CLOUD 9
FLIGHT SERVICES

Multi-Engine Add-On Rating Syllabus

Congratulations! Your decision to add a Multi-Engine rating to you Pilot Certificate will take your flying to a challenging and exciting new level you will find both rewarding and fun. Earning a multi-engine rating is an important step in your flying career. Multi-Engine aircraft offer new challenges and opportunities that will be important for the rest of your individual or commercial flying.

With this syllabus in hand, you will know the objective of every flight scenario and where it fits into the overall program. You'll also see how each ground lesson and scenario are building blocks that work with and build upon the others to move you toward your goal of becoming a safe and proficient multi-engine pilot. This course is organized into four phases, described below.

Although this syllabus is designed to conform to the requirements for the commercial pilot certificate, it can be adapted to training for the private pilot certificate level by applying the Private Pilot standards. No FAA knowledge test is required for an additional class rating, but the course does utilize periodic knowledge evaluations to assess your knowledge of multi-engine airplanes, systems, and procedures in preparation for the FAA practical test. Your knowledge will be evaluated during the oral and flight portion of the practical test.

Prerequisites

Prior to beginning, you must:
- Read, speak, write and understand the English language.
- Hold at least a private, commercial or ATP pilot certificate with airplane single engine land rating.
- Hold a current third class medical certificate or BasicMed certificate.

Objective

The student will obtain the aeronautical skill and knowledge necessary to meet the requirements of a Private, Commercial, or ATP certificate (depending upon the certificate held at time of enrollment), with an airplane category, instrument rating, and multi-engine land class rating.

Completion Standards

The student will demonstrate, by way of a flight and written test, the aeronautical skill and knowledge necessary to obtain a Private, Commercial, or ATP certificate, with a airplane category, instrument rating, and a multi-engine land class rating. Each task in each area of operation in the Airman Certification Standards (ACS) will have been accomplished by the student. The instructor will not proceed to the next lesson until the student is able to explain and/or demonstrate the elements of the procedure or maneuver as required by the ACS.

- The FAA does not require a specified amount of experience to obtain a multi-engine rating, however, multiple instructional periods may be required to meet the lesson objective. The line items listed in the lessons below are recommended topics to be covered to sufficiently meet the objective of each lesson.
- **You should plan on 10-15 instructional flight hours and 5-10 ground instructional hours**. Time used for an individual lesson will be adjusted to meet the students need. It is my responsibility to determine that all requirements are met.
- Lessons may be completed in any order necessary to meet goals set by the student.
- Flight and ground lessons may happen concurrently as necessary.
- Lessons from the Private Pilot, Instrument Rating, or Commercial Pilot Syllabus may be reviewed to ensure students are proficient with aircraft operation and procedures.

Course Structure

This course consists of four phases:

1. *Essential Multi-Engine Skills*: In phase one, you will gain an understanding of the aerodynamics, performance and special considerations involved with multiengine airplanes. You will start by learning to taxi an airplane where the thrust is not attached to the airplane centerline.
2. *Mastering Single-Engine Operations*: In phase two, you will learn to manage engine failures under various phases of flight and learn the very important balance between performance and control of a multi-engine aircraft experiencing and engine failure.

3. *Multi-Engine IFR Operations*: In phase three, you will learn about the unique considerations of multi-engine instrument flight including single-engine instrument approaches and performance planning.
4. *Checkride Preparation*: Phase four completes the course of training with review and preparation for the FAA Practical Test.

Required Aeronautical Knowledge Areas

The Federal Aviation Regulations lists aeronautical knowledge areas that must be included in the ground training for a Private or Commercial Pilot Additional Multi-Engine Class Rating. All required areas are covered in this course, but they are distributed throughout the curriculum for subject continuity and logical development. You will find these required topics included in lessons, briefings, and ground training checklists listed as follows:

(1) Applicable regulations issued by the Federal Aviation Administration for commercial pilot privileges, limitations, and flight operations
Ground Lesson 1

(2) *Basic aerodynamics and the principles of flight*
Ground Lesson 1, 5, 6

(3) *Safe and efficient operation of aircraft*
Ground Lesson 1, 2, 3, 4, 5, 6, 7, 8

