

**R22/R44 PRIVATE PILOT RATING  
ROTORCRAFT-HELICOPTER**

**GROUND TRAINING SYLLABUS**

**GROUND TRAINING COURSE OBJECTIVES**

The student will obtain the necessary aeronautical knowledge and meet the prerequisites specified in FAR Part 61 for the *Private Pilot – Helicopter* knowledge test.

**GROUND TRAINING COURSE COMPLETION STANDARDS**

The student will demonstrate through oral and written tests and records that he meets the prerequisites specified in FAR Part 61 and has necessary aeronautical knowledge to pass the *Private Pilot – Helicopter* knowledge test.

**INITIAL CERTIFICATION STUDENTS**

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

**ADDITIONAL AIRCRAFT RATING STUDENTS**

Stage 1, consisting of 13 hours of ground training, is the only required stage for additional aircraft rating students.

**COURSE COMPLETION TIME – 35 HOURS**

**STAGE CHECKS  
GROUND TRAINING SYLLABUS**

<b>Stage 1 Written Exam</b>	_____	_____	
	<b>Grade</b>	<b>Date</b>	<b>Chief Ground Instructor</b>
<b>Stage 2 Written Exam</b>	_____	_____	
	<b>Grade</b>	<b>Date</b>	<b>Chief Ground Instructor</b>
<b>Stage 3 Written Exam</b>	_____	_____	
	<b>Grade</b>	<b>Date</b>	<b>Chief Ground Instructor</b>

**FAA KNOWLEDGE TEST**

<b><i>Private Pilot – Helicopter</i> Knowledge Test</b>	_____	_____
	<b>Grade</b>	<b>Date</b>

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**PRIVATE PILOT GROUND TRAINING COURSE OUTLINE**

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 1 Ground Training Review Lesson 7 . . . . . Page 2.13

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.

Stage 2 Ground Training Review Lesson 14 . . . . . Page 2.24

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.

Stage 3 Ground Training Review Lesson 19 . . . . . Page 2.31

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**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 R22/R44 helicopter's components, systems and instruments.

**LESSON CONTENT**

1. Helicopter Components
  - a. Main rotor
  - b. Tail rotor
  - c. Transmission
  - d. Powerplant
  - e. Swashplate assembly
  - f. Gearboxes
  - g. Drive train and tailcone
  - h. Clutch
  - i. Governor
  
2. Flight Controls
  - a. Cyclic
  - b. Collective
  - c. Throttle and governor
  - d. Pedals
  
3. Electrical System
  - a. Battery
  - b. Alternator
  - c. Circuit breakers
  - d. Magnetos
  - e. Aircraft lights
    - 1) Navigation/position lights
    - 2) Anti-collision light
    - 3) Landing light
  
4. Fuel and Fuel System
  - a. Proper fuel
  - b. Fuel system operation
  - c. Fuel contamination
    - 1) Preventative measures
    - 2) Elimination measures
  
5. Oil and Oil System
  - a. Type and quantity
  - b. Oil system operation

**LESSON 1 (cont'd)**

## LESSON CONTENT (cont'd)

6. Instruments – Function, Markings and Limitations

- a. Engine
  - 1) Dual tachometer
  - 2) Manifold pressure
- b. Flight - function, markings and limitations
  - 1) Pitot-static system
    - a) Pitot-static source
    - b) Alternate pitot-static source
    - c) Airspeed indicator
    - d) Pressure altimeter
    - e) Vertical speed indicator
  - 2) Magnetic compass

**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**

1. The Four Forces
  - a. Lift
  - b. Weight
  - c. Thrust
  - d. Drag
  
2. Airfoils
  - a. Symmetrical vs. unsymmetrical
  - b. Leading edge
  - c. Trailing edge
  - d. Chord line
  - e. Relative wind
  - f. Angle of attack
  - g. Bernoulli's principle
  - h. Newton's third law of motion
  - i. Tip path plane
  
3. Factors Affecting Lift and Drag
  - a. Surface area
  - b. Angle of attack
  - c. Velocity of airflow
  - d. Air density
  - e. Blade stall
  
4. The Three Axes
  - a. Longitudinal – roll
  - b. Lateral – pitch
  - c. Vertical – yaw
  
5. Torque
  - a. Newton's third law of motion
  - b. Tail rotor thrust
  - c. Controlling torque
  
6. Rotor Systems
  - a. Fully articulated
  - b. Semi-rigid
  - c. rigid



**LESSON 2 (cont'd)**

## LESSON CONTENT (cont'd)

7. Vibrations

- a. Resonance
  - 1) Sympathetic
  - 2) Ground
- b. Low frequency
- c. Medium frequency
- d. High frequency

## 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
  - 1) Causes
  - 2) 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.

**LESSON 3 (cont'd)**

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
  - 1) Vertical component
  - 2) Horizontal component
  - 3) 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
  - 1) Straight and level flight
  - 2) Turns
  - 3) Flares
- b. Load factor
  - 1) Definition
  - 2) Effect of angle of bank on load factor
  - 3) Effect of turbulence and high gross weight on load factor
  - 4) Effect of density altitude and pilot technique on load factor

**3. Autorotative Descents**

- a. Definition
- b. Free wheeling unit
- c. Direction of airflow
- d. Rotor rpm
  - 1) In turns
  - 2) Effect of flares
  - 3) Effect of updrafts and downdrafts
- e. Airspeed
  - 1) Manufacturer's minimum autorotational airspeed
  - 2) Minimum rate of descent airspeed
  - 3) Maximum glide distance airspeed
- f. Hovering autorotation
  - 1) Torque effect
  - 2) Translating tendency or drift

**LESSON 4 (cont'd)**3. Autorotative Descents (cont'd)

- 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            2.0 Hours Ground Training****OBJECTIVES**

During this lesson the student will be introduced to the helicopter flight manual and helicopter performance.

**LESSON CONTENT****1. The R22/R44 Helicopter Flight Manual**

- a. Operating limitations
  - 1) Airspeed
  - 2) Rotor
  - 3) Powerplant
  - 4) Type of operation
  - 5) Fuel useability
  - 6) Instrument markings
- b. Operating procedures
  - 1) Emergency procedures
  - 2) Takeoff and landing procedures
  - 3) Checklists
    - a) Preflight
    - b) Engine starting and warmup
    - c) Engine shutdown
- c. Performance information
  - 1) Performance charts
    - a) Types of charts
    - b) Interpretation of charts
  - 2) Placard information
- d. Angle of bank vs. rate of turn

**2. Helicopter Performance**

- a. Effect of density altitude
  - 1) Definition
  - 2) Air density
  - 3) Pressure altitude
  - 4) Temperature
  - 5) Moisture
  - 6) Computing density altitude on chart
  - 7) Effect on hovering, takeoff and rate of climb

**LESSON 5 (cont'd)**2. Helicopter Performance (cont'd)

- b. Effect of gross weight
  - 1) On power available
  - 2) On hovering ceiling
  - 3) On takeoff and rate of climb
- c. Effect of wind
  - 1) On wind
  - 2) Strong wind
  - 3) Gusty wind
  - 4) Wind direction
- d. Carburetor icing
  - 1) Causes and indications
  - 2) Elimination
  - 3) 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            2.0 Hours Ground Training****OBJECTIVES**

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

**LESSON CONTENT**

1. Weight and Balance Definitions
  - a. Empty weight
  - b. Gross weight
  - c. Maximum gross weight
  - d. Useful load
  - e. Datum
  - f. Arm
  - g. Moment
  - h. Center of gravity
  
2. Weight and Balance Determinations
  - a. Computation method – longitudinal/lateral
  - b. Graph method
  - c. Table method
  
3. Weight and Balance Management
  - a. Weight adjustment
  - b. Center of gravity adjustment
  - c. Fuel burn-off
  - d. Effect of out-of-balance loading

**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%.

**INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS:**

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**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.

**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
    - 1) Relative Humidity
    - 2) Dew Point
  - c. Condensation and sublimation products
    - 1) Clouds and fog
    - 2) Precipitation
    - 3) Dew and frost
  
6. Stability
  - a. Causes
  - b. Effects

**LESSON 8 (cont'd)**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. Area forecast – FA
  - 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 12          2.0 Hours Ground Training****OBJECTIVES**

This lesson will introduce the use of the Aeronautical Information Manual and other information available to the pilot.

**LESSON CONTENT**

1. The Aeronautical Information Manual
  - a. Basic flight manual and ATC procedures
    - 1) Navigation aids
    - 2) Airport and heliport markings and lighting
    - 3) Airspace
      - a) Class A, B, C, D, E, and G
      - b) Prohibited, restricted, and warning areas
      - c) MOA, alert areas
      - d) Other airspace
      - e) Temporary Flight Restrictions – TFR
    - 4) Services available to pilots
    - 5) Airport and Heliport operations
    - 6) Emergency procedures
    - 7) Good operating practices
2. Airport Facility Directory
  - 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
    - 1) Airplanes
    - 2) 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
    - 1) Automatic terminal information service – ATIS
    - 2) Tower control
    - 3) Ground control
  - b. Uncontrolled airports and heliports
    - 1) Common traffic advisory frequency (CTAF)
    - 2) Unicom
    - 3) Multicom
    - 4) AWOS, ASOS
4. Other ATC Facilities and Services
  - a. Air route traffic control center
  - b. Approach control
  - c. Departure control

**LESSON 13 (cont'd)**5. FSS Services Available

- a. Flight watch
- b. Transcribed weather broadcasts
- c. Scheduled weather broadcasts
- d. In-flight services available to the pilot

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 Hour 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%.

**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, physiological and psychological considerations, and federal aviation regulations.

**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 before advancing the student to Stage 4.

**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
    - 1) Types of VFR charts
  - b. Symbols and markings
    - 1) Latitude and longitude
    - 2) Magnetic variation
    - 3) Topography
    - 4) National Airspace System
    - 5) Navigation aids
    - 6) Aerodromes, heliports and flight service stations
    - 7) 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

**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 Range System – VOR
  - a. Receiver components
    - 1) Omni-bearing selector – OBS
    - 2) Course deviation indicator – CDI
    - 3) 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. VHF Omni directional Range System – VOR
  - a. Radar
    - 1) Radar vectors
    - 2) Traffic advisories
    - 3) Sequencing
    - 4) Transponder
      - a) Phraseology
      - b) Modes and codes
  - b. VHF Direction Finder

**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.

**LESSON 16 (Cont'd)**

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. Airport Facilities Directory
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. FAR Part 1
- b. FAR Part 61
- c. FAR Part 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

**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%.

**INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS:**

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