FLIGHT TRAINING GUIDE
CHAPTER 2

PRIVATE PILOT GROUND TRAINING SYLLABUS
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# PRIVATE PILOT GROUND TRAINING SYLLABUS

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GROUND TRAINING SYLLABUS

PRIVATE PILOT RATING: ROTORCRAFT – HELICOPTER

GROUND TRAINING COURSE OBJECTIVES
The student will obtain the necessary aeronautical knowledge to meet the requirements for a U.S. private pilot certificate with a rotorcraft category and a helicopter class rating in a Robinson R22, R44, or R66.

GROUND TRAINING COURSE COMPLETION STANDARDS
The student will demonstrate through oral and written tests and records that they have obtained the necessary aeronautical knowledge to pass a U.S. private pilot knowledge test.

SYLLABUS ARRANGEMENT
The 35 hours of ground training will be accomplished in three stages. Each of these instructional units is described in the succeeding pages.

STUDENTS ADDING AN ADDITIONAL CATEGORY/CLASS RATING
Stage 1, consisting of 13 hours of ground training, is the only required stage for students adding an additional category/class rating.

COURSE COMPLETION TIME – 35 HOURS

STAGE CHECKS: GROUND TRAINING SYLLABUS

<table>
<thead>
<tr>
<th>Stage</th>
<th>Grade</th>
<th>Date</th>
<th>Chief Ground Instructor</th>
</tr>
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<tbody>
<tr>
<td>Stage 1 Written Exam</td>
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<td>Stage 3 Written Exam</td>
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FINAL KNOWLEDGE TEST

<table>
<thead>
<tr>
<th>U.S. Private Pilot</th>
<th>Grade</th>
<th>Date</th>
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GROUND TRAINING SYLLABUS (cont’d)

STAGE 1 ................................................................. Page 2.1

13 Hours Ground Training

Lessons 1–7 include study of helicopter components, systems, instruments, and basic aerodynamics. Additionally, the method and importance of accurately determining helicopter weight and balance performance will be introduced.

STAGE 2 ................................................................. Page 2.15

13 Hours Ground Training

Lessons 8–14 includes study of aviation weather, the flight computer, and the Aeronautical Information Manual (AIM).

STAGE 3 ................................................................. Page 2.25

9 Hours Ground Training

Lessons 15–19 includes study of VFR charts, the navigation plotter, radio navigation, cross-country planning, physiological and psychological considerations, and federal aviation regulations (FAR).
STAGE 1

GROUND TRAINING: 13.0 hours

STAGE 1 OBJECTIVES

During Stage 1 the student will study helicopter components, systems, instruments, and basic aerodynamics. Additionally, the method and importance of accurately determining helicopter weight and balance performance will be introduced.

STAGE 1 COMPLETION STANDARDS

Stage 1 will be complete when the student has passed the Stage 1 written examination with a minimum score of 70%. The instructor will review each incorrect response to assure complete understanding before advancing the student to Stage 2.
# LESSON 1: 2.0 Hours Ground Training

## OBJECTIVES

This lesson will introduce the student to the helicopter's components, systems and instruments.

