UNIVERSITY OF OKLAHOMA
PRIVATE PILOT COURSE GROUND TRAINING SYLLABUS

THERE ARE NO PREREQUISITES FOR ENROLLMENT IN THE GROUND TRAINING PORTION OF THE PRIVATE PILOT COURSE

GROUND TRAINING COURSE OBJECTIVES

The student will obtain the knowledge specified by 14 CFR Section 141, Appendix B, paragraph 3(b).

GROUND TRAINING COMPLETION STANDARDS

The student will demonstrate through oral discussion, written and oral quizzes that they have met the Ground Training Objectives and has obtained the knowledge necessary to be recommended to take the FAA Private Pilot Airplane Knowledge Test.

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GROUND TRAINING TIME ALLOCATION

	HOURS	
STAGE I		
Ground Lesson 1	**3.9**	
Ground Lesson 2	**2.6**	
Ground Lesson 3	**2.6**	
Ground Lesson 4	**3.9**	
Ground Lesson 5	**1.3**	**EXAM**
Ground Lesson 6	**0.5**	**REVIEW**
STAGE II		
Ground Lesson 7	**2.6**	
Ground Lesson 8	**3.9**	
Ground Lesson 9	**2.6**	
Ground Lesson 10	**2.6**	
Ground Lesson 11	**1.3**	**EXAM**
Ground Lesson 12	**0.5**	**REVIEW**
STAGE III		
Ground Lesson 13	**2.6**	
Ground Lesson 14	**2.6**	
Ground Lesson 15	**1.3**	
Ground Lesson 16	**1.3**	**EXAM**
Ground Lesson 17	**0.5**	**REVIEW**
TOTAL	**36.6**	

Note: The Chapter and Sections referred to in this syllabus are based on the Private Pilot Manual, published by Jeppesen Sanderson, Inc, Inglewood Colorado, the Federal Aviation Regulations, Aeronautical Information Manual (AIM) and Aircraft Pilots Operating Handbook (POH) The hours designated for each chapter are suggested guidelines only, and may vary at the Instructor's discretion. In no case will the hours of instruction be less than the total number of hours defined in this syllabus.

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STAGE I

STAGE OBJECTIVE

During this stage, the student will learn airplane components, systems and flight instruments. The student will learn how to compute airplane performance and weight and balance and the aerodynamic principles of flight that affect their operation. The student also will obtain a basic knowledge of safety of flight, airports, airspace, and aeronautical charts.

STAGE COMPLETION STANDARD

This stage is complete when the student has taken the Stage I written exam with a minimum passing score of 70%, and the instructor has reviewed each incorrect response to ensure complete understanding before the student progresses to Stage II.

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GROUND LESSON 1

TEXT REFERENCE: Private Pilot Manual - Chapter 2, "Airplane Systems"
14 CFR Section 91
Aircraft Pilots Operating Handbook (POH), Section 2

LESSON OBJECTIVE: During this lesson the student is introduced to airplanes, the powerplant and related systems, and the flight instruments. The student will also learn what equipment is required to be on the aircraft and procedures for flying with inoperative equipment.

CONTENT:

Section A - "Airplanes"

- Major Components
  -- Fuselage
  -- Wing
  -- Empennage
  -- Trim Devices
  -- Landing Gear/Brakes
  -- Powerplant
- Pilot's Operating Handbook
- Airworthiness Requirements
  --Required Maintenance and Inspections
  --Airworthiness Directives
  -- Aircraft Equipment Required for VFR Day and Night
  -- Kinds of Operation Equipment List (KOEL)
  -- Inoperative Instruments and Equipment
  -- Special Flight Permit
  -- Required Aircraft Certificates and Documents

Section B - "Powerplant and Related Systems"

- Engines – Reciprocating Engine Operation
- Induction System
  -- Carburetor
  -- Fuel Injection
- Ignition System
- Fuel System
- Oil System
- Cooling System
- Exhaust System
- Propeller/ Propeller Hazards
- Electrical System

Ground Lesson 1 (Continued)

Section C - "Flight Instruments"

- Pitot-Static System
  -- Airspeed Indicator – Markings and Types of Airspeed
  -- Altimeter – Types of Altitude and Altimeter Errors
  -- Vertical Velocity Indicator
  -- Blockage of Pitot-Static System
- Gyroscopic Principles – Rigidity in Space and Precession
- Gyroscopic Sources of Power

- Gyroscopic Instruments
  -- Attitude Indicator
  -- Heading Indicator
  -- Turn Coordinator
- Magnetic Compass and Magnetic Compass Errors
- Integrated Flight Displays
  -- Primary Flight Display
  -- Multifunction Display

COMPLETION STANDARDS:

The student will complete assigned questions from Chapter 2, Sections A, B, and C. Through oral quizzing and/or discussion, the student will demonstrate an understanding of airplanes, powerplants, and instruments, required equipment and flying with inoperative equipment before progressing to Ground Lesson 2.

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GROUND LESSON 2

TEXT REFERENCE: Private Pilot Manual - Chapter 8, "Airplane Performance"
AIRCRAFT PILOT OPERATING HANDBOOK (POH)

LESSON OBJECTIVE: During this lesson, the student learns to use data supplied by the manufacturer to predict airplane performance and compute and control the weight and balance of the airplane. The student will also become familiar with the basic functions of the mechanical flight computer.

CONTENT:
Section A – "Predicting Performance" and Aircraft POH Section 5

- Aircraft Performance and Design
- Chart Presentations – Table and Graph Format
- Factors Affecting Performance (Takeoff, Climb, Cruise, Landing)
  -- Density Altitude (Temperature and Pressure Altitude)
  -- Headwind and Crosswind Components)
- Takeoff and Landing Performance
- Climb Performance
- Cruise Performance

Section B – "Weight and Balance" and Aircraft POH Section 6

- Importance of Weight and Balance
- Weight and Balance Terms
- Principles of Weight and Balance
- Methods of Calculating Weight and Balance – Computation, Table and Graph Methods
- Weight Shift Formula
- Effects of Operating at High Total Weights
- Flight at Various CG Positions

COMPLETION STANDARDS:

The student will complete the assigned questions from Chapter 8, Sections A, B, and C. Through oral quizzing and/or discussion, the student will demonstrate an understanding of airplane performance before progressing to Ground Lesson 3.

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GROUND LESSON 3

TEXT REFERENCE: Private Pilot Manual - Chapter 3, "Aerodynamic Principles"
AC 61-67, "Stalls and Spin Awareness Training"

LESSON OBJECTIVE: During this lesson the student learns about the four forces of flight, aerodynamic principles of maneuvering flight, and factors affecting airplane stability. The student will gain an understanding of stall/spin characteristics as they relate to training airplanes and the importance of prompt recognition of stall indications.

CONTENT:

Section A - "The Four Forces of Flight"

- Lift
  --Newtons Laws of Force and Motion
  --Bernoulli's Principle
  -- Airfoils
  -- Stalls
  -- Wing Design Factors
  -- Pilot Control of Lift – Changing Angle of Attack and Airspeed
- Weight
- Thrust
- Drag
  -- Parasite Drag
  -- Induced Drag
  -- Total Drag
  -- Ground Effect Impact on Induced Drag

Section B - "Stability" and AC61-67

- Static and Dynamic Stability
- Maneuverability
- Three Axes of Flight – Longitudinal, Lateral and Vertical
- Center of Gravity
- Longitudinal Stability Around the Lateral Axis – Effects of Center of Gravity Location
- Lateral Stability Around the Longitudinal Axis – Dihedral, Sweepback and Keel Effect
- Directional Stability
- Stalls – Types, Recognition and Recovery
- Spins – Primary Causes, Types, Phases, Prevention and Recovery

Section C - "Aerodynamics of Maneuvering Flight"

- Climbing Flight
- Forces acting on a Descending Airplane
- Left Turning Tendencies - Torque, Gyroscopic Precession, Asymmetrical Thrust, Spiraling Slipstream
- Descending Flight
  -- Glides – Lift to Drag Ratio, Glide Speed/Ratio, Factors Affecting the Glide
- Turning Flight
- Load Factor
  -- In Turns
  -- Load Factor and Stall Speed
  -- Limit Load Factor
  -- Maneuvering Speed

Ground Lesson 3 (Continued)

COMPLETION STANDARDS:

The student will complete assigned questions from Chapter 3, Sections A, B, and C. Through oral quizzing and/or discussion, the student will demonstrate an understanding of the aerodynamics of maneuvering flight, the four forces of flight, and stability before progressing to Ground Lesson 4.

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GROUND LESSON 4

TEXT REFERENCE: Private Pilot Manual - Chapter 4, "The Flight Environment"
Aeronautical Information Manual (AIM)

LESSON OBJECTIVE: The objective of this lesson is for the student to learn important safety of flight considerations including collision avoidance, scanning techniques, right-of-way regulations, and minimum safe altitudes. The student will also become thoroughly familiar with airports, including markings and lighting aids. In addition, the student will become familiar with the different classes of airspace and aeronautical charts.

CONTENT:

Section A – "Safety of Flight"

- Collision Avoidance
- Visual Scanning
- Blind spots and Aircraft Design
- Cockpit/Flight Deck Traffic Displays
- Airport Operations
- Maneuvering in the Training Area
- Right-of-Way Rules
- Minimum Safe Altitudes
- Wire Strike Avoidance
- Flight Over Hazardous Terrain
- Taxiing in Winds
- Positive Exchange of Flight Controls

Section B - "Airports" and AIM Chapter 2 Sections 1 and 3

- Controlled and Uncontrolled Airports
- Runway Layout
- Traffic Pattern
- Wind Direction Indicators
- Segmented Circle
- Noise Abatement Procedures
- Airport Visual Aids
- Taxiway Markings
- Ramp Area/Hand Signals
- Airport Signs
- Runway Incursion Avoidance
- Land and Hold Short (LAHSO) Operations
- Airport Lighting
  - -- Runway Lighting
  - -- Taxiway Lighting
  - -- Pilot Controlled Lighting
- Airport Security

Ground Lesson 4 (Continued)

Section C - "Aeronautical Charts" and AIM Chapter 9, Section 1

- Latitude and Longitude
- Projections
- Sectional Charts
- VFR Terminal Area Charts
- Symbology
  -- Airport Symbols
  -- Airport Data
  -- Navigation Aids
  -- Topographical Information and Obstructions

Section D – "Airspace" and AIM Chapter 3

- Airspace Classifications – Controlled and Uncontrolled. Dimensions, Pilot Qualifications, VFR Weather Minimums, Equipment, Airspeed and Communication Requirements
  -- Class A Airspace
  -- Class B Airspace
  -- Class C Airspace
  -- Class D Airspace
  -- Class E Airspace
  -- Class G Airspace
- Special Use Airspace
  -- Alert Areas
  -- Military Operations Areas
  -- Warning Areas
  -- Restricted Areas
  -- Prohibited Areas
  -- Controlled Firing Areas
  -- National Security Areas
  -- Local Airport Advisory Areas (Alaska)
  -- Military Training Routes
  -- Parachute Jump Aircraft Operations
  -- Terminal Radar Service Areas
  -- Temporary Flight Restrictions
  -- Air Defense Identification Zone (ADIZ)
  -- Special Flight Rules Area (SFRA) – Washington DC, New York/Hudson Rive, Grand Canyon, LAX Airport

COMPLETION STANDARDS:

The student will complete assigned questions from Chapter 4, Sections A, B, C, and D. Through oral quizzing and/or discussion, the student will demonstrate an understanding of the flight environment before progressing to Ground Lesson 5.

GROUND LESSON 5 STAGE I EXAM

LESSON OBJECTIVE: The exam administered during this session evaluates the student's comprehension of the material presented in Lessons 1 through 4:

CONTENT:

Stage I Exam:

Airplane Systems
Predicting Airplane Performance and Weight and Balance
Aerodynamic Principles
The Flight Environment

COMPLETION STANDARDS:

The lesson and stage are complete when the student has completed the exam with a minimum passing score of 70%.

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GROUND LESSON 6

LESSON OBJECTIVE:

Review of Questions missed on the Stage I Exam

CONTENT:

The instructor will review questions missed on the Stage I Exam

COMPLETION STANDAREDS:

Through oral quizzing and/or discussion the student will demonstrate satisfactory knowledge of the questions missed on the Stage I exam.

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STAGE II

STAGE OBJECTIVE

The student will learn about ATC services and radio procedures, Navigation by use of pilotage and dead reckoning, VOR's and GPS. The student will also learn basic weather theory, weather hazards, interpretation of weather products and sources of weather information during preflight preparation and while airborne.

STAGE COMPLETION STANDARD

This stage is complete when the student has taken the Stage II written exam with a minimum passing score of 70%, and the instructor has reviewed each incorrect response to ensure complete understanding before the student progresses to Stage III.

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GROUND LESSON 7

TEXT REFERENCE: Private Pilot Manual - Chapter 5, "Communication and Flight Information"
Aeronautical Information Manual (AIM)

CONTENT:

Section A – "ATC Services" and AIM Chapter 4, Sections 1 and 5

- Automatic Dependent Surveillance- Broadcast (ADS-B)
  -- ADS-B Services
  -- ADS-B Data Links
- Radar – Operations and Limitations
- Transponders
  -- Modes
  -- Codes
  -- Operation
  -- Inspection
- Flight Service
- Control Tower Services
- Terminal Radar Approach Control (TRACON) and Air Route Traffic Control Center (ARTCC) Services
  -- Flight Following
  -- Pilot Responsibilities
  -- Interpreting Traffic Advisories

Section B – "Radio Procedures" and AIM Chapter 4, Sections 2 and 4

- VHF Communication Equipment
- Using the Radio
  -- Phonetic Alphabet
  -- Numbers
  -- Coordinated Universal Time (UTC)
- Common Traffic Advisory Frequency (CTAF) - UNICOM, MULTICOM, LAA Service (Alaska)
  -- CTAF Self-Announce Procedure
- Controlled Airports and ATC Procedures
- Using ATC Facilities
  -- Departure Procedures
  -- Taxi Clearances
  -- Control Tower
  -- Departure Control
  -- Arrival Procedures
- Reading Back Clearances
- Lost Communication Procedures
- Emergency Procedures

Ground Lesson 7 (Continued)

Section C – "Sources of Flight Information"

- Aeronautical Charts
- Chart Supplement – Airport Facility Legend and Directory, Notices, Associated Data, Airport Diagrams
  -- Obtaining Information on Runway Lengths at Airports of Intended Use
- Notices to Air Missions (NOTAMS)
- Federal Aviation Regulations
- Aeronautical Information Manual (AIM)

COMPLETION STANDARDS:

The student will complete the assigned questions from Chapter 5, Sections A, B, and C. Through oral quizzing and/or discussion, the student will demonstrate an understanding of communications and flight information before progressing to Ground Lesson 8.

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GROUND LESSON 8

TEXT REFERENCE: Private Pilot Manual – Chapters 8 "Airplane Performance" and 9, "Navigation"
AERONAUTICAL INFORMATION MANUAL (AIM)

LESSON OBJECTIVE: During this lesson, the student learns the basic concepts and principles of VFR navigation using pilotage, dead reckoning, and aircraft navigation systems. They student will become familiar with guidelines and recommended procedures relating to flight planning, the use of the ICAO flight plan and VFR cruising altitudes.

CONTENT:

Chapter 9 Section A – "Pilotage and Dead Reckoning"

- Pilotage
- Dead Reckoning
- VFR Cruising Altitudes
- Fuel Requirements
- Flight Planning – Use of a Navigation Log
- Completing an ICAO Flight Plan

Chapter 8 Section C – "Mechanical Flight Computers – E6B"

- Using the Computer Side
  -- Time, Speed, and Distance Calculations
  -- Fuel Consumptions – Required, Endurance, Actual Consumption Rate
  -- Airspeed and Density Altitude Calculations
  -- Conversions – Statute to Nautical
- Using the Wind Side
  -- Determining Magnetic Heading
  -- Determining Ground Speed
- Airspeed Computations
- Density Altitude Computations
- Wind Problems
- Conversions

Chapter 9 Section B - "VOR Omnidirectional Range" AIM Chapter 1, Section 1

- VOR Ground and Airborne Equipment
- Navigation Procedures
  -- Identifying a Station
  -- Interesting VOR Indicators
  -- Intercepting and Tracking a Course
  -- Cross Checking Your Position
- Checking VOR Accuracy

Ground Lesson 8 (Continued)

Chapter 9 Section C – "Satellite Navigation – GPS" AIM Chapter 1, Section 1

- GPS Operation
  -- Trilateration
  -- Wide Area Augmentation System (WAAS)
  -- Receiver Autonomous Integrity Monitoring (RAIM)
- Navigating With GPS
  -- Equipment
  -- Navigation Database
  -- Course Deviation Indicator
  -- Moving Map
  -- Waypoints
  -- GPS Flight Planning
  -- Navigation Data
  -- Intercepting and Tracking a Course

COMPLETION STANDARDS:

The student will complete the assigned questions from Chapter 9, Sections A and B and C. Through oral quizzing and/or discussion, the student will demonstrate an understanding of navigational concepts and procedures necessary to plan and complete a flight under VFR conditions before progressing to Ground Lesson 9.

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GROUND LESSON 9

TEXT REFERENCE: Private Pilot Manual - Chapter 6, "Meteorology for Pilots"
AC 00-6, “Aviation Weather”

LESSON OBJECTIVE: Through the study of meteorology, the student will learn the causes of various weather conditions, frontal systems, and hazardous weather phenomena. In addition, the student will learn to recognize critical weather situations from the ground and in flight.

CONTENT:

Section A - "Basic Weather Theory" AC 00-6, Chapters 1 - 9

- The Atmosphere
  -- Levels
  -- Composition
- Atmospheric Circulation
  -- Temperature
  -- Convection
  -- Three Cell Circulation Pattern
  -- Atmospheric Pressure
  -- Coriolis Force
  -- Friction Force
  -- Global Wind Patterns
  -- Local Wind Patterns

Section B - "Weather Patterns" AC 00-6, Chapters 10-14

- Atmosphere Stability and Temperature Inversions
- Moisture
  -- Change of State
  -- Humidity
- Clouds
  -- Low Clouds
  -- Middle Clouds
  -- High Clouds
  -- Clouds with Vertical Development
- Precipitation
  -- Causes
  -- Types
- Airmasses
  -- Source Regions
  -- Classifications
  -- Modification – Warming and Cooling From Below
- Fronts
  -- Frontal Discontinuities – Temperature, Wind, Pressure
  -- Cold Fronts
  -- Warm Fronts
  -- Stationary Fronts
  -- Occluded Fronts

Ground Lesson 9 (Continued)

Section C - "Weather Hazard/Critical Weather Situations" AC 00-6 Chapters 15 - 19

- Thunderstorms
  -- Types
  -- Life Cycle – Cumulus, Mature and Dissipating
  -- Hazards – Turbulence, Lighting, Hail, Tornados, Winds
- Turbulence
  -- Low Level Turbulence
  -- Mechanical Turbulence
  -- Convective Turbulence
  -- Frontal Turbulence
  -- Wake Turbulence – Recognition and Avoidance
  -- Clear Air Turbulence
  -- Mountain Wave Turbulence
- Wind Shear
- Microbursts – Inflight Visual Indications
- Icing – Rime, Clear, Mixed
- Restrictions to Visibility
- Volcanic Ash

COMPLETION STANDARDS:

The student will complete the assigned questions from Chapter 6, Sections A, B, and C. Through oral quizzing and/or discussion, the student will demonstrate an understanding of basic weather theory, patterns, and hazards before progressing to Ground Lesson 12.

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GROUND LESSON 10

TEXT REFERENCE: Private Pilot Manual - Chapter 7, "Interpreting Weather Data"
Aeronautical Information Manual (AIM)
AC 00-45 "Aviation Weather Services"

LESSON OBJECTIVE: During this lesson, the student will learn how to procure and interpret weather reports, forecasts, and charts. In addition, the student will become familiar with the various sources of weather information.

CONTENT:

Section A – "The Forecasting Process"

- Forecasting Methods
  -- Persistence
  -- Trend
  -- Climatological
  -- Analogue
  -- Meteorological
  -- Numerical Weather Prediction
- Forecasting Accuracy and Limitations

Section B - "Printed Reports and Forecasts" AIM Chapter 7, Section 1; AC 00-45, Chapters 3 - 5

- Aviation Routine Weather Reports (METARs)
- Pilot Reports (PIREPs)
- Terminal Aerodrome Forecasts (TAFs)
- Winds and Temperatures Aloft Forecast (FD)
- Severe Weather Reports and Forecasts
  -- Hurricane Advisory
  -- Convective Outlook
  -- Severe Weather Watch Bulletin
  -- Airmet
  -- Sigmet
  -- Convective Sigmet

Section C - "Graphic Weather Products" AIM Chapter 7, Section1; AC00-45, Chapters 3 - 5

- Analyses
  -- Surface Analysis Chart
  -- Weather Depiction Chart
  -- Radar Charts and Images
  -- Satellite Weather Pictures
  -- Constant Pressure Analysis Chart
- Forecasts
  -- Aviation Surface Forecast Charts
  -- Aviation Cloud Forecast Charts
  -- Significant Weather Prognostic Charts
    --- Low Level
    --- Mid and High Level
  -- Convective Outlook Chart
  -- Forecast Winds and Temperatures Aloft

Ground Lesson 10 (Continued)

-- Current and Forecast Icing Products
-- Volcanic Ash Forecast and Dispersion Chart

Section D - "Sources of Weather Information" AIM Chapter 7, Section 1; AC 00-45, Chapter 1 - 2

- Preflight Weather Sources
  -- Flight Service
    --- Phone: 1-800-WX-BRIEF
    --- Internet: 1800WBRIEF.com
  -- Other Government and/or Private Industry Sources
    --- AviationWeather.gov
    --- ForeFlight
- Preflight Weather Briefings
  -- Standard
  -- Abbreviated
  -- Outlook
- In-Flight Weather Sources
  -- Flight Service
  -- Air Route Traffic Control Center – Center Weather Advisories
  -- Automated Weather Reporting Systems – ASOS and AWOS
- Data Link Weather
  -- Flight Information Services – Broadcast (FIS-B) Received Via ADS-B IN
  -- Commercial – XM Weather
  -- Hazard of Time Delay in Depicting Radar Imagery
- Airborne Weather Radar

COMPLETION STANDARDS:

The student will complete the assigned questions from Chapter 7, Sections A, B, C, and D. Through oral quizzing and/or discussion, the student will demonstrate an understanding of the forecast process, interpreting weather printed and graphical forecast products and sources of weather information before progressing to Ground Lesson 13.

GROUND LESSON 11 STAGE II EXAM

LESSON OBJECTIVE: The exam administered during this session evaluates the student's comprehension of the material presented in Lessons 7 – 10.

CONTENT:

Communications and Flight Information
Navigation
Meteorology for Pilots
Interpreting Weather Data
Sources of Weather Information

COMPLETION STANDARDS:

This lesson is complete when the student has completed the exam with a minimum passing score of 70%,

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GROUND LESSON 12

LESSON OBJECTIVE:

Review of Questions missed on the Stage II Exam

CONTENT:

The instructor will review questions missed on the Stage II Exam

COMPLETION STANDAREDS:

Through oral quizzing and/or discussion the student will demonstrate satisfactory knowledge of the questions missed on the Stage II exam before progressing to Stage III.

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STAGE III

STAGE OBJECTIVE

The student will learn about the cross country planning process and actions to be taken in each phase of cross country flight. The student will also learn about aviation physiology, Single Pilot Resource Management, Aeronautical Decision Making and Risk Analysis. Finally the student learn the applicable federal aviation regulations for private pilot privileges, limitations and flight operations as well as accident reporting requirements of the National Transportation Safety Board.

STAGE COMPLETION STANDARD

This stage is complete when the student has taken the Stage II written exam with a minimum passing score of 70%, and the instructor has reviewed each incorrect response to ensure complete understanding.

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GROUND LESSON 13

TEXT REFERENCE: Private Pilot Manual - Chapter 11, "Flying Cross-Country"

LESSON OBJECTIVE: The student will develop a basic understanding of the planning process for a cross country flight and will become familiar with the details of flying the typical cross country trip. Weather evaluation techniques and the necessity to plan for diversions will be developed.

CONTENT:

Section A – "The Flight Planning Process"

- Perform a Flight Overview
- Develop the Route
  -- Plan for Alternatives if Planned Flight Can't be Completed or Delays Encountered
- Obtain a Weather Briefing
- Complete the NAV Log
- File the Flight Plan
- Perform Preflight Tasks

Section B – "The Flight"

- Predeparture
- Climb and Initial Cruise
- Enroute
- Diversion Conditions
- Diversion Actions
- Descent
- Before Approach and Landing
- Postflight

COMPLETION STANDARDS:

The student will complete assigned questions from Chapter 11, Sections A and B. Through oral quizzing and/or discussion, the student will demonstrate an understanding of the flight planning process before progressing to Ground Lesson 14.

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GROUND LESSON 14

TEXT REFERENCE: Private Pilot Manual – Chapters 1 and 10, Applying Human Factors Principles
Aeronautical Information Manual (AIM)

LESSON OBJECTIVE: The student will gain an insight into aviation physiological factors as they relate to private pilot operations. He will become familiar with cockpit resource management procedures, human factors training, and gain a basic understanding of aeronautical decision making and judgement.

CONTENT:
Section A – "Aviation Physiology" AIM, Chapter 8

- Vision
  -- Anatomy of the Eye
  -- Night Vision and Scanning
  -- Optical Illusions
    --- Autokinesis
    --- False Horizons
    --- Landing Illusions
- Motion Sickness
- Spacial Disorientation/Vestibular Illusions
  -- Coriolis Illusion
  -- Graveyard Spiral
  -- Leans
  -- Somatogravic Illusion
  -- Inversion Illusion
- Hypoxia
  -- Hypoxic
  -- Hypemic (Carbon Monoxide Poisoning)
  -- Stagnant
  -- Histotoxic
- Hyperventilation
- Dehydration
- Hypothermia
- Trapped Gas
  -- Ear and Sinus Block
  -- Toothache
  -- Gastrointestinal Pain
- Evolved Gas from Scuba Diving
- Motion Sickness
- Effects of Alcohol, Drugs and Over the Counter Medications

Chapter 1, Section C and Chapter 10 Section B – Single-Pilot Resource Management

- Accidents and Incidents
  -- Poor Judgment Chain
  -- Learning From ASRS Reports
- PAVE Checklist
  -- Pilot
  -- Aircraft
  -- enVironment
  -- External Pressures

Ground Lesson 14 (Continued)

- IMSAFE Checklist
  -- Illness
  -- Medication
  -- Stress – Physical, Physiological, Psychological
  -- Alcohol/Drugs
  -- Fatigue – Acute, Chronic
  -- Eating
- Hazardous Attitudes
  --Anti-Authority
  -- Invulnerability
  -- Macho,
  -- Impulsivity
  -- Resignation
- Risk Management – 5P Checklist During Preflight and Flight
  -- Pilot
  -- Passengers
  -- Plane
  -- Programming
  -- Plan
- Aeronautical Decision Making
  -- Recognize a Change
  -- Define the Problem
  -- Choose a Course of Action
  -- Implement the Decision
  -- Evaluate the Outcome
- Flight Risk Analysis Tool (FRAT)
- Task Management
- Resource Use
  -- Internal
  -- External
- Flight Deck Management
- Situational Awareness
  -- Obstacles to Situational Awareness
  -- Situational Awareness During Ground Operations
  -- Sterile Cockpit
- Controlled Flight Into Terrain Awareness
- Automation Management
  -- Information Management
  -- Maintaining Situational Awareness While Using Automation
  -- Automation Surprise

COMPLETION STANDARDS:

The student will complete the assigned questions from Chapter 10, Sections A and B. Through oral quizzing and/or discussion, the student will demonstrate an understanding of aviation decision making and physiology before progressing to Ground Lesson 15.

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GROUND LESSON 15

TEXT REFERENCE: 14 CFR Sections 61 and 91
NTSB 830

LESSON OBJECTIVE: During this lesson, the student will study the appropriate Federal Aviation Regulations for private pilot privileges, limitations and flight operations and accident reporting requirements of the National Transportation Safety Board (NTSB).

CONTENT:

FAR Part 61
- 61.15 – Offenses Involving Alcohol or Drugs (Emphasis 61.15e – Reporting)
- 61.23 - Medical Certificates: Requirement and Duration
- 61.31(e)(f)(g)(i) – Additional Training for Complex, High Performance, Pressurized/High Altitude and Tailwheel Airplanes
- 61.51 - Pilot Logbooks
- 61.53 - Prohibition on Operations During Medical Deficiency
- 61.56 - Flight Review
- 61.57 - Recent Flight Experience: Pilot in Command
- 61.60 - Change of Address
- 61.89 - Student Pilot General Limitations
- 61.113 - Private Pilot Privileges and Limitations: Pilot in Command
- 61.117 - Private Pilot Privileges and Limitations: Second in Command of Aircraft Requiring More Than One Pilot

FAR Part 91
- 91.103 - Preflight Actions
- 91.107 - Use of Safety Belts, Shoulder Harnesses and Child Restraint Systems
- 91.113 - Right of Way Rules
- 91.117 - Aircraft Speed
- 91.119 - Minimum Safe Altitudes
- 91.121 - Altimeter Settings
- 91.123 - Compliance with ATC Clearance and Instructions
- 91.151 - Fuel Requirements for Flight in VFR Conditions
- 91.153 - VFR Flight Plan: Information Required
- 91.207 - Emergency Locator Transmitters
- 91.209 - Aircraft Lights
- 91.211 - Supplemental Oxygen
- 91.215 - ATC Transponder and Altitude Reporting Equipment Use

NTSB 830 and AIM Chapter 7, Section 7
- Definitions
  -- Accident
  -- Fatal Injury
  -- Incident
  -- Serious Injury
  -- Substantial Damage
- Initial Notification of Aircraft Accidents, Incidents and Overdue Aircraft
  -- Immediate Notification
  -- Information to Be Given in Notification
- Preservation of Aircraft Wreckage
- Reports

Ground Lesson 15 (Continued)

COMPLETION STANDARDS:

Through oral quizzing and/or discussion, the student will demonstrate an understanding of the Federal Aviation Regulations and as they apply to private pilot operations and NTSB 830 Regarding Aircraft Accident and Incident Reporting.

UNIVERSITY OF OKLAHOMA
PRIVATE PILOT COURSE GROUND TRAINING SYLLABUS
GROUND LESSON 16 STAGE III EXAM

LESSON OBJECTIVE:

The exam administered during this session evaluates the student's comprehension of the material presented in Lessons 13 - 15.

CONTENT:

Flying Cross Country
Aviation Physiology
Single Pilot Resource Management
FAR Section 61 and 91
NTSB 830

COMPLETION STANDARDS:

This lesson is complete when the student has completed the exam with a minimum passing score of 70%.

UNIVERSITY OF OKLAHOMA
PRIVATE PILOT COURSE GROUND TRAINING SYLLABUS

GROUND LESSON 16

LESSON OBJECTIVE:

Review of Questions missed on the Stage III Exam

CONTENT:

The instructor will review questions missed on the Stage III Exam

COMPLETION STANDAREDS:

Through oral quizzing and/or discussion the student will demonstrate satisfactory knowledge of the questions missed on the Stage III Exam.