

SimTrain Course Catalog

2008



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SimTrain Training Programs

INTRODUCTION

SimTrain offers a suite of approved programs that provide the client with professional instructor-based training designed to improve proficiency and decision making for student pilots through ATP, as well as for non-pilots. Although primarily designed to be used for the Cirrus SR20/22 platforms, these programs also translate easily for other aircraft models. Each SimTrain approved instructor is a member of the CIRRUS Certified Standardized Instructor Program, and each is required to renew their certification on an annual basis and use only approved training material. The unique combination of an FAA Approved AATD (full motion) device, along with approved professional instructors and materials, offer many clients an overall training experience not available until now.

DESCRIPTION

The client may choose from the list of offerings (available at www.simtrain.net) and then contact an identified SimTrain training provider for scheduling. The client may also want to design his own program based on a specific need(s) which can also be easily accomplished by contacting the training provider.

The SimTrain programs will be primarily activity/task-oriented using realistic flight scenarios. Activities of each session will be based on the program outline, the client's input, the instructor's design, and approved SimTrain training material. In addition, careful consideration will be given to designing the training based on the client's experience, ratings, and goals.

The times listed for each program are estimates based on average pilot skill and knowledge. If additional training is required above the program times, additional cost will be incurred. At the instructor's discretion, additional training material may be required.

TRAINING WILL CONSIST OF THE FOLLOWING

- Quality Activity/Task Based *and* Scenario/ SRM/Decision-Making Training Program formats
- An introductory discussion with the assigned instructor will occur to:
 - 1) learn what the client wishes to accomplish
 - 2) set reasonable goals
 - 3) explain the training program details
 - 4) answer questions
- Scheduled assistance and lesson coordination from the instructor
- A combination of ground and AATD instruction (aircraft training may also be used)
- Briefings before and after each lesson
- Self assessment by the client
- Instructor assessment and training record completion
- A Completion Certificate
- Personal Minimums recommendations, if required
- Scheduling of follow-up training

DESIRED OUTCOMES OF ACTIVITY / TASK BASED TRAINING:

The objective is to improve proficiency and to strengthen the thought processes, habits, and behaviors during the program lessons by building skills on individual activities and tasks. The Client in Training (CT) will be measured in individual activity/task areas in the following manner:

ACTIVITY / TASK GRADES

Explain

At the completion of the lesson, the CT will be able to describe and understand the underlying concepts, principles, and procedures that comprise the lesson.

Practice

At the completion of the lesson, the CT will be able to practice with input from the instructor. The CT, with coaching and/or assistance from the instructor, will quickly correct deviations and errors identified by the instructor.

Perform

At the completion of the lesson, the CT will be able to perform without assistance from the instructor. Deviations and errors will be identified and corrected by the CT in an expeditious manner. At no time will the successful outcome/completion of the activity be in doubt. Perform will be used to signify that the CT is satisfactorily demonstrating proficiency during the training lesson and in traditional piloting and systems operation skills.

DESIRED OUTCOMES OF SCENARIO-BASED / SRM / DECISION-MAKING TRAINING:

The objective is to strengthen the thought processes, habits, and behaviors during the program modules by building skills using instructor-led scenarios with—where appropriate—emphasis on SRM (Single Pilot Resource Management).

SCENARIO-BASED / SRM / DECISION-MAKING GRADES

Explain

The CT can verbally identify, describe, and understand the risk inherent in the scenario. The CT will need to be prompted at times to identify risk and make decisions.

Practice

The CT is able to identify, understand, and apply SRM principles to actual ground and flight scenarios. Coaching, instruction, and/or assistance from the instructor will quickly correct deviations and errors identified by the instructor. The CT will be an active decision maker.

Manage / Decide

At the completion of the activity(ies), session, and program, the CT will be able to correctly gather and manage the most important data available both within and outside the cockpit, identify possible courses of action, evaluate the risk inherent in each course of action, and make the appropriate decision. Manage/Decide will be used to signify that the CT is satisfactorily demonstrating acceptable SRM skills.

ASSESSMENT AND RECORDING OF ACTIVITIES

Each lesson will conclude with a CT self assessment and an instructor assessment. From this a guided discussion will occur to ensure the desired outcome was achieved. The instructor will be the final authority regarding whether or not the desired outcomes and assessment items are considered to have been performed to standard(s) and are complete. The instructor will issue a Completion Certificate, provide Personal Minimums recommendations, endorse the CT log book, complete the training record (including attaching a copy of the Completion Certificate), and file the training record.

Important Note:

The times presented in the following courses are estimates only and in regard to client endorsement for successful completion, will ultimately be based on pilot experience and performance during the program.