## LESSON CONTENT

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</thead>
<tbody>
<tr>
<td>a. Main rotor</td>
<td></td>
<td></td>
<td></td>
<td>a. Engine</td>
<td>a. Type and quantity</td>
<td>i) Dual tachometer</td>
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<tr>
<td>b. Tail rotor</td>
<td></td>
<td></td>
<td></td>
<td>i) Engine</td>
<td>b. Oil system operation</td>
<td>ii) Manifold pressure (R22/R44)</td>
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<tr>
<td>c. Transmission</td>
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<td>Torque, MGT and $N_1$ (R66)</td>
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<td>d. Powerplant</td>
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<tr>
<td>e. Swashplate assembly</td>
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<tr>
<td>f. Gearboxes</td>
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<tr>
<td>g. Drive train and tailcone</td>
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<tr>
<td>h. Clutch</td>
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</tr>
<tr>
<td>i. Governor (piston engine or power turbine)</td>
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<tr>
<td>2. Flight Controls</td>
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<td></td>
<td></td>
<td>a. Engine</td>
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<tr>
<td>a. Cyclic</td>
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<td>b. Collective</td>
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<td>c. Throttle and governor</td>
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<td>d. Pedals</td>
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<td>3. Electrical System</td>
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<td>a. Battery</td>
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<td>b. Alternator or generator</td>
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<td>c. Circuit breakers</td>
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<tr>
<td>d. Magnetos (R22/R44 only)</td>
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<tr>
<td>e. Aircraft lights</td>
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<tr>
<td>i) Navigation/position lights</td>
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<tr>
<td>ii) Anti-collision light</td>
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<td>iii) Landing light</td>
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<td>4. Fuel and Fuel System</td>
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<tr>
<td>a. Proper fuel</td>
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<td>b. Fuel system operation</td>
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<td>c. Fuel contamination</td>
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<tr>
<td>i) Preventative measures</td>
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<tr>
<td>ii) Elimination measures</td>
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<td>5. Oil and Oil System</td>
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<td>a. Type and quantity</td>
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<td>b. Oil system operation</td>
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<tr>
<td>6. Instruments—Function, Markings and Limitations</td>
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<tr>
<td>a. Engine</td>
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<td>i) Dual tachometer</td>
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<td>ii) Manifold pressure (R22/R44)</td>
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<td>Torque, MGT and $N_1$ (R66)</td>
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<td>b. Flight—function, markings and limitations</td>
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<tr>
<td>i) Pitot-static system</td>
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<tr>
<td>1) Pitot-static source</td>
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<tr>
<td>2) Alternate pitot-static source</td>
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<tr>
<td>3) Airspeed indicator</td>
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<td>4) Pressure altimeter</td>
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<td>5) Vertical speed indicator</td>
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<td>ii) Magnetic compass</td>
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</tbody>
</table>

## COMPLETION STANDARDS

This lesson will be complete when, by oral examination, the student displays an understanding of the material presented and has completed the study assignment.

## INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS:
LESSON 2:  
2.0 Hours Ground Training

OBJECTIVES
During this lesson the student will study basic aerodynamics to gain an understanding of the principles of helicopter flight.

LESSON CONTENT

<table>
<thead>
<tr>
<th>1. The Four Forces</th>
<th>4. The Three Axes</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Lift</td>
<td>a. Longitudinal—roll</td>
</tr>
<tr>
<td>b. Weight</td>
<td>b. Lateral—pitch</td>
</tr>
<tr>
<td>c. Thrust</td>
<td>c. Vertical—yaw</td>
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<tr>
<td>d. Drag</td>
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<table>
<thead>
<tr>
<th>2. Airfoils</th>
<th>5. Torque</th>
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<tbody>
<tr>
<td>a. Symmetrical vs. unsymmetrical</td>
<td>a. Newton's third law of motion</td>
</tr>
<tr>
<td>b. Leading edge</td>
<td>b. Tail rotor thrust</td>
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<tr>
<td>c. Trailing edge</td>
<td>c. Controlling torque</td>
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<td>d. Chord line</td>
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<td>e. Relative wind</td>
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<td>f. Angle of attack</td>
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<tr>
<td>g. Bernoulli’s principle</td>
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<tr>
<td>h. Newton’s third law of motion</td>
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<tr>
<td>i. Tip path plane</td>
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</table>

<table>
<thead>
<tr>
<th>3. Factors Affecting Lift and Drag</th>
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<tbody>
<tr>
<td>a. Surface area</td>
<td></td>
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<tr>
<td>b. Angle of attack</td>
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<tr>
<td>c. Velocity of airflow</td>
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<td>d. Air density</td>
<td></td>
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<tr>
<td>e. Blade stall</td>
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<tr>
<td>f. Low rotor RPM</td>
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<th>6. Rotor Systems</th>
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<tr>
<td>a. Fully articulated</td>
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<td>b. Semi-rigid</td>
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<td>c. Rigid</td>
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<th>7. Vibrations</th>
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<tr>
<td>a. Resonance</td>
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<td>i) Sympathetic</td>
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<td>ii) Ground</td>
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<tr>
<td>b. Low frequency</td>
<td></td>
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<td>c. Medium frequency</td>
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<tr>
<td>d. High frequency</td>
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</table>

COMPLETION STANDARDS
This lesson will be complete when, by oral examination, the student displays an understanding of the material presented and has completed the study assignment.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS:
LESSON 3: 2.0 Hours Ground Training

OBJECTIVES
During this lesson the student will continue to gain an understanding of the principles of helicopter flight.

