private Pilot Flight Maneuvers and Procedures

Scenario Tasks	Scenario Sub Tasks	Desired Performance
Preflight preparation	1. Certificates and documents	Perform
	2. Weather information	Perform
	3. Cross-country flight planning	Perform
	4. Performance and limitations	Perform
	5. Operation of systems	Perform
	6. Minimum equipment list	Perform
	7. Aero medical factors	Manage/Decide
	8. SRM	Manage/Decide
Preflight Procedures	1. Preflight inspection	Perform
	2. Cockpit management	Perform
	3. Engine starting	Perform
	4. Taxing	Perform
	5. Before takeoff check	Perform
	6. SRM	Manage/Decide
Airport Operations	1. Radio communications and ATC light signals	Perform
	2. Traffic patterns	Perform
	3. Airport and runway makings and lighting	Perform
Takeoffs, landings, and go-around	1. Normal and crosswind takeoff and climb	Perform
	2. Normal and crosswind approach and landing	Perform
	3. Soft field takeoff and climb	Perform
	4. Soft field approach and landing	Perform
	5. Short field takeoff and climb	Perform
	6. Short field approach and landing	Perform
	7. Forward slip to a landing	Perform
	8. Go-around	Perform
Performance maneuvers	1. Steep turns	Perform
Ground reference maneuvers	1. Rectangular course	Perform
	2. S-turns	Perform
	3. Turns around a Point	Perform
Navigation	1. Pilotage and Dead Reckoning	Perform
	2. Navigation systems and radio services	Perform
	3. Diversion	Perform
	4. Lost procedures	Perform
	5. SRM	Manage/Decide
Slow flight and stalls	1. Maneuvering during slow flight	Perform
	2. Power-off stalls	Perform
	3. Power-on stalls	Perform

	4. Spin awareness	Perform
Basic instrument maneuvers	Straight-and-level flight 2. Constant airspeed climbs and constant airspeed descents 3. Turns to headings 4. Recovery from unusual flight attitudes 5. Radio communications, navigation systems/facilities, and radar services	Perform Perform Perform Perform Perform
Emergency operations	1. Emergency descent 2. Emergency approach and landing 3. Systems and equipment malfunctions 4. Emergency equipment and survival gear 5. SRM	Perform Perform Perform Perform Manage/Decide
Night operations	1. Night preparation 2. Night flight	Perform Perform
Post flight procedures	1. After landing 2. Parking and securing	Perform Perform

Post-Flight Procedures: Solicit a self-critique from the Pilot in Training about their personal performance by having them grade their performance based on the desired outcomes for the flight. Compare the Pilot in Training's self evaluation to your own and discuss why you either agreed or disagreed with the Pilot in Training's assessment. Use this information to direct your analysis of the flight. Additionally, discuss the role SRM played in the training activity and why it is critical to always consider how a flight or a situation could have been better managed to achieve the optimal outcome. Provide guidance on what the tasks and objectives will be for the next training activity and how the Pilot in Training should prepare for it.

Notes to the Instructor: The introduction to the Practical Test Standards (PTS) requires FAA inspectors and designated pilot examiners to develop a written "plan of action" for the conduct of practical tests. The instructions include provisions for changing the sequence or combining tasks as required for an orderly, efficient evaluation. These instructions in the PTS contain practical guidance for instructors conducting Stage Checks for an End-or-Course Flight Check.

The chief flight instructor, assistant chief flight instructor, or the designated check instructor who conducts the Stage III/End-of-Course Check should develop a logical plan of action. While all listed tasks in each area of operation should be evaluated, tasks with similar objectives may be combined. For example, a rectangular course may be combined with an airport traffic pattern. If the elements in one task have already been evaluated in another task, they need not be repeated. In addition, certain tasks may be evaluated orally. Such tasks include those that cannot realistically be evaluated on the scheduled flight. An example is night flying.

FITS Master Training Outcomes List

TAA 00	**Single Pilot Resource Management (SRM)**	
Unit Objective – Demonstrates safe and efficient operations by adequately managing all available resources.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Task Management (TM)	Note: All tasks under SRM will be embedded into the curriculum and the training will occur selectively during all phases of training. SRM will be graded as it occurs during the training scenario syllabus.	Prioritize and select the most appropriate tasks (or series of tasks) to ensure successful completion of the training scenario
2. Automation Management (AM)		Program and utilize the most appropriate and useful modes of cockpit automation to ensure successful completion of the training scenario.
3. Risk Management (RM) and 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		Understand, describe, and apply techniques to avoid CFIT encounters: a. During inadvertent encounters with instrument meteorological conditions during VFR flight b. During system and navigation failures and physiological incidents during IFR flight

TAA 01	**Flight Planning**	
Unit Objective – Develop thorough and successful preflight habit patterns for flight planning, performance, weight and balance, and normal and emergency single pilot resource management		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Flight Training Scenario Planning	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 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, and pilot experience and skill. b. Continuously critique the success of the flight scenario. c. Adjust the training scenario to maintain flight safety at all times.

TAA 02 Normal Preflight & Cockpit Procedures		
Unit Objective – Aircraft familiarization, checklists, cockpit procedures and PFD/GPS/MFD and autopilot operation.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Normal Pre-takeoff Checklist procedures	a. Pre-arrival – eLearning b. Preflight briefing c. Actual aircraft preflight	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. MFD/MFD/GPS Autopilot Programming	a. Pre-arrival – eLearning b. Preflight briefing c. Actual aircraft preflight	a. Perform PFD/AHRS initialization b. Perform autopilot preflight checks c. Program all the GPS and MFD according to the Cirrus POH for the specific training scenario to be flown.

TAA 03 Engine Start and Taxi Procedures		
Unit Objective – Demonstrate the proper Engine Start and taxi procedures for the TAA		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Engine Start	a. Pre-arrival – eLearning b. Actual aircraft preflight	a. Demonstrate the correct procedures for engine start under all conditions b. Demonstrate the correct emergency procedures associated with engine start. c. Successfully start the engine
2. Taxi	a. Pre-arrival – eLearning b. Actual aircraft preflight	a. Understand the proper technique to control the aircraft using differential braking and power b. Successfully taxi the aircraft
3. SRM/Situational Awareness	Pre-arrival – eLearning Preflight briefing Actual aircraft preflight	a. Understand the capability of the MFD/GPS to aid in low visibility/congested airport taxi situations b. Demonstrate the proper visual clearing techniques during all taxi operations

TAA 04	Before Takeoff Checks	
Unit Objective – demonstrate the proper pre-takeoff procedures for the TAA		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Normal and Abnormal Indications	a. Pre-arrival – eLearning b. Actual aircraft preflight	a. Complete all Pre-takeoff checklist items correctly and in the proper sequence b. Identify normal and abnormal systems indications using the MFD and the POH
2. Aircraft Automation Management	a. Pre-arrival – eLearning b. Actual aircraft preflight	Correctly configure and program the PFD /MFD /HSI /GPS /Autopilot for the departure
3. Aeronautical Decision Making/Risk Management		Make the correct go / no-go decision based on the status of the aircraft, pilot, and the weather

TAA 05	Takeoff	
Unit Objective – demonstrate the proper takeoff procedures for the TAA		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Normal takeoff	a. Preflight briefing b. In-Flight from lineup on the runway through flap reduction	Perform a normal takeoff within the PTS standards
2. Crosswind takeoff		Perform a crosswind takeoff within the PTS standards.
3. Aborted takeoff		Perform the aborted takeoff procedure within the PTS standard.
4. Soft Field/Short field Takeoff		Perform a Soft Field/Short Field Takeoff within the PTS standards

5. Situational Awareness		a. Identify traffic, systems failures, and other developing situations that might prompt the performance of an aborted takeoff. b. Verbalize and prioritize those situations present during any given takeoff
6. Aeronautical Decision Making/Risk management		Decide to continue or abort any given takeoff based on the actual situation or a simulated scenario created by the instructor.

TAA 06 Climb Procedures		
Unit Objective – demonstrate the proper climb procedures for the TAA		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Manual Climb	Preflight briefing In-Flight from flap retraction until after initial level-off at cruise altitude	a. Perform a hand flown climb and level-off within the PTS standards b. Establishes pitch within the PTS standards
2. Autopilot Climb		a. Perform an autopilot flown climb and level-off within the PTS standards b. Establishes pitch attitude within the PTS standards
3. Navigation Programming		Program the GPS/MFD to comply with the flight planned course and all ATC clearances
4. Power management		Set appropriate power/engine leaning settings by reference to the MFD

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

TAA 07	**Cruise procedures**	
Unit Objective – demonstrate the proper cruise procedures for the TAA		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Lean Assist MFD 2. Best Power vs. Best Economy	a. Pre-arrival – eLearning b. In Cruise Flight	Lean the engine using the Lean Assist procedures and the MFD
3. Manual Cruise	In Cruise Flight	a. Perform hand flown manual cruise within the PTS standards b. Maintains altitude, within the PTS standards
4. Autopilot Cruise		a. Perform an autopilot assisted cruise within the PTS standards (for manual cruise) b. Maintains altitude within the PTS standards c. Demonstrate the aircraft reaction to course changes programmed into the GPS/MFD
5. Navigation Programming		Program flight plan changes into the GPS.

6. Automated Navigation Leg		a. In VFR conditions conduct a navigation leg of 30 minutes or more to a different airfield by use of the autopilot beginning at 1,000 ft AGL on departure and terminating autopilot use just prior to entry to the VFR pattern. b. In IFR conditions (or simulated IFR) conduct a navigation leg of 30 minutes or more to a different airfield by use of the autopilot beginning at 500 ft AGL on departure and terminating autopilot use at the decision altitude or missed approach point as applicable. If a missed approach is flown it will be flown by use of the autopilot.
7. Task Management, Situational Awareness, and Decision making		a. Identify all traffic, hazardous terrain, and potentially hazardous situation as they occur by reference to visual clearing and the MFD (if available and optioned) b. Perform all required in-cockpit tasks in such a manner that visual clearing is not impacted negatively c. Make timely decisions based on information obtained, visually, by radio, or by aircraft automation equipment

TAA 08 Control Performance Instrument/Visual crosscheck		
Unit Objective – demonstrate the proper use of flight controls and Visual or PFD derived cues to perform basic flight maneuvers in the TAA		
Performance The training task is:	Conditions The training is conducted during:	Standards The pilot in training will:
1. Straight and level 2. Normal Turns 3. Climbing and Descending Turns 4. Steep Turns (45 degree)	a. Preflight briefing b. In Flight	a. Perform the maneuver by using outside visual references only within the PTS standard b. Perform the maneuver by sole reference to the PFD within the PTS standard c. Establishes airspeed and altitude within the PTS standard.

TAA 09 Low Speed Envelope		
Unit Objective – recognize the onset of low speed flight regimes and demonstrate the proper use of flight controls and Visual or PFD derived cues to perform basic low speed flight maneuvers in the TAA		
Performance The training task is:	Conditions The training is conducted during:	Standards The pilot in training will:
1. Configuration changes 2. Slow Flight	a. Preflight briefing b. In Flight	Demonstrate slow flight within the PTS standard with the flaps in all possible flap positions and detents
3. Recovery From Power – Off and Power -On Stalls		a. Demonstrate a recovery from a planned Power-Off or Power-On Stall with minimum altitude loss. b. Demonstrate a recovery from an instructor induced Power-On/Power-Off stall with minimum altitude loss.
4. Recovery from autopilot induced stall		Demonstrate a recovery from an autopilot induced stall with minimum altitude loss

5. Stall Prevention, Situational Awareness, Task Management, and Decision Making		a. Describe possible situations that might lead to an inadvertent stall and cockpit indications that would warn of an impending stall b. Demonstrate pilot actions to avert the stall prior to its occurrence

TAA 10 Descent Planning and Execution		
Unit Objective – demonstrate the proper descent procedures for the TAA		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Automation management	a. 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 then prior to beginning the descent b. Monitor and update the automated features during the descent
2. Vertical Navigation (VNAV) Planning		Use the descent features of the GPS and the map features of the MFD to plan a fuel efficient descent that avoids known obstacles and terrain
3. Navigation Programming		Program the entire descent (VFR) and program and activate the desired approach and go-around (IFR)
4. Manual Descent		Perform a manual descent within PTS 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 MFD

TAA 11	**Landings**	
Unit Objective – demonstrate landing procedures in the TAA.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Before landing procedures	a. Pre-arrival – eLearning b. Preflight Briefing. c. In flight d. (VFR) flap extension to turning off the runway or return to pattern altitude in the event of a go-around e. (IFR) from 1,000 feet (stabilized approach until turning off the runway or climb to missed approach altitude	Perform all pre-landing checklist items correctly and in sequence
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 standard.
4. Soft and Short Field landing		Perform Soft and Short field landings within the PTS standard.
5. Partial Flap landing		Perform a partial flap landing within the PTS standard.
6. Zero Flap landing		Perform a zero flap landing within the PTS standard.
7. Crosswind landing		Perform a crosswind landing within the PTS standard.
8. Balked landing and Go-Around		a. Make a timely decision to go-around either in flight or after initial touchdown if the landing cannot be accomplished safely. b. Perform the balked landing procedure within the PTS standards.

9. Decision Making and Situational Awareness		a. Demonstrate awareness of all potential weather, traffic, and airfield factors that might impact the approach and landing. b. Make timely decisions to mitigate risks and ensure a successful approach and landing.

TAA 12	**Aircraft Shutdown and Securing procedures**	
Unit Objective – demonstrate proficiency shutting down and securing the TAA		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Aircraft Shutdown & Securing Checklist	Post-flight	Demonstrate proficiency properly concluding a flight including engine shutdown and securing.
2. Aircraft Towing, Ground Handling, and Tie-down		Demonstrate proficiency properly concluding a flight including aircraft storage.

TAA 13	**Automated Avionics Interface**	
Unit Objective – demonstrate proficiency interfacing the avionics for flight operations		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Identification of Data/Power Sources: a. Air Data failure b. AHRS failure c. Generator/battery failure	a. Pre-Arrival - eLearning b. Classroom c. Preflight d. In-flight	a. Understand data/power source failure modes that affect operation of the PFD. b. Identify specific failures and their associated cues.

2. Identification of PFD Failure Modes and corrective actions a. Invalid Sensor Data b. Invalid Heading c. Crosscheck Monitor d. Recoverable Attitude e. Invalid Attitude and Heading f. Complete/partial Electrical Power failure		Perform the appropriate corrective action for each malfunction.
3. Aircraft Automation Management		a. Understand and be able to correctly describe the interface between all the installed avionics systems in the aircraft. b. Demonstrate proficiency operating the avionics installed on the aircraft as an integrated system.

TAA 14 GPS Operation and Programming		
Unit Objective – demonstrate proficiency with the GPS		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. VFR: Direct-To Function Nearest Function Airport Information Function Flight Plan Function	In-flight	Demonstrate proficiency using the GPS including the Direct-To, Nearest, Airport Information, and Flight Plan functions.
2. IFR: Direct-To Function Nearest Function DP/STAR/Approach Function Flight Plan Function – Integration with…	a. Preflight b. In-flight	a. Demonstrate proficiency using the GPS including the Direct-To, Nearest, Airport Information, DP/STAR/Approach functions. b. Demonstrate proficiency flight planning the GPS and flying the flight plan.

TAA 15 Autopilot Programming, Modes, and Annunciators		
Unit Objective – demonstrate proper use of the autopilot.		
Performance The training task is:	Conditions The training is conducted during:	Standards The pilot in training will:
1. Control Wheel Steering	In-flight	Demonstrate proper use of the control wheel steering.
2. LNAV and VNAV Programming	In-flight	Demonstrate proper use of the LNAV and VNAV functions of the autopilot
3. Vertical Speed and Altitude Hold	In-flight	Demonstrate proper use of the vertical speed and altitude hold
4. Navigation Modes	In-flight	Demonstrate proper use of the navigation modes of the autopilot
5. Coupled Approach Modes	In-flight	Demonstrate proper use of the coupled approach modes of the autopilot
6. Auto trim Mode	In-flight	Demonstrate proper use of the auto trim mode of the autopilot
7. Flight Director/PFD Interface	In-flight	Demonstrate proper use of the flight director/PFD interfaces

TAA 16 Automated Avionics Operation and Systems Interface		
Unit Objective – demonstrate proper use of the Avionics Interface including normal, abnormal, and emergency operations of the TAA and all installed avionics.		
Performance The training task is:	Conditions The training is conducted during:	Standards The pilot in training will:
1. Pilot Flight Display	In-flight	Demonstrate proper use of the PFD during autopilot
2. Multi Function Display Normal Operation Setup Pages Navigation Modes Traffic Mode Weather Modes Checklist Modes	a. Preflight b. In-flight c. Post-flight	Demonstrate proper use of the avionics interface during normal operations including setup, navigation, traffic, weather, and checklist.
3. Abnormal and Emergency Indications and Operations Navigation Modes Traffic Mode Weather Modes Checklist Modes	a. Preflight b. In-flight c. Post-flight	Demonstrate proper use of the avionics interface during abnormal and emergency operations including setup, navigation, traffic, weather, and checklist.
4. EHSI Operation	a. Preflight b. In-flight	Demonstrate proper setup, use, and operation.

TAA 17 Datalink Situational Awareness Systems and Additional Avionics Setup		
Unit Objective –demonstrate proper use of the EHSI and its interface with other installed avionics.		
Performance The training task is:	Conditions The training is conducted during:	Standards The pilot in training will:
1. Datalink Weather Setup and Operation	a. Preflight b. In-flight	a. Demonstrate the proper setup of the information and related displays. b. Demonstrate the proper decision making skills based on the information presented

2. Datalink Traffic Setup and Operation	a. Preflight b. In-flight	a. Demonstrate the proper setup of the information and related displays. b. Demonstrate the proper decision making skills based on the information presented
3. Terrain Display and Avoidance Systems Setup and Operation	a. Preflight b. In-flight	a. Demonstrate the proper setup of the information and related displays. b. Demonstrate the proper decision making skills based on the information presented
4. Datalink Flight Plan and Traffic Control Systems Setup and Operation	a. Preflight b. In-flight	a. Demonstrate the proper setup of the information and related displays. b. Demonstrate the proper decision making skills based on the information presented

TAA 18 Emergency Escape Maneuvers/ Recovery from Unusual Attitudes and Upsets/Use of Ballistic Parachute Recovery System (BRS)		
Unit Objective – demonstrate unusual attitude/upset recovery in the TAA and discuss the proper use of the BRS if installed.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. PFD	In-flight	Demonstrate unusual attitude recovery using the PFD to PTS Standards.
2. Backup Instruments	In-flight	Demonstrate unusual attitude recovery using backup instruments to PTS Standards.
3. Autopilot – Limitations of it use for recovery	a. Preflight b. In-flight	Demonstrate unusual attitude recovery using the autopilot to PTS Standards.
4. Upset Training	In-flight	Demonstrate upset recovery using the PFD.

5. BRS Preflight In-flight Activation Post Deployment Procedures Reasons for Deployment	a. Preflight b. In-flight c. BRS Training Device	a. Demonstrate procedural knowledge proper use of BRS. b. Describe situations when it is appropriate to deploy the BRS and situations when it is not appropriate.
6. Engine Failure/Emergency Descent	a. Preflight b. In-flight c. BRS Training Device	a. Demonstrate procedures to be used during engine failure or situations requiring an emergency descent. b. When given a realistic scenario make an appropriate decision between landing the aircraft or deployment of the BRS system.
7. Emergency Escape Maneuvers, Risk Management, and Decision Making	a. Preflight b. In-flight c. BRS Training Device	a. Understand the capabilities of the PFD, Autopilot, and BRS b. Develop a problem solving matrix for use of all these systems when faced with IFR/VFR emergency procedures c. Demonstrate the ability to make correct decisions when faced with IFR/VFR emergency conditions

TAA 19 Instrument Approach Procedures (IFR Rated Pilots Only)		
Unit Objective – demonstrate IFR procedure proficient in the TAA using the installed equipment.		
Performance	Conditions	Standards
The training task is:	The training is conducted during:	The pilot in training will:
1. Manual ILS	a. Pre-arrival – eLearning b. Preflight Briefing c. In-Flight	Perform the approach within the PTS standards.
2. Coupled ILS		Perform the approach within the PTS standards (for a manual approach).

3. Manual VOR		Perform the approach within the PTS standards.
4. Manual GPS		a. Program and activate the GPS approach in a timely manner. b. Perform the approach within the PTS standards.
5. Coupled VOR/GPS VNAV Approach		a. Program and activate the GPS/VNAV approach in a timely manner. b. Perform the GPS/VNAV approach within the PTS standards (for a manual approach).
6. Manual Missed Approach		Perform the missed approach within the PTS standards.
7. Autopilot Flown missed Approach		Perform the missed approach within the PTS standards (for a manual missed approach).
8. Procedure Turn		Demonstrate procedure to PTS Standards.
9. Holding		Demonstrate instrument holding to PTS standards.
10. Task Management and Decision making	In-flight	Demonstrate proper planning and prioritization of time between avionics programming and execution of IFR procedures.
11. Situational Awareness	In-Flight	Demonstrate proper use of the MFD and HSI to maintain situational awareness during IFR procedures.