SIMTRAIN TRAINING PROGRAM OFFERINGS

- Initial Emergency Training Program (pg. 4)
- Recurrent Emergency Training Program (6)
- Understanding Icing (7)
- Annual Recurrent Training Program (8)
- Pre-Delivery Head Start Training Program (9)
- Standard Instrument Review Program (10)
- Advanced Instrument Review Program (11)
- Pilot Assist Program (13)
- Transition Training Program (15)
- Instrument Training Program (20)



INITIAL EMERGENCY TRAINING PROGRAM

- Recommended for all
- Three (3) each 4-hour modules (2–3 days should be planned)
- Completion included in Module 3 with Completion Certificate and Personal Minimums recommendations

Cost: See the current price list

MODULE 1

Ground Training / Discussions: 1 hour
AATD (Sim): 3 hours (2 sessions)

General Systems

- Flap and trim malfunction
- Loss of control surface, flight control failure
- Open door
- Loss of engine in multiple flight and ground phases
- Fuel system blockage, fuel starvation
- Pitot-static failure
- Engine anomalies
- BRS situations
- Other targeted systems, etc.

Systems, Avionics and Electrical

- PFD/MFD failures
- Alternator failures
- Circuit breaker activation
- Communications failure
- Loss of multiple electrical systems
- Loss of GPS
- Light failures at night
- Multiple annunciator indications
- Engine anomalies
- Autopilot failure, etc.

MODULE 2

Ground / Training Discussions: 1 hour
AATD (Sim): 3 hours (2 sessions)

Conditions

- Weather scenarios including icing, wind shear, runway condition, etc.
- Runway obstruction
- Traffic avoidance
- Wake turbulence
- Jet blast on taxi
- Minimums approaches
- Missed approaches/go-arounds, etc.

Procedures

- Use of checklists
- ADM
- Pre-flight planning, changing plans including avionics systems based on conditions or the situation, etc.

MODULE 3

Ground / Training Discussions: 1 hour
AATD (Sim): 3 hours (2 sessions)

Other

Review of Modules 1 & 2, plus cross county planning, situational scenarios, other activities as required or requested, and SRM, etc.

Completion

Combine all Emergency Training Modules and learned activities into real time client-planned cross country scenarios. Completion Certificate awarded & Personal Minimums recommendations given.



RECURRENT EMERGENCY TRAINING PROGRAM

- Recommended 1 time per year for all
- Initial Emergency Training Program is a pre-requisite
- Full day should be planned
- Completion certificate awarded & Personal Minimums recommendations given

Cost: See the current price list

Ground Training / Discussions: 1 hour
AATD (Sim): 4 hours (2 sessions)

Overview of procedures

Normal and Emergency Checklist review, review of recent accidents and incidents and how the client would handle, SRM, etc.

General Systems

- Flight control failures
- Loss of engine in various flight and ground phases
- Fuel system malfunction
- Engine anomalies
- BRS situations
- Other targeted systems, etc.

Systems, Avionics and Electrical

- Glass component failures
- Electrical failures including the alternators
- Autopilot failures, etc.

Conditions

- Weather scenarios including icing, wind shear, runway condition, etc.
- Runway obstruction
- Traffic avoidance
- Wake turbulence
- Jet blast on taxi
- Minimums approaches
- Missed approaches/go-arounds, etc.

Other

Cross country planning, situational scenarios, and other activities as required or requested

Completion

Combine all Emergency Training Modules and learned activities into real time client-planned cross country scenarios. Completion Certificate awarded & Personal Minimums recommendations given.



UNDERSTANDING ICING

- Recommended for all (Module 2 incorporates IFR)
- Two (2) each modules (4 hours)
- Pre-requisite: successful completion of FAA offered courses on Ground and Flight Icing:
<http://aircrafticing.grc.nasa.gov/courses.html>
- Completion certificate awarded & Personal Minimums recommendations given

Cost: See the current price list

MODULE 1

Ground Training / Discussion: 1 hour
AATD: 1 hour (1 session)

Content

- Weather basics including the collection and proper interpretation of all available and relevant information to assess icing potential (ground and flight)
- Recognizing ground and flight conditions conducive to icing
- Anticipating potential risks
- Visible moisture
- Monitoring temperatures during all phases of flight
- Danger signs
- POH review including aircraft anti-ice equipment, checklist
- Inadvertent icing encounter

MODULE 2

Ground / Flight Discussion: 0.5 hour
AATD: 1.5 hours (1 session)

Conditions

- Review of Module 1 activity and client performance
- Scenario Based: Plan cross-country flight including:
 - Weather briefing
 - Making go/no-go decisions based on conditions and personal minimums
 - Conducting the planned cross country flight given marginal conditions
 - Having an exit strategy/plan
 - Anticipating the unexpected including icing
 - Unexpected icing encounter
- Pilot actions to remain safe
- Executing a successful IFR approach in potential and actual icing conditions (IFR pilots only)

Procedures

- Pre-flight planning
- Use of checklists
- ADM
- Changing plans based on conditions or the situation, etc.