LESSON CONTENT

1. Hovering Flight
   a. Lift and thrust resultant
   b. Weight and drag
   c. Axis of rotation
   d. Coning
      1) Lift
      2) Centrifugal force
   e. Blade flapping
   f. Coriolis effect
   g. Translating tendency or drift
   h. Direction of airflow
   i. Ground effect
   j. Forward, sideward and rearward hovering
      1) Lift and thrust resultant
      2) Weight and Drag
   k. Gyroscopic precession
   l. Pendular action

2. Forward Flight
   a. Lift and thrust resultant
   b. Weight and drag
   c. Translational lift
   d. Dissymmetry of lift
   e. Transverse flow effect
   f. Retreating blade stall
      i) Causes
      ii) Corrections
   g. Loss of tail rotor effectiveness

COMPLETION STANDARDS
This lesson will be complete when, by oral examination, the student displays an understanding of the material presented and has completed the study assignment.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS:
LESSON 4: 2.0 Hours Ground Training

OBJECTIVES
During this lesson the student will be introduced to the aerodynamics of turns, loads and autorotative descents.

LESSON CONTENT

1. The Turn
   a. Lift components in a turn
      i) Vertical component
      ii) Horizontal component
      iii) Total lift resultant
   b. Weight and centrifugal force in a turn
   c. Angle of bank vs. angle of attack
   d. Angle of bank vs. rate of turn

2. Loads and Load Factor
   a. How conditions of flight affect loads
      i) Straight and level flight
      ii) Turns
      iii) Flares
   b. Load factor
      i) Definition
      ii) Effect of angle of bank on load factor
      iii) Effect of turbulence and high gross weight on load factor
      iv) Effect of density altitude and pilot technique on load factor
      v) Low-G mast bumping

3. Autorotative Descents
   a. Definition
   b. Free wheeling unit
   c. Direction of airflow
   d. Rotor RPM
      i) In turns
      ii) Effect of flares
      iii) Effect of updrafts and downdrafts
   e. Airspeed
      i) Manufacturer's recommended autorotational airspeed
      ii) Minimum rate of descent airspeed
      iii) Maximum glide distance airspeeds
   f. Hovering autorotation
      i) Torque effect
      ii) Translating tendency or drift
   g. Energy management

COMPLETION STANDARDS
This lesson will be complete when, by oral examination, the student displays an understanding of the material presented and has completed the study assignment.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS:
LESSON 5:
LESSON CONTENT

1. The Pilot's Operating Handbook
   a. Operating limitations
      i) Airspeed
      ii) Rotor
      iii) Powerplant
      iv) Type of operation
      v) Fuel limitations
      vi) Instrument markings
   b. Operating procedures
      i) Emergency procedures
      ii) Takeoff and landing procedures
      iii) Checklists
         1) Preflight
         2) Engine starting and warm-up
         3) Engine shutdown
   c. Performance information
      i) Performance charts
         1) Types of charts
         2) Interpretation of charts
      ii) Placard information
   d. Angle of bank vs. rate of turn

2. Helicopter Performance
   a. Density altitude
      i) Definition
      ii) Air density
      iii) Pressure altitude
      iv) Temperature
      v) Moisture
      vi) Computing density altitude on chart
     vii) Effect on hovering, takeoff and rate of climb
   b. Effect of gross weight
      i) On hovering ceiling
      ii) On takeoff and rate of climb
   c. Effect of wind
      i) Wind velocity
      ii) Gusty wind
      iii) Wind direction
   d. Carburetor icing (R22 and R44)
      i) Causes and indications
      ii) Elimination
      iii) Safety Notice #25

COMPLETION STANDARDS
This lesson will be complete when, by oral examination, the student displays an understanding of the material presented and has completed the study assignment.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS:
# LESSON 6:

**OBJECTIVES**

During this lesson the student will be introduced to weight and balance theory and computations.

**LESSON CONTENT**

<table>
<thead>
<tr>
<th>1. Weight and Balance Definitions</th>
<th>3. Weight and Balance Management</th>
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</thead>
<tbody>
<tr>
<td>a. Empty weight</td>
<td>a. Weight adjustment</td>
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<tr>
<td>b. Gross weight</td>
<td>b. Center of gravity adjustment</td>
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<tr>
<td>c. Maximum gross weight</td>
<td>c. Fuel burn-off</td>
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<tr>
<td>d. Useful load</td>
<td>d. Effect of out-of-balance loading</td>
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<td>e. Datum</td>
<td></td>
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<tr>
<td>f. Arm</td>
<td></td>
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<td>g. Moment</td>
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<td>h. Center of gravity</td>
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</table>

<table>
<thead>
<tr>
<th>2. Weight and Balance Determinations</th>
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<tbody>
<tr>
<td>a. Computation method—longitudinal/lateral</td>
</tr>
<tr>
<td>b. Graph method</td>
</tr>
<tr>
<td>c. Table method</td>
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</tbody>
</table>

**COMPLETION STANDARDS**

This lesson will be complete when, by oral examination, the student displays an understanding of the material presented and has completed the study assignment.

**INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS:**
LESSON 7: 1.0 Hour Ground Training

OBJECTIVES
This lesson will be a review of material presented in Lessons 1 through 6, in preparation for the Stage 1 Written Examination.

LESSON CONTENT
Review as necessary.

COMPLETION STANDARDS
This lesson and Stage 1 will be complete when the student has passed the Stage 1 Written Examination, with a minimum score of 70%.

Note: An appropriate stage one examination is to be developed by the instructor. It should consist of material covered in lessons 1-6 as appropriate for the R22, R44 or R66.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS:
STAGE 2

GROUND TRAINING: 13.0 hours

STAGE 2 OBJECTIVES

During Stage 2 the student will be introduced to aviation weather, the flight computer, and the Aeronautical Information Manual (AIM).

STAGE 2 COMPLETION STANDARDS

Stage 2 will be complete when the student has passed the Stage 2 Written Examination with a minimum score of 70%. The instructor will review each incorrect response to assure complete understanding before advancing the student to Stage 3.
LESSON 8: 2.0 Hours Ground Training

OBJECTIVES
During this lesson the student will obtain a basic understanding of weather elements and their importance to the pilot.

LESSON CONTENT

1. The Earth's Atmosphere
   a. Composition
   b. Vertical structure
   c. International standard atmosphere—ISA

2. Temperature
   a. Temperature measurement
   b. Temperature lapse rate

3. Atmospheric Pressure and Altimetry
   a. Atmospheric pressure measurements
   b. Sea level pressure
   c. Station pressure
   d. Pressure variations
   e. Pressure systems

4. Winds
   a. Basic theory of general circulation
   b. Coriolis force
   c. Pressure gradient force
   d. Friction effect
   e. Local wind systems

5. Moisture
   a. Physical states
   b. Measurements
      i) Relative Humidity
      ii) Dew Point
   c. Condensation and sublimation products
      i) Clouds and fog
      ii) Precipitation
      iii) Dew and frost

6. Stability
   a. Causes
   b. Effects

7. Clouds
   a. Composition
   b. Formation and structure
   c. Types
   d. Recognition

COMPLETION STANDARDS
This lesson will be complete when, by oral examination, the student displays an understanding of the material presented and has completed the study assignment.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS:
LESSON 9: 2.0 Hours Ground Training

OBJECTIVES
This lesson will complete the introduction of basic weather elements.

LESSON CONTENT

1. Air Masses
   a. Source regions
   b. Classification and characteristics of air masses
   c. Air mass modification

2. Fronts
   a. Definition
   b. Types
   c. Associated weather and characteristics

3. Turbulence
   a. Convective currents
   b. Obstructions to wind flow
   c. Wind shear
   d. Clear air turbulence
   e. Categories of turbulence intensity

4. Structural Icing
   a. Types
   b. Causes
   c. Effects
   d. Intensity
   e. Prevention and elimination

5. Thunderstorms
   a. Conditions necessary for formation
   b. Formation and life cycle
   c. Hazards
   d. Avoidance procedures

COMPLETION STANDARDS
This lesson will be complete when, by oral examination, the student displays an understanding of the material presented and has completed the study assignment.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS:
LESSON 10: 2.0 Hours Ground Training

OBJECTIVES
During this lesson the student will learn to interpret and apply aviation weather reports and forecasts prepared by the national weather service.

LESSON CONTENT

1. Methods of Collecting Weather Data
   a. Surface observations
   b. Upper air observations
   c. Radar observations
   d. Satellite observations
   e. Pilot reports—PIREPs

2. Prior/Current Weather Conditions
   a. Surface analysis chart
   b. METAR
   c. Weather depiction chart
   d. Radar summary chart
   e. Winds aloft chart
   f. AWOS, ASOS, and ATIS Reports

3. Forecast
   a. Graphical Forecasts for Aviation—GFA
   b. Terminal Aerodrome Forecast—TAF
   c. Winds aloft forecast—FD

4. METAR and TAF Codes

COMPLETION STANDARDS
This lesson will be complete when, by oral examination, the student displays an understanding of the material presented and has completed the study assignment.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS:
LESSON 11: 2.0 Hours Ground Training

OBJECTIVES
This lesson will introduce the flight computer and its use in navigational computations.