(4) *Weight and balance computations*
Ground Lesson 3

(5) *Use of performance charts*
Ground Lesson 3

(6) *Significance and effects of exceeding aircraft performance limitations*
Ground Lesson 3, 4

(7) *Principles and functions of aircraft systems*
Ground Lesson 1, 2

(8) *Maneuvers, procedures, and emergency operations appropriate to the aircraft*
Ground Lesson 4, 5, 6, 7, 8, 9

(9) *Nighttime and high-altitude operations*
Ground Lesson 1, 2, 8

This flight training syllabus uses scenario-based training (SBT), single-pilot resource management (SRM), learner-centered grading (LCG).

Scenario-Based Training (SBT) uses real-world scenarios as the foundation of training. Flight maneuvers are still a vital part of flight training, but the use of real-world scenarios help to develop a pilot's decision making skills. The training presents situations and circumstances that pilots face every day as learning experiences.

Single-Pilot Resource Management (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 to accurately assess and manage risk, thereby making logical and timely decisions.

Learner-Centered Grading (LCG) includes two parts: learner self assessment and a detailed debrief. 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 you and I that compares my assessment to your self assessment.

Scenario-Based Training (SBT)

The scenario-based approach to training pilots emphasizes the development of critical thinking and flight management skills, rather than focusing 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.
Scenario-based training goals include the development of

- Critical thinking skills
- Aeronautical decision making skills
- Situational awareness
- Pattern recognition (emergency procedures) and judgment skills
- Automation competence
- Planning and execution skills
- Procedural knowledge
- Psychomotor (hand-eye coordination) skills
- Risk management skills
- Task management skills
- Automation management skills
- Controlled flight into terrain (CFIT) awareness

It is vital that you, the pilot in training, and I communicate the following information well in advance of every training flight:

- Purpose of the flight
- Pressures to complete the flight (real or simulated)
- Risks/hazards associated with the scenario (real or simulated)
- Scenario destination(s)
- Desired outcomes
- Possible in-flight scenario changes or deviations (during later stages of the program)

With my guidance, you should plan and fly the scenario as realistic as possible. This means that you will know where you are going and what will transpire during the flight. While the actual flight may deviate from the original plan, this method allows you to be placed in a realistic scenario.

Scenario Planning

Prior to the flight, you will be briefed on the scenario to be planned. You will plan the scenario; I will help you the first few times. The flight scenario should include
- Simulated real-world reason to go flying
- Route

  - Destination(s)
  - Weather
  - NOTAMs
- Pressures to complete the flight (real or simulated)
- Risks associated with the scenario (real or simulated)
- Possible deviations

Reality is the ultimate learning situation, and scenario-based training attempts to get as close as possible to this ideal. The more realistic the training scenario, the better we learn core safety habits and decision-making skills that can be applied in the real-world.

Single Pilot Resource Management (SRM)

Single-pilot resource management is defined as the art and science of managing all the resources (both onboard the aircraft and from outside sources) available to a pilot flying in a single-pilot operation (prior to and during flight) to ensure that the successful outcome of the flight is never in doubt.

SRM includes the concepts of
- Task management (TM)
- Automation management (AM)
- Risk management (RM)
- Aeronautical decision making (ADM)
- Situational awareness (SA)
- Controlled flight into terrain (CFIT) awareness

SRM training helps a pilot maintain situational awareness by

- Managing the technology in the aircraft as well as aircraft control and navigation tasks
- Enabling the pilot to accurately assess and manage risk while making accurate and
- timely decisions
- Helping pilots learn how to gather information, analyze it and make decisions

In most flight scenarios, there is no one correct answer. Pilots are expected to analyze each situation in light of their

- Experience level
- Personal minimums
- Current physical and mental condition
- Ability to make their own decisions as best as possible

Below are standards for each training concept of SRM:

Performance The training task is	**Standards** You will:
Task Management (TM)	Prioritize and select the most appropriate tasks (or series of tasks) to ensure successful completion of the training scenario.