ANNUAL RECURRENT TRAINING PROGRAM

- Recommended annually for all
- Two (2) each 4-hour modules
- 2 days should be planned
- Completion certificate awarded & Personal Minimums recommendations given

Cost: See the current price list

MODULE 1

Ground Training / Discussions: 1 hour
AATD: 3 hours (2 sessions)

Briefings

Scenario planning, POH review, SRM

Normal and Emergency Procedures

Review for understanding and use of proper procedures

General Systems

Utilizing CATS, POH and in-AATD training, review systems operations, review normal and emergency procedures for all major systems

Systems, Avionics and Electrical

Utilizing CATS, POH and in-AATD training, review systems operations for thorough understanding, review normal and emergency procedures

Maneuvers

- Normal VFR maneuvers
- Slow flight
- Steep turns
- Steep spiral
- Traffic patterns
- Plus maneuvers not considered standard, such as traffic avoidance, wind sheer encounters, etc.

Cross Country Planning

Scenario based exercises that incorporate the client's normal and stretch flight planning situations using known geographies and airports and changing weather and airport conditions

MODULE 2

Ground Training / Discussions: 1 hour
AATD: 3 hours (2 sessions)

ADM / SRM

Scenario-based exercises that challenge the client's normal flight routines including:

- Change of destinations
- Weather avoidance
- Passenger emergency
- ATC delays
- Low fuel, etc.

Other

Cross country planning and situational scenarios and other required or requested activities

Completion

Combine activities into real time client-planned cross country scenarios, SRM, and other requested or planned activities. Completion Certificate awarded & Personal Minimums recommendations given.



PRE-DELIVERY HEAD START PROGRAM

- Two (2) each 4-hour modules—designed for familiarization or re-familiarization
- 2 days should be planned
- Recommended for all new owners prior to the delivery of their aircraft
- Recommended for owners that upgrade avionics
- Recommended for those that have been away from flying for more than 6 months
- Completion certificate awarded & Personal Minimums recommendations given

Cost: See the current price list

MODULE 1

Ground Training / Discussions: 1 hour
AATD: 3 hours (2 sessions)

Documentation Review

Utilizing the client-purchased approved Cirrus Training Guide material, perform a detailed review of all documentation for understanding. The client will be required to become familiar with the material prior to arrival for training.

Procedures Review

Use of checklists and proper terminology and procedures review and training

General and Electrical Systems

Systems review for understanding, normal and emergency procedures for all major systems

Avionics

Considerable time will be spent discussing cockpit avionics and equipment in terms of scanning, understanding displays, using an efficient set-up process, determining anomalies, etc.

MODULE 2

Ground Training / Discussions: 1 hour
AATD: 3 hours (2 sessions)

Maneuvers

Becoming comfortable with the control input and aircraft response in normal maneuvers, such as:

- Traffic patterns
- Slow flight
- Steep turns
- Landing set up, landing speed, configuration control, etc.

Other

Cross country planning and situational scenarios, SRM, and other required or requested activities

Completion

Preparing for the purchased aircraft pick up and flight scenario based on the trip to the client's home base. Completion Certificate awarded & Personal Minimums recommendations given.



STANDARD INSTRUMENT REVIEW PROGRAM

- One (1) 5-hour session
- Recommended every 3 months for new Instrument rated pilots
- Recommended annually for Instrument pilots flying on a regular basis (1–3 hours of actual per month & approaches) in the IFR environment
- Recommended more frequently for Instrument pilots not flying on a regular basis in the IFR environment
- For clients who wish to remain IFR current
- Full day should be planned
- Completion Certificate awarded & Personal Minimums recommended
- At the instructors discretion, an IPC endorsement is given

Cost: See the current price list

Ground Training / Discussion: 1 hour
AATD: 4 hours (2 sessions)

Standard Procedures

- Pre-flight planning at and in the vicinity of locations and areas of familiarity to the client
- Standard avionics (PFD/MFD/GPS 1 & 2, Comms) set up
- Aircraft configuration and control
- ATC procedures
- Approach briefings
- Loading and changing flight plans and approaches
- Executing approaches to client's personal minimums, etc.

Normal and Emergency Procedures

Normal procedures for the majority of the training and then realistic & reasonable failures of equipment and avionics. Not designed to exceed the client's capabilities and experience; specifically designed for building confidence and skill over time with regular and on-going training

Other

Cross country planning and situational scenarios, SRM, and other activities as requested by the client

Completion

Practice to proficiency based on the client's experience and capabilities. The goal is to build confidence in performing to a satisfactory level in the IFR landscape. Completion Certificate awarded & Personal Minimums recommendations given. And at the instructor's discretion, an IPC endorsement may be given.



ADVANCED INSTRUMENT REVIEW PROGRAM

- Two (2) each 4-hour modules
- Recommended every 6 months for more experienced and advanced clients who fly in the IFR environment on a more regular basis (2–4 hours per month actual with approaches)
- For clients with less experience seeking to lower Personal Minimums or who may be planning to fly more in the IFR environment and wish to accelerate the rate of skill building and experience
- For clients who wish to remain IFR current
- 2 days should be planned
- Completion Certificate awarded & Personal Minimums recommended
- At the instructor's discretion, IPC endorsement may be given

Cost: See the current price list

MODULE 1

Ground Training / Discussion: 1 hour
AATD: 3 hours (2 sessions)

Standard Procedures

- Pre-flight planning in various settings including unfamiliar locations and congested airspace
- Well organized and effective approach briefing process
- Advanced avionics utilization including (but not limited to) manual entry of Lat/Long
- Establishing user waypoints and self initiated waypoints
- Adjusting system and avionics default settings
- Exercising and fully utilizing all Nav and GPS displayed data on the PFD/MFD, etc.,
- Proper aircraft control and configuration in various phases of an approach with changing ATC instructions
- ATC procedures and communications
- Changing approaches and flight plans when required
- Moving between auto-pilot and manual modes without major disruption to the flight profile
- Performing approaches to the required FAA standards with changing weather and ATC situations, etc.
- May be required perform selected approaches to published minimums

Normal and Emergency Procedures

A mix of normal and emergency situations will be presented throughout the Program. Additional and less expected scenarios will be presented as the Program progresses. In all cases, the scenario(s) will be realistic but may occur at a more rapid rate as the client's experience and capability will allow. Failures can be expected in the systems area including:

- Flight controls
- Flaps
- Trim
- Auto-pilot
- Electrical
- MFD/PFD
- Comms
- Lights, etc.

BRS decision-making and SRM will also be included.

MODULE 2

Ground / Training Discussion: 1 hour
AATD: 3 hours (2 sessions)

Other

Advanced cross country planning including aircraft performance planning, plus abnormal situational scenarios, SRM, and other activities as required or requested

Completion

Practice to proficiency based on the client's experience and capabilities or to a level where training can continue toward a Completion Certificate and Personal Minimums recommendations. Also, at the instructor's discretion, an IPC endorsement may be given.



PILOT ASSIST PROGRAM (PAP)

- Recommended every 6 months for non-pilots who accompany trained pilots on flights. These PAP clients have displayed an interest to enjoying the flight experience but also want to learn how to assist with a variety of pilot-related tasks and how to assist the PIC should an abnormality or emergency situation arise. Standard flight instruments (6 pack) as well as the newer Primary Flight Display (PFD) is available depending on the client's needs.
- Two (2) each 3-hour modules (1 day should be planned)
- After the completion criteria has been met for Module 1 and Module 2, a Completion Certificate will be awarded. Recurrent training schedule is planned (recommended every 6 months).

Note: Material will be used from COPA (Partner In Command, Mike Radomsky), AOPA Pinch Hitter, UND/Cirrus resources, and other FAA-related material.

Cost: See the current price list

MODULE 1: ORIENTATION & NORMAL OPERATIONS

Ground Training / Discussion: 1 hour
AATD: 2 hours (1–2 sessions)

General Information

- Role of the PAP clients vs. the Pilot in Command (PIC)
- Crew Resource Management (CRM) overview
- FAA Regulations overview
- The importance of procedures and checklists
- The importance of flight deck organization of charts and other required material
- Aircraft orientation including aircraft parts and systems nomenclature
- General aerodynamics
- Flight control description
- Major systems discussion

Aircraft Orientation (Sim)

- Simulator orientation and safety discussion
- Flight deck orientation
- General discussion of location and operation of flight controls
- Basic avionics equipment including, auto pilot, communications, GPS & navigation, flight instruments, engine controls & engine instruments, annunciators, etc.
- Normal start, taxi, take off, and pattern landing with PAP clients following the instructor on the controls

MODULE 2: NORMAL AND EMERGENCY OPERATIONS

Ground / Training Discussions: 1 hour
AATD: 3 hours (2 sessions)

General Overview Continues

Informal quiz on Module 1 then lesson continues with:

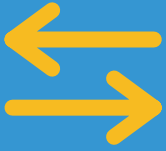
- Airspace
- Basic weather discussion
- ATC communications
- Flight planning basics
- Assisting PIC with checklist usage
- Basic hand flying
- Detecting an abnormality and/or emergency
- How to enlist support & help
- BRS, etc.

Aircraft Orientation Continues

- Review of previously learned aircraft nomenclature and operation (Sim)
- Depart on cross country flight with PAP client assisting with checklists
- Tuning radios
- Operating the autopilot
- Setting heading bugs
- Following instructor on controls
- Hand flying
- Scanning for traffic
- Scanning instruments and annunciators for abnormalities
- Determining that an emergency exists and incorporating learned skills to handle up to and including BRS, etc.

The PAP client will be encouraged to land the aircraft (Sim) in normal operations as much as possible or desired during both Module 1 and Module 2. The training will continue until the PAP client and instructor's previously agreed upon expectations are met or exceeded.

A detailed close-out briefing will occur that will include completion of the Training Record, Aeronautical Decision Making, Crew Resource Management, the importance of the Pre-Flight (of the pilot, aircraft, and conditions) prior to any flight, to establish a communications link between the instructor and the client for future questions. Six month recurrent is scheduled and Completion Certificate is awarded.



TRANSITION TRAINING PROGRAM

- Comprehensive Transition Training utilizing a combination of flight, AATD, and ground-based instruction for optimal training efficiency
- Uses UND / Cirrus training curriculum, enhanced with the use of the AATD for easier learning of avionics, systems, and emergency procedures
 - 1) Syllabus is comprised of eight lessons, each with specific goals and standards
 - 2) Training is to proficiency; it may take more than one training session to complete a lesson
 - 3) Each lesson will follow Simtrain's training format, adhering to UND standards
- Course is designed to take place over three to four full days, but may well take longer based on student's experience, skill level, and proficiency.

- Course component breakdown
 - 1) Flight training: Utilized for maneuver based training, scenario-based cross-country training, and all take-off and landing operations. Final flight examination will also be conducted in the aircraft.
 - 2) Ground Training: Training software and a traditional one-on-one teaching environment will be used to introduce new concepts, set goals, and evaluate performance.
 - 3) AATD Training: Utilized for introducing and expanding avionics, systems, IFR, and emergency procedures training. Will be used in both task-based and scenario-based formats. Allows for building and compiling of skills at the pace of the student.
- This course is adapted from the UND Transition Training Syllabus.

Cost: See the current price list

Ground Training / Discussions: 12 hours

AATD: 7 hours (3–4 sessions)

Flight (aircraft): 7 hours (3–4 flights, cross country)

(Times are approximate and may vary based on skill level, experience, and currency.

Training is always to proficiency.)

MODULE 1: INTRODUCTION TO SCENARIO-BASED TRAINING AND TRANSITION PROGRAM (GROUND)

This lesson begins with the instructor establishing a “culture” for the training curriculum by discussing his/her role as well as what will be expected of the student. The session will include a discussion of key training concepts such as scenario-based training, aeronautical decision making, risk management, and checklist usage. It also serves to introduce the student to Cirrus-specific items, such as the Primary Flight Display, Multi-Function Display, and Cirrus Airframe Parachute system. Primary learning tools will include the Cirrus Aircraft Training software, Pilot’s Operating Handbook, and UND software. The assessment and completion items include:

- Development of instructor / student relationship
- Review of pre-training material (completion of questions, POH review)
- Course briefing and overview
- Cockpit procedures, layout, and introduction to avionics
- Introduction to Cirrus Airframe Parachute System (CAPS)

MODULE 2: INTRODUCTION TO NORMAL OPERATIONS AND AUTOMATION (SIMULATOR)

This lesson is designed to begin training the student to use critical equipment for normal operations, such as the Garmin GNS-430 and S-TEC autopilot. Procedures for single-pilot resource management, including checklist usage, will be emphasized. A cross country flight will be used to introduce standard procedures for the departure, en-route, and arrival phases of flight. During this phase, one of the primary goals is to substantially improve the student’s ability to interpret and operate the various avionics components. The assessment and completion items include:

- Single Pilot Resource Management (SRM) demonstration
- Radio communications
- Avionics usage and interpretation
- Aeronautical decision-making and risk management discussion
- Pre-flight and engine start procedures, including checklist usage
- Post flight discussion and critique

MODULE 3: NORMAL OPERATIONS IN REALISTIC FLIGHT ENVIRONMENT (AIRCRAFT)

Building on the previous lesson, this phase of training is designed to improve avionics and workload management skills during a typical cross country flight. It includes both skill-based training (such as stalls, steep turns, etc) and scenario-based training. During this lesson, landing techniques and procedures will be taught with an emphasis on power and airspeed management. The assessment and completion items include:

- Continue to build SRM understanding and skills
- Continue to build and develop radio and avionics skills
- Practice pre-flight preparation, engine start, and taxi
- Normal takeoff, climb, and cruise procedures and checklists
- Steep turns, Slow flight, and stalls
- Descent and arrival procedures and checklist usage
- Normal, crosswind, and soft-field landings
- Flaps 50% and 0% landings, go-arounds
- Post flight critique and discussion

MODULE 4: AERONAUTICAL DECISION MAKING (GROUND)

The student will use the ADM and Risk Management tools that have been previously discussed, as well as his new knowledge of the Cirrus, to analyze scenarios presented by the instructor and arrive at appropriate decisions. The instructor will guide the student through a series of general aviation accident statistics while emphasizing what phases of flight have an increased likelihood of accident occurrence. The student will discuss risks, alternatives, and human factors associated with each scenario. The assessment and completion items include:

- General Aviation accident causes and statistics review
- Ways to use Risk Management tools to reduce common risks
- Understanding of hazardous phases of flight
- Analysis of Cirrus scenarios
- Critique and discussion

MODULE 5: ABNORMAL AND EMERGENCY PROCEDURES (SIMULATOR)

This is a longer lesson, likely taking more than one session, during which aircraft systems and emergency procedures are thoroughly discussed, practiced, and analyzed. The true value of solid aeronautical decision making, single pilot resource management, and risk management skills are realized. An emphasis will be placed on solid systems, avionics, and associated failures knowledge. Instrument emergencies, if appropriate, are included during this lesson. The assessment and completion items include:

- Continue demonstrating & improving SRM, communications, and avionics skills
- Proper mindset for handling emergencies
- VFR emergency procedures: alternator failures, GPS failures, PFD failures, MFD malfunctions, engine partial & full power loss, fire in cabin
- IFR emergency procedures: electrical failures, avionics failures, approaches with failed instruments or equipment, pitot / static malfunctions
- Checklist usage in abnormal / emergency conditions
- Coupled IFR approaches
- Postflight critique and evaluation

MODULE 6: CROSS COUNTRY SCENARIO (SIMULATOR / AIRCRAFT)

This lesson takes the combined knowledge of previous lessons and puts it to use in a realistic flight environment. It is designed to improve weak areas and solidify abnormal and emergency procedures skills. Cross Country scenarios will be used to force the student to make sound decisions and use good judgment under adverse circumstances. An emphasis will also be placed on workload management without the use of the autopilot. The assessment and completion items include:

- Continue demonstrating & improving SRM, communications, and avionics skills
- Focus on decision-making processes during cross country scenarios
- Execution of VFR and IFR cross country flights with proper use of avionics, power management, and aircraft control under a variety of normal, abnormal, and emergency circumstances
- Continued practice of abnormal procedures, such as door open on takeoff, autopilot failures, and oil problems.
- Demonstrate knowledge of recovery from unusual attitudes
- Continue work on instrument approach procedures
- Postflight critique and evaluation

MODULE 7: FULL RANGE OF OPERATIONS (AIRCRAFT)

This lesson will cover a full spectrum of normal, abnormal, and emergency operations while continuing to emphasize good ADM and SRM skills. Weaker areas will continue to get more attention and more advanced avionics use will be emphasized. Short-field, flaps 50%, and zero-flap landings must also be performed within acceptable standards during this phase. The assessment and evaluation items include:

- Continue demonstrating & improving SRM, communications, and avionics skills
- Continue demonstrating & improving pre-flight planning, pre-flight checks, engine start, taxi, pre-takeoff procedures and checklist usage
- Continue demonstrating & improving normal / short field takeoff, climb, and cruise procedures and checklist usage
- Simulated icing encounter
- Use & simulated failure of CMAX system
- Ability to determine IFR approach options with partial PFD failures
- Reinforcement of weaker areas
- Continue demonstrating & improving arrival and approach procedures
- Flaps 50% and 0% Landings
- Postflight critique and evaluation

MODULE 8: FINAL EVALUATION (AIRCRAFT)

This lesson is the culmination of all previous training. Conducted on a planned cross country scenario, the student will demonstrate knowledge and skill levels that meet or exceed defined desired outcomes. The student must be able to safely operate the aircraft in a real flight environment by demonstrating solid aircraft handling, power management, decision making, and emergency management skills. All assessment items must be met within standards for each area attempted to successfully complete this final evaluation. The flight is a minimum three-leg cross country that must include the following:

- Alternator 1 failure and instrument approach on leg 1
- PFD failure and instrument approach on leg 2
- Weather Diversion and instrument approach on leg 3
- Discussion of alternatives in each scenario
- Ability to use all available resources to arrive and the best decisions
- Reinforcement of weak areas
- Postflight Critique and Evaluation

After a successful evaluation a Completion Certificate will be awarded and a discussion will be held concerning Personal Minimums recommendations.



INSTRUMENT RATING PROGRAM

By incorporating the simulator into the curriculum, clients are able to get more pertinent training, fewer distractions, and increased efficiency when compared to the standard methods utilizing aircraft only. Further, utilizing the simulator during instrument training saves the client money when compared to the operating costs of the actual aircraft.

Expectations

It will be the discretion of the flight school as to how these lessons are inserted/swapped into the instrument rating syllabus. The logical order and suggestions utilized in this document are meant to serve as a guideline for each school which will then formerly integrate the simulator into the instrument syllabus. Exact simulator hours will vary, but it is expected that between 15 and 20 hours of simulator time will be used during the process of the training course.

Synopsis

The instrument rating course is divided below into four main areas of focus. This will aid instructors in recognizing the general placement of each of the following simulator lessons based on the objectives of each section.

The four sections are:

- Basic attitude control
- Instrument approaches
- Cross country
- Check ride preparation

The 4th area of focus, check ride preparation, will be the most variable on a subjective basis. Since clients will vary greatly in skill and confidence; the simulator can easily be used to evaluate complex situations, answer questions, or work on problem areas. Due to the unpredictable nature of client progress, there will be only two lessons assigned to this section with the understanding that they can be repeated as often as the flight school likes.

Cost: See the current price list

MODULE 1: BASIC ATTITUDE

Ground Training / Discussion: 2 hours
AATD: 2 hours (1–2 sessions)

Objective

Basic attitude control proficiency with beginner level standards

Preparation

After the client has had sufficient ground discussion with the instructor about basic attitude control and an adequate understanding of either the primary/ supporting or control/performance method, the first simulator lesson should be utilized.

Description

It is recommended that the client's first experience with basic control be in the simulator. Focus for this first lesson should be on trim proficiency, light control forces, and power use for altitude changes.

Weather

Winds should be calm; ceilings should be higher than planned level altitude at first. The client should focus on BAIF in VFR conditions for a few minutes prior to the instructor reducing visibility to zero for actual IMC maneuvering. simulation at various intervals to give advice about aircraft control.

MODULE 2: BASIC ATTITUDE

Ground Training / Discussion: 1 hour
AATD: 2 hours (1–2 sessions)

Objective

Basic attitude control while intercepting and tracking radials.

Preparation

After the client has demonstrated basic attitude control competency in the aircraft and the syllabus is ready to proceed with practice in intercepting and tracking radials, this lesson should be utilized. It is useful if this lesson is the first time the client has extensive radial intercept practice.

Description

Focus for this lesson should be on continued BAIF proficiency with an escalating workload along with a deeper understanding of utilizing the HSI for tracking radials. Instructors should continually emphasize the need for light control forces, proper trim, and power use for altitude changes.

Instructors should have the client fly over the VOR at least 3 times, starting at a distance of at least 10 miles. This will allow the client to develop expectations of increased CDI sensitivity as the station is approached.

Weather

Winds should be calm at first with ceilings at about 1,000 feet. As the client gains proficiency in tracking a radial, the instructor should inform them that they will now be given winds (from the right or left). Winds should be from at least a 45 degree angle to the intended tracking radial at 15 knots.

MODULE 3: BASIC ATTITUDE

Ground Training / Discussion: 1 hour
AATD: 2.5 hours (2 sessions)

Objective

Gain proficiency in unpublished DME arcs and random holding patterns.

Preparation

A significant amount of time should be spent in ground discussion prior to starting this simulator lesson. History shows that these two areas are among the most difficult for many clients to grasp. Instructors are recommended to break this lesson up into two sections with a 30 minute ground discussion and rest break in between. It is useful if this lesson is the first time the client has had to practice these maneuvers.

Description

Focus for this lesson should be on continued BAIF proficiency with an escalating workload along with a gained proficiency in tracking unpublished DME arcs and flying random holds. Instructors should expose the client to the various methods available in the Cirrus for navigating an arc. Autopilot use to decrease initial distraction is recommended.

While flying the random holds, instructors should stress client awareness of what will come next and show them the various methods for using the autopilot to fly these holds.

Weather

Winds should be calm at first with ceilings at about 1,000 feet. As the client gains proficiency in tracking an arc, the instructor should inform them that they will now be given winds. Winds should be from a direction such that the cross wind component will change sides as the client arcs. Initially the winds should be kept to less than 15 knots. As the client gains proficiency in dealing with them, instructors may elect to increase winds up to 30 or 40 knots.

Winds during the hold should be calm at first and increased as the client gains proficiency at tracking inbound and outbound.

MODULES 4–6: INSTRUMENT APPROACHES

Ground Training / Discussion: 1.5 hours
AATD: 4.5 hours (3 sessions)

Objective

Gain proficiency and understanding in the 3 main types of approaches used in instrument flying (ILS, GPS, VOR).

Preparation

During the section of instrument training in which approaches are more thoroughly introduced and practiced, the simulator can be effectively utilized to ensure greater depth of understanding. After thorough ground discussion covering each approach, instructors should set up the simulator at the airport where a particular approach will be first done in the actual aircraft.

Description

Focus for these lessons should be an in-depth understanding of the mechanics of each kind of approach and the utilization of the Garmin 430 in the approach process. Proficiency at flying the approaches is expected to come later and thus expectations of the client should be adjusted accordingly.

Autopilot use is strongly encouraged for the first and possibly second attempt at each approach so that the client has enough mental faculties to analyze the situation as a whole. Subsequent approaches should be done by hand.

Weather

Winds should be calm at first with ceilings approximately 300 feet above the DA or MDA. As the client gains proficiency in tracking a course, the instructor should inform them that they will now be given winds. Winds should be kept to less than 15 knots with no turbulence.

MODULE 7: INSTRUMENT APPROACHES

Ground Training / Discussion: 1 hour
AATD: 2 hours (1–2 sessions)

Objective

Gain proficiency and understanding in flying approaches while dealing with the distractions of system failures and emergencies.

Preparation

This lesson is intended to be utilized after the client has had extensive practice at flying approaches both by hand and while using the autopilot. The client should know that they will be challenged with abnormal situations and encouraged to utilize all available resources, including ATC, to handle the problem. It is expected that the client will be easily overwhelmed with even relatively small system failures. For these reasons, clients should be made aware of the nature of the planned problems at least a day prior to the lesson.

Instructors should have at least 2 or 3 scenarios planned for the flight along with weather that will affect decisions about continuing, returning to base, or diverting to an alternate airport. Scenario ideas will be discussed below. Pre flight briefings should include a discussion about the nature of the problems clients are about to encounter.

During the post flight briefing, instructors should bring up the fact that SimTrain offers a full course of IFR practice and emergency procedures that can be used to gain proficiency after the instrument rating is gained.

Description

Focus for this lesson should be division of attention and utilization of all available resources while using sound judgment to make decisions. Since the client is not an experienced IFR pilot, it is not expected that they will necessarily be able to make the best choices every time. This lesson is meant to serve as a discussion base for later ground study. Autopilot use is strongly encouraged for situations that would not take it off line.

Scenario ideas

1. An alternator failure, either #1 or #2, can be utilized in the middle of a short cross country flight (30 minutes to destination). The client should be allowed to take off and get established enroute before the failure occurs. The failure should be reported and checklist procedures followed. Destination weather should be slightly above minimums with a good alternate airport close by (with an approach that has minimums low enough to get out of the clouds). After the client has run checklists, ATC should tell them that a very temporary problem has occurred at the destination airport (stalled aircraft on the runway, lights out of service, etc) and a 30 minute delay is to be expected. Clients should elect to divert or they will be placed in a hold where further electrical problems with develop.

2. The oil annunciator light should flicker on and off multiple times shortly after the client enters IMC after takeoff. Weather at departure airport should be good enough to get back in but low enough to preclude a VFR return. Assuming the client elects to come back to base, no further failures should happen. If the client elects to continue, engine failure should occur in about 15 minutes.

3. Lost communications while enroute. A short cross country (20 to 30 minutes) should be flown. The flight plan that has been filed prior to departure should be reviewed prior to flight so that the client has some idea about what to do. Lost com can occur at the instructor's discretion while ATC is vectoring for an approach or while in an enroute phase.

4. Autopilot failure. Allow the client to engage the autopilot and enter IMC, and then fail it for the rest of the flight. Often this is distraction enough, particularly when ATC has reroutes or an unexpected approach is required. Clients should notify ATC of the problem and ask for more time if they need it.

Instructors should try to assist as little as possible unless it becomes apparent that the client is having great difficulty.

Weather

Weather will vary per scenario but should be relatively calm with ceilings approximately 300 feet above the DA or MDA.

MODULE 8: CROSS COUNTRY

Ground Training / Discussion: 1 hour
AATD: 1.5 hours (1 session)

Objective

Gain proficiency in Garmin 430 functionality as utilized during the enroute phase of a flight.

Preparation

Ground discussion prior to flight should include methods for utilizing published departure procedures, inserting waypoints, removing waypoints, and activating a leg of the flight plan.

Instructors should select a departure airport that has a charted pilot-nav DP.

Description

The client should call to pick up a clearance, input it into the flight plan of the Garmin 430, and make all radio calls as if operating at a class C or B airport. A pilot nav departure procedure should be given as part of the clearance.

The client should be allowed to take off and fly the DP for several minutes and then ATC should vector him off the route. Vectors should continue to take the client wide of the published DP (for traffic) and then a heading should be assigned to fly towards the remainder of the DP or a Victor Airway. Clients will need to activate the leg of a flight plan to do this.

After having established the aircraft on part of the Garmin's flight plan, an intersection or VOR should be assigned that should be inserted into the flight plan between 2 already existing waypoints.

Any areas of difficulty should be repeated with repositioning of the aircraft. Autopilot use is recommended.

Weather

Winds should be calm with ceilings at about 500 feet. The purpose of this lesson is to increase familiarity with avionics.

MODULES 9–10: CHECK RIDE PREPARATION

Ground Training / Discussion: 1 hour
AATD: 5 hours (2–3 sessions)

Objective

Gain proficiency with all expected check ride maneuvers and approaches.

Preparation

Ground discussion prior to flight should include discussing which approaches will be used, how the instructor will act (i.e. ATC only, no assistance or coaching), and weather.

Description

The client should call to pick up a clearance, input it into the flight plan of the Garmin 430, and make all radio calls as if operating at the departure airport intended for use on the check ride.

Autopilot use will be the discretion of the instructor. Some utilization will be required on the test and thus should be allowed. Clients should fly 1 round of the check ride (i.e. all 3 approaches with 1 missed hold) and then a 20 minute break should be taken for discussion and rest. After the break, the same routine should be flown in the same manner.

It is recommended that this type of check ride prep be used while alternating between flying the actual aircraft and using the sim.

Weather

Winds should be average for the area, usually 10 to 15 knots. Ceilings should be below minimums for the first two approaches and then slightly above (about 100 feet) for the last approach. Light turbulence is optional but will help increase the realism for the test.

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