LESSON CONTENT

1. Calculator Side
   a. Explanation of markings
   b. Mileage and speed conversions
   c. Time, speed and distance computations
   d. Fuel consumption
   e. Airspeed computations
   f. True/density altitude computations

2. Wind Face Side
   a. Explanation of markings
   b. The wind triangle
   c. Ground speed
   d. Wind correction angle
   e. True headings

COMPLETION STANDARDS
This lesson will be complete when, by oral examination, the student displays an understanding of the material presented and has completed the study assignment.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS:
### LESSON CONTENT

1. The Aeronautical Information Manual  
   a. Basic flight information and ATC procedures  
      i) Navigation aids  
      ii) Airport and heliport markings and lighting  
      iii) Airspace  
         1) Class A, B, C, D, E, and G  
         2) Prohibited, restricted, and warning areas  
         3) MOA, alert areas  
         4) Other airspace  
         5) Temporary Flight Restrictions—TFR  
   iv) Services available to pilots  
   v) Airport and Heliport operations  
   vi) Emergency procedures  
   vii) Good operating practices

2. Chart Supplement  
   a. Content  
   b. Use—Legend  
   c. Applications

3. The Advisory Circular System

4. The Notam System  
   a. Notam L  
   b. Notam D  
   c. Notam FDC

### COMPLETION STANDARDS

This lesson will be complete when, by oral examination, the student displays an understanding of the material presented and has completed the study assignment.

### INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS:
LESSON 13: 2.0 Hours Ground Training

OBJECTIVES
This lesson will increase the student’s understanding of airport and heliport operations and facilities, and services available to pilots.

LESSON CONTENT

1. Airports and Heliports
   a. Runway numbering
   b. Active runways
   c. Runway and heliport markings
   d. Taxiways
   e. Parking areas
   f. Field elevation
   g. Wind direction indicators
   h. Airport and heliport lighting
   i. Airport traffic patterns
      i) Airplanes
      ii) Helicopters

2. Radio Communications
   a. Frequency assignment plan
   b. Contact procedure
   c. Microphone technique
   d. Aircraft call signs
   e. Radio phraseology
   f. Light signals

3. Airport and Heliport Communications
   a. Controlled airports and heliports
      i) Automatic terminal information service—ATIS
      ii) Tower control
      iii) Ground control
   b. Uncontrolled airports and heliports
      i) Common traffic advisory frequency (CTAF)
      ii) Unicom
      iii) Multicom
      iv) AWOS, ASOS

4. Other ATC Facilities and Services
   a. Air route traffic control center
   b. Approach control
   c. Departure control

5. FSS Services Available
   a. Briefing services
   b. Frequencies and In-flight services

6. Emergency Procedures
   a. Emergency locator transmitter
   b. Emergency VHF frequency—121.5
   c. Transponder codes

COMPLETION STANDARDS
This lesson will be complete when, by oral examination, the student displays an understanding of the material presented and has completed the study assignment.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS:
LESSON 14: 1.0 Hours Ground Training

OBJECTIVES
This lesson will be a review of material presented in Lessons 8 through 13 in preparation for the Stage 2 Written Examination.

LESSON CONTENT
Review as necessary.

COMPLETION STANDARDS
This lesson and Stage 2 will be complete when the student has passed the Stage 2 Written Examination, covering the material presented in Lessons 8 through 13, with a minimum score of 70%.

Note: An appropriate stage two examination is to be composed by the instructor.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS:
STAGE 3

GROUND TRAINING: 9.0 hours

STAGE 3 OBJECTIVES

During Stage 3 the student will be introduced to VFR charts, the navigation plotter, radio navigation, cross-country planning, federal aviation regulations, and physiological and psychological considerations.

STAGE 3 COMPLETION STANDARDS

Stage 3 will be complete when the student has passed the Stage 3 Written Examination with a minimum score of 70%. The instructor will review each incorrect response to assure complete understanding.
LESSON 15:  2.0 Hours Ground Training

OBJECTIVES
This lesson will introduce VFR charts and the navigation plotter, and their use in planning and conducting cross-country flights.