Automation Management (AM)	Program and utilize the most appropriate and useful modes of cockpit automation to ensure successful completion of the training scenario.
Risk Management (RM)	Utilize risk management tools to assess and mitigate risk associated with the planned flight both during the preflight planning and in flight.
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.
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.
Controlled Flight Into Terrain (CFIT)	Understand, describe, and apply techniques to avoid CFIT during inadvertent encounters with IMC during VFR flight, periods of reduced visibility, or at night.

Learner-Centered Grading (LCG)

Learner-centered grading includes two parts:

- Learner self-assessment
- A detailed debrief

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 you and I that compares your self-assessment to my assessment.

Pre-flight and post-flight briefings are essential for setting goals. During events and tasks that require high levels of attention, there may be little time for learning as the bulk of your cognitive resources are given to performing the actual task.

Independently Evaluating the Scenario

After the scenario is complete, you and I independently grade your performance for maneuvers and single-pilot resource management (SRM). After independently evaluating the *actual scenario outcomes* compared to the *desired outcomes y*ou and I come together to compare and discuss your individual evaluations during the post-flight discussion. You and I may disagree on the evaluations. This should be used as an opportunity to discuss the scenario further

Maneuver (Task) Evaluations

• **Describe**: At the completion of the ground training session, the pilot in training will be able to describe the physical characteristics of the task at a rote level.
• **Explain**: At the completion of the ground training session, the pilot in training will be able to describe the task and display an understanding of the underlying concepts, principles, and procedures.
• **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 myself will correct deviations and errors.*
• **Perform**: At the completion of the scenario, the pilot in training will be able to perform the activity without assistance from myself. *Errors and deviations will be identified and corrected by you 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 pilot is satisfactorily demonstrating proficiency in traditional piloting and systems operation skills.)
• **Not Observed**: Any event not accomplished or required in the scenario.

Example:

• 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 is met when the completion standards for the particular scenario or phase are met.

Single-Pilot Resource Management (SRM) Evaluation

• **Explain**: At the completion of the ground training session, the pilot in training can verbally identify the risks inherent in the flight scenario.
• **Practice**: The pilot in training can identify, describe, and understand the risks inherent in the scenario. You may need to be prompted to identify risks and make decisions.
• **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 in the scenario.

Example:

• A pilot who is becoming proficient at aeronautical decision making (ADM) and risk management (RM) would be graded first at the "Practice" level.

• The "Manage/Decide" level is met once a pilot makes decisions on their own, for instance, the decision to go-around without being prompted

Everyday Use of Aeronautical Decision Making

THE PAVE CHECKLIST
Use the PAVE Checklist as an easy way to implement ADM concepts. The PAVE checklist is:

- A simple way to remember and examine the risk factors before you fly, and
- Can also help you manage the specific risks associated with taking off and landing

The PAVE checklist puts risk factors into four categories:
Pilot
Aircraft
en**V**ironment
External pressures

The pilot. Are you fatigued? When was the last time you were flying in the weather conditions that you will encounter? What are your personal minimums?

The aircraft. Are you familiar with the aircraft? Its avionics? Is it airworthy? What is the density altitude? How does that affect your climb rate? What is your maximum crosswind component?

The environment. Are the temperature and dew point close? Are you familiar with the area and its topography? Are there any NOTAMs? What are the

External pressures. Are others influencing the flight? Do you have people waiting for you at the airport?

Flight Scenarios

PREFLIGHT BRIEFING

Before each flight scenario you and I will review the scenario objectives to make sure you both understand what you will be doing during the lesson.
- Use this opportunity to ask any questions.
- Make sure you understand what is expected of you

DUAL FLIGHTS

All scenarios in this syllabus are dual flights performed with me as the instructor. As such, scenarios will usually begin with a review of tasks from previous flights, and then new tasks will be introduced. This will help you to see the relationships between what you have previously learned and the new tasks to be performed on the flight.
When indicated (IR) means “instrument reference,” or reference to the flight display or instruments only. You will need a view-limiting device such as a hood or view-restricting glasses for a scenario having (IR) associated with any task

POST-FLIGHT DISCUSSION AND EVALUATION

After each flight, you and I will
- Review your flight and evaluate your performance independently
- Compare and discuss your self-evaluation with his or her evaluation

I will make recommendations to help you in your learning. Make sure you ask questions about any area that is not clear. You will then complete your flight training record based on the completion standards for the phase. Any tasks requiring additional practice to meet the phase completion standards will be carried over to the next flight You may expect at least one-half hour for pre-flight and post-flight briefings for each scenario.

Ground Lesson 1: Introducing Multi-Engine Aircraft

Objective: For the student to be introduced to the Multi-Engine Rating program, and learn the flight school requirements, procedures, regulations, and grading criteria. Student will also be introduced to multi-engine aerodynamics, regulations associated with multi-engine training, and the training airplane Pilot's Operating Handbook (POH).

Estimated Length: 75 minutes

- Review of course objectives
- Procedures, evaluations and expectations
- Federal Aviation Regulations, Parts 61, 91 and 23
- Multi-engine aerodynamics
- Service ceiling
- Absolute service ceiling
- Single-engine service ceiling
- Single-engine absolute service ceiling
- Centerline thrust
- Critical engines
- P-factor
- Counter-rotating propellers
- Pilots Operating Handbook
- Human factors
- Checklists

Ground Lesson 2: Multi-Engine Aircraft Systems

Objective: For the student to have an understanding of the systems and engines associated with a multi-engine airplane.

Estimated Length: 90 minutes

- Primary and secondary flight controls and trim
- Powerplant systems
- Fuel systems
- Electrical systems
- Landing gear systems
- Propeller systems
- Cockpit avionics and instrumentation (autopilot, FMS, glass cockpits)
- Pressurization
- Turbocharging
- Air starts
- Ice protection systems
- Oxygen systems
- Environmental systems
- Hydraulic systems
- Engine failures and effects on other systems

Ground Lesson 3: Performance, Limitations and Weight and Balance

Objective: For the student to have an working understanding of the factors affecting multi-engine airplane performance.

Estimated Length: 60 minutes

- Weight and balance
- Empty weight
- Zero fuel weight
- Effects of CG on performance
- Performance planning
- Minimum controllable airspeed
- Multi-engine V-speeds
- Takeoff and landing distance
- One-engine performance
- Time, fuel and distance to climb
- Range and endurance profiles
- Cruise power tables
- Descent planning
- Energy management concepts
- Accelerate-go distance
- Accelerate-stop distance

Ground Lesson 4: Pre-flight Preparation

Objective: For the student o have a working knowledge of the pre-flight preparation necessary for a multi-engine flight.

Estimated Length: 50 minutes

- Taxiing a twin
- Differential taxiing
- Preflight inspection
- Passenger briefings
- Abnormal situations
- Run-up and takeoff checks
- Minimum equipment lists
- Multi-engine cockpit instrumentation
- Night flight

Ground Lesson 5: Multi-Engine Aerodynamics and V_{mc}

Objective: For the student to understand multi-engine aerodynamics, including principles of flight with an inoperative engine.

Estimated Length: 60 minutes

- Turning tendencies
- Single-engine principles of flight
- Critical engine
- V_{mc} definition and certification criteria
- Factors that affect V_{mc}
- Effect of weight and CG position on V_{mc}
- Effects of angle of bank on V_{mc}
- Establishing zero sideslip
- Effect of density altitude on V_{mc}
- Relationship of V_{mc} to stall speed
- Vmc demonstration

Ground Lesson 6: Multi-Engine Emergency Procedures

Objective: For the student understand to multi-engine abnormal and emergency operations, including engine failure procedures.

Estimated Length: 60 minutes

- Systems and equipment malfunctions
- Emergency equipment and survival gear
- Engine failure memory items
- Engine troubleshooting procedures
- Engine feathering procedures
- Engine failure during takeoff roll
- Engine failure immediately after rotation
- Engine failure during initial climb
- Engine failure in the traffic pattern
- Engine failure in cruise
- Engine failure during instrument approach
- Approach and landing with an inoperative engine

Ground Lesson 7: Phases of Flight In Multi-Engine Aircraft

Objective: For the student to have a working knowledge of the factors affecting takeoff, climb, cruise, descent and landing.

Estimated Length: 60 minutes

- Climb rates
- The takeoff roll
- Engine failure
- Multi-engine takeoff procedures
- Departure procedures
- Cruise checklist
- Drift down
- Descent planning
- Descent
- Leveling off
- Final approach
- Landing distance
- Stopping
- Landing with a feathered propeller

Ground Lesson 8: Phases of Flight In Multi-Engine Aircraft

Objective: For the student to gain proficiency in all areas included in the Airman Certification Standards

Estimated Length: 90 minutes

- Certificates and documents
- Airplane system
- Normal procedures
- Determining performance and flight planning
- Minimum equipment lists
- Flight principles: engine inoperative
- Ground operations
- Normal and crosswind takeoff and climb
- Maximum performance takeoff and climb
- Instrument flight
- Slow flight and stalls
- Steep turns
- Maneuvering with one engine operative
- Drag demonstration
- V_{mc} demonstration
- Engine failure en route
- Engine failure on takeoff
- Approach and landing with an inoperative engine
- Balked landings
- Normal and crosswind approach and landing
- Maximum performance approach and landing

Flight Lesson 1: Introduce Multi-Engine Aircraft Procedures and Maneuvers

Objective: To introduce the student to normal procedures and maneuvers in a multi-engine airplane.

Prerequisites: Ground lesson 1.

Completion Standards: Student is able to perform the maneuvers to private or commercial pilot standards.

Estimated Length: 90 minutes

Introduce
- Pre-flight procedures and cockpit orientation
- Collision avoidance
- Checklist usage
- Multi-engine briefing considerations
- Engine startup and run-up
- Engine synchronization
- Engine power settings
- Normal takeoffs
- Straight and level flight
- Level, climbing and descending turns
- Steep turns
- Maneuvering during slow flight
- Power off stalls
- Power on stalls
- Accelerated stalls
- Normal approach and landing
- Post-flight procedures

Flight Lesson 2: Introduce Single-Engine Operations

Objective: To introduce the student to single-engine procedures in a multi-engine airplane.

Prerequisites: Ground lesson 1 and 2.

Completion Standards: Student is introduced to single-engine operations and performs reviews tasks to standards.

Estimated Length: 90 minutes

Review
- Normal takeoff and landings
- Engine synchronization
- Slow flight, stalls and recoveries and steep turns

Introduce
- Single-engine performance considerations
- Single-engine procedures
- Loss of engine procedures
- Maneuvering with one engine and propeller windmilling and feathered
- Straight and level
- Level turns
- Climbs and descents
- Use of engine-out best rate of climb speed V_{yse}
- Drag demonstration
- Demonstration of V_{mc}
- Crosswind operations
- Two engine go-around/rejected landing

Flight Lesson 3: Introduce Short Field Operations

Objective: To introduce the student to short field operations, single engine go-around procedures and increase single engine proficiency.

Prerequisites: Ground lesson 5.

Completion Standards: Student completes the engine out maneuvers with minimal assistance and perform the other maneuvers to standards. Student must demonstrate engine out competency and possess the necessary skills prior to performing single engine pattern work.

Estimated Length: 60 minutes

Review
- Normal takeoff and landings
- Maneuvering with engine out
- Use of best rate of climb speed
- Slow flight, stalls and recoveries
- V_{mc} demonstration
- Two-engine go-around/rejected landing

Introduce
- Short field takeoff and landings
- Single engine go-arounds/rejected landings

Flight Lesson 4: Introduce Engine Failure Operations in the Traffic Pattern

Objective: To introduce the student to engine out procedures during the takeoff roll and in the traffic pattern.

Prerequisites: Ground lesson 6.

Completion Standards: The student is introduced to engine failure scenarios in critical situations. The student must be competent in maneuvering the aircraft with an engine loss at any point during the traffic pattern.

Estimated Length: 60 minutes

Review
- Single-engine procedures
- Single-engine performance considerations
- V_{mc} demonstration

Introduce
- Engine failure on the takeoff roll
- Engine failure on departure
- Engine failure in the traffic pattern
- Engine failure during approach and landing

Flight Lesson 5: Introduce Multi-Engine Instrument Procedures

Objective: To review instrument procedures and to introduce the student to engine failure procedures in instrument conditions.

Completion Standards: The student proficiently flies multi-engine instrument approaches and holding patterns and is introduce to single engine approaches and holding.

Estimated Length: 90 minutes

Review:
- Aircraft configurations
- Normal and crosswind takeoffs and landings
- Two engine go-around/rejected landing
- V_{mc} demonstration

Introduce
- Engine shutdown using fuel selector, propeller feathering
- Engine restart procedures
- Two engine holding and instrument approach procedures
- Single engine holding and instrument approach procedures

Flight Lesson 6: Multi-Engine Instrument Approach Procedures

Objective: To review and increase multi-engine and engine failure instrument flying proficiency.

Prerequisites: Ground lesson 7.

Completion Standards: The student proficiently flies single-engine instrument approaches.

Estimated Length: 90 minutes

Review:
- Approach configurations
- Engine failure procedures
- Normal and crosswind takeoffs and landings
- Short-field takeoff and landings
- Two engine approach procedures
- Single engine approach procedures

Flight Lesson 7: Partial Panel Single Engine Operations

Objective: To review and increase multi-engine and engine failure instrument flying proficiency. Introduce partial panel, single engine operation.

Completion Standards: The student proficiently flies all approaches multi-engine and single-engine. The student is introduced to engine out combinations during approaches.

Estimated Length: 60 minutes

Review:
- Normal and crosswind takeoffs and landings
- Short-field takeoffs and landings
- V_{mc} demonstration

Introduce
- Partial panel single engine approaches

Flight Lesson 8: Review and Increase Multi-Engine Proficiency

Objective: To review and increase multi-engine and engine failure flying proficiency.

Prerequisites: Ground lesson 8.

Completion Standards: The student demonstrates knowledge and skill levels to Airman Certification Standards

Estimated Length: 90 minutes

Review:
- Aircraft configurations
- Normal and crosswind takeoffs and landings
- Two engine go-around/rejected landing
- V_{mc} demonstration

Introduce
- Engine shutdown using fuel selector, propeller feathering
- Engine restart procedures
- Two engine holding and instrument approach procedures
- Single engine holding and instrument approach procedures
- *Optional*: Night multi-engine operations

Flight Lesson 9: Prepare for Practical Test

Objective: To review all maneuvers and procedures necessary to prepare the student for Private or Commercial Pilot AMEL Added Class Rating and practical exam.

Completion Standards: The student will meet all standards of knowledge, judgement and skill as specified in the Private or Commercial Airman Certification Standards for the issuance of a Private or Commercial Pilot AMEL Class Rating.

Estimated Length: 90 minutes

- Normal takeoff and climb
- Short field takeoff and climb
- Steep turns
- Maneuvering during slow flight
- Power off stalls
- Power on stalls
- Accelerated stalls
- Normal approach and landing
- Short field approach and landing
- Engine failure during takeoff roll
- Engine failure during initial climb
- Engine failure in cruise
- V_{mc} demonstration
- Engine failure during instrument approach
- Approach and landing with an inoperative engine
- Emergency descent

Flight Lesson 10: Final Checkride Preparation

As desired for proficiency or to meet flight hour expectations

Objective: To evaluate the student according to the Private or Commercial Airman Certification Standards to determine whether the student is prepare to pass the Private or Commercial Pilot AMEL Added Class Rating practical test.

Completion Standards: The student will meet all standards of knowledge, judgement and skill as specified in the Private or Commercial Airman Certification Standards for the issuance of a Private or Commercial Pilot AMEL Class Rating.

- Normal takeoff and climb
- Short field takeoff and climb
- Steep turns
- Maneuvering during slow flight
- Power off stalls
- Power on stalls
- Accelerated stalls
- Normal approach and landing
- Short field approach and landing
- Engine failure during takeoff roll
- Engine failure during initial climb
- Engine failure in cruise
- V_{mc} demonstration
- Engine failure during instrument approach
- Approach and landing with an inoperative engine
- Emergency descent

Practical Flight Test: Check Ride with Examiner

Version	Date	Change
1.0	09/01/2025	Initial version