



**Private Pilot
Certification Course
(ASEL)
Ground Training
Syllabus
FAR Part 141**

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TECH AVIATION FLIGHT SCHOOL, INC.

APPROVED SCHOOL CERTIFICATE #TVMS353S

**PRIVATE PILOT CERTIFICATION COURSE
AIRPLANE SINGLE-ENGINE LAND (ASEL)
GROUND TRAINING SYLLABUS**

PRINT STUDENT NAME:

LAST NAME, FIRST NAME

**_____/_____/_____
DATE (mm/dd/yyyy)**

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INTRODUCTION

This ground training syllabus is designed to allow the pilot applicant to acquire the aeronautical knowledge needed to safely operate as a Private Pilot and satisfactorily complete the Private Pilot Knowledge Test.

Within this syllabus, there is one stage and fourteen separate lessons, each with stated objectives and completion standards that must be satisfied in order for the lesson to be complete. Adequate knowledge of the specified study material is necessary for satisfactory progress in the individual lessons and for overall progress in the course. The individual lesson times are not mandatory. The hours in each lesson are primarily for instructor and student guidance. Total specified training hours at the end of the course completion must be met (35 hours). However, before a student can receive a logbook endorsement or a ground school completion certificate, the sequence of lessons, including the course completion examination, must be satisfactorily completed.

Every lesson contains a training outline and a detailed list of items that the student must successfully complete. Normally, a lesson is complete in this allotted time. If a student is unable to master the lesson in the specified time, it is necessary to repeat all or portion of the lesson until completion standards are met.

This syllabus has lesson evaluations that check the student's progress. The course completion check at the end of this course assures that the student acquired the aeronautical knowledge required to satisfactorily complete the FAA Private Pilot (ASEL) Knowledge Test. The examination questions are extracted from the current FAA Private Pilot Knowledge Test questions in appropriate subject matter areas, or a reasonable facsimile.

A record of the ground training received, shall be formally documented on a chronological log of student attendance, including lessons covered, and names and grades of any tests taken.

TRAINING SYLLABUS

I. ENROLLMENT PREREQUISITES:

There are no specific requirements to enroll in this ground training course.

**II. GRADING CRITERIA
FOR THE STUDENT AND INSTRUCTOR:**

- I. The overall performance grade for each lesson completed is based on the evaluation assignments, knowledge, preparation, skill, attitude, and judgment of the student.
- II. Grading criteria is to be based upon the building block method of instruction. A lesson is not complete unless the instructor is satisfied with the student's performance in all areas, and awards the student a grade of Satisfactory (S) or 80% or higher on the entire lesson. The above criteria should be used as a guideline for this assessment. Students will demonstrate satisfactory knowledge of lesson content and achievement of lesson objectives by active participation in class discussion and by correctly answering the instructor's verbal and written questions. Minimum passing score on the course completion examination is 80%. Incorrect responses shall be corrected to reinforce and ensure student understanding.

III. OBJECTIVE

Since this ground training syllabus is organized as a single stage of training, the course and stage objective is to prepare the student to take the FAA Private Pilot (ASEL) Knowledge Test.

IV. COMPLETION STANDARDS

This ground training syllabus is complete when the student has satisfactorily completed all lessons, and passed the course completion examination with a minimum passing score of 80% and all incorrect exam responses have been corrected to ensure student understanding.

GROUND TRAINING LOG

Student Name: _____

	Lesson Time (h:min)	Actual Time Completed	Date Completed	Grade	Instructor Signature
101	2:30				
102	2:30				
103	2:30				
104	2:30				
105	2:30				
106	2:30				
107	2:30				
108	2:30				
109	2:30				
110	2:30				
111	2:30				
112	2:30				
113	2:30				
114 <input type="checkbox"/>	2:30				
Total	35:00:00				

√ Denotes Stage Check

◆ Denotes End of Course Check

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LESSON 101: (2:30 Hours, Ground Instruction)

I. OBJECTIVE:

- During this lesson, the student is introduced to the pilot training process, aviation opportunities and to human factors.

II. ACADEMIC CONTENT:

CHECK LIST

Course Overview:

Course Elements	_____
Course Material	_____
Exams and Tests	_____
Policies and Procedures	_____

Chapter #1 – Discovering Aviation:

Section A – Pilot Training

Role of the FAA	_____
Medical Certificates	_____
Pilot Certificates	_____
Private Pilot Privileges and Limits	_____

Section B – Aviation Opportunities

New Aviation Experiences	_____
Aviation Organizations	_____
Category / Class Ratings	_____
Additional Pilot Certificates	_____
Aviation Careers	_____

Section C – Introduction to Human Factors

Aeronautical Decision Making	_____
Crew Resource Management Training	_____
Aviation Physiology	_____
Alcohol, Drugs, and Performance	_____
Fitness for Flight	_____

III. COMPLETION STANDARDS:

- Students should demonstrate satisfactory knowledge of lesson content and achievement of lesson objectives by active participation in class discussion and by correctly answering instructor’s questions on lesson content.

LESSON 102: (2:30 Hours, Ground Instruction)

I. OBJECTIVE:

- During this lesson, the student is introduced to airplane systems.

II. ACADEMIC CONTENT:

CHECK LIST

Chapter #2 – Airplane Systems

Section A - Airplanes

The Fuselage

The Wing

The Empennage

Trim Devices

Landing Gear

The Powerplant

Pilot's Operating Handbook

Section B – The Powerplant and Related Systems

Engines

Reciprocating Engine Operations

Induction System

Supercharging and Turbocharging

The Ignition System

Abnormal Combustion

Fuel System

Refueling

Oil Systems

Cooling System

The Exhaust System

Propellers

Propeller Hazards

Electrical Systems

Section C – Flight Instruments

Pitot-Static Instruments

Airspeed Indicator

Altimeter

Vertical Speed Indicator

Gyroscopic Instruments

Magnetic Compass

Compass Errors

III. COMPLETION STANDARDS:

- Students should demonstrate satisfactory knowledge of lesson content and achievement of lesson objectives by active participation in class discussion and by correctly answering instructor's questions on lesson content.

LESSON 103: (2:30 Hours, Ground Instruction)

I. OBJECTIVE:

- During this lesson, the student is introduced to the four forces of flight, stability and aerodynamics of maneuvering flight.

II. ACADEMIC CONTENT:

CHECK LIST

Chapter #3 – Aeronautical Principles

Section A – Four Forces of Flight

Lift	_____
Newton’s Laws of Force and Motion	_____
Bernoulli’s Principle	_____
Airfoils	_____
Pilot Control of Lift	_____
Angle of Attack	_____
Weight	_____
Thrust	_____
Drag	_____
Ground Effect	_____

Section B - Stability

Three Axes of Flight	_____
Longitudinal Stability	_____
Center of Gravity Position	_____
Lateral Stability	_____
Directional Stability	_____
Stalls	_____
Spins	_____

Section C – Aerodynamics of Maneuvering Flight

Climbing Flight	_____
Left-Turning Tendencies	_____
Turning Flight	_____
Load Factor	_____

III. COMPLETION STANDARDS:

- Students should demonstrate satisfactory knowledge of lesson content and achievement of lesson objectives by active participation in class discussion and by correctly answering instructor’s questions on lesson content.

LESSON 104: (2:00 Hours, Ground Instruction)

I. OBJECTIVE:

- During this lesson, the student is introduced to the flight environment including safety, airports and charts

II. ACADEMIC CONTENT:

CHECK LIST

Chapter #4 – The Flight Environment

Section A – Safety of Flight

Collision Avoidance

Visual Scanning

Airport Operations

Right-of-Way Rules

Minimum Safe Altitudes

Taxiing in Wind

Positive Exchange of Flight Controls

Section B - Airports

Controlled and Uncontrolled Airports

Runway Layout

Traffic Pattern

Wind Direction Indicators

Noise Abatement Procedures

Airport Visual Aids

Runway Markings

Taxiway Markings

Runway Incursion Avoidance

Land and Hold Short Operations

Airport Lighting

Visual Glideslope Indicators

Approach Light Systems

Pilot-Controlled Lighting

Section C – Aeronautical Charts

Latitude and Longitude

Projections

Sectional Charts

World Aeronautical Charts (WAC)

Chart Symbology

III. COMPLETION STANDARDS:

- Students should demonstrate satisfactory knowledge of lesson content and achievement of lesson objectives by active participation in class discussion and by correctly answering instructor's questions on lesson content.

LESSON 105: (2:30 Hours, Ground Instruction)

I. OBJECTIVE:

- During this lesson, the student is introduced to the national airspace system and ATC Services

II. ACADEMIC CONTENT:

CHECK LIST

Chapter #4 – The Flight Environment

Section D – Airspace Classifications

Class G Airspace (uncontrolled)

Controlled Airspace

Class E Airspace

Class D Airspace

Class C Airspace

Class B Airspace

Class A Airspace

Special Use Airspace

Alert Areas

Military Operations Areas (MOA's)

Warning Areas

Restricted Areas

Prohibited Areas

Other Airspace Areas

Emergency Air Traffic Rules

Air Defense and Identification Zone (ADIZ)

Chapter #5 – Communication and Flight Information

Section A – Radar and ATC Services

Radar

Transponder Operation

FAA Radar Systems

VFR Radar Services

Terminal VFR Radar Services

Automatic Terminal Information Service (ATIS)

Flight Service Station

III. COMPLETION STANDARDS:

- Students should demonstrate satisfactory knowledge of lesson content and achievement of lesson objectives by active participation in class discussion and by correctly answering instructor's questions on lesson content.

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LESSON 106: (2:30 Hours, Ground Instruction)

I. OBJECTIVE:

- During this lesson, the student is introduced to the Federal Aviation Regulations and NTSB accident reporting requirements.

II. ACADEMIC CONTENT:

CHECK LIST

Federal Aviation Regulations and NTSB 830

14 CFR Part 1

- Definitions and Abbreviations, appropriate to Private _____

14 CFR Part 43 _____

14 CFR Part 61 _____

- Requirements for certificates and rating _____

- Duration of Pilot Certificates _____

- Medical Certificate Requirements, Classes, Duration _____

- Written Tests _____

- Practical Test _____

- Pilot Logbook and flight records, logging of time _____

- Recency of experience requirements _____

- Private Pilot privileges and limitations. _____

14 CFR Part 91 _____

- General Operations and Flight Rules _____

- VFR Requirements _____

- IFR Requirements _____

- Maintenance, preventive maintenance, airworthiness _____

- Familiarization with Subpart D. _____

NTSB 830 _____

III. COMPLETION STANDARDS:

- Students should demonstrate satisfactory knowledge of lesson content and achievement of lesson objectives by active participation in class discussion and by correctly answering instructor's questions on lesson content.

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LESSON 107: (2:30 Hours, Ground Instruction)

I. OBJECTIVE:

- During this lesson, the student is introduced to radio procedures and sources of flight information.

II. ACADEMIC CONTENT:

CHECK LIST

Chapter #5 (continued):

Section B – Radio Procedures

VHF Communication Equipment _____

Using the Radio _____

Phonetic Alphabet _____

Using numbers on the Radio _____

Coordinated Universal Time (UTC) (Z) _____

Common Traffic Advisory Frequency (CTAF) _____

Unicom _____

ATC Facility at Controlled Airports _____

Radar Facilities at Controlled Airports _____

Lost Communication Procedures _____

Emergency Procedures _____

Section C – Sources of Flight Information

Airport / Facility Directory (AFD) _____

Federal Aviation Regulations _____

Aeronautical Information Manual (AIM) _____

Notices to Airmen (NOTAMS) _____

Advisory Circulars (ACs) _____

III. COMPLETION STANDARDS:

- Students should demonstrate satisfactory knowledge of lesson content and achievement of lesson objectives by active participation in class discussion and by correctly answering instructor's questions on lesson content.

LESSON 108: (2:30 Hours, Ground Instruction)

I. OBJECTIVE:

- During this lesson, the student is introduced to basic weather theory.

II. ACADEMIC CONTENT:

CHECK LIST

Chapter # 6 – Meteorology for Pilots
Section A – Basic Weather Theory

The Atmosphere _____
Atmospheric Circulation _____
Atmospheric Pressure _____
Coriolis Force _____
Local Wind Patterns _____

Section B – Weather Patterns

Atmospheric Stability _____
Temperature Inversions _____
Moisture _____
Humidity _____
Dew point _____
Clouds _____
Precipitation _____
Airmass _____
Fronts _____

Section C – Weather Hazards

Thunderstorms _____
Thunderstorm Hazards _____
Turbulence _____
Wake Turbulence _____
Wind Shear _____
Icing _____
Restrictions to Visibility _____
Volcanic Ash _____

III. COMPLETION STANDARDS:

- Students should demonstrate satisfactory knowledge of lesson content and achievement of lesson objectives by active participation in class discussion and by correctly answering instructor’s questions on lesson content.

LESSON 109: (2:30 Hours, Ground Instruction)

I. OBJECTIVE:

- During this lesson, the student is introduced to weather hazards, the weather forecasting process, printed reports and forecasts, graphic weather products and sources of weather information.

II. ACADEMIC CONTENT:

CHECK LIST

Chapter # 7 – Interpreting Weather Data	
Section A – The Forecasting Process	
Forecasting Methods, Accuracy and Limitations	_____
Section B – Printed Reports and Forecasts	
Printed Weather Reports	_____
Aviation Routine Weather Reports (METAR)	_____
Radar Weather Reports	_____
Pilot Weather Reports (PIREPs)	_____
Printed Weather Forecasts	_____
Terminal Aerodrome Forecast	_____
Aviation Area Forecast	_____
Wind and Temperatures Aloft Forecast	_____
Severe Weather Reports and Forecasts	_____
AIRMET	_____
SIGMET / Convective SIGMET	_____
Overview of LDA, SDF, and MLS	_____
Section C – Graphic Weather Products	
Graphic Reports	_____
Surface Analysis Chart	_____
Weather Depiction Chart	_____
Radar Summary Chart	_____
Satellite Weather Chart	_____
Graphic Forecasts	_____
U.S. Low-Level Sig. Weather Prog.	_____
Severe Weather Outlook Chart	_____
Forecast Winds and Temp. Aloft Chart	_____
Volcanic Ash Forecast and Dispersion	_____
Section D – Source of Weather Information	
Pre-flight Weather Source	_____
In-Flight Weather Source	_____
Enroute Flight Advisory Service (EFAS)	_____
Weather Radar Services	_____
Automated Weather Reporting Systems	_____

III. COMPLETION STANDARDS:

- Students should demonstrate satisfactory knowledge of lesson content and achievement of lesson objectives by active participation in class discussion and by correctly answering instructor’s questions on lesson content.

LESSON 110: (2:30 Hours, Ground Instruction)

IV. OBJECTIVE:

- During this lesson, the student is introduced to airplane performance, weight and balance and flight computers.

V. ACADEMIC CONTENT:

CHECK LIST

Chapter #8 – Airplane Performance

Section A- Predicting Performance

Aircraft Performance and Design	_____
Chart Presentations	_____
Factors Affecting Aircraft Performance	_____
Takeoff and Landing Performance	_____
Climb Performance	_____
Cruise Performance	_____

Section B – Weight and Balance

Importance of Weight	_____
Importance of Balance	_____
Weight and Balance Terms	_____
Principles of Weight and Balance	_____
Determining Total Weight and Center of Gravity	_____
Computation Method	_____
Table Method	_____
Graph Method	_____
Weight-Shift Formula	_____
Effects of Operating at High Total Weights	_____
Flight at Various CG Positions	_____

Section C – Flight Computers

Mechanical Flight Computers	_____
Electronic Flight Computers	_____

VI. COMPLETION STANDARDS:

- Students should demonstrate satisfactory knowledge of lesson content and achievement of lesson objectives by active participation in class discussion and by correctly answering instructor’s questions on lesson content.

LESSON 111: (2:30 Hours, Ground Instruction)

VII. OBJECTIVE:

- During this lesson, the student is introduced to various forms of navigation.

VIII. ACADEMIC CONTENT:

CHECK LIST

Chapter #9 - Navigation

Section A – Pilotage and Dead Reckoning

- Pilotage _____
- Dead Reckoning _____
- Flight Planning _____
- VFR Cruising Altitudes _____
- Flight Plan _____
- Lost Procedures _____

Section B – VOR Navigation

- Ground Equipment _____
- Airborne Equipment _____
- Navigation Procedures _____
- Horizontal Situation Indicator _____
- Distance Measuring Equipment _____

Section C – ADF Navigation

- Navigation Procedures _____
- Homing _____
- Radio Magnetic Indicator _____
- ADF Limitations _____

Section D – Advanced Navigation

- Types of Equipment (RNAV) _____
- VORTAC – Based Area Navigation _____
- Long Range Navigation _____
- LORAN / INS / GPS _____

IX. COMPLETION STANDARDS:

- Students should demonstrate satisfactory knowledge of lesson content and achievement of lesson objectives by active participation in class discussion and by correctly answering instructor’s questions on lesson content.

LESSON 112: (2:30 Hours, Ground Instruction)

X. OBJECTIVE:

- During this lesson, the student is introduced to aviation physiology and aeronautical decision making.

XI. ACADEMIC CONTENT:

CHECK LIST

Chapter # 10 – Applying Human Factors Principles

Section A – Aviation Physiology

Vision in Flight

Night Vision

Visual Illusions

Disorientation

Respiration

Hypoxia

Supplemental Oxygen

Hyperventilation

Section B – Aeronautical Decision-Making

Applying the Decision-Making Process

Pilot-In-Command Responsibility

Hazardous Attitudes

Communication

Resource Use

Workload Management

Situational Awareness

XII. COMPLETION STANDARDS:

- Students should demonstrate satisfactory knowledge of lesson content and achievement of lesson objectives by active participation in class discussion and by correctly answering instructor's questions on lesson content.

LESSON 113: (2:30 Hours, Ground Instruction)

I. OBJECTIVE:

- During this lesson, the student is introduced to aviation physiology and aeronautical decision making.

II. ACADEMIC CONTENT:

CHECK LIST

Chapter # 11 – Flying Cross-Country

Section A – The Flight Planning Process

Developing the Route

Preflight Weather Briefing

Completing the Navigation Log

Flight Plan

Preflight Inspection

Section B – The Flight

III. COMPLETION STANDARDS:

- Students should demonstrate satisfactory knowledge of lesson content and achievement of lesson objectives by active participation in class discussion and by correctly answering instructor’s questions on lesson content.

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LESSON 114: (2:30 Hours, Course Completion, Ground Instruction)

I. OBJECTIVE:

- During this Final Lesson, the instructor will review pertinent material and conduct the course completion examination. The final part of this lesson will include a discussion of all incorrect responses on the examination.

II. ACADEMIC CONTENT:

CHECK LIST

Review, Exam, Critique

III. COMPLETION STANDARDS:

- This lesson and the Private Pilot (ASEL) Ground Training Syllabus shall be complete when the student has passed the Course Completion Examination with a minimum passing score of 70% and incorrect test responses have been corrected to ensure student understanding.