LESSON CONTENT

1. VFR charts
   a. General considerations
      i) Types of VFR charts
   b. Symbols and markings
      i) Latitude and longitude
      ii) Magnetic variation
      iii) Topography
      iv) National Airspace System
      v) Navigation aids
      vi) Aerodromes, heliports and flight service stations
      vii) Legend—other markings

2. The Navigation Plotter
   a. Mileage scales
   b. Azimuth scale
   c. Plotting and measuring courses

3. Application of Navigation Methods
   a. Pilotage
   b. Dead reckoning
   c. Radio/GPS navigation

COMPLETION STANDARDS
This lesson will be complete when, by oral examination, the student displays an understanding of the material presented and has completed the study assignment.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS:
LESSON 16:
2.0 Hours Ground Training

OBJECTIVES
This lesson will introduce radio navigation and its application in cross-country flight.

LESSON CONTENT

1. VHF-Omni Directional Radio Range System—VOR
   a. Receiver components
      i) Omni-bearing selector—OBS
      ii) Course deviation indicator—CDI
      iii) To-From indicator
   b. VOR radials
   c. VOR navigation
   d. VOR navigation procedures
   e. VOR indications
   f. VOR orientation
   g. Position fixing
   h. Intercepting a radial
   i. VOR test signals—VOT

2. Distance Measuring Equipment—DME

3. Area Navigation—RNAV

4. Automatic Direction Finder—ADF

5. Global Positioning System—GPS
   a. System description
   b. VFR use of GPS
   c. Database currency
   d. RAIM

6. Air Traffic Control
   a. Radar
      i) Radar vectors
      ii) Traffic advisories
      iii) Sequencing
      iv) Transponder
         1) Phraseology
         2) Modes and codes
   b. ADS-B in/out

COMPLETION STANDARDS
This lesson will be complete when, by oral examination, the student displays an understanding of the material presented and has completed the study assignment.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS:
LESSON 17: 2.0 Hours Ground Training

OBJECTIVES
This lesson incorporates the subjects of previous lessons into the planning of a cross-country flight.

LESSON CONTENT

1. Chart Selection
2. Weather Briefing and Course Selection
3. Navigation Log
   a. True course
   b. Altitude selection
   c. Winds aloft and temperature
   d. Wind correction angle
   e. True airspeed, ground speed
   f. True heading
   g. Magnetic variation
   h. Magnetic heading
   i. Deviation
   j. Compass heading
   k. Time estimates—ETE and ETA
   l. Fuel requirements
4. Airport Information for Destination
   a. VFR Charts
   b. Chart Supplement
5. VFR Flight Plan
   a. Filing
   b. Opening
   c. Extending if necessary
   d. Closing/Cancelling

COMPLETION STANDARDS
This lesson will be complete when, by oral examination, the student displays an understanding of the material presented and has completed the study assignment.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS:
LESSON 18: 2.0 Hours Ground Training

OBJECTIVES
This lesson reviews the Federal Aviation Regulations discussed as an integral part of previous lessons and introduces other regulations applicable to the private pilot’s certification. In addition, the student will be introduced to physiological and psychological factors which can affect the comfort and safety of the pilot and his passengers.

LESSON CONTENT

1. Federal Aviation Regulations
   a. 14 CFR § 1
   b. 14 CFR § 61
   c. 14 CFR § 91
   d. NTSB, Part 830

2. Physiological Considerations
   a. Fatigue
   b. Hypoxia
   c. Alcohol
   d. Drugs
   e. Vertigo
   f. Carbon monoxide
   g. Vision
   h. Middle ear

3. Psychological Considerations
   a. Anxiety
   b. Stress

4. Aeronautical Decision Making
   a. "I'M SAFE" checklist
   b. "PAVE" checklist
   c. Single pilot Resource Management—SRM
   d. Situational Awareness

COMPLETION STANDARDS
This lesson will be complete when, by oral examination, the student displays an understanding of the material presented and has completed the study assignment.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS:
LESSON 19:  1.0 Hour Ground Training

OBJECTIVES
This lesson will be a review of material presented in Lessons 1 through 18 in preparation for the Stage 3 and Final Written Examination.

LESSON CONTENT

Review as necessary.

COMPLETION STANDARDS
This lesson and Stage 3 will be complete when the student has passed the Stage 3 and Final Written Examination, covering the material presented in Lessons 1 through 18, with a minimum score of 70%. The student should now be ready to take the FAA Private Pilot Helicopter Knowledge test.

Note: An appropriate stage three examination is to be composed by the instructor.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS: