March 17, 2010

To: University Undergraduate Curriculum Committee

From: College of Aeronautics

Subject: Adding New Helicopter Flight Courses to the Curriculum.

Request approval for the addition of 11 new courses to the College of Aeronautics flight training curriculum as listed below:

- Helicopter Basic Flight Principles – AVT 1006
- Helicopter Private Pilot – AVF 1006
- Helicopter Commercial Ground Training – AVT 2008
- Helicopter Commercial Pilot – AVF 2008
- Helicopter External Load Ops – AVF 2105
- Helicopter Flight Instructor – AVF 3013
- Helicopter Flight Instructor – Instrument – AVF 3014
- Helicopter Mountain Flying – AVF 4007
- Helicopter Turbine Transition – AVF 4009

These proposed courses would supplement our existing Flight Option courses. The College of Aeronautics (COA) would conduct the Aviation Technology (AVT) courses and Bristow Academy would conduct the Aviation Flight (AVF) courses under contract with Florida Tech with COA oversight.

Justification for these proposed new courses is provided on the following pages.

Winston E. Scott
Dean

Attachments
Justification For Additional Flight Courses

A. Background

1. The Florida Tech College of Aeronautics is recognized as one of the top university based academic and flight training programs in the nation, and is officially designated a Veterans Administration “Institute of Higher Learning” under the new Post 9-11 GI Bill, (Chapter 33), as well as a “Yellow Ribbon” university for Veterans Benefits.

2. Bristow Academy located at the Space Coast Regional Airport in Titusville, Florida is recognized as one of the leading schools for helicopter flight training in the nation, and is officially designated a Veterans Administration school under the Montgomery GI Bill, (Chapter 30).

3. The Veterans Administration Post 9-11 Bill benefits, Chapter 33 (including laboratory fees for flight training hours) can only be used for programs taken at an “Institute of Higher Learning” such as Florida Tech. Both institutions strongly desire to offer a university aviation education, including helicopter training, to veterans and other aviation students desiring a career in the helicopter industry.

4. Both institutions are fully licensed and certified by the Federal Aviation Administration under Federal Aviation Regulations Part 141. (See Exhibit A - Bristow Academy Air Agency Certificate and FAA letter dated March 3, 2010).

5. Other leading aviation universities have recognized this opportunity to enroll VA Chapter 33 eligible students in their undergraduate degree programs, and have partnered with FAA licensed Helicopter Flight Training Schools to take advantage of the VA funding available.

B. Current Status of Proposal

1. A joint Letter of Intent setting forth this Strategic Partnership was executed by Florida Tech and Bristow Academy on December 21, 2009. A joint working team entitled “Accreditation and Curriculum” has studied the matter, and recommends approval of these proposed courses which closely follow the existing Florida Tech College of Aeronautics flight training curriculum.

2. The Florida Tech Catalogue Director has prepared the appropriate forms to reserve these proposed 11 courses in the university system. The Master Syllabus and/or FAA approved FAR Part 141 Training Course Outlines have been prepared for each course as Enclosures 1-11 herein.

3. No changes in the flight training curriculum are proposed for Fall 2010 and the new courses will be gradually phased in during the 2011-2012 period. The first two courses planned for the Spring 2011 semester are Helicopter Basic Flight Principles (AVT 1006) and Helicopter Private Pilot (AVF 1006).
4. Accordingly, approval is hereby requested to add these new helicopter courses to the curriculum. If additional information is needed, please contact Dr. Steve Cusick at the College of Aeronautics; scusick@fit.edu, telephone 674-7470.

Documentation for New Courses

**Exhibit A** – Bristow Academy - FAA Air Agency Certificate and letter dated March 3, 2010

**Proposed Courses:**

Enclosure 1 - AVT 1006 – Helicopter Basic Flight Principles

Enclosure 2 – AVF 1006 - Helicopter Private Pilot

Enclosure 3 – AVT 2007 - Helicopter Instrument Ground Training

Enclosure 4 – AVF 2007 - Helicopter Instrument Pilot

Enclosure 5 – AVT 2008 – Helicopter Commercial Ground Training

Enclosure 6 – AVF 2008 - Helicopter Commercial Pilot

Enclosure 7 – AVF 2105 - Helicopter External Load Ops

Enclosure 8 – AVF 3013 - Helicopter Flight Instructor

Enclosure 9 – AVF 3014 - Helicopter Flight Instructor – Instrument

Enclosure 10 – AVF 4007 - Helicopter Mountain Flying

Enclosure 11 – AVF 4009- Helicopter Turbine Transition
Air Agency Certificate

Number: HIAS182B

This certificate is issued to:

BRISTOW ACADEMY INC.
whose business address is:

365 GOLDEN KNIGHTS BLVD.
TITUSVILLE, FLORIDA 32780

upon finding that its organization complies in all respects
with the requirements of the Federal Aviation Regulations
relating to the establishment of an Air Agency, and is
eEmpowered to operate an approved PILOT SCHOOL
with the following ratings:

PRIVATE PILOT COURSE  COMMERCIAL PILOT COURSE
INSTRUMENT RATING COURSE  AIRLINE TRANSPORT PILOT COURSE
FLIGHT INSTRUCTOR COURSE
FLIGHT INSTRUCTOR INSTRUMENT COURSE
ADDITIONAL AIRCRAFT CATEGORY OR CLASS RATING COURSE
SPECIAL PREPARATION COURSES

This certificate, unless canceled, suspended, or revoked,
shall continue in effect UNTIL NOVEMBER 30, 2010.

Date issued: NOV 21, 2000.
REISSUED: MAR 03 2010

By direction of the Administrator

YVONE GILLIARD
Acting Manager, North Florida FSDO, ASO-15

Any alteration of this certificate is punishable by a fine not exceeding $1,000, or imprisonment not exceeding 3 years, or both.
March 3, 2010

Francois Ganswyk, Chief Instructor
Bristow Academy, Inc (HIAS)
365 Golden Knights Boulevard
Titusville, FL 32780

Dear Mr. Ganswyk:

Bristow Academy, Inc is authorized under Air Agency Certificate No. HIAS182B, to conduct the following courses:

CERTIFICATION AND RATING COURSES

Private Pilot
Rotorcraft-Helicopter

Commercial Pilot
Rotorcraft-Helicopter

Instrument
Rotorcraft-Helicopter

Additional Instrument
Rotorcraft-Helicopter

Airline Transport Pilot
Rotorcraft-Helicopter

Flight Instructor
Rotorcraft-Helicopter

Additional Flight Instructor
Rotorcraft-Helicopter

Flight Instructor Instrument
Rotorcraft-Helicopter

Additional Aircraft Category or Class
Rotorcraft-Helicopter

SPECIAL PREPARATION COURSES

Pilot Refresher
Helicopter IFR Recurrent

Rotorcraft External-Load Operations
Helicopter

Special Operations
Helicopter VFR Recurrent

Turbine Transition
Bell 206 Helicopter

HU-269 & Bell 206

Sincerely,

[Signature]

Tonye Gilliard
Acting Manager
Florida Institute of Technology

ADDING A NEW COURSE TO THE CURRICULUM

This course is available for student registration only after the approval process has been completed.

SUBJECT AVT
COURSE NO. 1006
CREDIT HOURS 3
TERM TO BE ADDED TO THE FILE Spring 2011
CLASS HOURS 45/semester
LECTURE HOURS 45/semester
LAB HOURS
CONTACT HOURS (CEU ONLY)

DEPARTMENT Aviation Studies
SCHEDULE TYPE Lecture (A)

☐ COLLEGE OF AERONAUTICS – 23
☐ COLLEGE OF PSYCHOLOGY AND LIBERAL ARTS – 25
☐ NATHAN M. BISK COLLEGE OF BUSINESS – 24
☐ COLLEGE OF SCIENCE – 26
☐ COLLEGE OF ENGINEERING – 1
☐ EXTENDED STUDIES DIVISION / NATHAN M. BISK COLLEGE OF BUSINESS – 90

COMPUTER TITLE Restricted to 25 characters, including spaces Helo Baslo Flight Princ

CATALOG TITLE Helicopter Basic Flight Principles

CATALOG DESCRIPTION OF COURSE Restricted to 350 characters, including spaces

Provides basic helicopter aeronautics instruction for rotorcraft private pilot candidates. Prepares flight students for the FAA private pilot-helicopter written examination. Includes aircraft components and helicopter flight principles.

In addition, please attach a course syllabus and/or more detailed description.

REstrictions
☐ Prerequisite ____________________________ Course Number ____________________________
☒ Corequisite AVF 1006 Course Number ____________________________
☐ Prerequisite ____________________________ Course Number ____________________________
☐ Corequisite ____________________________ Course Number ____________________________
☐ Prerequisite ____________________________ Course Number ____________________________
☐ Corequisite ____________________________ Course Number ____________________________

GRADES TO BE ISSUED
☒ A, B, C, D, F
☐ A, B, C, D, F, CEU
☐ CEU
☐ S, U
☐ P, F
☐ Other

ADDITIONAL RESTRICTION
(e.g., Major, Class Level, Department Head Approval)

If this course replaces a course currently offered in BANNER, please indicate old course information and the date/term the course may be removed from the system.

SUBJECT Alpha Prefix (e.g., CSE) COURSE NO. (e.g., 1301)

APPROVALS: Upon completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval below and forward to Catalog Director.

Originator ____________________________ Date ____________

Chair, Graduate Council ____________________________ Date ____________

Department Head/Program Chair ____________________________ Date ____________

Dean or Associate Dean ____________________________ Date ____________

Chair, Undergraduate Curriculum Committee ____________________________ Date ____________

CATALOG DIRECTOR
These changes/additions have been made for the University Catalog/policy management system and entered into the BANNER term named above.

Catalog Director ____________________________ Date ____________

REGISTRAR’S USE ONLY
SCARSE ____________________________ SCADETL ____________________________ SCAREQ ____________________________
SCARRES ____________________________ Operator Init. ____________________________ Date ____________________________

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Florida Institute of Technology
College of Aeronautics

MASTER COURSE SYLLABUS

AVT 1006 Helicopter Basic Flight Principles

Spring 2010

Catalog Course Description

AVT 1006 HELICOPTER BASIC FLIGHT PRINCIPLES (3 credits). Provides basic helicopter aeronautics instruction for rotorcraft private pilot candidates. Prepares flight students for the FAA private pilot-helicopter written examination. Includes aircraft components and helicopter flight principles. Corequisite: AVT 1006.

Course Objectives

Introduce students to the rotorcraft aeronautics field of study and prepare helicopter flight students for the FAA Private Pilot-Helicopter Written Examination.

Upon completion of this course the student should be able to:

1. Demonstrate an understanding of the helicopter pilot training process, aviation opportunities and human factors.
2. Be able to identify the parts of a helicopter and understand the operating principles of aircraft powerplants, systems and flight instruments.
3. Demonstrate an understanding of the four forces of flight, stability and basic aerodynamics.
4. Summarize pertinent Federal Aviation Regulations.
5. Read and interpret printed aviation weather reports and forecasts, graphic weather products, and other sources of weather information.
6. Understand the factors affecting aircraft performance, aircraft emergency procedures, weight and balance, and be able to use a flight computer.
7. Discuss pilotage and dead reckoning, VOR navigation, ADF navigation and advanced navigation systems.
8. Demonstrate the ability to perform the flight planning process and discuss the phases of a cross-country flight.

Lead Instructor

S. K. Cusick, J.D. Associate Professor
Curriculum Coordinator

Peter G. Dunn, M.S. ATP, Chair Flight Education Program

Texts and References

1. Helicopter Pilot Textbook – Schweizer by Jeppesen
2. Principles of Helicopter Flight by W.J. Wagendonk
4. Federal Aviation Regulations/Aeronautical Information Manual
5. Current Miami and Jacksonville Sectional Charts
6. Private Pilot Test Prep 10, ASA Publications
7. Schweizer (S300CBi) Helicopter Manual (Pilot’s Operating Handbook)
8. Practical Test Standards for Private Pilot Rotorcraft (Helicopter) FAA-S-8081-15A
9. Aviation Weather Services AC 00-45F
10. Aviation Weather AC 00-6A

Instructional Format

Lecture 100%

Student Materials Beyond Texts, References, and Common Student Materials

Sectional charts and Airport Facility Directory
B6B computer or equivalent electronic calculator
Navigation plotter

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<td>The Powerplant and Related Systems</td>
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<td>Flight Instruments</td>
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<td>Basic Aerodynamics - Four Forces of Flight</td>
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<td>Predicting Performance – Turns, Loads and Autorotative Descents</td>
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**Grading (typical)**

- Class participation: 5%
- Quizzes and Homeworks: 10%
- Exams (3) 15% each: 45%
- FAA Stage Check Exam: 20%
- University Final exam: 20%

**Teaching Media and Delivery Methods**

Lecture, required textbooks, reference texts, class discussion, text and graphic projections, black/white board text and graphic presentations, videos, wall charts, aircraft and engine hands-on visual aids, guest lecturers, Internet references projections, quizzes, exams, homework, group exercises using sectional charts, weather reports and forecasts, E-6B and plotter.

**Laboratory Use**

None

**Team Training Concepts**

Homework assignments and presentations.
Cross-country flight planning exercises
Florida Institute of Technology

ADDING A NEW COURSE TO THE CURRICULUM

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<td>Provides initial helicopter flight instruction for helicopter private pilot candidates. Prepares students for the FAA rotorcraft-helicopter practical test.</td>
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In addition, please attach a course syllabus and/or more detailed description.

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<th>ADDITIONAL RESTRICTION</th>
<th>Requirements: FAA student pilot certificate, class III or higher medical certificate</th>
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<td>Dean or Associate Dean</td>
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CATALOG DIRECTOR

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Catalog Director | Date

REGISTRAR’S USE ONLY

SCJORSE | SCADETL | SCAREQ

SCARRIES | Operator Init. | Date
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BRISTOW ACADEMY, INC.
TRAINING SYLLABUS
PRIVATE PILOT CERTIFICATION COURSE

ROTORCRAFT HELICOPTER

35 HOURS CLASSROOM INSTRUCTION
33 HOURS DUAL FLIGHT INSTRUCTION
11.3 HOURS SOLO FLIGHT
10.3 HOURS TUTORED INSTRUCTION
12.9 HOURS PRE AND POST FLIGHT INSTRUCTION
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### PRIVATE PILOT TRAINING COURSE
### LIST OF EFFECTIVE PAGES (cont.)

**Flight Training Stage 1 continued**

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GROUND TRAINING SYLLABUS

GROUND TRAINING
35 HOURS

1. 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 written examination.

The student will obtain the necessary aeronautical knowledge including the following aeronautical knowledge areas:

(1) Applicable Federal Aviation Regulations for private pilot privileges, limitations, and flight operations;
(2) Accident reporting requirements of the National Transportation Safety Board;
(3) Applicable subjects of the "Aeronautical Information Manual" and the appropriate FAA advisory circulars;
(4) Aeronautical charts for VFR navigation using pilotage, dead reckoning, and navigation systems;
(5) Radio communication procedures;
(6) Recognition of critical weather situations from the ground and in flight, wind shear avoidance, and the procurement and use of aeronautical weather reports and forecasts;
(7) Safe and efficient operation of aircraft, including collision avoidance, and recognition and avoidance of wake turbulence;
(8) Effects of density altitude on takeoff and climb performance;
(9) Weight and balance computations;
(10) Principles of aerodynamics, power plants, and aircraft systems;
(11) If the course of training is for an airplane category or glider category rating, stall awareness, spin entry, spins, and spin recovery techniques;
(12) Aeronautical decision making and judgment; and
(13) Preflight action that includes—
   (i) How to obtain information on runway lengths at airports of intended use, data on takeoff and landing distances, weather reports and forecasts, and fuel requirements; and
   (ii) How to plan for alternatives if the planned flight cannot be completed or delays are encountered.
The course will be taught utilizing FAA resources that include:

- FAA-H-8083-21 Rotorcraft Flying Handbook
- FAA-H-8083-25
- AC 00-6 Aviation Weather for pilots
- AC 00-45 Aviation Weather Services
- AC 00-22 Aeronautical Decision Making
- Federal Aviation Regulations
- Aeronautical Information Manual
- Airport Facility Directory
- Aviation Charts
- FAA approved flight manuals

The utilization of FAA approved content includes:
- Jeppesen Helicopter Pilot Textbook
- ASA Aviation Weather Services Explained
- ASA Private Pilot Test prep

2. **Ground Training Course Completion Standards**

   The student will demonstrate through oral and written evaluation and records that he/she has the necessary aeronautical knowledge to pass the FAA Private Pilot-helicopter written examination.
SECTION 1

GROUND TRAINING
13.0 HOURS

SECTION 1 OBJECTIVE

During section 1 the student will study Preflight Preparation and Procedures with review of helicopter components, systems, instruments, basic aerodynamics, and principles of flight, method and importance of accurately determining helicopter weight and balance and performance will be introduced.

SECTION 1 COMPLETION STANDARDS

Section 1 will be complete when the student has taken the section 1 written examination. The instructor will review each incorrect response to assure complete understanding before advancing the student to section 2.
LESSON 1

2.0 HOURS GROUND TRAINING

OBJECTIVES
This lesson will introduce the student to the helicopter components, systems, instruments and airworthiness as required for preflight preparation and procedures.

LESSON CONTENT

1. Helicopter Components
2. Primary Flight Controls
   a. Cyclic
   b. Collective
   c. Throttle
   d. Pedals
3. Electrical System
4. Fuel and Fuel System
5. Oil and Oil System
6. Instruments - Function, Markings and limitations
   Engine
      Dual tachometer
      Manifold pressure
      Flight - function, markings, limits
   Pilot-static system
7. Airworthiness
   Certificates and documents
   Minimum required instruments and equipment
   Equipment list
   Minimum Equipment Lists
8. Preflight Inspection

COMPLETION STANDARDS
This lesson will be complete through a review of content, when the student can describe and explain the material presented.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON 2  2.0 HOURS GROUND TRAINING

OBJECTIVES

During this lesson the student will study basic aerodynamics.

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. Tip path plane
   i. Center of pressure

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

7. Vibrations
   a. Resonance
   b. Sympathetic

8. Ground
   a. Low frequency
   b. Medium frequency
   c. High frequency

9. Loss of tail rotor effectiveness (unanticipated yaw)

COMPLETION STANDARDS

This lesson will be complete through a review of content, when the student can describe and explain the material presented.

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, in relationship to Aircraft Performance

LESSON CONTENT

1. Hovering flight  
   a. Lift and thrust resultant  
   b. Weight and drag  
   c. Axis of rotation  
   d. Conning  
      1. Lift  
      2. Centrifugal force  
   e. Blade flapping  
   f. Coriolis affect  
   g. Translating tendency  
   h. Direction of airflow  
   i. Ground effect  
   j. Forward, sideward, and rearward hovering  
   k. Gyroscopic precession  
   l. Pendular action  
   m. Settling with power  
   n. Dynamic Rollover

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. Low "G" - Mast bumping

COMPLETION STANDARDS

This lesson will be complete through a review of content, when the student can describe and explain the material presented.

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 into 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 auto rotational airspeed
      2. Minimum rate of descent airspeed
      3. Maximum glide distance airspeed
   f. Hovering auto rotations
      1. Torque effect
      2. Translating tendency or drift

COMPLETION STANDARDS
This lesson will be complete through a review of content, when the student can describe and explain the material presented.

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 with application to preflight preparation and procedures.

LESSON CONTENT

1. The Helicopter Flight Manual
   a. Operating limitations
      1. Airspeed
      2. Rotor
      3. Power plant
      4. Type of operation
      5. Fuel usability
   b. Operating procedures
      1. Emergency procedures
      2. Takeoff and landing procedures
      3. Checklists
         a. Preflight
         b. Engine starting and warm-up
      c.
   c. Performance information
      1. Performance charts
         a. Types of charts
         b. Interpretation of charts
      2. Placard information
   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
   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. Calm wind
      2. Strong wind
      3. Gusty wind
      4. Wind direction
   d. Carburetor icing
      1. Causes and indications
      2. Elimination

COMPLETION STANDARDS

This lesson will be complete through a review of content, when the student can describe and explain the material presented.

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 and their application to preflight preparation and procedures.

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 methods
   b. Graph method
   c. Fuel burn-off
   d. Effect of out of balance loading
3. Weight and Balance Management
   a. Weight adjustment
   b. C.G. adjustment
   c. Fuel burn-off
   d. Effect of out of balance loading

COMPLETION STANDARDS
This lesson will be complete through a review of content, when the student can describe and explain the material presented.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON 7  1.0 HOURS GROUND TRAINING

OBJECTIVES

This lesson will be a review of material presented in lessons 1 through 6.

LESSON CONTENT

Review as necessary

COMPLETION STANDARDS

This lesson will be complete through a review of content, when the student can describe and explain the material presented.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
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SECTION 2

GROUND TRAINING
7.0 HOURS

SECTION 2 OBJECTIVES

During section 2 the student will be introduced to aviation weather and Weather Services available to the pilot for determining safety of flight.

SECTION 2 COMPLETION STANDARDS

Section 2 will be complete when the student has completed the section 2 written review. The instructor will review each incorrect response to assure complete understanding before advancing the student to Section 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. Dewpoint
   c. Condensation and sublimation products
      1. Clouds and fog
      2. Precipitation
      3. 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. Connective 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. Clear and Rime
   e. Prevention and elimination
5. Thunderstorms
   a. Conditions necessary for formation
   b. Formation and life cycle
   c. Hazards
   d. Avoidance procedures
6. Recognition of critical weather situations from the ground and in-flight.

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 gain knowledge of weather information by learning to interpret and apply aviation weather reports and forecasts prepared by the national weather service from the ground and in flight.

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
   f. In-flight weather services
2. Prior/Current Weather Conditions
   a. Surface analysis chart
   b. Sequence report
   c. Weather depiction chart
   d. Radar summary chart
   e. Winds aloft chart
   f. Significant weather prognostic charts
3. Forecasts
   a. Area forecast
   b. Terminal forecast
   c. Surface prognostic chart
   d. Winds aloft forecast
4. METAR/TAF/FA Codes
5. SIGMETS AND AIRMET'S

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 1.0 HOURS GROUND TRAINING

OBJECTIVES

This lesson will be a review of material presented in lessons 8 through 13 in preparation for the section 2 written review.

LESSON CONTENT

Review as necessary

COMPLETION STANDARDS

This lesson and section 2 will be complete when the student has taken the section 2 written review, covering the material presented in lessons 8 through 13 and review all weak areas to the satisfaction of the instructor.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
SECTION 3

GROUND TRAINING
15.0 HOURS

SECTION 3 OBJECTIVES

During section 3 the student will be introduced to VFR charts and airspace, the navigation plotter, the flight computer, the airman's information manual, cross country planning, radio navigation, Airport environment, pilots physiological considerations including decision making, and Federal Aviation Regulations.

SECTION 3 COMPLETION STANDARDS

Section 3 will be complete when the student has taken the stage 3 written review. The instructor will review each incorrect response to assure complete understanding before advancing the student to the FAA written test for Private Pilot Rotorcraft Helicopter.
LESSON 12  2.0 HOURS GROUND TRAINING

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

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. Airspace
         a. Class A, B, C, D & E
         b. Control zones/Class G
         c. Special use airspace
      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 13 2.0 HOURS GROUND TRAINING

OBJECTIVES
This lesson will introduce the use of the airman's information manual and its application to preflight planning, including the national airspace system.

LESSON CONTENT
1. The Airman's 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. Class B
         c. Class C
         d. Class D
         e. Class E
         f. Class G
         g. Prohibited, restricted, warning, alert areas, MOA's, MTR's and other
   4. Services available to pilots
   5. Airport and heliport operations
   6. Emergency procedures
   7. Good operating practices
   8. Collision avoidance procedures including wire strike avoidance
   9. High Traffic Density Airport Operations
   b. Airport directory
      1. Content
      2. Use - Legend
      3. Applications
   c. Operational data and notams
      1. Content
      2. Temporary flight restrictions
      3. Applications
   d. Graphic notices and supplemental data
      1. Content
      2. Use
      3. Applications
2. The Advisory Circular System

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  2.0 HOURS GROUND TRAINING

OBJECTIVES

This lesson will introduce the flight computer and its use in navigational computations for cross-country flight planning.

LESSON CONTENT

1. Calculator Side
   a. Explanation of markings
   b. Mileage and speed conversions
   c. Time, speed, and distance computations
   d. Fuel consumption
   d. Airspeed computations
   f. True/density altitude computations
2. Wind Face Side
   a. Explanation of markings
   b. The wind triangle
   c. Groundspeed
   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 15  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. Magnetic variation
   c. Magnetic course and latitude selection
   d. Checkpoints
   e. True airspeed
   f. Wind correction angle and groundspeed
   g. Magnetic heading
   h. Compass deviation
   i. Compass heading
   j. Time estimates - ETE and ETA
   k. Fuel requirements
   l. High Density Altitude operations
4. Airport Information for Destination and alternate planning
   a. VFR charts for planning destination and alternate
   b. Airman's information manual
   c. Other publications
5. VFR Flight Plan
   a. Filing
   b. Opening
   c. Extending if necessary
   d. Closing/Canceling

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
   a. Radar
   b. Relative bearing
   c. Magnetic bearing
   d. Tracking vs. homing
5. ATC Services Available to pilots
   a. Radar
      1. Radar vectors
      2. ASR
      3. Transponder
         a. Phraseology
         b. Modes and codes
   b. DF Steers

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 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
   j. Movement and non-movement areas
2. Radio Communications
   a. Frequency assignment plan
   b. Contact procedure
   c. Microphone technique
   d. Aircraft call signs
   e. Radio phraseology
   f. Light signals
   g. Transponder codes
3. Airport and Heliport Communications
   a. Controlled airports and heliports
      1. Automatic terminal information service-ATIS
      2. Ground control
   b. Uncontrolled airports and heliports
      1. Flight service station
      2. Unicom
      3. Multi-com
      4. Other ATC facilities and services
         a. Air route traffic control center
         b. Approach control
      5. FSS services available
         a. Flight watch
         b. Transcribed weather broadcasts
         c. Scheduled weather broadcasts
         d. In-flight service
6. Emergency Procedures
   a. Emergency locator transmitter
   b. Emergency VHF frequency - 121.5
   c. Transponder codes
   d. Lost Communication
   e. Recognition and avoidance of Wake Turbulence

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 aero medical factors, which can affect the comfort and safety of the pilot and his passengers.

LESSON CONTENT
1. Physiological Considerations
   a. Fatigue
   b. Hypoxia
   c. Alcohol
   d. Drugs
   e. Vertigo
   f. Carbon monoxide
   g. Vision
   h. Middle ear
   i. Illusions
   j. Spacial Disorientation
2. Psychological Consideration
   a. Anxiety
   b. Stress
3. Cockpit Resource Management
   a. Single pilot Resource Management
   b. Aeronautical Decision Making processes
   c. Situational Awareness
   d. Risk management
4. Emergency Equipment and Survival Gear
5. Effects of nitrogen excesses during scuba dives
6. Federal Aviation Regulations
   a. FAR Part 1 and Part 43
   b. FAR Part 61
   c. FAR Part 91
   d. NTSB Part 830
   e. Part 175 Hazardous Material Regulations

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 HOURS GROUND TRAINING

OBJECTIVES
This lesson will be a review of material presented in lessons 1 through 18 in preparation for the section 3 and final written examination.

LESSON CONTENT
Review as necessary

COMPLETION STANDARDS
This lesson and section 3 will be complete when the student has taken and passed the final written examination with a minimum score of 70 percent, covering the material presented in lessons 1 through 18.

The ground training course will be completed when the student has taken and passed the FAA Private Pilot- Rotorcraft Helicopter written examination with a minimum of 70%.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT TRAINING STAGE ONE
SOLO FLIGHT - LESSONS ONE THROUGH FIFTEEN

17.5 HOURS DUAL (1.3 HOURS STAGE ONE CHECK)
5.2 HOURS PRE AND POST FLIGHT BRIEFING
4.3 HOURS TUTORED INSTRUCTION (1.3 STAGE CHECK)
13.0 HOURS CLASSROOM INSTRUCTION (SECTION 1, 2, 3)

STAGE ONE OBJECTIVES –

The student will be instructed in basic flying procedures and skill necessary for solo flight. He/she will gain the knowledge required to fly the helicopter safely in solo flight.

STAGE ONE COMPLETION STANDARDS –

The stage will be complete when the student completes the instruction listed above and passes the Stage One Flight Check and has completed up to lesson 7 in the ground school. The student will demonstrate the ability and knowledge to conduct solo flights safely.
FLIGHT LESSON 1

1.0 HOURS DUAL
2.0 HOURS PRE AND POST BRIEFING

OBJECTIVES
The student will be introduced to the helicopter and the importance of a proper preflight inspection. He/she will gain an understanding of safety precautions to be followed and will be introduced to the use of the flight controls.

LESSON CONTENT

Introduction
1. Preflight Preparation and Procedures
   a. Required documents
   b. Aircraft logbooks
   c. Use of checklists
   d. Preflight inspection
   e. Helicopter servicing
   f. Fuel system and octane
   g. Equipment checks
   h. Ground safety procedures to include passenger safety briefing
   i. Post flight procedures

2. Flight Demonstration
   a. Cockpit Management
   b. Engine start and rotor engagement
   c. Before takeoff check
   d. Hovering
   e. Normal takeoff from a hover
   f. Normal approach to a hover
   g. Straight and level flight
   h. Medium bank turns
   i. Climbs and descents
   j. Acceleration/Deceleration
   k. Engine shutdown
   k. Helicopter parking and securing

3. Student Practice
   a. Straight and level flight
   b. Medium bank turns
   c. Climbs and descents
   d. Accel/Deceleration

COMPLETION STANDARDS
At the completion of this lesson, the student, with instructor assistance, will be able to conduct a preflight inspection, use checklists, and start the engine. He/she will be able to describe the use of the flight controls and display an understanding of ground safety.

INSTRUCTOR'S COMMENTS AND RECOMMENDATION:
FLIGHT LESSON 2  
1.0 HOURS DUAL  
.5 HOURS PRE AND POST BRIEFING

OBJECTIVES
The student will review the procedures introduced in lesson 1 to gain proficiency in the use of the flight controls. He/she will be introduced to radio communications and ground reference maneuvers to increase proficiency in aircraft control.

LESSON CONTENT
Review
1. Preflight Inspection
2. Cockpit Management
3. Engine start and rotor engagement
4. Before takeoff check
5. Acceleration/deceleration
6. Straight and level flight
7. Medium bank turns
8. Climbs and descents
9. Engine shutdown
10. Ground safety procedures
11. Post Flight Procedures

Introduction
1. Radio communications and ATC light signals
3. Collision and wire strike avoidance procedures
4. Ground Reference Maneuvers
   a. Rectangular course
   b. S-Turns
   c. Turns around a point
5. Wind drift correction

COMPLETION STANDARDS
The student will practice the preflight inspection with instructor assistance and describe with increased understanding and proficiency the use of the flight controls to control aircraft attitude.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 3

1.2 HOURS DUAL
.2 HOURS PRE AND POST BRIEFING

OBJECTIVES
During this lesson, the student will continue to gain proficiency in basic flight maneuvers and be introduced to transitions to and from forward flight and hovering.

LESSON CONTENT
Review
1. Preflight Inspection
2. Cockpit Management
3. Engine start and rotor engagement
4. Before takeoff check
5. Straight and level flight
6. Medium bank turns
7. Ground reference maneuvers
8. Climbs and descents
9. Radio communications
10. Collision and wire strike avoidance procedures
11. Engine shutdown
12. Post Flight Procedures

Introduction
1. Normal takeoff from a hover
2. Normal approach to a hover
4. Go around
9. Hovering

COMPLETION STANDARDS
Student will be able to perform the preflight inspection, and practice engine starting, engine and systems preflight checks and engine shutdown. He/she will display increased proficiency in practice coordinated helicopter control and while maintaining altitude within 300 feet during turns and airspeed changes.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS:
FLIGHT LESSON 4

1.2 HOURS DUAL
.2 HOURS PRE AND POST BRIEFING

OBJECTIVES
This lesson will review flight maneuvers previously introduced and emphasize how crosswinds affect these maneuvers. The student will be introduced to maneuvering by ground reference.

LESSON CONTENT
Review
1. Preflight Inspection
2. Cockpit Management
3. Engine start and rotor engagement
4. Engine and systems preflight check
5. Straight and level flight
6. Medium bank turns
7. Ground reference maneuvers
8. Climbs and descents
9. Radio communications
10. Collision and wire strike avoidance procedures
11. Hovering
12. Normal takeoff from a hover
13. Normal approach to a hover
14. Go around
15. Engine shutdown
16. Post Flight Procedures

Introduction
1. Maneuvering by Ground References
2. Vertical takeoff to a hover
3. Landing from a hover
4. Crosswind effects on the above maneuvers
5. Sideward, forward, and rearward hovering
6. Hovering turns
7. Traffic Patterns (hover taxi, air taxi)
8. Rapid descent with power

COMPLETION STANDARDS
The student will practice attitude control during takeoffs and approaches and will be able to describe and explain how crosswind components affect these maneuvers. He/she will gain an understanding of the elements involved in maneuvering by ground references.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 5
1.3 HOURS DUAL
.2 HOURS PRE AND POST BRIEFING

OBJECTIVES
The student will practice basic maneuvers, concentrating on hovering and will be introduced to auto-rotations.

LESSON CONTENT
Review
1. Vertical takeoff to a hover
2. Hovering - sideward, forward, rearward and turns (air taxi/hover taxi)
3. Normal takeoff from a hover
4. Normal approach to a hover
5. Landing from a hover
6. Ground Reference Maneuvers
7. Rapid descent with power
8. Post Flight Procedures

Introduction
1. Performance Maneuvers: Auto-rotations
   a. Power recovery to go around
   b. Effect of controls on Rotor RPM, Glide and Trim
   c. Attitude changes (airspeed and turns)

COMPLETION STANDARDS
The student will practice proficiency during takeoffs, traffic pattern operations, approaches, and hovering. The student will be able to describe and explain effect of controls and procedures in autorotation.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 6

1.3 HOURS DUAL
.2 HOURS PRE AND POST BRIEFING

OBJECTIVES
The student will continue to practice basic maneuvers, concentrating on proper heading control and will be introduced to Rapid decelerations and .

LESSON CONTENT
Review
1. Vertical takeoff to a hover
2. Hovering - sideward, forward, rearward and turns (air taxi/hover taxi)
3. Normal takeoff from a hover
4. Normal approach to a hover
5. Landing from a hover
6. Rapid descent with power
7. Auto-rotations
8. Post Flight Procedures

COMPLETION STANDARDS
The student will practice the maneuvers and procedures with increased proficiency during takeoffs, traffic pattern operations, approaches, and hovering. The student will be able to describe and explain the elements of rapid decelerations and correlation in with autorotation.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 7

1.3 HOURS DUAL
.2 HOURS PRE AND POST BRIEFING

OBJECTIVES
The student will continue to practice pre-solo maneuvers and will be introduced to maximum performance takeoffs and steep approaches.

LESSON CONTENT
Review
1. Vertical takeoff to a hover
2. Hovering - (air taxi/hover taxi)
3. Normal takeoff from a hover
4. Normal approach to a hover
5. Landing from a hover
6. Auto-rotation
7. Post Flight Procedures
Introduction
1. Performance Maneuver: Rapid Deceleration (Quick-stop)
2. Autorotation flares to power recovery

COMPLETION STANDARDS
The student will practice maneuvers and procedures with increasing proficiency and be able to describe and explain the elements of Rapid decelerations and auto-rotations to flare with power recovery.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 8

1.3 HOURS DUAL
.2 HOURS PRE AND POST BRIEFING

OBJECTIVES
This lesson will concentrate on takeoffs, approaches, and hovering maneuvers to build proficiency. It will be conducted at an airport, placing emphasis on traffic pattern safety and normal procedures.

LESSON CONTENT
Review
1. Normal takeoffs and approaches
2. Hovering - sideward, forward, rearward, and turns (air taxi - hover taxi)
3. Ground reference maneuvers (rectangular patterns)
3. Auto-rotations
4. Post Flight Procedures
Introduction
1. Airport environment
2. Traffic Pattern Operations
3. Wake turbulence avoidance
4. Airport and heliport markings
5. Airport and heliport operations
6. Maximum performance takeoff
7. Steep approach
8. Slopes

COMPLETION STANDARDS
The student will practice pre-solo maneuvers and be able to describe and explain a basic understanding of the airport environment with regard to helicopter operations and elements of maximum performance takeoffs and steep approaches.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 9

1.3 HOURS DUAL
.2 HOURS PRE AND POST BRIEFING

OBJECTIVE
During this lesson, the student will review airport operations and concentrate on pre-solo maneuvers.

LESSON CONTENT
Review
1. Airport environment
2. Traffic Pattern Operations
3. Wake turbulence avoidance
4. Airport and heliport markings
5. Airport and heliport operations
6. Normal takeoffs and approaches
7. Maximum performance takeoffs
8. Steep approaches
9. Hovering
10. Post Flight Procedures

COMPLETION STANDARDS
The student will perform pre-solo maneuvers in the airport environment while showing an increased understanding of Radio communications and operations by describing and explaining maneuvers and procedures required.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 10

1.3 HOURS DUAL
.2 HOURS PRE AND POST BRIEFING

OBJECTIVES
The student will practice pre-solo maneuvers and will be introduced to 180 auto-rotations to a landing area

LESSON CONTENT
Review
1. Normal takeoffs and approaches
2. Maximum performance takeoffs
3. Steep approaches
4. Hovering
5. Straight in auto-rotations
6. Quick-stops
7. Rapid descents with power
8. Straight in auto-rotations
9. Quick-stops
10. Post Flight Procedures
Introduction
1. 180 Degree Auto-rotations
2. Surface Taxi

COMPLETION STANDARDS
The student will practice areas of weakness. He/she will demonstrate understanding through explaining auto-rotations, and the power recovery and further develop control coordination in auto-rotation.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 11
1.4 HOURS DUAL
.5 HOURS PRE AND POST BRIEFING

OBJECTIVES
During this lesson the student will review pre-solo maneuvers as necessary and will be introduced to systems and equipment malfunctions, emergency procedures, and hazardous flight conditions.

LESSON CONTENT
Review
1. Pre-solo maneuvers as necessary
2. Straight in auto-rotations with power recovery
3. 180 autorotation with power recovery
4. Rapid decelerations - quick stops
5. Surface taxi
6. 180 Degree Autorotation
7. Post Flight Procedures

Introduction
1. Recognition and recovery from low rotor RPM
   a. During cruise flight
   b. On takeoff
   c. At a hover
2. Hovering auto-rotations
3. Settling with power
4. Recognition and recovery of Low G

COMPLETION STANDARDS
The student should perform all pre-solo maneuvers with little to no assistance from the instructor. At the completion of this lesson, the student will show increased proficiency in all pre-solo maneuvers. During straight and level flight and turns, altitude will be maintained within 200 feet, airspeed within 15 knots and heading within 20 degrees. He/she will gain an understanding of the effects of low rotor RPM, its recognition and proper recovery techniques.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 12

DUAL 1.3 HOURS
.3 HOURS PRE AND POST BRIEFING

OBJECTIVE
The lesson will be a review of important pre-solo maneuvers.

LESSON CONTENT
Review
1. Takeoffs and approaches
2. Hovering - sideward, forward, rearward, and turns (air taxi - hover taxi)
3. Straight in auto-rotations
4. Hovering auto-rotations
5. Rapid decelerations - quick stops
6. Emergency Procedures
   a. Recognition and recovery from low rotor RPM

Introduction
1. Systems and equipment malfunctions
   a. Helicopter operating handbook (Emergency Procedures)
      1. Power failure at a hover / at altitude
         a. Maximum glide distance configuration
         b. Air restart procedure
   2. Ditching
   3. Tail rotor failure
   4. Fire in flight
   5. Engine fire during ground start
   6. Electrical fire in flight
   7. Tachometer failure
   8. Main rotor and tail rotor transmission warning lights
   9. Clutch warning light
  10. Low voltage light
  11. Partial Power failure at a hover/at altitude

COMPLETION STANDARDS
The student will demonstrate increased proficiency in all pre-solo maneuvers. He/she will gain an understanding of system and equipment malfunctions.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON 13  3.0 HOURS TUTORED INSTRUCTION

OBJECTIVE
During this lesson the instructor will conduct a review with the student of the appropriate helicopter flight manual and the portions of FAR Parts 61 and 91 that relate to solo pilot operations.

LESSON CONTENT
The Helicopter Flight Manual
1. Operating limitations
   a. Airspeed
   b. Rotor
   c. Power-plant
   d. Type of operation
   e. Fuel usability
   f. Instrument markings

2. Operating procedures
   a. Emergency procedures
   b. Takeoff and landing procedures
   c. Checklists
      1. Preflight
      2. Engine starting
      3. Engine shutdown

3. Performance information
   a. Performance charts
   b. Placard information
   c. FAR Part 91
   d. FAR Part 61

COMPLETION STANDARDS
This lesson will be complete when the student has displayed his knowledge of the helicopter, its safe operation, the Flight Rules of FAR Part 91 through oral examination and the appropriate portions of FAR Part 61.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 14

DUAL 1.3 HOURS
.3 HOURS PRE AND POST BRIEFING

OBJECTIVE
This lesson is a review of all pre-solo maneuvers in preparation for the student's first supervised solo.

LESSON CONTENT
Oral discussion
1. ATC/Traffic pattern procedures

Review
1. Preflight preparation and procedures: Preflight inspection
2. Engine start and rotor engagement
3. Engine and systems preflight check
4. Vertical takeoff to a hover
5. Hovering - sideward, forward, rearward and turns
6. Radio communications
7. Normal takeoff from a hover
8. Traffic pattern procedures and collision avoidance precautions
9. Performance Maneuvers
   Autorotative descents with power recovery
   Rapid Deceleration / Quick stops
10. Hovering auto-rotations
11. Emergency procedures Simulated forced landings
12. Normal approach to a hover
13. Recognition and recovery from low RPM
14. Landing from a hover
15. Surface taxi

COMPLETION STANDARDS
The student will demonstrate the knowledge and proficiency to safely solo the helicopter.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 15

DUAL 1.3 HOURS,
STAGE 1 FLIGHT CHECK GROUND 1.3

OBJECTIVE

During this stage check, the Chief Flight Instructor or assistant will evaluate the student's proficiency on the listed stage 1 maneuvers and procedures to determine if the student is ready to solo the aircraft.

LESSON CONTENT

Review
1. Flight preparation procedures, including preflight inspections and power-plant operations.
2. Ground maneuvering and run-ups
3. Hovering turns and air taxi
4. Straight and level flight, turns, climbs and descents
5. Rapid decelerations
6. Maneuvering by ground references, airport traffic patterns including collision avoidance precautions
7. Normal takeoffs and landings
8. Simulated emergency procedures, including auto-rotational descents with a power recovery to a hover

Oral examination
1. Pilot's operating handbook
   a. Airworthiness requirements
   b. Limitations
   c. Normal procedures
   d. Emergency procedures
2. Manufacturer's safety notices (optional)

COMPLETION STANDARDS

The lesson and Stage 1 will be complete when the student performs displays skill and understanding necessary to safely conduct solo flights in the local training area. He/she will maintain altitude within 150 feet, airspeed within 15 knots, and heading within 15 degrees. The student will also demonstrate sufficient knowledge of emergency operations, and the pilot's operating handbook.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
STAGE TWO-CROSS COUNTRY
LESSONS SIXTEEN THROUGH THIRTY-SEVEN

15.5 HOURS DUAL FLIGHT TRAINING
  (5.0 HRS CROSS COUNTRY, 3.0 HRS NIGHT)
  (1.3 HOURS STAGE TWO CHECKS)
11.3 HOURS SOLO (4.9 HOURS CROSS COUNTRY)
7.7 HOURS PRE AND POST FLIGHT BRIEFING
6.0 HOURS TUTORED GROUND INSTRUCTION (2.0 HOURS STAGE CHECK)
22 HOURS CLASSROOM INSTRUCTION (SECTION II and III)

STAGE TWO OBJECTIVES -
The student will be instructed in the conduct of cross country flights in helicopters using
pilotage, dead reckoning and radio navigation during Day VFR. Night operations will
be introduced and practices in preparation for cross country navigation in Night VFR
conditions. He/she will also be instructed in offsite operations and operations within
the ATC environment under VFR, in preparation for the final stage check.

STAGE TWO COMPLETION STANDARDS -
The stage will be complete when the student has passed the Stage Two Flight Check
and the Written Test and has demonstrated that he/she can safely perform all
procedures and maneuvers as laid down in the Practical Test Standards for the Private
Pilot (Rotorcraft) Helicopter certification.
FLIGHT LESSON 16: DUAL 0.8 HOURS,
SOLO 0.3 HOURS, .3 HOURS PRE POST BRIEF

OBJECTIVE

During the dual portion of this lesson the instructor will review takeoffs, traffic patterns, and approaches to check the student's readiness for solo flight. During the second portion of this lesson the student will conduct his first supervised solo flight.

LESSON CONTENT

Review
1. Flight preparation procedures, including preflight inspections and power plant operations.
2. Ground maneuvering and run-ups
3. Hovering turns an air taxi
4. Straight and level flight, turns, climbs and descents
5. Rapid decelerations
6. Maneuvering by ground references, airport traffic patterns including collision avoidance precautions
7. Normal takeoffs and landings
8. Simulated emergency procedures, including autorotation descents with a power recovery to a hover

First supervised solo flight
1. Vertical takeoffs to a hover
2. Hovering
3. Landing from a hover
4. Three normal takeoffs, traffic patterns, and normal approaches

COMPLETION STANDARDS

The student will perform reviewed maneuvers with the instructor in preparation for the students first solo flight.
The student will perform safe helicopter operations while solo adhering to established traffic pattern procedures, proper altitude control during the takeoff and climb and proper rate of closure and ground track during the approach, while following all instructor instructions.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 17
DUAL 0.7 HOURS,
SOLO .5 HOURS, .3 PRE AND POST BRIEFING

OBJECTIVE

During the dual portion of this lesson, the instructor will review takeoffs, traffic patterns, and approach procedures to check the student's readiness for the second supervised solo flight. During the second portion of the lesson the student will conduct, his/her second supervised solo flight.

LESSON CONTENT

Review
1. Flight preparation procedures, including preflight inspections and power plant operations.
2. Ground maneuvering and run-ups
3. Hovering turns and air taxi
4. Straight and level flight, turns, climbs and descents
5. Rapid decelerations
6. Maneuvering by ground references, airport traffic patterns including collision avoidance precautions
7. Normal takeoffs and landings
8. Simulated emergency procedures, including autorotation descents with a power recovery to a hover, highlighting decision making for selecting appropriate landing area, technique in descent and

Second supervised solo flight

1. Vertical takeoffs to a hover
2. Hovering
3. Landing from a hover
4. Normal takeoffs, traffic patterns, and normal approaches

COMPLETION STANDARDS

The student will practice reviewed maneuvers and Decision Making in preparation of solo flight and perform safe solo operations in the helicopter.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 18
1.0 HOURS SOLO
.2 INSTRUCTOR BRIEF/DEBRIEF

OBJECTIVE

During this lesson the student will practice the listed maneuvers to increase his proficiency and confidence in solo flight.

LESSON CONTENT

Practice
1. Vertical take-off to a hover
2. Landing from a hover
3. Normal takeoff from a hover
4. Normal approach to a hover
5. Hovering - sideward, forward, and turns
6. Go around and Decision Making

COMPLETION STANDARDS

The student will perform the practiced maneuvers and safely conduct the flight to and from the ramp area solo.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 19

1.0 HOUR SOLO
.2 INSTRUCTOR BRIEF/DEBRIEF

OBJECTIVE

During this lesson the student will practice the listed maneuvers to increase his proficiency and solo experience.

LESSON CONTENT

Practice
1. Maximum performance takeoff and climb
2. Steep approach
3. Normal takeoff from a hover
4. Normal approach to a hover
5. Hovering - sideward, forward, rearward, and turns
6. Vertical landing from a hover
7. Go around and Decision Making

COMPLETION STANDARDS

The student will perform the practiced maneuvers and safely conduct the flight to and from the ramp area solo.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 20

2.0 HOURS TUTORED INSTRUCTION

OBJECTIVE

During this lesson, the student will plan three different cross country flights with the aid of the instructor.

LESSON CONTENT

1. Preflight planning
   a. Sectional Charts
   b. Altitude selection
   c. Course selection
   d. Checkpoint selection
   e. Distance measurements
   f. Computation of flight time, headings, and fuel requirements
   g. Weather briefing
   h. Aircraft performance
   i. Navigation log
   j. VFR flight plan
   k. Weight and balance

2. Cross Country flight procedures
   a. Departure
   b. Establishing desired course
   c. Opening flight plan/closing flight plan
   d. Pilotage and dead reckoning
   e. Radio navigation: VOR and GPS
   f. Proper radio communications
   g. Lost procedures
   h. Diversion procedures
   h. Radar services available

3. Airport operations

COMPLETION STANDARDS

The lesson will be complete when the student can describe, explain and perform pre-flight planning, cross-country procedures and airport operations at airfields other than the point of departure.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 21  DUAL 2.0 HOURS CROSS COUNTRY, 
.5 HOURS PRE AND POST FLIGHT BRIEFING

OBJECTIVE
During this lesson the student will be introduced to helicopter cross country planning and procedures in flight. The flight will be conducted using pilotage and dead reckoning with the emphasis on chart interpretation. It will consist of landings at one or more points, which are more than 25 NM from the point of departure. The student will also be introduced to running takeoffs and landings.

LESSON CONTENT
Review and introduction to application in flight
1. Preflight planning
   a. Airman’s Information Manual Sectional/Terminal area charts
   c. Course selection
   d. Weather briefing
   e. Aircraft performance - best range airspeed, ground speed
   f. Cross country flight log and VFR flight plan
   g. Fuel requirements and Weight and balance
2. Cross country flight
   a. Establishing desired course, magnetic compass, enroute power and airspeed
   b. Pilotage - chart interpretation and Dead reckoning
   d. Radio communications
3. Airport operations
   a. Airport departure/arrival routes and procedures
   b. Opening and closing flight plan
   c. Airport traffic control
      1. ATIS
      2. Control Tower
      3. Transitioning Class D airspace
   d. Running takeoff and landing
4. Emergency procedures: Aeronautical Decision Making
   a. Complete or partial power loss - forced landings
   b. System and equipment malfunctions
   c. Collision avoidance precautions

COMPLETION STANDARDS
The student will practice and perform cross country planning and navigation to off airport locations. He/she will be prepared for VFR navigation and have the knowledge to deal with cross country emergencies, by describing and explaining the decision making process when dealing with in flight emergencies.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 22  DUAL 1.5 HOURS CROSS COUNTRY, 0.5 HOURS PRE AND POST FLIGHT

OBJECTIVE
This lesson will expand the student’s understanding and continue practice of cross country operations and emergency procedures in preparation for the first solo X-C flight. It will consist of landings at one or more points, each of which is greater than 25 NM from the point of departure.

LESSON CONTENT
Review
1. Preflight planning
   Weather briefing, Course selection, Cross country flight log, VFR flight plan, W/B
2. Cross country flight operations
   Opening/closing flight plan, Pilotage, Dead reckoning, Radio nav and communications
3. Air traffic control proc.
4. Emergency proc., Complete/partial power loss, System and equipment malfunction

Introduction
1. Radio navigation, location, time and distance calculations. GPS familiarity and use
2. Adverse weather - estimating critical weather in flight
3. Diversion to alternate, as a preventative measure, and follows appr. procedures
4. Lost procedures: Heading selection, last known pos, last prominent landmark, Obtaining assistance
   b. Altitude selection: Climb, Communication, chart interpretation
5. ATC and FSS facilities - frequencies and services Transponder operation, Radar services, flight plan activation, position reports and pilot reports
6. Navaids - communication and navigation
   a. Emergency landing, Deteriorating WX, Low fuel, Area selection
7. Lost communications Transponder operation, Airport operations - light signals

COMPLETION STANDARDS
The students will practice cross country pilotage, by correctly using pilotage and appropriate visual references, practices dead reckoning by managing clock, chart and ground visual references appropriate to the course, and practices radio navigation to identify location, time and distance to station: VOR and GPS familiarity. The student will practice diversion procedures, and accurately evaluation and calculate fuel/time and distance.
The student should perform resource management in preparation of solo cross country flight operations including radio tuning, kneeboard and chart organization, radio communications and aircraft control with in +/- 100 feet, all planned checkpoints should be reached with in 3 nautical miles and all times within +/- 1 minute of initial or revised Estimated Time of Arrival and if not amended through FSS.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS

Bristow Academy, Inc.  
Private Pilot Course

2-24
Stage Two Flight Training  
Revision: 3  
Date: 01/11/2010
FLIGHT LESSON 23  1.4 HOURS SOLO CROSS COUNTRY  
1.0 HOURS INSTRUCTOR BRIEF/DEBRIEF

OBJECTIVE

This lesson will be the student's first solo cross country flight. The instructor will review all preflight planning and make appropriate endorsements. It will consist of landings at one or more points, each of which is greater than 25 NM from the point of departure.

LESSON CONTENT

1. Preflight planning - checked by instructor
   a. Sectional charts
   b. Altitude selection
   c. Course selection
   d. Checkpoint selection
   e. Distance measurements
   f. Computation of flight time, headings, and fuel requirements
   g. Weather briefing
   h. Aircraft performance
   i. Navigation log
   j. VFR flight plan
   k. Weight and balance

2. Cross country flight
   a. Departure
   b. Establishing desired course, magnetic compass
   c. Opening flight plan/closing flight plan
   d. Pilotage and dead reckoning
   e. Proper radio communications

3. Airport operations

COMPLETION STANDARDS

The student will perform the assigned cross country flight. The instructor will determine how well the flight was conducted by oral examination and will check to be sure all required flight log entries have been made.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 24  DUAL 1.5 HOURS NIGHT, .3 HOURS PRE AND POST FLIGHT BRIEFING

OBJECTIVE
The student will gain a better understanding of helicopter flight at night while accomplishing a minimum of 10 takeoffs and landings as sole manipulator of the controls. Each takeoff and landing will be separated by an enroute phase of flight.

LESSON CONTENT

Introduction
1. Preflight planning
   a. Night flight planning considerations
   b. Preflight inspection for night flight
   c. Airport pattern operations and communications

2. Night flight
   a. Hovering
   b. Use of landing light
   c. Normal takeoff from a hover
   d. Local area night orientation
   e. Traffic pattern operation
   f. Normal approach to a hover
   g. Airport lighting
   h. Straight in autorotation
   i. Hovering autorotation

COMPLETION STANDARDS
The student will practice aircraft control at night in the local area and airport environment. He/she will perform a minimum of 10 takeoffs and landings with an enroute phase of flight separating each takeoff and landing.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 25  1.5 HOURS CROSS COUNTRY DUAL NIGHT, .3 HOURS PRE AND POST FLIGHT BRIEFING

OBJECTIVE

This lesson will familiarize the student with the special considerations and characteristics of night flying and night cross country procedures. The student will gain a better understanding of dead reckoning. This cross-country flight must consist of over 50 nm total distance.

LESSON CONTENT

Introduction
1. Night flight considerations
   a. Chart interpretation
   b. Minimum altitude
2. Night emergency procedures
3. Night vision techniques

Review
1. Preflight planning
   a. Weather briefing
   b. Course selection
   c. Altitude selection
2. Cross country flight
   a. Pilotage, magnetic compass
   b. Dead reckoning
   c. Radio navigation
   d. Emergency procedures
3. Air traffic control procedures
   a. FSS communication, flight plan activation, position reports, pilot reports and Radar services

COMPLETION STANDARDS
The student will describe and explain the elements of cross country navigation when flying at night, and practice cross country techniques including emphasis on preflight planning, dead reckoning and radio navigation. The student should act promptly to simulated emergencies exhibiting good judgment.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 26
1.5 HOURS SOLO CROSS COUNTRY
1.0 HOURS INSTRUCTOR BRIEF/DEBRIEF

OBJECTIVE

This lesson will be the student's second solo cross country flight. The instructor will review all preflight planning and make appropriate endorsements. It will consist of landings at one or more points, each of which is greater than 25 NM from the point of departure.

LESSON CONTENT

1. Preflight planning - checked by instructor
   a. Sectional charts
   b. Altitude selection
   c. Course selection
   d. Checkpoint selection
   e. Distance measurements
   f. Computation of flight time, headings, and fuel requirements
   g. Weather briefing
   h. Aircraft performance
   i. Navigation log
   j. VFR flight plan
   k. Weight and balance

2. Cross country flight
   a. Departure
   b. Establishing desired course
   c. Opening flight plan/closing flight plan
   d. Pilotage and dead reckoning
   e. Radio navigation
   f. Proper radio communications
      Flight plan activation
      Position reporting
      Pilot Reports

3. Airport operations

COMPLETION STANDARDS

The student will perform the assigned cross-country flight. The instructor will determine how well the flight was conducted by oral examination and will check to be sure all required flight log entries have been made.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 27

1.2 HOURS SOLO,
.2 INSTRUCTOR BRIEF/DEBRIEF

OBJECTIVE

During this lesson the student will practice the listed maneuvers to increase proficiency.

LESSON CONTENT

Practice
1. Normal takeoff to a hover
2. Normal approach to a hover
3. Maximum performance takeoff
4. Steep approach
5. Landing from a hover
6. Rapid deceleration - quick stops
7. Hovering, forward, rearward, and sideward
8. Normal takeoff from a hover
9. Confined Area High Reconnaissance

COMPLETION STANDARDS

This lesson will be complete when the student has performed the listed maneuvers and reviewed with the instructor any issues or concerns.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 28

1.3 HOURS DUAL,
.3 HOURS PRE AND POST FLIGHT BRIEFING

OBJECTIVE

During this lesson the student will be introduced to off airport cross country planning and procedures. He/she will gain proficiency using pilotage, dead reckoning and radio navigation to locate a destination point other than an airport.

LESSON CONTENT

1. Preflight planning - checked by instructor
   a. Sectional charts
   b. Road maps and destination area maps
   c. Altitude selection
   d. Course selection
   e. Checkpoint selection
   f. Distance measurements
   g. Computation of flight time, headings, and fuel requirements
   h. Weather briefing
   i. Aircraft performance
   j. Navigation log
   k. VFR flight plan
   l. Weight and balance

2. Cross country flight assigned by the instructor
   a. Departure
   b. Establishing desired course
   c. Pilotage and dead reckoning
   d. Radio navigation
   e. Computing groundspeed and ETA
   f. Proper radio communications
   g. Interpreting local weather and wind conditions

COMPLETION STANDARDS

The student will perform the assigned cross country flight using pilotage, dead reckoning, and radio navigation. He/she will demonstrate full use of sectional charts, road maps, and destination area maps to safely navigate to the desired off airport site while gaining a better understanding of the interpretation of local weather conditions.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 29

2.0 HOURS SOLO CROSS COUNTRY
1.0 HOURS INSTRUCTOR BRIEF/DEBRIEF

OBJECTIVE
The student will gain additional confidence and understanding of cross country flight operations. It will consist one solo cross-country flight of at least 100 nm total distance, with landings at a minimum of three points, and one segment being a straight-line distance of more than 25nm.

LESSON CONTENT
1. Preflight planning - checked by instructor
   a. Sectional charts
   b. Altitude selection
   c. Course selection
   d. Checkpoint selection
   e. Distance measurements
   f. Computation of flight time, headings, and fuel requirements
   g. Weather briefing
   h. Aircraft performance
   i. Navigation log
   j. VFR flight plan
   k. Weight and balance

2. Cross country flight
   a. Departure
   b. Establishing desired course
   c. Opening flight plan/closing flight plan
   d. Pilotage and dead reckoning
   e. Radio navigation
   c. Proper radio communications
   d. Computing groundspeed and ETA
   e. Emergency operation - Simulated low fuel indication (while in the traffic pattern).

3. Airport operations

COMPLETION STANDARDS
The student will perform the assigned cross country flight. The instructor will determine how well the flight was conducted by oral examination and will check to be sure all required flight log entries have been made.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 30  1.2 HOURS DUAL,  
.3 HOURS PRE AND POST FLIGHT BRIEFING

OBJECTIVE
This lesson will introduce the student to off airport operations in confined areas and on pinnacles and will stress the importance of performance planning and off airport operating procedures. The student will gain an understanding of hazards associated with off airport operations and review those previously covered.

LESSON CONTENT
Oral discussion
1. Weight and balance calculations and considerations
2. Performance planning
   a. Power check: power available vs power required
   b. Hover performance - IGE, OGE
   c. Hazards of operating in the H/V diagram
3. Review
   Ground reference maneuvers: turns around a point
   Settling with power conditions and recovery
   Go-around in various flight attitudes and approach types
   Power management during Steep approaches and Max perf. Takeoff
Introduction
1. Confined area and pinnacle operations
   a. High reconnaissance: evaluation of Size and Shape as determined by wind conditions, to determine approach/departure type and path, evaluation of the surface and safety for landing in making a go/no go decision
   b. Power check and evaluation
   c. Low reconnaissance: assess aircraft configuration and landing area
   d. Confined area approach and departure
   e. Pinnacle approach and departure: Airspeed over altitude
2. Slopes
3. Hazardous conditions
   a. Obstructions - natural and man-made
   b. Turbulence - best penetration speed at best rate of climb
   c. Dynamic rollover - landing on slopes

COMPLETION STANDARDS
The student will gain an understanding of the skills and techniques involved by describing and explaining the techniques and evaluation skills during planning and executing high and low reconnaissance, selecting suitable landing areas, and evaluating safety of flight into and out of confined areas. The student will perform the ground reference maneuvers and approach/departure techniques in application of decision making to accurately determine safety of flight.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 31  1.2 HOURS DUAL, .3 HOURS PRE AND POST FLIGHT BRIEFING

OBJECTIVE

This lesson will review off airport operations in confined areas and on pinnacles, and will stress the importance of performance planning and off airport procedures. The student will gain further proficiency in these advanced maneuvers by practicing more difficult pinnacles and confined areas to meet the standards of the private pilot.

LESSON CONTENT

Oral discussion
1. Performance planning
   a. Limit manifold pressure - maximum power available
   b. Hover performance - IGE, OGE
   c. Never exceed speed

Review
1. Settling with power
2. Recovery from low G condition
3. Simulated forced landings
4. Confined area and pinnacle operations
   a. High reconnaissance
   b. Low reconnaissance
   c. Confined area approach and departure
   d. Pinnacle approach and departure
      1. Airspeed over altitude takeoff
5. Hazardous conditions
   a. Obstructions - natural and man made
   b. Turbulence - Best penetration at best rate of climb
   c. Dynamic rollover - landing on slopes

COMPLETION STANDARDS
The student will practice and perform planning and executing high and low reconnaissance. He/she will be able to select suitable landing areas and demonstrate good judgment in his traffic pattern procedures.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 32

1.2 HOURS SOLO
.2 INSTRUCTOR BRIEF/DEBRIEF

OBJECTIVE

During this lesson the student will practice the listed maneuvers to increase proficiency.

LESSON CONTENT

Practice
1. Normal takeoff to a hover
2. Normal approach to a hover
3. Maximum performance takeoff
4. Steep approach
5. Landing from a hover
6. Rapid deceleration - quick stops
7. Hovering, forward, rearward, and sideward
8. Normal takeoff from a hover

COMPLETION STANDARDS

This lesson will be complete when the student has performed the listed maneuvers and discussed with the instructor any issues or concerns.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 33  
1.2 HOURS SOLO  
.2 INSTRUCTOR BRIEF/DEBRIEF

OBJECTIVE

During this lesson the student will practice the listed basic and advanced maneuvers to gain more confidence, proficiency, and precision, as well as to build required solo time towards the private pilot certificate.

LESSON CONTENT

Practice
1. Vertical takeoff to a hover
2. Normal takeoff from a hover
3. Normal approach to a hover
4. Maximum performance takeoff
5. Steep approach
6. Landing from a hover
7. Rapid deceleration - quick stop
8. Hovering - forward, sideward, and rearward

COMPLETION STANDARDS

This lesson will be complete when the student has performed the listed maneuvers.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 34  1.2 HOURS DUAL,  
.3 HOURS PRE AND POST FLIGHT BRIEFING

OBJECTIVE

During this lesson the student will gain additional proficiency in the execution of auto rotational descents by initiating autorotation at varying airspeeds and altitudes. The instructor will evaluate the student's performance in basic and advanced maneuvers and emergency procedures by conducting a review.

LESSON CONTENT

1. Practice
   a. Straight in autorotation
   b. 180 degree autorotation
   c. Hovering autorotation
   d. Simulated forced landings/throttle chops

2. Review
   a. Normal takeoff to a hover
   b. Normal takeoff from a hover
   c. Simulated forced landings

3. Hazardous conditions
   a. Obstructions - natural and man made
   b. Turbulence - Best penetration at best rate of climb
   c. Dynamic rollover - landing on slopes

COMPLETION STANDARDS

The student will practice and perform high and low reconnaissance selecting suitable landing areas and demonstrate good judgment in approach and departure procedures and awareness and accurate assessment of hazards.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 35  1.3 HOURS DUAL  
.3 HOURS PRE AND POST BRIEFING

OBJECTIVE
During this lesson the student will review basic flight maneuvers and emergency operations in preparation for the stage two flight check.

LESSON CONTENT
Review
- Normal takeoff /approach to a hover
- Maximum performance takeoff and climb
- Steep approach
- Pinnacles Confined areas
- Rapid decelerations - quick stops
- Slope operations
- Autorotation descents with power recovery
- Hovering autorotation  180 degree autorotation
- Settling with power
- Systems and equipment malfunctions
- Partial power failure Recovery from low RPM
- Forced landings
- Recognition and recovery from low G maneuvers

COMPLETION STANDARDS
1. During takeoffs and climbs the student will maintain rotor RPM +/- 50 RPM and demonstrate proper altitude and heading control correcting for crosswind as appropriate.
2. During approaches, proper angle, rate of closure, and ground track will be demonstrated, correcting for crosswind as appropriate and terminating within 3 feet of the designated point.
3. During running landings the student will make a smooth transition from descent to surface contact at or slightly above transitional lift, using less than hovering power, and beyond but within 50 feet of the designated point.
4. During simulated hazardous flight conditions the student will demonstrate immediate recognition and recovery.
5. During forced landings that student will maintain rotor RPM within the allowable limits immediately lowering the collective. He/she will establish an appropriate attitude maintaining airspeed as necessary. He/she will select a suitable landing area and maneuver so as to arrive at the selected area with skids level, with acceptable RPM, airspeed, and descent rate, and if possible, in position to make a safe autorotative landing.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 36  2.0 HOURS TUTORED INSTRUCTION

OBJECTIVE

During this lesson the instructor will review the student's knowledge in preparation for the Stage 2 check.

LESSON CONTENT

Oral Review

As per the Private Pilot Practical Test Standards.

COMPLETION STANDARDS

The lesson will be completed when the student performs all procedures as required for the Private Pilot Practical Test Standards.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 37        DUAL 1.3 HOURS        2.0 GROUND CHECK
STAGE 2 FLIGHT CHECK

OBJECTIVE

During this stage check the chief flight instructor or his assistant will conduct the Stage 2 check. Through oral examination and flight test, the student will demonstrate the knowledge and skill required to perform all the maneuvers required by a private pilot.

LESSON CONTENT

Oral and Flight Review

As outlined in the current FAA Practical Test Standards.

COMPLETION STANDARDS

The lesson and the stage will be completed when the student performs all maneuvers and procedures required to safely operate the helicopter as outlined in the current Practical Test Standards for Private Pilot - Rotorcraft Helicopter.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
Florida Institute of Technology

ADDING A NEW COURSE TO THE CURRICULUM

This course is available for student registration only after the approval process has been completed.

SUBJECT A V T (e.g., CSE)
CREDIT HOURS 3
TERMS TO BE ADDED TO THE FILE
Spring 2011
TERM (e.g., Fall 2010)

CLASS HOURS 60/semester
LECTURE HOURS 60/semester
LAB HOURS
CONTACT HOURS (CEU ONLY)

DEPARTMENT Aviation Studies
SCHEDULE TYPE Lecture (A)

[ ] COLLEGE OF AERONAUTICS – 23
[ ] COLLEGE OF PSYCHOLOGY AND LIBERAL ARTS – 25
[ ] NATHAN M. BISK COLLEGE OF BUSINESS – 24
[ ] COLLEGE OF SCIENCE – 26
[ ] COLLEGE OF ENGINEERING – 1
[ ] EXTENDED STUDIES DIVISION / NATHAN M. BISK COLLEGE OF BUSINESS – 90

COMPUTER TITLE Restricted to 25 characters, including spaces
Helo Instrument Ground Training

CATALOG TITLE Restricted to 350 characters, including spaces

CATALOG DESCRIPTION OF COURSE Restricted to 350 characters, including spaces
Prepares helicopter flight students for the FAA instrument-helicopter rating examination. Includes flight instruments, attitude instrument flying, navigation systems, regulations, air traffic control, airspac, aviation weather, flight planning and departure, en route and approach charts and procedures.

In addition, please attach a course syllabus and/ or more detailed description.

REQUIREMENTS
Prerequisite
Course Number
Corequisite
Course Number

GRADES TO BE ISSUED
[ ] A, B, C, D, F
[ ] A, B, C, D, F, CEU
[ ] CEU
[ ] S, U
[ ] P, F
[ ] Other

ADDITIONAL RESTRICTION

If this course replaces a course currently offered in BANNER, please indicate old course information and the date/term the course may be removed from the system.

SUBJECT Alpha Prefix (e.g., CSE)
COURSE NO. (e.g., 1301)

APPROVALS: Upon completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval below and forward to Catalog Director.

Originator
Date
Chair, Graduate Council
Date

OR

Department Head/Program Chair
Date

Dean or Associate Dean
Date
Chair, Undergraduate Curriculum Committee
Date

CATALOG DIRECTOR

These changes/additions have been made for the
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SCARRES Operator Init Date
Catalog Director
Date
Florida Institute of Technology  
College of Aeronautics  

MASTER COURSE SYLLABUS  

AVT 2007 Helicopter Instrument Ground Training  

Spring 2010  

Catalog Course Description  

AVT 2007 HELICOPTER INSTRUMENT GROUND TRAINING (3 credits). Prepares helicopter flight students for the FAA instrument-helicopter rating examination, includes flight instruments, attitude instrument flying, navigation systems, regulations, air traffic control, airspace, aviation weather, flight planning and departure, en route and approach charts and procedures. Prerequisite: AVT 1006.  

Course Objectives  

Introduce students to the Instrument Flight Rules (IFR) environment. By the end of the course, the student will have a thorough working knowledge of instrument flight. The course prepares helicopter flight students for the FAA Instrument Pilot-Helicopter Written Examination.  

Upon completion of this course the student should be able to:  

1. Demonstrate an understanding of the FAA regulations that apply to flight under IFR conditions, the IFR traffic system and procedures, and the provisions of the Airman’s Information Manual pertinent to IFR flights.  
2. Be able to conduct dead reckoning appropriate to IFR navigation, navigate by radio aids using VOR, GPS, ADF, and ILS systems, and the use of IFR charts and instrument approach procedure charts.  
3. Demonstrate an understanding of aviation weather reports and forecasts, and the elements of forecasting weather trends on the basis of that information, including recognition of hazardous and critical weather situations to include wind shear avoidance.  
4. Use flight instruments required for IFR flights, including transponders, radar and radio aids to navigation.  
5. Understand the factors affecting aircraft performance capabilities by calculating the estimated time enroute and total fuel requirements for a flight.  
6. Demonstrate appropriate aeronautical decision making concepts to include crew management, communication and coordination for the safe and efficient operation of aircraft under instrument flight rules and conditions.
Lead Instructor

S. K. Cusick, J.D. Associate Professor

Curriculum Coordinator

Peter G. Dunn, M.S. ATP, Chair Flight Education Program

Texts and References

1. Helicopter Pilot Textbook — Schweizer by Jeppesen
2. Principles of Helicopter Flight by W.J. Wagendonk
5. Current Miami and Jacksonville Sectional Charts
6. Private Pilot Test Prep 10, ASA Publications
7. Schweizer (S300CB1) Helicopter Manual (Pilot’s Operating Handbook)
8. Practical Test Standards for Private Pilot Rotorcraft (Helicopter) FAA-S-8081-15A
9. Aviation Weather Services AC 00-45F
10. Aviation Weather AC 00-6A

Instructional Format

Lecture 100%

Student Materials Beyond Texts, References, and Common Student Materials

Sectional charts and Airport Facility Directory
E6B computer or equivalent electronic calculator
Navigation plotter

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<td>Airspace &amp; Airman’s Information Manual</td>
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<td>FAR Regulations - 14 CFR Parts 1, 43, 61, 91, 141 and NTSB 830</td>
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**Grading (typical)**

- Class participation: 5%
- Quizzes and Homeworks: 10%
- Exams (3) 15% each: 45%
- FAA Stage Check Exam: 20%
- University Final exam: 20%

**Teaching Media and Delivery Methods**

Lecture, required textbooks, reference texts, class discussion, text and graphic projections, black/white board text and graphic presentations, videos, wall charts, aircraft and engine hands-on visual aids, guest lecturers, Internet references projections, quizzes, exams, homework, group exercises using sectional charts, weather reports and forecasts, E-6B and plotter.

**Laboratory Use**

Classroom lab sessions using maps, weather products, plotters, computers, etc.

**Team Training Concepts**

- Homework assignments and presentations.
- Cross-country flight planning exercises
Florida Institute of Technology

ADDING A NEW COURSE TO THE CURRICULUM

This course is available for student registration only after the approval process has been completed.

SUBJECT AVF
(Course Number 2007)

COURSE NO. 2007
(e.g., 1301)

CREDIT HOURS 2
TERM TO BE ADDED TO THE FILE Spring 2011
(e.g., Fall 2010)

CLASS HOURS __________________________
LECTURE HOURS __________________________
LAB HOURS 40/semester
CONTACT HOURS (CEU ONLY) __________________________

DEPARTMENT Aviation Flight
(Schedule Type Flight)
(e.g., Computer Sciences)

☐ COLLEGE OF AERONAUTICS - 23
☐ COLLEGE OF PSYCHOLOGY AND LIBERAL ARTS - 25
☐ NATHAN M. BISK COLLEGE OF BUSINESS - 24
☐ COLLEGE OF SCIENCE - 26
☐ COLLEGE OF ENGINEERING - 1
☐ EXTENDED STUDIES DIVISION / NATHAN M. BISK COLLEGE OF BUSINESS - 90

COMPUTER TITLE Restricted to 25 characters, including spaces Helo Instrument Pilot

CATALOG TITLE Helicopter Instrument Pilot

CATALOG DESCRIPTION OF COURSE Restricted to 350 characters, including spaces

Provides instrument flight instruction in helicopters and flight training devices to prepare the student for the FAA instrument helicopter rating practical test. Awards FAA Instrument helicopter rating on successful completion of the FAA instrument helicopter rating written examination, co- and prerequisites, and this course.

In addition, please attach a course syllabus and/or more detailed description.

RESTRICTIONS

☒ Prerequisite AVF 1006
Corequisite AVT 2007

Course Number

Course Number

GRADERS TO BE ISSUED

☒ A, B, C, D, F
☐ A, B, C, D, F, CEU
☐ CEU
☐ S, U
☐ P, F
☐ Other

ADDITIONAL RESTRICTION Requirements: FAA helicopter private pilot certificate, class III or higher medical certificate

(e.g., Major, Class Level, Department Head Approval)

If this course replaces a course currently offered in BANNER, please indicate old course information and the date/term the course may be removed from the system.

SUBJECT Alpha Prefix (e.g., CSE) __________________________ COURSE NO. (e.g., 1301) __________________________

APPROVALS: Upon completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval below and forward to Catalog Director.

Originator __________________________ Date __________________________

Chair, Graduate Council __________________________ Date __________________________

OR

Department Head/Program Chair __________________________ Date __________________________

Chair, Undergraduate Curriculum Committee __________________________ Date __________________________

CATALOG DIRECTOR __________________________ Date __________________________

These changes/additions have been made for the University Catalog/policy management system and entered into the BANNER term named above.

SCACRSF __________________________ SCADETL __________________________ SCAPREQ __________________________

SCAARES __________________________ Operator Init __________________________ Date __________________________

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Catalog Director __________________________ Date __________________________

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TRAINING SYLLABUS

INSTRUMENT RATING

ROTORCRAFT HELICOPTER

60 HOURS CLASSROOM INSTRUCTION

25 HOURS INSTRUMENT HELICOPTER FLIGHT

10 HOURS SIMULATOR

5 HOURS PRE/POST FLIGHT BRIEFING
Intentionally Left Blank
# INSTRUMENT RATING COURSE
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## STAGE TWO

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OBJECTIVES -

The student will have a thorough working knowledge of the IFR Flight environment. Part 141 Appendix C (3)(b). The ground knowledge training will be based on and evaluated to the FAA referenced course wear in the Instrument Rating Practical Test Standards: Including the Instrument Flying Handbook, Rotorcraft Flying Handbook, Pilots handbook of Aeronautical Knowledge, Instrument Procedures Handbook, AC 00-6 Aviation Weather and AC 00-45 Aviation Weather Services. Additional references include a number of Advisory Circulars the Aeronautical Information Manual, and IFR procedures for Departure, Arrival, and Standard Instrument Approach Procedures as published by the FAA. Jeppesen course references will be used in support of the previously mentioned, the Aviation Weather Text book and the Instrument/Commercial Guided Flight Discovery Text book.

a) The Federal Aviation Regulations that apply to flight under IFR conditions, the IFR traffic system and procedures, and the provisions of the Airman's Information Manual pertinent to IFR flights.

b) Dead reckoning appropriate to IFR navigation, IFR navigation by radio aids using the VOR, GPS, ADF, and ILS systems, and the use of IFR charts and instrument approach procedures charts.

c) The procurement and use of aviation weather reports and forecasts, and the elements of forecasting weather trends on the basis of that information and personal observation of weather conditions.

d) Recognition of hazardous and critical weather situations to include wind shear avoidance.

e) The function, use, and limitations of flight instruments required for IFR flights, including transponders, radar and radio aids to navigation.

f) The aircraft's performance capabilities by calculating the estimated time enroute and total fuel requirement based upon such factors as -

   a) Power settings.
   b) Operating altitude or flight level.
   c) Wind.
   d) Fuel reserve requirements.

g) The applicable aircraft anti-icing/deicing system(s) and their operating methods to include:

   a) Airframe.
   b) Propeller/intake.
   c) Fuel system.
OBJECTIVES - Continued

h) The preflight instrument, avionics, and navigation equipment cockpit check by explaining the reasons for the check and how to detect possible defects.

The preflight instrument, avionics, and navigation equipment cockpit check by following the checklist appropriate to the aircraft flown.

The aircraft is in condition for safe instrument flight including -

a) Radio communications equipment
b) Radio navigation equipment including the following, as appropriate, to the aircraft flown -
   1) VOR/VORTAC receiving
   2) ADF receiving equipment.
   3) ILS/MLS receiving equipment
   4) GPS receiving equipment
c) Magnetic compass.
d) Heading indicator.
e) Attitude indicator.
f) Altimeter.
g) Turn-and-slip indicator/turn coordinator.
h) Vertical speed indicator.
i) Airspeed indicator.
j) Clock.
k) Power source for gyro-instruments.
l) Pitot heat.

determines whether the aircraft is safe for instrument flight or requires maintenance.

i) Aeronautical decision-making to include crew management, communication and coordination, for the safe and efficient operation of aircraft under instrument flight rules and conditions by reviewing and applying the management of applicable risk elements during Preflight, departure, en-route, arrival, approach, and landing.

GROUND TRAINING COMPLETION STANDARDS -

The stage will be complete when the student completes the instruction listed above and passes the written knowledge test. The student will be able to describe and explain his or her knowledge of the IFR environment.
LESSON 1  4.0 HOURS

OBJECTIVE

The student will be introduced to the flight instruments as related to IFR flying.

LESSON CONTENT

A. **Pitot-Static System**

Static source
   Altimeter
      Review of altitude definitions
      Principle of operation

Vertical Speed Indicator
   Principle of operation
   Limitations - lag

Pitot and Static
   Airspeed Indicator
      Principle of operation
      Errors
         Instrument
         Position - pitot source
         Compressibility
   Airspeeds
      Indicated
      Calibrated
      Equivalent
      True

   Pitot/Static system blockages

B. **Gyrosopic**

Principles of Gyro
   Precession
   Rigidity + factors affecting rigidity
   Electric/vacuum/ venturi gyro systems
LESSON ONE – Continued

B. Gyroscopic continued

Attitude Indicator
- Method of operation - roll + pitch
- Construction
- Erecting mechanisms
- Errors - centrifugal forces, unbalanced flight
- Toppling
- Caging

Turn Indicator
- Method of operation - yaw, rate gyro
- Turn coordinator
- Slip ball

Heading Indicator
- Method of operation - DG
- Errors - bearing friction, precession, 15 min cx
- Remote reading compass, flux detector
- HSI

C. Magnetic Compass
- Operations
- Variation
- Deviation
- Dip errors
- Oscillation errors

D. Instrument Checks
- Off flags
- Vacuum gauge/ammeter
- Altimeter

COMPLETION STANDARDS

The student will be able to describe the Pitot-Static system, gyroscopic system and Magnetic Compass system and the errors appropriate to each.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS
LESSON TWO                              2.0 HOURS

OBJECTIVE

The student will be introduced to the maneuvers related to Instrument Flying.

LESSON CONTENT

A. ATTITUDE FLYING

Control and performance concept
Primary/support concept - pitch, bank, power
Cross-check, interpretation, aircraft control
Cross-check errors - fixation, omission, emphasis
Disorientation
Straight and level - heading speed and height control
Level turns - bank for standard rate
Steep turns
Climbs and descents - 10% lead
Constant airspeed climbs
Constant airspeed descents
Constant-rate climbs
Constant-rate descents
Climbing and descending turns
Unusual attitude recovery
Partial panel flying
Timed turns
Autorotation

COMPLETION STANDARDS

The student will continue to demonstrate his/her knowledge from Lesson One and Two by describing and explaining relationships to instrument interpretation and practice the basics of attitude flying.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON THREE

4.0 Hours

OBJECTIVE

The student will be instructed in the use and operation of radio navigation aids.

LESSON CONTENT

A. RADIO NAVIGATION

VOR
- Ground facilities
- Method of operation
- Classification
- Accuracy checks
- Indent including T.E.S.T
- VOT
- VOR indicators
- Interpreting indications
  - Orientation, intercepts, station passage
- Time and distance
- Limitation - line of sight

DME
- Principles of operation
- Accuracy

TACAN
- Principle of operation

NDB
- Principle of operation
- Errors
  - Coastal refraction
  - Twilight effect
  - Reflection
  - Precipitation static
  - Thunderstorms
- Commercial radio stations

ILS
- Components
- Localizer
- Marker Beacons

TRANSPONDERS
- Basic operations
- Codes
- Altitude encoding

GPS
- Principle of operation
- Accuracy
- Limitations
- Errors
  - Satellite clock error
  - Ionosphere error
  - Satellite ephemeris error
  - Receiver error
  - Satellite geometry error

COMPLETION STANDARDS

The student will be able to describe, explain and practice his/her working knowledge of radio navigation aids.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LEsson Four  

4.0 hours

Objective
The student will be introduced to FAR's related to IFR, IFR clearances and procedures. Review the ATC system, airports, and airspace.

Lesson Content

A. FAR's
   FAR 1   FAR 95
   FAR 61   FAR 97
   FAR 91

B. ATC System
   Air Route Traffic Control Center
   Processing the IFR flight plan
   Enroute traffic separation
   Weather information
   Safety alerts
   Emergency assistance
   ATIS
   Clearance delivery
   Control tower
   Approach and departure control
   Radar service for VFR aircraft
   Class A airspace
   Class B airspace
   Class C airspace
   Class D airspace
   Traffic advisories
   Flight Service Stations

C. ATC Clearances
   Where a clearance is required
   Elements of an IFR clearance
   Abbreviated IFR departure clearance
   Cruise clearance
   Approach clearance
   VFR on top
   VFR restrictions to an IFR clearance
   Composite flight plan
   Hold for release
   Clearance void time
   Clearance read back
   Clearance shorthand
LESSON FOUR - Continued

D. AIRPORTS, AIRSPACE, AND FLIGHT INFORMATION

- Runway markings
- Special purpose areas
- Lighting systems
- Runway lighting
- Controlled airspace
- Special use airspace
- Uncontrolled airspace
- Airport facility directory
- AIM
- NOTAM
- Advisory Circular

COMPLETION STANDARDS

The student will be able to describe and explain basics of the Air Traffic Control System and IFR regulations.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON FIVE       8.0 HOURS

OBJECTIVE

The student will be introduced to navigation departure and arrival charts.

LESSON CONTENT

A. ENROUTE AND AREA CHARTS

| Enroute charts |
| Front panel    |
| Navigation aids|
| Victor airways |
| Communications |
| Airports       |
| Airspace       |
| Area charts    |

B. DEPARTURE AND ARRIVAL CHARTS

| Instrument departure Procedure |
| Pilot nav DP                  |
| Vector DP                     |
| Standard terminal arrival charts |

COMPLETION STANDARDS

The student will develop a working knowledge of instrument chart interpretation, student's ability to describe and explain the sections of the charts utilized in IFR flight and procedures.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON SIX

OBJECTIVE

The student will be introduced to instrument approach charts. Review of Lesson Four.

LESSON CONTENT

A. INSTRUMENT APPROACH CHARTS

Approach chart
Approach segments
Heading section
Plan view
Profile view
Step-down fix and VDP
Landing minima
Aircraft categories
Visibility requirements
Minimum altitude requirements
Inoperative components
Airport chart
Heading section
Plan view and runway information
Takeoff and alternate minima

COMPLETION STANDARDS

The student will develop a working knowledge of Instrument Approach Procedures, the student will be able to describe and explain the sections of the chart utilized in IFR flight and procedures.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS
LESSON SEVEN 4.0 HOURS - ORAL REVIEW

OBJECTIVE

Review the student's understanding of Lessons One through Four.

LESSON CONTENT

Go over material covered in Lesson One through Six.

COMPLETION STANDARDS

The student will practice his/her knowledge of the instruments and their operations, radio navigation equipment, attitude flying, FARs, ATC system, and the basics of instrument charts.
LESSON EIGHT

2.0 HOURS

OBJECTIVE

The student will be introduced to instrument departure procedures and en-route operations.

LESSON CONTENT

A. DEPARTURES

Takeoff minima
Visibility
Departure considerations
Instrument departure Procure
Obstacle departure procedures
Radar departure

B. ENROUTE OPERATIONS

En-route radar procedures
Communications
Facility radio failure
Compulsory reporting procedures
Special use airspace
Holding patterns and procedures
IFR cruising altitudes
Descending from the en-route segment

COMPLETION STANDARDS

The student will be able to describe and explain departure into IFR systems, operate en-route, enter and maintain holds and determine descents from en-route charts and approach procedure plates.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON NINE

2.0 HOURS

OBJECTIVE

The student will apply arrival and approach procedures.

LESSON CONTENT

A. ARRIVAL AND APPROACHES

Standard terminal arrivals
Use of ATC radar for approaches
Minimum vectoring altitudes
Vectors to final approach course
Approach clearance
Non radar approaches
Course reversal
Timed approaches from a holding fix
Non-precision approach planning
Circling approach considerations
Circling approach procedures
Missed approaches
Visual and contact approaches
VASI lights
Sidestep maneuver
Runway visual illusions
Closing you IFR flight plan

COMPLETION STANDARDS

The student will demonstrate knowledge by describing and explaining IFR departure, en-route and arrival planning and procedures.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS
LESSON TEN 6.0 HOURS

OBJECTIVE

The student will be introduced to approach procedures.

LESSON CONTENT

A. APPROACHES

- ILS components
- ILS visual aids
- ILS categories
- Flying the ILS approach
- Non radar ILS procedures
- Transition via DME arc
- ADF transition
- Back course approaches
- Approach clearance
- VOR approach procedure
- Off-airport facility
- On-airport facility
- VOR/DME procedure
- RNAV approach procedures
- GPS approach procedure
- Flying the approach
- Phases of GPS approaches
- NDB approach charts
- NDB approach procedures
- Flying the approach

COMPLETION STANDARDS

The student will demonstrate his/her knowledge from lesson six by describing and explaining instrument approach procedures.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON ELEVEN

OBJECTIVE

The student will review the basics of weather, obtaining weather, interpretation of weather and weather hazards.

LESSON CONTENT

A. WEATHER FACTORS

The atmosphere
Moisture
Atmospheric stability
Clouds
Air masses
Fronts
Types of fronts

B. HAZARDS AND CRITICAL WEATHER SITUATIONS

Thunderstorms
Thunderstorm avoidance
Turbulence
Reporting turbulence
Wake turbulence
Low visibility
Icing
Cold weather operations
Wind shear and avoidance

C. REPORTS AND FORECASTS

DUAT usage and interpretation
Surface aviation weather reports
Pilot weather reports
Terminal forecasts
Area forecasts
Wind and temperatures aloft forecasts
Severe weather reports and forecasts
In-flight weather services
Hazardous in-flight weather advisory service
Automated weather observing system
LESSON ELEVEN       Continued

D. GRAPHIC WEATHER PRODUCTS

Surface analysis chart
Weather depiction chart
Radar summary chart
Constant pressure chart
Freezing level chart
Low-level significant weather prognostic
Significant weather panels
Surface prognostic panels
Severe weather outlook chart

COMPLETION STANDARDS

The student will practice interpretation and recognize weather and weather hazards in planning IFR departure, en-route, arrival and approach procedures.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON TWELVE  4.0 HOURS

OBJECTIVE

The student will be introduced to IFR planning.

LESSON CONTENT

A. IFR FLIGHT PLANNING

- Initial planning
- Departure regulation and procedures
- Route selection
- Flight information publications
- Standard weather briefing
- Alternate airport requirements
- Altitude selection
- Completing the navigation log
- Filing the flight plan
- Composite flight plan

COMPLETION STANDARDS

The student will practice and perform obtaining information to plan an IFR route including departure, en-route and arrival, including completing and filing IFR flight plans obtained in the above list of content.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS
LESSON THIRTEEN 6.0 HOURS

OBJECTIVE

The student will be introduced to IFR emergency procedures and include a review of lessons 1 thru 11.

LESSON CONTENT

A. IFR EMERGENCY PROCEDURES

- Declaring an emergency
- Alerting ATC
- Use of a transponder
- Route
- Altitude
- Leave clearance limit
- Surveillance approach
- No-gyro approach
- Malfunction reports
- The decision making process
- Hazardous attitudes
- IFR flight considerations
- Cockpit organization
- Role of the crew, communication, and coordination
- Pilot's weather
- Limitations of aviation forecasts

Review as required

COMPLETION STANDARDS

The student will be able to explain, describe practice and perform IFR procedures and planning to pass the knowledge test on IFR operations.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LEsson Fourteen

2.0 hours - Written Stage Check

Objective

To examine the student's overall knowledge of the IFR system and his/her readiness for the Instrument helicopter knowledge test.

Lesson Content

Knowledge test material covered in Ground Training Lessons One through Thirteen.

Completion Standards

The student will need to pass the knowledge test to the chief instructor's satisfaction.

Instructor's Comments and Recommendations
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PHASE TWO IFR FLIGHT TRAINING

STAGE ONE
5.5 HOURS FLIGHT TRAINING DEVICE
5.0 HOURS HELICOPTER IFR
2.5 HOURS GROUND INSTRUCTION
1.6 HOURS PRE AND POST FLIGHT BRIEFING

OBJECTIVES

Stage One provides a basic introduction to flight by reference to instruments, Navigation by VOR, NDB and GPS, Approach procedures and communications required to operate in the IFR system.

The student will apply knowledge learned during ground instruction in Phase One. Lesson Seven of Phase One must be completed prior to beginning Phase Two Flight Training. The student will develop the skills necessary to:

1. Control and maneuver the aircraft solely by reference to instruments in IMC conditions,

2. Navigate with GPS, VOR's and ADF's, including:
   - Orientation
   - Intercepting and Tracking
   - Homing
   - Recognizing station passage
   - Calculating time, speed and distances
   - Necessary skills to maintain situational awareness

3. Develop pilot and communication skills for performance of instrument approaches

COMPLETION STANDARDS

The stage will be completed when the student performs areas 1 - 3 of above and passes a flight check after each area. The student will demonstrate his/her ability to perform in the IFR system.

Airports listed may be changed to suit weather conditions or operations from a satellite base.
LESSON ONE

2.0 HOUR FLIGHT TRAINING DEVICE

.5 GROUND

OBJECTIVE

To introduce the student to the fundamentals of preflight procedures, including knowledge of aircraft systems, flight instruments and the instrument cockpit check; and for flight by reference to instruments/attitude flying by describing instrument cross check techniques, interpretation and control for basic flight maneuvers.

LESSON CONTENT

GROUND AND SIMULATOR

1. BASIC INSTRUMENTS
   a. Instrument cockpit check
   b. Cross check techniques
   c. Use of instrument interpretation to control attitude, altitude, speed, direction and trim.
      i. Pitch control
      ii. Bank control
      iii. Power control
      iv. Trim control

2. Primary and supporting instruments for basic flight maneuvers
   a. Straight and level flight
   b. Change of airspeed and configuration
   c. Climbs and Descents, constant rate and constant airspeed
   d. Standard rate level turns

COMPLETION STANDARDS

The student will be able to practice and perform attitude, altitude, and speed and direction control during basic flight maneuvers.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON TWO

1.5 HOUR FLIGHT TRAINING DEVICE

OBJECTIVE

Review lesson one, continued practicing flight by reference to instruments/attitude flying of basic flight maneuvers, and an introduction to: Advanced flight maneuvers that require the pilot to manage precise control and to think ahead to manage and maintain situational awareness through predetermined sequences. An introduction to pilot disorientation that can lead to unusual attitudes and the associated recovery techniques. An introduction to Air traffic control clearances and procedures with common IFR communications by simulated radio calls, role played by the instructor.

LESSON CONTENT

1. Review fundamentals of attitude flying from lesson 1
2. Introduction to advanced flying techniques
   a. Climbing and descending turns
   b. Vertical S’s
   c. Compass turns and associated errors
   d. Steep turns
3. Unusual Attitudes and Recovery techniques
4. Autorotation in IMC conditions and Instrument interpretation
5. Introduction to common ATC pilot/controller terminology
   a. Air Traffic Control components

COMPLETION STANDARDS

The student will practice and perform with the ability to control the aircraft during various flight maneuvers.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS
LESSON THREE

OBJECTIVE

This lesson continues to develop a student's skill in flight by reference to instruments and aircraft control, Air Traffic Control Clearances and compliance in IFR communications and introduces fundamentals of radio navigation in flight, to include intercepting, tracking and DME arcs. Skills developed in this lesson include set-up, tuning, identifying, orientation, and determination of aircraft position in relationship to, tracking with application of proper correction to maintain course and the recognition of receiver/facility failure. Additionally elements of Instrument Approach Procedures to include checklist usage in set-up and approach procedures, as well as continued IFR communication simulation of ATC communications and clearances.

LESSON CONTENT

A. NAVIGATION
   a. VOR, NDB, LDA and GPS
      i. Orientation
      ii. Identification of position by Intersections
      iii. Tracking/homing procedures
      iv. Intercepting procedures
      v. Time/distance checks, Off-course, including off-course corrections
      vi. Station passage

B. APPROACH PROCEDURES
   Including Full approach procedures using own navigation and radar vectors.
      ILS
      VOR
      GPS
      NDB
      Copter only approach
      LDA/SDF
      Circling approach
      Missed approach
   Approach plate design and information available, including minimum altitudes and Airport/heliport environment, visual references, lighting, and runway environment

C. MISSED APPROACH PROCEDURES

COMPLETION STANDARDS

The student will practice and perform the ability to orient position, intercept and track a bearing or radial using radio navigation and GPS operations. The student will also be able to demonstrate the ability to "set up" and fly instrument approaches using own navigation and simulated radar vectors.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON FOUR

1.2 INSTRUMENT

OBJECTIVE

Application of the students knowledge of the fundamentals of preflight procedures, including knowledge of aircraft systems, flight instruments and the instrument cockpit check; and for flight by reference to instruments/attitude flying by describing instrument cross check techniques, interpretation and control for basic flight maneuvers in the helicopter, including in-flight visual limiting devices, exchange of controls and responsibilities of VFR pilot. The student will also continue to practice ATC clearances and procedures during IFR communications with instructor.

LESSON CONTENT

1. Preflight briefing
   a. Aircraft preflight
   b. Briefing on differences (Simulator and Aircraft)
   c. Hood vs. Foggles
   d. Instructor responsibilities (VFR, clearing turns, etc..)
   e. Proper techniques and procedures for positive exchange of flight controls
   f. Review IFR radio communications (Radar vectoring)

2. Preflight Procedures

3. Student practice Instrument Flying
   a. Pitch instruments, pitch associated with airspeed and aircraft configuration
   b. Bank instruments
   c. Flight maneuvers
      i. Straight and level
         1. Accelerations and decelerations
      ii. Climbs and Descents
         1. Constant airspeed
         2. Constant rate
      iii. Standard Rate Turns
         1. Timed turns
         2. Turns to predetermined headings
         3. Compass turns
         4. Steep turns
      iv. Disorientation, Unusual attitude and recovery
      v. Autorotation
   4. Student practice
   5. Post flight procedures – gyro shutdown, post flight procedures

COMPLETION STANDARDS

The student will practice and perform skills in basic attitude flying in the helicopter.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON FIVE  1.2 INSTRUMENT  .3 PRE/POST FLIGHT BRIEFING

OBJECTIVE
Review lesson four, continued practicing flight by reference to instruments/attitude flying of basic flight maneuvers. Advanced flight maneuvers that require the pilot to manage precise control and to think ahead to manage and maintain situational awareness through predetermined sequences and pilot disorientation that can lead to unusual attitudes and the associated recovery techniques in the helicopter. Continue air traffic control clearances and procedures with common IFR communications.

INTRODUCTION

Student will be introduced to Instrument approach procedures in flight with IFR communications with ATC – Practice ILS approach

LESSON CONTENT

Review lesson 4 continued practices with combined flight maneuvers including
  Climbing and Descending turns
  Vertical S’s
  Steep turns
  Compass turns and associated compass errors
  Disorientation and unusual attitudes and recovery procedures
  Autorotation

Practice ILS approach and IFR communications

COMPLETION STANDARDS

The student will practice and perform practiced maneuvers.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS
LESSON SIX

1.3 INSTRUMENT

OBJECTIVE

Continued practice with instrument attitude flying and skill building in IFR navigation and communications.

This lesson continues to develop a student's skill in flight by reference to instruments and aircraft control, Air Traffic Control Clearances and compliance in IFR communications and practice the fundamentals of radio navigation in flight, to include intercepting, tracking and DME arcs. Skills developed in this lesson include set-up, tuning, identifying, orientation, and determination of aircraft position in relationship to, tracking with application of proper correction to maintain course and the recognition of receiver/facility failure. Additionally elements of checklist usage in set-up and approach procedures, as well as continued IFR communication and clearances with ATC, in the helicopter.

LESSON CONTENT

VOR and GPS or ADF navigation

ADF homing and tracking (if available)
GPS set-up and navigation
GPS or NDB approach
VOR radial tracking and interception
Procedure turns
Instrument approach non precision

COMPLETION STANDARDS

The student will practice the performance of basic attitude flying and familiarity of navigation equipment, to determine pilot and aircraft position, intercept and track appropriate navigational facilities as well as the ability describe and explain the fundamentals of Instrument Approach Procedures, in preparation of the Stage one stage check.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON SEVEN

1.3 HOURS INSTRUMENT STAGE CHECK
1.5 GROUND .3 PRE/POST FLIGHT

OBJECTIVE
During the stage check, the Chief Flight Instructor, his/her assistant or designee will evaluate the student's proficiency on maneuvering the helicopter solely by reference to the instruments and familiarity with navigation equipment.

LESSON CONTENT  GROUND
Instruments and required Equipment used in IFR

  Instruments
  Pilots Static systems, associated instruments, errors and failures
  Gyroscopic principles and associated instruments
  Instrument cockpit check

  Navigation Equipment: Principle of operation, service volume classifications, limitations, and errors
  VOR
  NDB
  GPS: systems, segments, augmentation, RAIM, limitations and errors
  ILS

Primary and supporting instruments for basic flight maneuvers
  Straight and level flight
  Change of airspeed and configuration
  Climbs and Descents, constant rate and constant airspeed
  Standard rate level turns

FLIGHT
Preflight procedures

INSTRUMENT ATTITUDE FLYING
  a. Basic Flight maneuvers
  b. Advanced flight maneuvers
  c. Unusual attitude and recovery procedures

NAVAID ORIENTATION AND TRACKING

INSTRUMENT APPROACH PROCEDURES
  Approach at discretion of Evaluator

IFR COMMUNICATIONS AND CLEARANCES

COMPLETION STANDARDS
The lesson will be complete when the student can describe and explain instruments and equipment necessary to fly solely by reference to instruments along specific Navaid tracks and basic communication required during vectoring. He/she will perform basic and advance instrument flight control and maintain altitude within 150 feet, airspeed within 15 knots, and heading within 10 degrees. The student will practice Instrument Approach Procedures.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
PHASE TWO IFR FLIGHT TRAINING
STAGE TWO
3.0 HOURS FLIGHT TRAINING DEVICE
14.4 HOURS HELICOPTER IFR
4.5 HOURS GROUND INSTRUCTION
2.6 HOURS PRE AND POST FLIGHT BRIEFING

OBJECTIVES

Stage Two continues to provide student with practice in skill development for flight by reference to instruments, Navigation by VOR and GPS, and Approach procedures. The student will be introduced to Air Traffic Control Clearances Procedures, holding procedures, and the Preflight Preparation for Cross Country IFR Flight planning, through application of IFR regulations, weather interpretation and Departure, En-route, Arrival and Approach planning.

Three main objectives during stage 2 are to continue to develop the skills necessary to control and maneuver an aircraft in IMC and:

1. Practice Orientation and holding procedures
2. Practice ATC communications, including departure and approach procedures
3. Practice IFR cross country flight planning and flight procedures.

COMPLETION STANDARDS

The stage will be completed when the student performs areas 1 - 3 of above and passes a ground and flight check after each area*. The student will demonstrate his/her ability to perform in the IFR system.

* That meets or exceeds the current FAA Rotorcraft Instrument Practical Test Standards. The flight check will be administered by the Chief Instructor or his designee.
LESSON ONE  1.5 HOURS FLIGHT TRAINING DEVICE

OBJECTIVE

Introduce student to Air Traffic Control Clearances Procedures during holding, including Clearance receipt and copy, Orientation and navigation equipment set-up, entry determination, procedures and techniques, and required ATC communications and compliance.

LESSON CONTENT

A. Review navigation equipment set-up and orientation
B. Communications and regulations
   Hold clearance and compulsory reporting points
   Hold depiction and orientation
   Holding airspace requirements, airspeeds, altitudes and regulations governing
2. Set-up of navigation equipment including
   VOR station, radial, and Intersection holds
   DME
   GPS waypoint
   NDB/ADF bearing holds
D. Determination and performance of entry procedures and techniques
E. Establishing hold and
   Determine and applying drift and timing corrections based on different wind conditions

COMPLETION STANDARDS

The student will practice and perform knowledge and skill required to determine entry procedures based on aircraft orientation, fly a holding pattern using different navigational equipment, establish and correct for different wind conditions and communicate effectively in simulated IFR.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON TWO  1.3 HOURS INSTRUMENT  .3 PRE/POST FLIGHT

OBJECTIVE
Review Air Traffic Control Clearances Procedures in the helicopter during holding, including Clearance receipt and copy, Orientation and navigation equipment set-up, entry determination, procedures and techniques, and required ATC communications and compliance. Continued practice of Instrument Approach Procedures.

LESSON CONTENT

Holding
  Clearance receipt and readback
  Determination of Hold entry based on aircraft orientation
  Holding at a NAVAID, intersection, or waypoint

Instrument approach – Precision or non Precision

COMPLETION STANDARDS

The student will practice and perform to enter and maintain various holding procedures.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON THREE  1.4 HOURS INSTRUMENT  .3 PRE/POST FLIGHT

OBJECTIVE


LESSON CONTENT

Holding and Approaches

  Revision - intersection hold
  Precision approach procedures
  Non-Precession approach procedures
  Missed Approach & hold
  Landing from a straight-in or circling approach

COMPLETION STANDARDS

The student will practice and perform procedures to comply with complete IFR operations.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON FOUR  1.2 HOURS INSTRUMENT   3 PRE/POST FLIGHT

OBJECTIVE

Continued practice intercepting, tracking navigational systems and DME arcs as applicable to the aircraft equipment installed, including time and distance calculations. Air Traffic Control Clearances and procedures, and holding procedures.

LESSON CONTENT

Review of Previous lessons
Orientation
Intercepting and tracking
DME arc
Holding
Precision Approach Procedures
Non-Precision Approach

COMPLETION STANDARDS

The student will practice and perform navigation by reference to navigational systems applicable to the aircraft in the IFR system, ability to obtain clearances and comply with ATC instructions during holding, arrival and approach procedures.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON FIVE  1.5 HOURS FLIGHT TRAINING DEVICE  1.0 HOURS GROUND

OBJECTIVE

Introduction to Preflight preparation in obtaining Weather information and cross country flight planning including departure, enroute, arrival and approach procedures. The student will plan and experience a simulated IFR cross country with instructor guidance and simulated ATC communications and clearances. Introduction to Aeronautical Decision Making and Risk management during the preflight, flight and post flight, by

LESSON CONTENT

A.  IFR cross country planning including the application of Aeronautical Decision Making and resource management including: cockpit, crew and single pilot pilot resource management with the use of the: PAVE model
   a. Pilot qualifications
      i. SELF check: Summary of Training, Experience/Recency: logbook requirements, Limitations: Personal, Operational, Regulations, Fitness for flight: IMSAFE
   b. Aircraft equipment
      i. IPEN check: Inspections required for airworthiness, Preflight, Equipment: Required 91 and part 27, Navigation: inspections required
   c. Environment
      i. Weather information including services and interpretation
      ii. IFR departure procedures and selection of, SID and ODP
      iii. IFR route planning: IFR charts and symbols, Preferred routes Victor airway planning, direct routes and altitudes, Controlled flight into terrain awareness
      iv. Airports and alternates: Selection of, Regulations, Weather, Controlled / uncontrolled; Review Ground Operations (ref. 91.32)

B.  Filing IFR flight plan procedures
C.  IFR cross country flight own navigation as filed along IFR routes
   a. Applying the decision making model DECIDE to in-flight decision making and risk management, as well as task management in organizing, prioritizing to reduce pilot workload.
D.  Simulated Air Traffic Control Clearances and compliance with ATC procedures required throughout the flight

COMPLETION STANDARDS

The student will describe and explain knowledge required to develop a Go/No Go decision and perform IFR cross country planning and flight. Student will continue to practice flight by reference to instruments for aircraft control, navigation, equipment familiarization and communications required to safely perform the flight.

INSTRUCTOR COMMENTS AND RECOMMENDATIONS

Bristow Academy, Inc.
Instrument Rating Course

Phase Two Flight Training Stage Two
Revision: 3
Date: 01/04/2010
LESSON SIX       2.3 HOURS INSTRUMENT

OBJECTIVE

Practice in IFR flight environment.

LESSON CONTENT

IFR-Cross Country at instructor discretion

Departure procedures
Route navigation or radar vectors
One Precision approach
One Non precision approach
Holding procedures

COMPLETION STANDARDS

The student will manage and decide procedures and tools used in planning, filing, obtain clearances, fly an aircraft under simulated Instrument Flight Rules, and execute approaches and communicate with ATC under instructor supervision.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON SEVEN

2.5 HOURS INSTRUMENT .3 PRE/POST

OBJECTIVE

Continued practice in IFR operations.

LESSON CONTENT

IFR Cross-Country
Airborne filing and clearance
Cross Country Airport at instructor's discretion
Fuel stop discretion of instructor

COMPLETION STANDARDS

The student will manage and decide procedures and tools used in planning, filing, obtain clearances, fly an aircraft under simulated Instrument Flight Rules, and execute approaches and communicate with ATC under instructor supervision.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON EIGHT  2.2 HOURS INSTRUMENT  .5 GROUND  .3 PRE/POST

OBJECTIVE

To gain proficiency while operating in the IFR system

LESSON CONTENT

Long IFR Cross-Country

Filing IFR –
   100nm Planned Distance to Destination Airport with one leg greater than 50nm.

Preflight Preparation and Procedures

Air Traffic Control Clearances, Procedures and Communications required

Flight By reference to instruments, Departure, Enroute, Approach, and Arrival

Navigational Systems

3 Different Approach Types with at least 1 precision approach

Post Flight Procedures

COMPLETION STANDARDS

The student will manage and decide procedures and tools used in planning, filing, obtain clearances, fly an aircraft under simulated Instrument Flight Rules, and execute approaches and communicate with ATC under instructor supervision.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON NINE  1.8 HOURS INSTRUMENT  .5 GROUND  .3 PRE/POST

OBJECTIVE

To practice IFR operations.

LESSON CONTENT

2 different Non Precision Approaches
1 Precision Approach
Intersection holding
Simulated contact approach

COMPLETION STANDARDS

The student will manage and decide procedures and tools used in planning, filing, obtain clearances, fly an aircraft under simulated Instrument Flight Rules, and execute approaches and communicate with ATC under instructor supervision. While maintaining within the published PTS standard.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON TEN 1.7 HOURS INSTRUMENT FLIGHT STAGE CHECK
2.0 GROUND .5 PRE/POST

OBJECTIVE

The Chief Instructor or his designee will review the student’s ability to evaluate through preflight preparation weather, departure, enroute, and arrival procedures for an IFR cross country flight execute instrument approach procedures.

LESSON CONTENT

Ground:
Preflight preparation and procedures
  Weather interpretation, Aircraft Airworthiness, Pilot proficiency and currency,
  Airport information and alternate selection, procedures and clearances required, and pilot responsibilities and resources available.
  IFR cross country planning, departure, enroute, arrival and approach procedures, including knowledge and familiarity of IFR charts and Departure/Approach plates and other publications referenced in the IFR PTS

Flight:
  Clearances and communications
  Equipment familiarization
  Holding procedures
  VOR approach
  NDB or GPS approach
  ILS approach
  Missed approach

COMPLETION STANDARDS

The student will be able to perform in IFR system and approaches to published minimums while remaining in the published standards.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS
Intentionally Left Blank
PHASE TWO IFR FLIGHT TRAINING
STAGE THREE –
IFR EMERGENCY OPERATIONS
PROCEDURES AND FINAL FLIGHT CHECK

1.5 HOURS SIMULATOR
5.6 HOURS HELICOPTER IFR
3.0 HOURS GROUND INSTRUCTION
.8 PRE/POST FLIGHT BRIEFING

OBJECTIVES

Stage Three the student will be introduced to Emergency procedures and continue to develop
skills to explain, perform and manage skills needed on the ground and in the air to operate in the
IFR environment.

Three main objectives during Stage Three are to continue to develop the skills necessary
to control and maneuver an aircraft in IMC and:

1. Practice and perform IFR emergency procedures

2. Practice and perform ATC communications required during the various phases of
   flight and emergency situations

3. Perform simulated IFR developing skills to manage and decide outcomes of the flight

COMPLETION STANDARDS

The stage will be completed when the student performs areas 1 - 3 of above and passes
a ground and flight check after each area*. Overall Performance and safety of flight will
be evaluated in preparation for the Instrument Rating Practical Test.

Airports listed may be changed to suit weather conditions or operations from a satellite
base.

* That meets or exceeds the current FAA Rotorcraft Instrument Practical Test Standards.
The flight check will be administered by the Chief Instructor or his designee.
LESSON ONE 1.5 HOURS SIMULATOR .5 HOURS GROUND

OBJECTIVE

Practice IFR emergencies and procedures, developing skills required to operate an aircraft with loss of instruments and equipment in partial panel operations.

LESSON CONTENT

Simulate IFR emergencies and appropriate procedures
   Flight instrument failures
      Pitot/Static
      Gyro instruments
   Basic emergencies
      Warning lights
      Engine failure
      Partial Power
   Communication equipment failures

COMPLETION STANDARDS

The student will practice and perform IFR emergency procedures to gain confidence and skill to control and communicate in an IFR emergency. He/she will practice simulated IFR emergencies to their completion and familiarized with procedures and communications involved.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON TWO

1.4 HOURS INSTRUMENT .2 PRE/POST

OBJECTIVE

To gain proficiency in partial panel and unusual attitudes.

LESSON CONTENT

Partial Panel approaches and procedures

Unusual Attitudes
ILS/LOC approach
Intersection holding
NDB or GPS approach

COMPLETION STANDARDS

The student will practice and perform recovery from unusual attitudes and techniques involved in partial panel instrument approaches to the standards required.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS

2-23
Phase Two Flight Training Stage Three
Revision: 3
Date: 01/04/2010
LESSON THREE   1.2 INSTRUMENT FLIGHT   .5 GROUND   .2 PRE/POST

OBJECTIVE

Continue maneuvering the helicopter solely by reference to instruments during simulated emergency situations.

LESSON CONTENT

Simulated radio failure
Simulated gyro failure
No gyro approach

COMPLETION STANDARDS

The student will be able to react and maneuver the helicopter appropriate to each simulated emergency.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS


LESSON FOUR 1.4 HOURS INSTRUMENT FLIGHT .2 PRE/POST

OBJECTIVE

To continue emergency procedures operations and prepare the student for the final check.

LESSON CONTENT

SID
ILS approach
Missed approach
Holding partial panel
VOR approach
Circle to land
NDB or GPS approach

COMPLETION STANDARDS

The student will be able to perform each operation to the published IFR standards.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS
LESSON FIVE  1.6 INSTRUMENT FLIGHT  2.0 GROUND  .2 PRE/POST

OBJECTIVE

During this stage check, the Chief Flight Instructor or his assistant will conduct the final check. Through oral examination and flight test, the student will demonstrate the knowledge and skill required to perform each maneuver required by an instrument pilot. It will be a comprehensive review and evaluation of knowledge and skill areas required for the Instrument Rotorcraft Helicopter Practical Test.

LESSON CONTENT

As outlined in the current FAA Practical Test Standards

COMPLETION STANDARDS

The student will demonstrate the knowledge and proficiency that meets or exceeds the standards, as outlined in the current FAA Rotorcraft Instrument Practical Test Standards.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
Florida Institute of Technology

ADDING A NEW COURSE TO THE CURRICULUM

This course is available for student registration only after the approval process has been completed.

SUBJECT AVT (e.g., CSE) COURSE NO. 2008 (e.g., 1301) CREDIT HOURS 3 TERM TO BE ADDED TO THE FILE Spring 2011 (e.g., Fall 2010)

CLASS HOURS 4/5/semester LECTURE HOURS 4/5/semester LAB HOURS CONTACT HOURS (CEU ONLY)

DEPARTMENT Aviation Studies (e.g., Computer Sciences) SCHEDULE TYPE Lecture (A) (e.g., Lecture, Lab or Special Topics/Project)

☐ COLLEGE OF AERONAUTICS – 23 ☐ COLLEGE OF PSYCHOLOGY AND LIBERAL ARTS – 25
☐ NATHAN M. BISK COLLEGE OF BUSINESS – 24 ☐ COLLEGE OF SCIENCE – 26
☐ COLLEGE OF ENGINEERING – 1 ☐ EXTENDED STUDIES DIVISION / NATHAN M. BISK COLLEGE OF BUSINESS – 90

COMPUTER TITLE Restricted to 25 characters, including spaces: Helo Commercial Ground

CATALOG TITLE Helicopter Commercial Ground Training

CATALOG DESCRIPTION OF COURSE Restricted to 350 characters, including spaces:
Provides advanced instruction for helicopter commercial pilot candidates to prepare for the FAA commercial pilot helicopter written examination. Includes advanced aerodynamics, avionics, human factors and aeronautical decision-making.

In addition, please attach a course syllabus and/or more detailed description.

REQUIREMENTS ☑ Prerequisite AVT 1006 ☐ Corequisite Course Number

☐ Prerequisite Course Number ☐ Corequisite Course Number

☐ Prerequisite Course Number ☐ Corequisite Course Number

☐ Prerequisite Course Number ☐ Corequisite Course Number

GRADES TO BE ISSUED ☑ A, B, C, D, F ☐ A, B, C, D, F, CEU

☐ CEU ☐ S, U ☐ P, F ☐ Other

ADDITIONAL RESTRICTION (e.g., Major, Class Level, Department Head Approval)

If this course replaces a course currently offered in BANNER, please indicate old course information and the date/term the course may be removed from the system.

SUBJECT Alpha Prefix (e.g., CSE) COURSE NO. (e.g., 1301)

APPROVALS: Upon completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval below and forward to Catalog Director.

Originator Date Chair, Graduate Council Date

Department Head/Program Chair Date OR

Dean or Associate Dean Date Chair, Undergraduate Curriculum Committee Date

CATALOG DIRECTOR

These changes/additions have been made for the University Catalog/policy management system and entered into the BANNER term named above.

Catalog Director Date

REGISTRAR’S USE ONLY

SCARSE SCADTL SCAPREQ

SCARRIES Operator Init. Date
Florida Institute of Technology
College of Aeronautics

MASTER COURSE SYLLABUS

AVT 2008 Helicopter Commercial Ground Training

Spring 2010

Catalog Course Description

AVT 2008 HELICOPTER COMMERCIAL GROUND TRAINING (3 credits). Prepares advanced instruction for helicopter commercial pilot candidates to prepare for the FAA commercial pilot-helicopter written examination. Includes advanced aerodynamics, avionics, human factors and aeronautical decision making. Prerequisite: AVT 1006.

Course Objectives

Expand student’s knowledge of aeronautics relative to flight planning and navigation in a complex airspace system including commercial flying judgment and ADM principles. Provides knowledge and continuing academic instruction to prepare helicopter flight students for the FAA Commercial Pilot-Helicopter Written Examination.

Upon completion of this course the student should be able to:

1. Demonstrate knowledge to conduct the comprehensive planning of a safe cross country flight under VFR rules and explain the significance of exceeding the performance limitations of the aircraft.
2. Be able to conduct dead reckoning appropriate to VFR and IFR navigation, navigate by radio aids using VOR, GPS, ADF, and ILS systems, and the use of VFR and IFR charts for cross country flight operations.
3. Demonstrate an understanding of aviation weather reports and forecasts, and the elements of forecasting weather trends on the basis of that information, and apply appropriate strategies to make a safe go/no-go decision.
4. Understand the factors affecting aircraft performance capabilities by calculating weight and balance under differing operational conditions.
5. Explain aeronautical decision making (ADM) concepts that effect decision making and judgment in order to mitigate potential operational pitfalls.
6. Achieve a score of 70% or higher in the FAA Commercial Pilot-Helicopter written exam.
Lead Instructor

S. K. Cusick, J.D.  Associate Professor

Curriculum Coordinator

Peter G. Dunn, M.S. ATP, Chair Flight Education Program

Texts and References

1. Instrument/Commercial Guided Discovery text by Jeppesen
2. Pilot’s Handbook of Aeronautical Knowledge
3. Helicopter Pilot Textbook – Schweizer by Jeppesen
4. Principles of Helicopter Flight by W.J. Wagendonk
6. Federal Aviation Regulations/Aeronautical Information Manual
7. Current VFR & IFR Sectional Charts and Approach Plates
8. Commercial Pilot Test Prep, ASA Publications
9. Schweizer (S300CBI) Helicopter Manual (Pilot’s Operating Handbook)
10. Practical Test Standards for Commercial Pilot Rotorcraft (Helicopter)
11. Aviation Weather Services AC 00-45F
12. Aviation Weather AC 00-6A

Instructional Format

Lecture 100%

Student Materials Beyond Texts, References, and Common Student Materials

VFR and IFR charts and Approach Plates
Weather services tools and computer systems such as DUATS

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<th>Classroom Hours</th>
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<td>Helicopter Basic Aerodynamics</td>
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<td>Aerodynamics of Turns, Loads and Autorotative Descents</td>
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<td>Federal Aviation Regulations and Air Traffic Control</td>
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<td>Helicopter Flight Manual and Aircraft Performance</td>
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<td>Weight and Balance Theory and Computations</td>
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<td>Aeronautical Charts – Airport and Heliport Operations &amp; Facilities</td>
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<td>Weather Theory</td>
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<td>Maneuvers, Operations and Emergency Procedures</td>
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<td>Aeronautical Decision Making and Physiological factors</td>
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<td>Examinations</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>45</strong></td>
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**Grading (typical)**

- Class participation: 5%
- Quizzes and Homeworks: 10%
- Exams (3) 15% each: 45%
- FAA Stage Check Exam: 20%
- University Final exam: 20%

**Teaching Media and Delivery Methods**

Lecture, required textbooks, reference texts, class discussion, text and graphic projections, black/white board text and graphic presentations, videos, wall charts, aircraft hands-on visual aids, guest lecturers, Internet references projections, quizzes, exams, homework, group exercises using aeronautical charts, weather reports and forecasts.

**Laboratory Use**

None

**Team Training Concepts**

Homework assignments and presentations.
VFR & IFR Cross-country flight planning exercises
**Florida Institute of Technology**

**ADDING A NEW COURSE TO THE CURRICULUM**

This course is available for student registration only after the approval process has been completed.

<table>
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<tr>
<th>SUBJECT</th>
<th>AVT (e.g., CSE)</th>
<th>COURSE NO.</th>
<th>2008 (e.g., 1301)</th>
<th>CREDIT HOURS</th>
<th>3</th>
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In addition, please attach a course syllabus and/or more detailed description.

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**ADDITIONAL RESTRICTION**

(e.g., Major, Class Level, Department Head Approval)

If this course replaces a course currently offered in BANNER, please indicate old course information and the date/term the course may be removed from the system.

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**CATALOG DIRECTOR**

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**DISTRIBUTION**

Original - Registrar
Copy - Academic Unit

Florida Institute of Technology • Office of the Registrar
150 West University Boulevard, Melbourne, FL 32901-6975 • (321) 674-8144 • Fax (321) 674-7827
Florida Institute of Technology
College of Aeronautics

MASTER COURSE SYLLABUS

AVT 2008 Helicopter Commercial Ground Training

Spring 2010

Catalog Course Description

AVT 2008 HELICOPTER COMMERCIAL GROUND TRAINING (3 credits). Prepares advanced instruction for helicopter commercial pilot candidates to prepare for the FAA commercial pilot-helicopter written examination. Includes advanced aerodynamics, avionics, human factors and aeronautical decision making. Prerequisite: AVT 1006.

Course Objectives

Expand student’s knowledge of aeronautics relative to flight planning and navigation in a complex airspace system including commercial flying judgment and ADM principles. Provides knowledge and continuing academic instruction to prepare helicopter flight students for the FAA Commercial Pilot-Helicopter Written Examination.

Upon completion of this course the student should be able to:

1. Demonstrate knowledge to conduct the comprehensive planning of a safe cross country flight under VFR rules and explain the significance of exceeding the performance limitations of the aircraft.
2. Be able to conduct dead reckoning appropriate to VFR and IFR navigation, navigate by radio aids using VOR, GPS, ADF, and ILS systems, and the use of VFR and IFR charts for cross country flight operations.
3. Demonstrate an understanding of aviation weather reports and forecasts, and the elements of forecasting weather trends on the basis of that information, and apply appropriate strategies to make a safe go/no-go decision.
4. Understand the factors affecting aircraft performance capabilities by calculating weight and balance under differing operational conditions.
5. Explain aeronautical decision making (ADM) concepts that effect decision making and judgment in order to mitigate potential operational pitfalls.
6. Achieve a score of 70% or higher in the FAA Commercial Pilot-Helicopter written exam.
Lead Instructor

S. K. Cusick, J.D. Associate Professor

Curriculum Coordinator

Peter G. Dunn, M.S. ATP, Chair Flight Education Program

Texts and References

1. Instrument/Commercial Guided Discovery text by Jeppesen
2. Pilot's Handbook of Aeronautical Knowledge
3. Helicopter Pilot Textbook – Schweizer by Jeppesen
4. Principles of Helicopter Flight by W.J. Wagendonk
6. Federal Aviation Regulations/Aeronautical Information Manual
7. Current VFR & IFR Sectional Charts and Approach Plates
8. Commercial Pilot Test Prep, ASA Publications
10. Practical Test Standards for Commercial Pilot Rotorcraft (Helicopter)
11. Aviation Weather Services AC 00-45F
12. Aviation Weather AC 00-6A

Instructional Format

Lecture 100%

Student Materials Beyond Texts, References, and Common Student Materials

VFR and IFR charts and Approach Plates
Weather services tools and computer systems such as DUATS

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**Grading (typical)**

- Class participation: 5%
- Quizzes and Homeworks: 10%
- Exams (3) 15% each: 45%
- FAA Stage Check Exam: 20%
- University Final exam: 20%

**Teaching Media and Delivery Methods**

Lecture, required textbooks, reference texts, class discussion, text and graphic projections, black/white board text and graphic presentations, videos, wall charts, aircraft hands-on visual aids, guest lecturers, Internet references projections, quizzes, exams, homework, group exercises using aeronautical charts, weather reports and forecasts.

**Laboratory Use**

None

**Team Training Concepts**

Homework assignments and presentations.
VFR & IFR Cross-country flight planning exercises
Florida Institute of Technology

ADDING A NEW COURSE TO THE CURRICULUM

This course is available for student registration only after the approval process has been completed.

SUBJECT (e.g., CSE) COURSE NO. 2008 CREDIT HOURS 3 TERM TO BE ADDED TO THE FILE Spring 2011 (e.g., Fall 2010)

CLASS HOURS LECTURE HOURS LAB HOURS 115/semester CONTACT HOURS (CEU ONLY)

DEPARTMENT Aviation Flight (e.g., Computer Sciences) SCHEDULE TYPE Flight (e.g., Lecture, Lab, or Special Topics/Project)

☐ COLLEGE OF AERONAUTICS - 23 ☐ COLLEGE OF PSYCHOLOGY AND LIBERAL ARTS - 25
☐ NATHAN M. BISK COLLEGE OF BUSINESS - 24 ☐ COLLEGE OF SCIENCE - 26
☐ COLLEGE OF ENGINEERING - 1 ☐ EXTENDED STUDIES DIVISION / NATHAN M. BISK COLLEGE OF BUSINESS - 90

COMPUTER TITLE Restricted to 25 characters, including spaces: Heli Commercial Pilot

CATALOG TITLE Helicopter Commercial Pilot

CATALOG DESCRIPTION OF COURSE Restricted to 350 characters, including spaces

Provides cross-country flight training to helicopter private pilot license-holders. Increases total flight in preparation for the FAA commercial pilot-helicopter practical test. Commercial pilot-rotorcraft helicopter certificate awarded by FAA on successful completion of the FAA commercial pilot-helicopter knowledge and flight tests.

In addition, please attach a course syllabus and/or more detailed description.

Restrictions ☒ Pre requisite AVF 2007 Corequisite AVT 2008
Course Number Course Number

Grades to be issued ☒ A, B, C, D, F ☐ A, B, C, D, F, CEU
☐ CEU ☐ S, U ☐ P, F ☐ Other

Additional restriction: Requirements: FAA private pilot-helicopter with Instrument rating; FAA class II or higher medical certificate.

If this course replaces a course currently offered in BANNER, please indicate old course information and the date/term the course may be removed from the system.

Subject Alpha Prefix (e.g., CSE) COURSE NO. (e.g., 1301)

APPROVALS: Upon completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval below and forward to Catalog Director.

Originator Date Chair, Graduate Council Date

Department Head/Program Chair Date Or

Dean or Associate Dean Date Chair, Undergraduate Curriculum Committee Date

CATALOG DIRECTOR

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Catalog Director Date

REGISTRAR'S USE ONLY

SCARSE SCADTL SCAREQ

SCARIES Operator Init. Date
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BRISTOW ACADEMY, INC.

TRAINING COURSE OUTLINE

COMMERCIAL PILOT CERTIFICATION COURSE

ROTORCRAFT HELICOPTER

30 HOURS CLASSROOM
35 HOURS DUAL FLIGHT INSTRUCTION
10 HOURS SOLO FLIGHT TRAINING (SUPERVISED)
70 HOURS FLIGHT TRAINING

Revised November 2007
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116 September 2008
TRAINING COURSE OUTLINE

1. Bristow Academy, Inc. located at Space Coast Regional Airport, Titusville, Florida, 32780, operated as:

   - **Main Operations Base**
     - Bristow Academy, Inc.
     - 365 Golden Knights Blvd
     - Titusville, Florida 32780

   - **Satellite Base**
     - Bristow Academy, Inc.
     - 81 John Glenn Drive
     - Concord, CA 94520

   - **Satellite Base**
     - Bristow Academy Inc.
     - 1113 Vortex Drive
     - New Iberia LA 70560

2. COURSE TITLE - Commercial Pilot Certification Course - Rotorcraft - Helicopter.

3. This training course outline meets all of the curriculum requirements for the Commercial Certification contained in Appendix D, Sections 3, 4, and 5 of FAR Part 141.

4. COURSE OBJECTIVE - The student will obtain knowledge, skill and aeronautical experience necessary to meet the requirements for a Commercial Pilot Certificate with a Rotorcraft Category and Helicopter Class rating.

5. COMPLETION STANDARDS - The student must demonstrate through written tests, flight tests, and show through appropriate records that he meets the knowledge, skill and experience requirements necessary to obtain a Commercial Pilot Certificate with a Rotorcraft Category and Helicopter Class rating.

6. AIRPORT - Space Coast Regional Airport is the main base for training in this course. Space Coast Regional Airport meets the requirements of Section 141.38 of the FAR's are for day and night operations.

7. AIRCRAFT - All aircraft used in this course will meet the requirements of 141.39 of the FAR's. Each aircraft is equipped for day and night VFR flying. In addition, each aircraft will be equipped with at least one 360 channel transceiver radio. At least one aircraft will have radio navigation equipment consisting of either a VOR receiver or Loran C receiver. (See Appendix A for name and address of the designated Chief Flight Instructor.)

8. GROUND TRAINER - None at this time.

9. CHIEF FLIGHT INSTRUCTOR - The Chief Flight Instructor for this course will meet all the requirements for Chief Flight Instructor under FAR 141.35 (d). (See Appendix A for name of Assistant Chief Flight Instructor.)

10. ASSISTANT CHIEF FLIGHT INSTRUCTOR - The Assistant Chief Flight Instructor for this course will meet the requirements under FAR 141.36(d). (See Appendix A for name of Assistant Chief Flight Instructor.)

Revised November 2007
11. FLIGHT INSTRUCTOR - Each Flight Instructor assigned to this course must be the holder of at least a Commercial Pilot Certificate with a Rotorcraft Category rating and a Helicopter Class Rating, and be a Certified Flight Instructor (Rotorcraft – Helicopter).

12. GROUND SCHOOL INSTRUCTOR - The Ground School Instructor for this course must possess a Ground Instructor Certificate with Advanced Ground Instructor Rating, or be a Certified Flight Instructor (Rotorcraft – Helicopter).

13. AUDIO-VISUAL AIDS - The following list describes the special equipment used for ground training:

   a. White drawing boards
   b. Aircraft models
   c. Various helicopter components
   d. VCR and training tapes
   e. Computers
   f. Overhead Projectors
   g. Slide Projector
   h. Power Point Projection

   See Appendix "B" for a description of each ground training room.

14. CREDIT GRANTING PROCEDURES - According to FAR 141.77 (b) and (c) Credit for previous pilot experience or knowledge may be granted after evaluation testing by the Chief Flight Instructor. The student will be tested against either the Stage 1, 2, 3, or 4 completion standards set forth in the training syllabus. The appropriate stage test to be administered will determined by the Chief Flight Instructor based on the applicant’s logged or certified experience or training. The passing scores and grades will be consistent with standard Bristow Academy policy. If an applicant fails either the flight or written portion of the stage test, the Chief Instructor will note the areas that are found to be deficient and prescribe lessons from the training syllabus to bring the applicant up to the completion standards of the particular stage of training. The student must pass the appropriate stage test before proceeding onto the next stage of training.

   MAXIMUM CREDIT GRANTED – If the credit it is based upon a Part 141 approved training course, the credit given for the previous experience shall not exceed 50 percent of the curriculum requirements. If the credit is not based upon a Part 141 approved training course, the credit given for the previous experience shall not exceed 25 percent of the curriculum requirements.
15. AIRPORTS USED FOR CROSS-COUNTRY FLIGHTS - According to FAR Part 1, an airport is an area of land or water that is used for takeoff and landing of aircraft. This definition is most applicable to the helicopter. In order to encompass a wide variety of cross country destination and origination points indicative of the type of flights and varied destinations assigned to Private Helicopter Pilots, it is important for the student to experience an endless supply of landing sites. More "airports" exist for possible use than we could ever list. The following list represents some of the assigned cross-country airports in this course of training. The Chief Flight Instructor will approve all other destination and origination points.

**Jacksonville Sectional**

- Merrit Island
- Melbourne International
- Winter Haven
- Kissimmee
- Plant City
- Vandenberg
- Zephyrhills
- Lakeland Linder
- Tampa North
- Pilot Co
- Hernando Co
- Leesburg Regional
- Orlando Executive
- Orlando Co
- Orlando Sanford
- Delene Taylor
- New Smyrna Beach
- Daytona Beach International

**Miami Sectional**

- Valkaria
- Babastian
- Vero Beach
- St Lucie
- Witham
- Okeechobee
- Sebring Regional
- Arcadia
- Wauchula
- Lake Wales
- River Ranch
- Avon Park
- Palm Beach
- LaBelle
- Airglades

16. The flight training syllabus herein contains three stages. The ground training will be conducted in three sections. Section one must be completed prior to the student's first solo flight. Upon completion of the ground training course, the student must pass the Stage One written examination on the material covered in section one. After passing this examination, the student will be signed off to take the FAA knowledge test for Commercial Pilot - Rotorcraft - Helicopter.

17. PERSONNEL - Bristow Academy, Inc. maintains a staff of qualified personnel according to FAR 141.33. All personnel have been instructed in the procedures and responsibilities of his or her employment.
APPENDIX “A”

1. AIRCRAFT – The Schweizer 269C-1 (S300CB / S300CBI) and RHC Robinson R22 Beta II helicopter will be used for this course of training.


6. CHIEF GROUND INSTRUCTOR – None at this time.

Satellite Base New Iberia LA


Satellite Base Concord CA

Bristow Academy, Inc.
Commercial Pilot Certification
Course – Rotorcraft - Helicopter

BRISTOW ACADEMY, INC.

PROGRESS AND GRADES

A. FLIGHT TRAINING

Flight training for each program is divided into stages. Proficiency in less advanced phases is required before a student will be permitted to proceed. The Chief Flight Instructor or his designee will give proficiency stage checks. Progression to the following stages requires a passing grade. Failure to pass a proficiency stage check will necessitate return to the former stage with review and additional instruction required. Students are graded on their performance during dual flights and must maintain a passing grade in order to remain in the course.

Grading system values are as follows:

<table>
<thead>
<tr>
<th>RATING</th>
<th>GRADE</th>
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<tbody>
<tr>
<td>Well above average</td>
<td>1</td>
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<tr>
<td>Above average</td>
<td>2</td>
</tr>
<tr>
<td>Average</td>
<td>3</td>
</tr>
<tr>
<td>Below average</td>
<td>4 (MINIMUM PASSING)</td>
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<tr>
<td>Unsatisfactory</td>
<td>5</td>
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</tbody>
</table>

B. GROUND TRAINING

The percentage system is utilized in the classroom with 70% on examinations considered as a minimum passing grade. A student must receive a passing grade to be entitled to receive a certificate from his ground training course showing that he has satisfactorily completed the ground instruction.
COMMERCIAL PILOT CERTIFICATION COURSE ROTORCRAFT - HELICOPTER

1. ENROLLMENT PREREQUISITES - Students enrolling in this flight course must be 18 years of age, possess a valid private pilot certificate with rotorcraft category – helicopter class rating, and hold at least a third-class medical certificate.

2. COURSE OBJECTIVES - The student will obtain the knowledge, aeronautical skill and experience necessary to meet the requirements for a Commercial Pilot Certificate with a Rotorcraft Category and a Helicopter Class Rating.

3. COURSE COMPLETION STANDARDS - The student has demonstrated through flight tests, written tests, and school records that he/she has the necessary knowledge, skill and experience to obtain a Commercial Pilot Certificate with a Rotorcraft Category and a Helicopter Class Rating.

4. WRITTEN STAGE TESTS (DESCRIPTION)

The Stage I Written test will consist of either "multiple choice" or "fill in" type of questions to measure the student's knowledge of helicopter components, systems, instruments, and basic aerodynamics.

The Stage II Written Test will consist of either "multiple choice" or "fill in type questions to measure if the student's knowledge of aviation weather, the flight computer, air man's information manual and the FAR's

The Stage III Written Test will consist of either "multiple choice" or "fill in" type of questions to measure the student's knowledge of helicopter maneuvers, procedures and advanced aerodynamics.

The Stage IV Written Test will consist of either "multiple choice" or "fill in" type of questions to measure if the student meets the knowledge requirements as outlined in the Commercial Pilot Practical Test Standards and FAR Part 61.

5. This course has been constructed to meet all requirements of FAR 141 and to be as objective and meaningful as possible. Hours shown for dual flight training are offered as a guide to the instructor. Specified minimum times for an entire stage must be complied with, whereas times used on individual lessons may be adjusted to the individual student's needs.
SAFETY PROCEDURES AND PRACTICES

1. All training is to be conducted in accordance with Federal Aviation Regulations. The flight instructor will supervise the content of all flights, including solo flights. No student pilot may be authorized to start a solo practice flight from an airport until the flight has been approved by an authorized flight instructor, who is present at that airport.

2. No emergency procedures of any kind may be practiced unless an instructor from Bristow Academy is onboard the aircraft. Minimum altitude for Emergency Procedure Training is 1500 feet above ground level (AGL).

3. No student will carry a passenger while on a solo training flight. Any student found to have done so will be reported to the Federal Aviation Administration.

4. Each pilot will check the squawk sheet prior to each flight. Any discrepancies must be noted and reported to maintenance personnel immediately.

5. All pilots will use the appropriate checklist for all operations provided by Bristow Academy, Inc from before starting until after shutdown. All pilots will clear the immediate area of the helicopter prior to starting. Students will not start the helicopter without the instructor’s permission. When taxiing to and from the ramp area, the student will obey all ATC instructions. Students will give-way to taxing airplanes and will hover at a skid height of 3 - 5 feet. All pilots will use surface taxi procedures when moving past “slow turning rotors” and when other aircraft doors are open.

6. Solo training flight will be conducted in VFR weather conditions only. Students may not fly solo if the wind speed exceeds 12 kts. At the discretion of your instructor written authorization may be given to exceed this limitation up to 15 kts.

7. In the event that a solo student encounters delays on a flight, he/she may continue the flight after sunset only for the purpose of returning to Space Coast Regional and only if visibility is at least 5 miles and the ceiling is at least 2,500 feet. Additionally he/she may continue only if he/she has received flight training at night and received a logbook endorsement. See FAR 61.87(m) for reference.

8. For dual flights in the Space Coast Regional traffic pattern or the designated training areas, the weather minimums will be 700’ ceiling and a half mile visibility. For dual cross-country flights, the weather minimum will be 1,000-foot ceiling and one-mile visibility.

9. A minimum of 20 minutes reserve fuel is required for both cross-country and local flights. Pilots will not trust the fuel gauges and should never fly when they indicate less than quarter-full.

10. Pilots will not fly at altitude of less than 500 feet above ground level (AGL) while on cross-country or training flights, except for the purpose of take-off or landing. Simulated emergency landings will be terminated at an altitude, which ensures a safe transition into normal flight with respect to obstructions and the height/velocity diagram.

11. Over water flights are not permitted unless the aircraft is within autorotation distance of a suitable landing area unless approved flotation devices are available for every person on board or the the aircraft is equipped with approved flotation gear. Additionally the aircraft needs to be equipped with a flare gun.

Revised November 2007
12. Should a student have to make a precautionary or un-programmed landing for any reason, he/she will notify Bristow Academy by telephone at 800-686-4080 and obtain an airworthiness release and dispatch approval from a Bristow Academy instructor before continuing.

13. An official VFR flight plan must be filed for all solo cross-country flights.

14. Students must obtain a written endorsement from their flight instructor before practicing off-airport landings, pinnacle, ridge, or confined area approaches.

15. Smoking is not allowed in the vicinity of the aircraft or fuel trucks. Students will observe strict fire precautions while in the vicinity of the aircraft or hangar. Students will acquaint themselves with the location and operation of the fire extinguisher. In the event of an engine fire, students will follow the emergency procedure, which is detailed in the aircraft's operating handbook. If the aircraft is on fire, protect human life, but leave the aircraft fire fighting to the professionals.

16. When not in use, the helicopter rotor blades will be secured using the tie downs provided in each aircraft. This will only be necessary when the wind speed exceeds 15 knots. During the day it will not be necessary to secure the aircraft to the ground. Students will not leave the helicopter unattended with the keys left in it under any circumstances.

17. Students will exercise the utmost caution when operating in the vicinity of other aircraft; either on the ground or in flight. When in flight students will follow the collision avoidance procedures as outlined in FAR 91.111, 91.113, 91.115, and will practice the proper scanning technique as described in the Airman's Information Manual paragraph 8-1-6 and 8-1-8.

18. All solo practice will take place at the airports listed in the training course outline. In addition to these airports, dual-training flights may also be conducted in other locations deemed necessary by the instructor. Information concerning Additional Training Areas can be found in Student Notices. (Your Instructor will show you where to find them and explain these operations)

19. All pilots will adhere to rules, regulations, and policies laid out in the current Bristow Academy Flight Operations Manual.

I have read and agree to comply with all the above conditions,

Signed: ________________________________ Date: ______________
Student Helicopter Pilot

Instructor's Signature: ________________________________ Date: ______________

Certificate #: __________________ Exp Date: ______________

Instructor's Name: ____________________________

Revised November 2007
### COMMERCIAL PILOT CERTIFICATION COURSE Rotorcraft - Helicopter

**STUDENT'S NAME**

**ADDRESS**
Street & Number, City

**DATE OF ENROLLMENT**

**MEDICAL CERTIFICATE CLASS**

**DATE**

**FCC PERMIT**

**PRIVATE OR STUDENT PILOT CERTIFICATE NUMBER**

**DATE**

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<th>TOTAL</th>
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<th>X-C DAY/NIGHT</th>
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**CREDIT GRANTED**

**TO BE FLOWN (141)**

**CREDIT FOR STAGE 1**

**STAGE 2**

**STAGE 3**

**STAGE 4**

**MINIMUM TAKE OFF/LANDING REQUIREMENTS**

CLASS "D"

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**STAGE 1**

SECTION 1 WRITTEN

SECTION 2 WRITTEN

SECTION 3 WRITTEN

SECTION 4 WRITTEN

**STAGE 2**

ORAL

DATE

FLIGHT

DATE

**STAGE 3**

ORAL

DATE

FLIGHT

DATE

**STAGE 4**

ORAL

DATE

FLIGHT

DATE

Revised November 2007
CREDIT GRANTED FOR GROUND SCHOOL
SECTION 1_________SECTION 2_________SECTION 3_________

GROUND TRAINING FINAL WRITTEN SCORE________DATE________RETEST________

FAA KNOWLEDGE TEST SCORE________DATE________

STAGE I COMPLETION DATE________
STAGE II COMPLETION DATE________
STAGE III COMPLETION DATE________
STAGE IV COMPLETION DATE________

GRADUATION CERTIFICATE ISSUED________

I hereby certify that the above information is true and correct and the above student has completed this course under FAR Part 141

__________________________
CHIEF FLIGHT INSTRUCTOR

The above student has been terminated/ transferred from this course of training under FAR Part 141.

Date______________

__________________________
CHIEF FLIGHT INSTRUCTOR

Revised November 2007
Student Pilot Training Record
GRADUATION CERTIFICATE

CERTIFICATE OF GRADUATION

This is to certify that

________________________

has satisfactorily completed each
required stage of training as prescribed by the
Federal Aviation Administration's Approved
Commercial Pilot Rotorcraft- Helicopter Course

Course completed on the _______ Day of ,
Nineteen Hundred and Ninety-Eight.

Given under my hand and seal this ___ Day of ,
Nineteen Hundred and Ninety-Eight.

The Student has met the Cross Country requirements as laid out in Part 141,
Appendix D, (b), (3), (ii), (iii)

I certify that the above statements are true.

Bristow Academy, Inc.
HIAS 182B (Air Agency Certificate Number)

________________________
Jens Jehns
Chief Instructor
STAGE 1

GROUND TRAINING SYLLABUS

GROUND TRAINING – 30.0 HOURS

1. Ground Training Course Objectives

The student will obtain the necessary aeronautical knowledge and meet the prerequisites specified in FAR Part 141 Appendix D for the commercial pilot - helicopter written examination.

2. 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 141 Appendix D and has the necessary aeronautical knowledge to pass the commercial-helicopter knowledge test.
Bristow Academy, Inc.  
Commercial Pilot Certification  
Course – Rotorcraft - Helicopter

WRITTEN TESTS

GROUND TRAINING SYLLABUS

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FAA KNOWLEDGE TEST

Commercial Pilot - Helicopter Knowledge Test %

Grade Date

Revised November 2007
SECTION 1

GROUND TRAINING - 11.0 HOURS

SECTION 1 OBJECTIVES

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

SECTION 1 COMPLETION STANDARDS

Stage 1 will be complete when the student has passed the section 1 written examination with a minimum score of 70 percent. The instructor will review each incorrect response to assure complete understanding before advancing the student to section 2.
LESSON 1  1.5 HOURS GROUND TRAINING

OBJECTIVES

This lesson will provide the student with an in depth review of helicopter components, systems, and instruments.

LESSON CONTENT

1. Helicopter Components
   A. Main rotor
   B. Tail rotor
   C. Transmission
   D. Powerplant
   E. Swash plate assembly
   F. Gear boxes
   G. Drive train and tail cone
   H. Clutch

2. Flight Controls
   A. Cyclic
   B. Collective
   C. Throttle
   D. Pedals
   E. Trim Control

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. Preventive measures
      2. Elimination measures
   D. Refueling procedures

5. Oil and Oil System
   A. Type and quantity
   B. Oil system operation
LESSON 1 (Continued)

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  1.5 HOURS GROUND TRAINING

OBJECTIVES

During this lesson the student will study basic aerodynamics to gain a better 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. 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 (Continued)

7. Vibrations
   A. Resonance
      1. Sympathetic
      2. Ground
   B. Low 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 1.5 HOURS GROUND TRAINING

OBJECTIVES

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

LESSON CONTENT

1. Hovering flight
   A. Lift and thrust resultant
   B. Weight and drag
   C. Axis of rotation
   D. Conning
      1. Lift
      2. Centrifugal force
   E. Blade flapping
   F. Coriolis affect
   G. Translating tendency on 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. Unanticipated right yaw (L.T.E.)
      1. Causes
      2. Corrections

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  1.5 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 into 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 height gross weight on load factor
      4. Effect of density altitude and pilot technique on load factor
   C. 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 autorotations
      1. Torque effect
      2. Translating tendency or drift
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  1.5 HOURS GROUND TRAINING

OBJECTIVES
During this lesson the student will review the helicopter flight manual and helicopter performance.

LESSON CONTENT

1. The Flight Manual for the aircraft being used
   A. Operations and significance of exceeding limitations
      1. Airspeed
      2. Rotor
      3. Powerplant
      4. Type of operation
      5. Fuel useability
   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

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
   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

Revised November 2007
LESSON 5 (Continued)

D. Carburetor icing
   1. Causes and indications
   2. Elimination

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 1.5 HOURS GROUND TRAINING

OBJECTIVES

During this lesson the student will review 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 methods
   B. Graph method
   C. Fuel burn-off
   D. Effect of out of balance loading

3. Weight and balance management
   A. Weight adjustment
   B. C.G. 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 2.0 HOURS GROUND TRAINING

OBJECTIVES

This lesson will be a review of material presented in lesson 1 through 6, in preparation for the section 1 written examination.

LESSON CONTENT

Review as necessary

COMPLETION STANDARDS

This lesson and section 1 will be complete when the student has passed the section 1 written examination, with a minimum score of 70 percent.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
SECTION 2

GROUND TRAINING - 9.0 HOURS

SECTION 2 OBJECTIVES

During stage 2 the student will review aviation weather, the flight computer, and the airman's information manual.

SECTION 2 COMPLETION STANDARDS

Section 2 will be complete when the student has passed the section 2 written examination with a minimum score of 70 percent. The instructor will review each incorrect response to assure complete understanding before advancing the student to section 2.
LESSON 8 1.5 HOURS GROUND TRAINING

OBJECTIVES

During this lesson the student will obtain a better 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. dewpoint
   C. Condensation and sublimation products
      1. clouds and fog
      2. precipitation
      3. dew and frost
6. Stability
   A. causes
   B. effects
7. Clouds
   A. composition
   B. formation and structure
   C. types
   D. recognition

Revised November 2007
LESSON 8 (Continued)

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  1.5 HOURS GROUND TRAINING

OBJECTIVES

This lesson completes the review 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. clear air turbulence
   D. categories of turbulence intensity

4. Structural icing
   A. types
   B. causes
   C. effects
   D. clear air turbulence
   E. prevention and elimination

5. Thunderstorms
   A. conditions necessary for formation
   B. formation and life cycle
   C. hazards
   D. avoidance procedures

6. Windshear
   A. Recognition
   B. Avoidance

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

Revised November 2007
LESSON 10  1.5 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 weather chart
   B. sequence report
   C. weather depiction chart
   D. radar summary chart
   E. winds aloft chart
3. Forecasts
   A. area forecast
   B. terminal forecast
   C. surface prognostic chart
   D. winds aloft forecast

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 1.5 HOURS GROUND TRAINING

OBJECTIVES

The student will be introduced to maneuvers, procedures and emergency operations appropriate to the aircraft. The student will be introduced to aeronautical decision making and judgement appropriate to the commercial level.

LESSON CONTENT

1. Commercial maneuvers
   A. Confined area operation
   B. Pinnacle/platform operations
2. Aeronautical decision making and judgement
   A. Diversion
   B. Lost procedures
   C. Emergency operations
      1. System malfunctions
      2. Aircraft malfunctions
      3. Passenger in distress

COMPLETION STANDARDS

The 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 1.5 HOURS GROUND TRAINING

OBJECTIVES

This lesson will review the use of the airman's information manual and its application to preflight planning.

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. controlled/Uncontrolled
         B. control zones/airport traffic areas
         C. transition areas
      4. services available to pilots
      5. airport and heliport operations
      6. emergency procedures
      7. good operating practices
   B. Airport directory
      1. content
      2. use - legend
      3. applications
   C. Operational data and notams
      1. content
      2. airport facilities directory legend
      3. applications
   D. Graphic notices and supplemental data
      1. content
      2. use
      3. applications
   2. The advisory circular system

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  
1.5 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. Ground control
   B. Uncontrolled airports and heliports
      1. Flight service station
      2. Unicom
      3. Multicom

4. Other ATC facilities and services
   A. Air route traffic control center
   B. Approach control

5. FSS services available
   A. Flight watch
   B. Transcribed weather broadcasts
   C. Scheduled weather broadcasts
   D. In-flight service
LESSON 13 (Continued)

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 and understanding of the material presented and has completed the study assignment.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
LESSON 14 2.0 HOURS GROUND TRAINING

OBJECTIVES

This lesson will be a review of material presented in lesson 8 through 13 in preparation for the section 2 written examination.

LESSON CONTENT

Review as necessary

COMPLETION STANDARDS

This lesson and section 2 will be complete when the student has passed the section 2 written examination with a minimum score of 70 percent, covering the material presented in lessons 8 through 13.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
SECTION 3

GROUND TRAINING - 8.0 HOURS

SECTION 3 OBJECTIVES

During section 3 the student will review VFR charts, the navigation plotter, radio navigation, cross country planning, physiological considerations, and federal aviation regulations for the Commercial level.

SECTION 3 COMPLETION STANDARDS

Section 3 will be complete when the student has passed the stage 3 written examination with a minimum score of 70 percent. The instructor will review each incorrect response to assure complete understanding before advancing the student to the FAA knowledge test for Commercial Helicopter Pilot.
LESSON 15 1.5 HOURS GROUND TRAINING

OBJECTIVES

This lesson will review VFR charts, the navigation plotter, the flight computer, and their use in planning and conducting cross country flight at the Commercial level.

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. Airspace
         A. Controlled / uncontrolled
         B. Class D Airspace
         C. Class E Airspace
         D. Special use airspace
      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/Magnetic Compass
      B. Dead reckoning
   4. Flight computer
      A. Calculator side
      B. Wind face side

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 1.5 HOURS GROUND TRAINING

OBJECTIVES

This lesson will introduce radio navigation and its application in cross country flight and instrument flight interpretation.

LESSON CONTENT

1. VHF Omnidirectional 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
   A. Radar
   B. Relative bearing
   C. Magnetic bearing
   D. Tracking vs. homing

5. ATC services available to pilots
   A. Radar
      1. Radar vectors
      2. ASR
      3. Transponder
         A. Phraseology
         B. Modes and codes
         C. DF Steers

COMPLETIONS 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 1.5 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. Magnetic variation
   C. Magnetic course and latitude selection
   D. Checkpoints
   E. True airspeed
   F. Wind correction angle and groundspeed
   G. Magnetic heading
   H. Compass deviation
   I. Compass heading
   J. time estimates - ETE and ETA
   K. Fuel requirements
4. Airport information for destination
   A. VFR charts
   B. Airman's information's manual
   C. Other publications
5. VFR Flight Plan
   1. Filing
   2. Opening
   3. Extending if necessary
   4. 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 1.5 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 factors which can affect the comfort and safety of the pilot and his passengers.

LESSON CONTENT

1. Federal Aviation Regulations
   A. FAR Part 1 and Part 43
   B. FAR Part 61
   C. FAR Part 91
   D. FAR Part 119
   E. FAR Part 135
   F. 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 consideration
   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 2.0 HOURS GROUND TRAINING

OBJECTIVES

This lesson will be a review of material presented in lessons 1 through 18 in preparation for the section 3 and final written examination.

LESSON CONTENT

Review as necessary

COMPLETION STANDARDS

This lesson and section 3 will be complete when the student has passed the section 3 and final written examination with a minimum score of 70 percent, covering the material presented in lessons 1 through 18.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
STAGE TWO – ADVANCED MANEUVERS – LESSONS ONE THROUGH TWENTY THREE

15.0 HOURS DUAL
25.0 HOURS SOLO
3.7 PRE/POST FLIGHT BRIEFING

STAGE TWO OBJECTIVES -
The student will be instructed in offsite operations, emergency procedures, and advanced maneuvers. Throughout solo practice, the student will continue to build proficiency and experience in cross country navigation and increased precision in all solo maneuvers.

STAGE TWO COMPLETION STANDARDS -
The stage will be complete when the student has passed the Stage Two Flight Check and Written Test and demonstrates his knowledge of helicopter maneuvers, procedures and advanced aerodynamics.

Revised November 2007
FLIGHT LESSON 1
1.5 HOURS DUAL  0.3 HOUR PRE/POST FLIGHT DISCUSSION

OBJECTIVES

This lesson is a review of all basic maneuvers in preparation for the student's first solo.

LESSON CONTENT

Review  
1. Preflight preparation  
2. Preflight inspection  
3. Engine starting  
4. Engine and systems preflight check  
5. Vertical takeoff to a hover  
6. Air taxiing  
7. Radio communications and ATC light signals  
8. Normal takeoff from a hover  
9. Traffic pattern procedures and go-arounds  
10. Autorotative descents with power recovery  
11. Power failure at a hover – hovering autorotation  
12. Simulated forced landing procedure – autorotation  
13. Normal approach to a hover  
14. Landing from a hover  
15. Engine shutdown  
16. Emergency operations – discussion  
   a. Systems or equipment malfunctions  
   b. Settling with power  
   c. Partial power failure  
   d. Anti-torque failure  
   e. Power train failure in flight  
17. Post flight procedures

COMPLETION STANDARDS

The student will demonstrate the knowledge and proficiency to safely solo the helicopter.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
FLIGHT LESSON 2  DUAL 1.5 HOURS, .3 HOURS PRE AND POST BRIEFING

A/C N_________INSTRUCTOR________________________GRADE_______DATE_______

OBJECTIVE

During this lesson we will introduce the student to advanced takeoffs and approaches.

LESSON CONTENT

Review
1. Maximum performance takeoffs and climbs
2. Steep approach
3. High altitude takeoff and climb
4. Shallow approach and roll-on/running landing
5. Autorotative descents with power recovery

COMPLETION STANDARDS

The student will demonstrate proper altitude and power control during high altitude takeoffs and maximum performance takeoffs. Heading will be maintained within 15 degrees during maximum performance takeoffs and a smooth transition to normal climb will be demonstrated. The student will maintain translational lift until ground contact during a shallow approach and roll-on landing. During straight and level flight and turns, altitude will be maintained within 100 feet, airspeed within 10 knots and heading within 10 degrees.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 3
DUAL 1.5 HOURS, .3 HOURS PRE AND POST FLIGHT BRIEFING

A/C N____________INSTRUCTOR_________________GRADE_________DATE________

OBJECTIVE

This lesson will introduce the student to off airport operations in confined areas and on
pinnacles and will stress the importance of performance planning and off airport
operating procedures. The student will gain an understanding of hazards associated
with off airport operations and review those previously covered.

LESSON CONTENT

Oral discussion
1. Weight and balance calculations and considerations
2. Performance planning
   a. Limit manifold pressure - maximum power available
   b. Hover performance - IGE, OGE
   c. Never exceed speed

Review
1. Settling with power
2. Recovery from low G condition
3. Simulated forced landing
4. Recovery from low rotor RPM

Introduction
1. Confined area and pinnacle operations
   a. High reconnaissance
   b. Low reconnaissance
   c. Ground Reconnaissance
   d. Confined area approach and departure
   e. Pinnacle approach and departure
      1. Airspeed over altitude
   f. Approaches to the surface
   g. Departures from the surface
2. Hazardous conditions
   a. Obstructions - natural and man-made – wire strike avoidance
   b. Turbulence - best penetration speed at best rate of climb
   c. Dynamic rollover - landing on slopes

Revised November 2007
Lesson 3 (continued)

COMPLETION STANDARDS

This lesson will be complete when the student demonstrates the ability to plan and execute a high and low reconnaissance. He will be able to select suitable landing areas and gain an understanding of proper cyclic control and dynamic rollover during slope operations.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 4  1.5 HOURS SOLO

A/C N__________INSTRUCTOR____________________ GRADE________ DATE______

OBJECTIVE

This lesson is a review of all basic maneuvers for the student’s first solo.

LESSON CONTENT

Review
1. Preflight preparation
2. Preflight inspection
3. Engine starting
4. Engine and systems preflight check
5. Vertical takeoff to a hover
6. Air taxiing
7. Radio communications and ATC light signals
8. Normal takeoff from a hover
9. Traffic pattern procedures and go-arounds
10. Normal approach to a hover
11. Landing from a hover
12. Engine shutdown
13. Post flight procedures

COMPLETION STANDARDS

This lesson will be complete when the student has practiced the assigned maneuvers.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS

Revised November 2007
FLIGHT LESSON 5 1.5 HOURS SOLO

A/C N_________ DATE________

OBJECTIVE

During this lesson the student will practice the listed maneuvers to increase his proficiency and solo experience.

LESSON CONTENT

Practice
1. Maximum performance takeoff and climb
2. Steep approach
3. Normal takeoff from a hover
4. Normal approach to a hover
5. Hovering - sideward, forward, rearward, and turns
6. Vertical landing from a hover

COMPLETION STANDARDS

This lesson will be complete when the student has practiced the assigned maneuvers.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
FLIGHT LESSON 6  DUAL 1.5 HOURS, .3 HOURS PRE AND POST BRIEFING
A/C N____________INSTRUCTOR__________________ GRADE________ DATE________

OBJECTIVE

During this lesson the student will review advanced takeoffs and approaches.

LESSON CONTENT

Review
1. Maximum performance takeoffs and climbs
2. Steep approach
3. High altitude takeoff and climb
4. Shallow approach and roll-on/running landing
5. Autorotative descents with power recovery
6. Approaches to the surface
7. Departures from the surface

COMPLETION STANDARDS

The student will demonstrate proper altitude and power control during high altitude takeoffs and maximum performance takeoffs. Heading will be maintained within 15 degrees during maximum performance takeoffs and a smooth transition to normal climb will be demonstrated. The student will maintain translational lift until ground contact during a shallow approach and roll-on landing. During straight and level flight and turns, altitude will be maintained within 100 feet, airspeed within 10 knots and heading within 10 degrees.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
FLIGHT LESSON 7  2.0 HOURS SOLO

A/C N____________DATE_______

OBJECTIVE

During this lesson the student will practice the listed maneuvers to increase proficiency.

LESSON CONTENT

Practice
1. Normal takeoff to a hover
2. Normal approach to a hover
3. Maximum performance takeoff
4. Steep approach
5. Landing from a hover
6. Rapid deceleration - quick stops
7. Hovering, forward, rearward, and sideward
8. Normal takeoff from a hover
9. Running takeoff (optional)
10. Running landing (optional)

COMPLETION STANDARDS

This lesson will be complete when the student has practiced the listed maneuvers.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 8  2.0 HOURS SOLO

A/C N_________DATE________

OBJECTIVE

During this lesson the student will practice the listed maneuvers to increase proficiency.

LESSON CONTENT

Practice
1. Normal takeoff to a hover
2. Normal approach to a hover
3. Maximum performance takeoff
4. Steep approach
5. Landing from a hover
6. Rapid deceleration - quick stops
7. Hovering, forward, rearward, and sideward
8. Normal takeoff from a hover
9. Running takeoff (optional)
10. Running landing (optional)

COMPLETION STANDARDS

This lesson will be complete when the student has practiced the listed maneuvers.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 9  2.0 HOURS SOLO

A/C N_________DATE_______

OBJECTIVE

During this lesson the student will practice the listed maneuvers to increase proficiency.

LESSON CONTENT

Practice
1. Normal takeoff to a hover
2. Normal approach to a hover
3. Maximum performance takeoff
4. Steep approach
5. Landing from a hover
6. Rapid deceleration - quick stops
7. Hovering, forward, rearward, and sideward
8. Normal takeoff from a hover
9. Running takeoff (optional)
10. Running landing (optional)
11. Departures from the surface (optional)
12. Approaches to the surface (optional)

COMPLETION STANDARDS

This lesson will be complete when the student has practiced the listed maneuvers.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 10 2.0 HOURS SOLO

A/C N__________DATE________

OBJECTIVE

During this lesson the student will practice the listed maneuvers to increase proficiency.

LESSON CONTENT

Practice
1. Normal takeoff to a hover
2. Normal approach to a hover
3. Maximum performance takeoff
4. Steep approach
5. Landing from a hover
6. Rapid deceleration - quick stops
7. Hovering, forward, rearward, and sideward
8. Normal takeoff from a hover
9. Running takeoff (optional)
10. Running landing (optional)

COMPLETION STANDARDS

This lesson will be complete when the student has practiced the listed maneuvers.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 11  2.0 HOURS SOLO

A/C N__________DATE________

OBJECTIVE

During this lesson the student will practice the listed maneuvers to increase proficiency.

LESSON CONTENT

   Practice
   1. Normal takeoff to a hover
   2. Normal approach to a hover
   3. Maximum performance takeoff
   4. Steep approach
   5. Landing from a hover
   6. Rapid deceleration - quick stops
   7. Hovering, forward, rearward, and sideward
   8. Normal takeoff from a hover
   9. Running takeoff (optional)
  10. Running landing (optional)

COMPLETION STANDARDS

This lesson will be complete when the student has practiced the listed maneuvers.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 12
DUAL 1.5 HOURS, .3 HOURS PRE AND POST FLIGHT BRIEFING

A/C N________________ INSTRUCTOR________________________ GRADE_________ DATE_________

OBJECTIVE

This lesson will review off airport operations in confined areas and on pinnacles, and will stress the importance of performance planning and off airport procedures. The student will gain further proficiency in these advanced maneuvers by practicing more difficult pinnacles and confined areas to meet the standards of the commercial pilot.

LESSON CONTENT

Oral discussion
1. Performance planning
   a. Limit manifold pressure - maximum power available
   b. Hover performance - IGE, OGE
   c. Never exceed speed

Review
1. Settling with power
2. Recovery from low G condition
3. Simulated forced landings
4. Confined area and pinnacle operations
   a. High reconnaissance
   b. Low reconnaissance
   c. Confined area approach and departure
   d. Pinnacle approach and departure
      1. Airspeed over altitude takeoff
5. Hazardous conditions
   a. Obstructions - natural and man made
   b. Turbulence - Best penetration at best rate of climb
   c. Dynamic rollover - landing on slopes

COMPLETION STANDARDS
This lesson will be complete when the student demonstrates increased ability to plan and execute a high and low reconnaissance. He will be able to select suitable landing areas and demonstrate good judgement in his traffic pattern procedures.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 13
DUAL 1.5 HOURS, .3 HOURS PRE AND POST FLIGHT BRIEFING

A/C N __________________ INSTRUCTOR ___________________ GRADE ______ DATE ______

OBJECTIVE

This lesson will review off airport operations in confined areas and on pinnacles, and will stress the importance of performance planning and off airport procedures. The student will gain further proficiency in these advanced maneuvers by practicing more difficult pinnacles and confined areas to meet the standards of the commercial pilot.

LESSON CONTENT

Oral discussion
1. Performance planning
   a. Limit manifold pressure - maximum power available
   b. Hover performance - IGE, OGE
   c. Never exceed speed

Review
1. Settling with power
2. Recovery from low G condition
3. Simulated forced landings
4. Confined area and pinnacle operations
   a. High reconnaissance
   b. Low reconnaissance
   c. Confined area approach and departure
   d. Pinnacle approach and departure
      1. Airspeed over altitude takeoff
5. Hazardous conditions
   a. Obstructions - natural and man made
   b. Turbulence - Best penetration at best rate of climb
   c. Dynamic rollover - landing on slopes

COMPLETION STANDARDS
This lesson will be complete when the student demonstrates increased ability to plan and execute a high and low reconnaissance. He will be able to select suitable landing areas and demonstrate good judgement in his traffic pattern procedures.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 14  2.0 HOURS SOLO

A/C N__________DATE_______

OBJECTIVE

During this lesson the student will practice the listed maneuvers to increase proficiency.

LESSON CONTENT

Practice
1. Normal takeoff to a hover
2. Normal approach to a hover
3. Maximum performance takeoff
4. Steep approach
5. Landing from a hover
6. Rapid deceleration - quick stops
7. Hovering, forward, rearward, and sideward
8. Normal takeoff from a hover
9. Running takeoff (optional)
10. Running landing (optional)

COMPLETION STANDARDS

This lesson will be complete when the student has practiced the listed maneuvers.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 15  2.0 HOURS SOLO

A/C N________DATE_______

OBJECTIVE

During this lesson the student will practice the listed maneuvers to increase proficiency.

LESSON CONTENT

Practice
1. Normal takeoff to a hover
2. Normal approach to a hover
3. Maximum performance takeoff
4. Steep approach
5. Landing from a hover
7. Hovering, forward, rearward, and sideward
8. Normal takeoff from a hover
9. Running takeoff (optional)
10. Running landing (optional)
11. Departures from the surface (optional)
12. Approaches to the surface (optional)

COMPLETION STANDARDS

This lesson will be complete when the student has practiced the listed maneuvers.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 16  2.0 HOURS SOLO

A/C N_________DATE_______

OBJECTIVE

During this lesson the student will practice the listed maneuvers to increase proficiency.

LESSON CONTENT

Practice
1. Normal takeoff to a hover
2. Normal approach to a hover
3. Maximum performance takeoff
4. Steep approach
5. Landing from a hover
6. Rapid deceleration - quick stops
7. Hovering, forward, rearward, and sideward
8. Normal takeoff from a hover
9. Running takeoff (optional)
10. Running landing (optional)

COMPLETION STANDARDS

This lesson will be complete when the student has practiced the listed maneuvers.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 17  2.0 HOURS SOLO

A/C N___________DATE_________

OBJECTIVE

During this lesson the student will practice the listed maneuvers to increase proficiency.

LESSON CONTENT

Practice
1. Normal takeoff to a hover
2. Normal approach to a hover
3. Maximum performance takeoff
4. Sleep approach
5. Landing from a hover
6. Rapid deceleration - quick stops
7. Hovering, forward, rearward, and sideward
8. Normal takeoff from a hover
9. Running takeoff (optional)
10. Running landing (optional)

COMPLETION STANDARDS

This lesson will be complete when the student has practiced the listed maneuvers.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 18  DUAL 1.5 HOURS, .3 HOURS PRE AND POST BRIEFING

A/C N_____________INSTRUCTOR________________________GRADE_______DATE_______

OBJECTIVE

During this lesson the student will review advanced takeoffs and approaches.

LESSON CONTENT

Review
1. Maximum performance takeoffs and climbs
2. Steep approach to the surface
3. High altitude takeoff and climb from the surface
4. Shallow approach and roll-on/running landing
5. Autorotative descents with power recovery

COMPLETION STANDARDS

The student will demonstrate proper altitude and power control during high altitude takeoffs and maximum performance takeoffs. Heading will be maintained within 15 degrees during maximum performance takeoffs and a smooth transition to normal climb will be demonstrated. The student will maintain translational lift until ground contact during a shallow approach and roll-on landing. During straight and level flight and turns, altitude will be maintained within 100 feet, airspeed within 10 knots and heading

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
FLIGHT LESSON 19  2.0 HOURS SOLO, .3 HOURS PRE AND POST BRIEFING

A/C N____________INSTRUCTOR_____________GRADE________DATE________

OBJECTIVE

During this lesson the student will review basic flight maneuvers and emergency operations in preparation for the stage two flight check.

LESSON CONTENT

Review
1. Normal takeoff to a hover
2. Normal approach to a hover
3. Maximum performance takeoff and climb
4. Steep approach
5. High altitude takeoff and climb
6. Shallow approach and roll-on/running landings
7. Rapid decelerations - quick stops
8. Slope operations
9. Systems and equipment malfunctions (simulated, in the traffic pattern)

COMPLETION STANDARDS

1. During takeoffs and climbs the student will maintain rotor RPM and demonstrate proper altitude and heading control correcting for crosswind as appropriate.
2. During approaches, proper angle, rate of closure, and ground track will be demonstrated, correcting for crosswind as appropriate and terminating within 3 feet of the designated point.
3. During running landings the student will make a smooth transition from descent to surface contact at or slightly above transitional lift, using less than hovering power, and beyond but within 50 feet of the designated point.
4. During simulated hazardous flight conditions the student will demonstrate immediate recognition and recovery.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
FLIGHT LESSON 20  2.0 HOURS SOLO

A/C N __________ INSTRUCTOR __________________________ GRADE _______ DATE _______

OBJECTIVE

During this lesson the student will review basic flight maneuvers and emergency operations in preparation for the stage two flight check.

LESSON CONTENT

Review
1. Normal takeoff to a hover
2. Normal approach to a hover
3. Maximum performance takeoff and climb
4. Steep approach
5. High altitude takeoff and climb
6. Shallow approach and roll-on/running landings
7. Rapid decelerations - quick stops
8. Slope operations
9. Systems and equipment malfunctions (simulated, in the traffic pattern)

COMPLETION STANDARDS

1. During takeoffs and climbs the student will maintain rotor RPM and demonstrate proper altitude and heading control correcting for crosswind as appropriate.
2. During approaches, proper angle, rate of closure, and ground track will be demonstrated, correcting for crosswind as appropriate and terminating within 3 feet of the designated point.
3. During running landings the student will make a smooth transition from descent to surface contact at or slightly above transitional lift, using less than hovering power, and beyond but within 50 feet of the designated point.
4. During simulated hazardous flight conditions the student will demonstrate immediate recognition and recovery.
5. During forced landings that student will maintain rotor RPM within the allowable limits immediately lowering the collective. He will establish an appropriate attitude maintaining airspeed as necessary. He will select a suitable landing area and maneuver so as to arrive at the selected area with skids level, with acceptable RPM, airspeed, and descent rate, and if possible, in position to make a safe autorotative landing.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
FLIGHT LESSON 21
DUAL 1.5 HOURS, .3 HOURS PRE AND POST FLIGHT BRIEFING

A/C N____________________INSTRUCTOR__________________GRADE_____DATE_

OBJECTIVE

During this lesson the student will gain additional proficiency in the execution of autorotational
descents by initiating autorotations at varying airspeeds and altitudes. The instructor will evaluate
the student's performance in basic and advanced maneuvers and emergency procedures by
conducting a review.

LESSON CONTENT

1. Practice
   a. Straight in autorotations
   b. 180 degree autorotations
   c. Hovering autorotations
   d. Simulated forced landings/throttle chops

2. Review
   a. Normal takeoff to a hover
   b. Normal takeoff from a hover
   c. Normal approach to a hover
   d. Maximum performance takeoff
   e. Steep approach
   f. High altitude/running takeoff
   g. Roll-on/running landing
   h. Rapid decelerations/quick stops
   i. Slope landings
   j. Systems and equipment failure and malfunctions
   k. Recognition and recovery from low rotor RPM
   l. Recognition and recovery from log G condition

COMPLETION STANDARDS

This lesson will be complete when the student has practiced autorotational descents and
reviewed the listed maneuvers.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 22  
DUAL 1.5 HOURS, .3 HOURS PRE AND POST FLIGHT BRIEFING  

A/C N__________________INSTRUCTOR_________________GRADE____DATE____  

OBJECTIVE  

During this lesson the student will gain additional proficiency in the execution of autorotational descents by initiating autorotations at varying airspeeds and altitudes. The instructor will evaluate the student's performance in basic and advanced maneuvers and emergency procedures by conducting a review.  

LESSON CONTENT  

1. Practice  
   a. Straight in autorotations  
   b. 180 degree autorotations  
   c. Hovering autorotations  
   d. Simulated forced landings/throttle chops  

2. Review  
   a. Normal takeoff to a hover  
   b. Normal takeoff from a hover  
   c. Normal approach to a hover  
   d. Maximum performance takeoff  
   e. Steep approach  
   f. High altitude/running takeoff  
   g. Roll-on/running landing  
   h. Rapid decelerations/quick stops  
   i. Slope landings  
   j. Systems and equipment failure and malfunctions  
   k. Recognition and recovery from low rotor RPM  
   l. Recognition and recovery from log G condition  

COMPLETION STANDARDS  

This lesson will be complete when the student has practiced autorotational descents and reviewed the listed maneuvers.  

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 23
DUAL 1.5 HOURS, 1.0 PRE/POST FLIGHT BRIEFING, STAGE 2 FLIGHT CHECK

A/C N_________________INSTRUCTOR_________________GRADE_________DATE________

OBJECTIVE

During this stage check the chief flight instructor or his assistant will conduct the stage 2 check. Through oral examination and flight test, the student will demonstrate the knowledge and skill required to safely solo the helicopter in cross country flight.

LESSON CONTENT

Review
1. Oral examination
   a. Pilot's operating handbook
   b. Weight and balance computation
   c. Aircraft performance
   d. Cross country flight planning - Aeronautical charts, compass
   e. Weather briefing - recognition of critical weather situations, charts, forecasts
   f. Federal Aviation Regulations - Part 1, 61, 91, 119, 135, 830
   g. Radio communications
2. Flight check
   a. Cross country flight operations - Pilotage, dead reckoning and radio navigation
   b. System and equipment failure or malfunction
      1. Power Failure (forced landing)
      2. Tail rotor failure
      3. Fire in flight
      4. Other emergency maneuvers chosen by the Chief Flight Instructor
   c. Diversion to an alternate
   d. Other maneuvers chosen by the Chief Flight Instructor

COMPLETION STANDARDS

The student will demonstrate the knowledge and skill required to safely solo the helicopter on cross country flights as outlined in the current Practical Test Standards for Private Pilot - Rotorcraft Helicopter.

Revised November 2007
STAGE THREE

10.0 HOURS DUAL (2.0 HOURS INSTRUMENT)
(2.0 HOURS DUAL CROSS-COUNTRY)
30.0 HOURS SOLO (15.0 HOURS SOLO CROSS COUNTRY)

STAGE THREE OBJECTIVES -
The student will be instructed in the conduct of cross country flights in helicopters using pilotage, dead reckoning and radio navigation. He will be instructed in offsite operations and operations within the ATC environment under VFR conditions. He will also receive instruction on simulated emergencies, appropriate for the commercial environment.

STAGE THREE COMPLETION STANDARDS -
The stage will be complete when the student has passed the Stage Three Flight Check and Written Test and has demonstrated that he can safely conduct solo cross country flights in a helicopter using pilotage, dead reckoning and radio navigation under VFR conditions.
FLIGHT LESSON 24
BRIEFING

DUAL 1.5 HOURS, .3 HOURS PRE AND POST FLIGHT

A/C N_____________INSTRUCTOR____________________GRADE________DATE________

OBJECTIVE

During this lesson the student will gain additional proficiency in the execution of autorotational descents by initiating autorotations at varying airspeeds and altitudes. The instructor will evaluate the student's performance in basic and advanced maneuvers and emergency procedures by conducting a review.

LESSON CONTENT

1. Practice
   a. Straight in autorotations
   b. 180 degree autorotations
   c. Hovering autorotations
   d. Simulated forced landings/throttle chops

2. Review
   a. Normal takeoff to a hover
   b. Normal takeoff from a hover
   c. Simulated forced landings

3. Confined area and pinnacle operations
   a. High reconnaissance
   b. Low reconnaissance
   c. Confined area approach and departure
   d. Pinnacle approach and departure
      1. Airspeed over altitude takeoff

4. Hazardous conditions
   a. Obstructions - natural and man made
   b. Turbulence - Best penetration at best rate of climb
   c. Dynamic rollover - landing on slopes

5. Emergency Procedures
   a. Fuselage fire, traffic pattern (simulated)
   b. Low fuel light, traffic pattern (simulated)
   c. Passenger, Hypoxia (simulated)

COMPLETION STANDARDS

This lesson will be complete when the student demonstrates increased ability to plan and execute a high and low reconnaissance. He will be able to select suitable landing areas and demonstrate good judgement in his traffic pattern procedures.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
FLIGHT LESSON 25
BRIEFING
DUAL 1.5 HOURS, .3 HOURS PRE AND POST FLIGHT

A/C N_____________INSTRUCTOR_________________ GRADE_______ DATE______

OBJECTIVE

During this lesson the student will gain additional proficiency in the execution of autorotational descents by initiating autorotations at varying airspeeds and altitudes. The instructor will evaluate the student's performance in basic and advanced maneuvers and emergency procedures by conducting a review.

LESSON CONTENT

1. Practice
   a. Straight in autorotations
   b. 180 degree autorotations
   c. Hovering autorotations
   d. Simulated forced landings/throttle chops

2. Review
   a. Normal takeoff to a hover
   b. Normal takeoff from a hover
   c. Simulated forced landings

3. Confined area and pinnacle operations
   a. High reconnaissance
   b. Low reconnaissance
   c. Confined area approach and departure
   d. Pinnacle approach and departure
      1. Airspeed over altitude takeoff

4. Hazardous conditions
   a. Obstructions - natural and man made
   b. Turbulence - Best penetration at best rate of climb
   c. Dynamic rollover - landing on slopes

5. Emergency Procedures
   a. Fuselage fire, traffic pattern (simulated)
   b. Low fuel light, traffic pattern (simulated)
   c. Passenger, Hypoxia (simulated)

COMPLETION STANDARDS

This lesson will be complete when the student demonstrates increased ability to plan and execute a high and low reconnaissance. He will be able to select suitable landing areas and demonstrate good judgement in his traffic pattern procedures.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
LESSON 26 DUAL 1.0 INSTRUMENT .2 PRE/POST FLIGHT BRIEFING

OBJECTIVE

To introduce the student to the basics of attitude helicopter flying.

LESSON CONTENT

Introduction to Instrument Flying

Pitch instruments, pitch associated with speeds
Bank instruments. Magnetic compass errors.
Timing turns vs. turn coordinator
Disorientation
Autorotations
Steep turns
Instrument approach

COMPLETION STANDARDS

The student will be able to demonstrate the skills in basic attitude flying.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON 27  DUAL 1.0 INSTRUMENT .2 PRE/POST FLIGHT BRIEFING

OBJECTIVE

To continue the basics of attitude flying.

LESSON CONTENT

Practice of basic instrument flying and scan

  Straight and level
  Straight climbs and descents – constant speed & rate
  Standard rate turns
  Accelerations and decelerations
  Vertical S’s
  Instrument approach

COMPLETION STANDARDS

The student will be able to demonstrate the ability to perform practiced maneuvers.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 28

1.5 HOURS SOLO

A/C N_________ DATE_________

OBJECTIVE

During this lesson the student will practice basic flight and advanced maneuvers to gain more confidence, proficiency, and precision as well as to build required solo time towards the commercial pilot certificate.

LESSON CONTENT

Practice
1. Vertical takeoff to a hover
2. Normal takeoff from a hover
3. Normal approach to a hover
4. Maximum performance takeoff
5. Steep approach
6. Landing from a hover
7. Rapid deceleration - quick stop
8. Hovering - forward, sideward, and rearward
9. Running takeoff
10. Running landing
11. Emergency procedure (simulated, passenger in distress, in the traffic pattern)

COMPLETION STANDARDS

This lesson will be complete when the student has practiced the listed maneuvers.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 29 1.5 HOURS SOLO

A/C N_________ DATE________

OBJECTIVE

During this lesson the student will practice basic flight and advanced maneuvers to gain more confidence, proficiency, and precision as well as to build required solo time towards the commercial pilot certificate.

LESSON CONTENT

Practice
1. Vertical takeoff to a hover
2. Normal takeoff from a hover
3. Normal approach to a hover
4. Maximum performance takeoff
5. Steep approach
6. Landing from a hover
7. Rapid deceleration - quick stop
8. Hovering - forward, sideward, and rearward
9. Running takeoff
10. Running landing
11. Emergency procedure (warning light illumination, simulated in the traffic pattern)

COMPLETION STANDARDS

This lesson will be complete when the student has practiced the listed maneuvers.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 30  1.5 HOURS SOLO

A/C N_________DATE_______

OBJECTIVE

During this lesson the student will practice basic flight and advanced maneuvers to gain more confidence, proficiency, and precision as well as to build required solo time towards the commercial pilot certificate.

LESSON CONTENT

Practice
1. Vertical takeoff to a hover
2. Normal takeoff from a hover
3. Normal approach to a hover
4. Maximum performance takeoff
5. Steep approach
6. Landing from a hover
7. Rapid deceleration - quick stop
8. Hovering - forward, sideward, and rearward
9. Running takeoff
10. Running landing

COMPLETION STANDARDS

This lesson will be complete when the student has practiced the listed maneuvers.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 31  1.5 HOURS SOLO

A/C N______ DATE_____

OBJECTIVE

During this lesson the student will practice basic flight and advanced maneuvers to gain more confidence, proficiency, and precision as well as to build required solo time towards the commercial pilot certificate.

LESSON CONTENT

Practice
1. Vertical takeoff to a hover
2. Normal takeoff from a hover
3. Normal approach to a hover
4. Maximum performance takeoff
5. Steep approach
6. Landing from a hover
7. Rapid deceleration - quick stop
8. Hovering - forward, sideward, and rearward
9. Running takeoff
10. Running landing

COMPLETION STANDARDS

This lesson will be complete when the student has practiced the listed maneuvers.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
FLIGHT LESSON 32  1.5 HOURS SOLO

AVC N_________ DATE________

OBJECTIVE

During this lesson the student will practice basic flight and advanced maneuvers to gain more confidence, proficiency, and precision as well as to build required solo time towards the commercial pilot certificate.

LESSON CONTENT

Practice
1. Vertical takeoff to a hover
2. Normal takeoff from a hover
3. Normal approach to a hover
4. Maximum performance takeoff
5. Steep approach
6. Landing from a hover
7. Rapid deceleration - quick stop
8. Hovering - forward, sideward, and rearward
9. Running takeoff
10. Running landing

COMPLETION STANDARDS

This lesson will be complete when the student has practiced the listed maneuvers.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS

Revised November 2007
FLIGHT LESSON 33
DUAL 2.0 HOURS CROSS COUNTRY, DAY
.3 HOURS PRE AND POST FLIGHT BRIEFING

A/C N_____________INSTRUCTOR________________________GRADE_______DATE_______

OBJECTIVE

This lesson will expand the student's understanding of cross country operations and emergency procedures in preparation for solo X-C flight. It will consist of landings at two or more points. One of which is at least 50 NM, straight line distance, from the original point of departure.

LESSON CONTENT

Review
1. Preflight planning
   a. Weather briefing
   b. Course selection
   c. Cross country flight log
   d. VFR flight plan
   e. Weight and balance
2. Cross country flight operations
   a. Opening and closing flight plan
   b. Pilotage navigation, magnetic compass check points
   c. Dead reckoning
   d. Radio communications
3. Air traffic control procedures
4. Emergency procedures
   a. Complete or partial power loss
   b. System and equipment malfunction

Introduction
1. Radio navigation
2. Adverse weather - estimating critical weather in flight
3. Diversion to alternate
   a. As a preventative measure
   b. Airport selection
LESSON 33 (continued)

4. Lost procedures
   a. Heading selection
      1. Proceeding to last known position
      2. Proceeding to last prominent landmark
   b. Altitude selection
      1. Climb VFT as appropriate
      2. Best altitude for communication
      3. Best altitude for chart interpretation
   c. Obtaining assistance
      1. ATC facility - frequencies and services
         a. FSS facility - frequencies and services
      2. Transponder operation
      3. Nav aids - communication and navigation
   d. Emergency landing
      1. Deteriorating weather
      2. Low fuel
      3. Area selection

5. Lost communications
   a. Transponder operation
   b. Airport operations - ATC light signals

COMPLETION STANDARDS

The lesson will be complete when the student demonstrates the ability to perform a cross country flight using pilotage, elementary dead reckoning and radio aids. Upon completion he should be ready for his first solo cross country and will understand and be capable of executing the procedures used to divert to an alternate airport as appropriate to his first solo cross country. He will also select the best course of action when given a lost situation. The student will maintain selected altitudes +/- 10 degrees. He will verify position within 3 nautical miles at all times and reaches checkpoints and destinations +/- 5 minutes of initial or revised ETA. Minimum duration of this flight is 2.0.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 34  1.5 HOURS SOLO CROSS COUNTRY

A/C N__________ DATE________

OBJECTIVE

This lesson will be the student's first solo cross country flight. The instructor will review all preflight planning and make appropriate endorsements. It will consist of landings at two or more points each of which is more than 25 NM from each of the others.

LESSON CONTENT

1. Preflight planning - checked by instructor
   a. Sectional charts
   b. Altitude selection
   c. Course selection
   d. Checkpoint selection
   e. Distance measurements
   f. Computation of flight time, headings, and fuel requirements
   g. Weather briefing
   h. Aircraft performance
   i. Navigation log
   j. VFR flight plan
   k. Weight and balance

2. Cross country flight
   a. Departure
   b. Establishing desired course, magnetic compass
   c. Opening flight plan/closing flight plan
   d. Pilotage and dead reckoning
   e. Proper radio communications

3. Airport operations

COMPLETION STANDARDS

The student will conduct the assigned cross country flight. The instructor will determine how well the flight was conducted by oral examination and will check to be sure all required flight log entries have been made.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
FLIGHT LESSON 35 1.5 HOURS SOLO

A/C N_________DATE_________

OBJECTIVE

During this lesson the student will practice basic flight and advanced maneuvers to gain more confidence, proficiency, and precision as well as to build required solo time towards the commercial pilot certificate.

LESSON CONTENT

Practice
1. Vertical takeoff to a hover
2. Normal takeoff from a hover
3. Normal approach to a hover
4. Maximum performance takeoff
5. Steep approach
6. Landing from a hover
7. Rapid deceleration - quick stop
8. Hovering - forward, sideward, and rearward
9. Running takeoff
10. Running landing

COMPLETION STANDARDS

This lesson will be complete when the student has practiced the listed maneuvers.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 36
1.5 HOURS SOLO CROSS COUNTRY

A/C N________________INSTRUCTOR____________________GRADE_______DATE_______

OBJECTIVE

This lesson will be a cross country flight with landings at three different points each of which is more than 25 NM from each of the other two points. The student will be able to demonstrate a complete understanding of cross country procedures.

LESSON CONTENT

Review
1. Preflight planning
   a. Weather
   b. Course
   c. Altitude
   d. Weight and balance
   e. VFR flight plan
2. Cross country flight
   a. Pilotage, dead reckoning, radio navigation
   b. Diversion to an alternate
   c. Lost procedures
3. Airport operations

COMPLETION STANDARDS

Upon completion of this lesson, the student will:
1. Demonstrate a thorough understanding of cross country procedures
2. Be able to verify position of the helicopter within 3 NM at all times
3. Arrive at checkpoints at +/- 5 minutes of estimate
4. Maintain selected altitude +/- 100 feet
5. Maintain the desired airspeed +/- 10 knots
6. Maintain the desired heading +/- 10 degrees
7. During radio navigation, locate his position relative to the radio facility and track along a given radial or bearing

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
FLIGHT LESSON 37

1.5 HOURS SOLO

A/C N_________ DATE_______

OBJECTIVE

During this lesson the student will practice basic flight and advanced maneuvers to gain more confidence, proficiency, and precision as well as to build required solo time towards the commercial pilot certificate.

LESSON CONTENT

Practice
1. Vertical takeoff to a hover
2. Normal takeoff from a hover
3. Normal approach to a hover
4. Maximum performance takeoff
5. Steep approach
6. Landing from a hover
7. Rapid deceleration - quick stop
8. Hovering - forward, sideward, and rearward
9. Running takeoff
10. Running landing

COMPLETION STANDARDS

This lesson will be complete when the student has practiced the listed maneuvers.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 38  1.5 HOURS SOLO CROSS COUNTRY

A/C N____________DATE__________

OBJECTIVE

This lesson will be the student's second solo cross country flight. The instructor will review all preflight planning and make appropriate endorsements. It will consist of landings at two or more points each of which is more than 25 NM from each of the others.

LESSON CONTENT

1. Preflight planning - checked by instructor
   a. Sectional charts
   b. Altitude selection
   c. Course selection
   d. Checkpoint selection
   e. Distance measurements
   f. Computation of flight time, headings, and fuel requirements
   g. Weather briefing
   h. Aircraft performance
   i. Navigation log
   j. VFR flight plan
   k. Weight and balance

2. Cross country flight
   a. Departure
   b. Establishing desired course
   c. Opening flight plan/closing flight plan
   d. Pilotage and dead reckoning
   e. Radio navigation
   f. Proper radio communications

3. Airport operations

COMPLETION STANDARDS

The student will conduct the assigned cross country flight. The instructor will determine how well the flight was conducted by oral examination and will check to be sure all required flight log entries have been made.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 39  
1.5 HOURS SOLO

A/C N__________DATE________

OBJECTIVE

During this lesson the student will practice basic flight and advanced maneuvers to gain more confidence, proficiency, and precision as well as to build required solo time towards the commercial pilot certificate.

LESSON CONTENT

Practice
1. Vertical takeoff to a hover
2. Normal takeoff from a hover
3. Normal approach to a hover
4. Maximum performance takeoff
5. Steep approach
6. Landing from a hover
7. Rapid deceleration - quick stop
8. Hovering - forward, sideward, and rearward
9. Running takeoff
10. Running landing

COMPLETION STANDARDS

This lesson will be complete when the student has practiced the listed maneuvers.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 40  
1.5 HOURS SOLO CROSS COUNTRY

A/C N_________ DATE ________

OBJECTIVE

During this lesson the student will practice cross-country planning and procedures. The student will gain additional confidence and understanding of cross country flight operations. It will consist of landings at two or more points each of which is more than 25 NM from each of the others.

LESSON CONTENT

1. Preflight planning - checked by instructor
   a. Sectional charts
   b. Altitude selection
   c. Course selection
   d. Checkpoint selection
   e. Distance measurements
   f. Computation of flight time, headings, and fuel requirements
   g. Weather briefing
   h. Aircraft performance
   i. Navigation log
   j. VFR flight plan
   k. Weight and balance

2. Cross country flight
   a. Departure
   b. Establishing desired course
   c. Opening flight plan/closing flight plan
   d. Pilotage and dead reckoning
   e. Radio navigation
   f. Proper radio communications
   g. Computing groundspeed and ETA

3. Airport operations

COMPLETION STANDARDS

The student will conduct the assigned cross country flight. The instructor will determine how well the flight was conducted by oral examination and will check to be sure all required flight log entries have been made.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 41 1.5 HOURS SOLO

A/C N_________ DATE_________

OBJECTIVE

During this lesson the student will practice basic flight and advanced maneuvers to gain more confidence, proficiency, and precision as well as to build required solo time towards the commercial pilot certificate.

LESSON CONTENT

Practice
1. Vertical takeoff to a hover
2. Normal takeoff from a hover
3. Normal approach to a hover
4. Maximum performance takeoff
5. Steep approach
6. Landing from a hover
7. Rapid deceleration - quick stop
8. Hovering - forward, sideward, and rearward
9. Running takeoff
10. Running landing

COMPLETION STANDARDS

This lesson will be complete when the student has practiced the listed maneuvers.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
FLIGHT LESSON 42

1.5 HOURS SOLO CROSS COUNTRY

A/C N__________ DATE__________

OBJECTIVE

This solo cross country flight should be made over a relatively simple course with landings at three or more points, each of which must be more than 25 NM from each of the other two points.

LESSON CONTENT

1. Preflight planning - checked by instructor
   a. Sectional charts
   b. Altitude selection
   c. Course selection
   d. Checkpoint selection
   e. Distance measurements
   f. Computation of flight time, heading, and fuel requirements
   g. Weather briefing
   h. Aircraft performance
   i. Navigation log
   j. VFR flight plan
   k. Weight and balance

2. Cross country flight
   a. Departure
   b. Establishing desired course
   c. Opening flight plan/closing flight plan
   d. Pilotage and dead reckoning
   e. Radio navigation
   f. Proper radio communications
   g. Computing groundspeed and ETA

3. Airport operations

COMPLETION STANDARDS

The student will conduct the assigned cross country flight. The instructor will determine how well the flight was conducted by oral examination and will check to be sure all required flight log entries have been made.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 43

1.5 HOURS SOLO

A/C N_________ DATE________

OBJECTIVE

During this lesson the student will practice basic flight and advanced maneuvers to gain more confidence, proficiency, and precision as well as to build required solo time towards the commercial pilot certificate.

LESSON CONTENT

Practice
1. Vertical takeoff to a hover
2. Normal takeoff from a hover
3. Normal approach to a hover
4. Maximum performance takeoff
5. Steep approach
6. Landing from a hover
7. Rapid deceleration - quick stop
8. Hovering - forward, sideward, and rearward
9. Running takeoff
10. Running landing

COMPLETION STANDARDS

This lesson will be complete when the student has practiced the listed maneuvers.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 44  

1.5 HOURS SOLO CROSS COUNTRY

A/C N_________ DATE________

OBJECTIVE

During this lesson the student will practice cross country planning and procedures. He will gain proficiency using pilotage, dead reckoning and radio navigation. He will demonstrate the ability to safely conduct longer cross country flights with one cross country leg consisting of at least 50 NM or more straight line distance from the original point of departure and landings at least three different points.

LESSON CONTENT

1. Preflight planning - checked by instructor
   a. Sectional charts
   b. Altitude selection
   c. Course selection
   d. Checkpoint selection
   e. Distance measurements
   f. Computation of flight time, headings, and fuel requirements
   g. Weather briefing
   h. Aircraft performance
   i. Navigation
   j. VFR flight plan
   k. Weight and balance

2. Cross country flight assigned by the instructor
   a. Departure
   b. Establishing desired course
   c. Opening flight plan/closing flight plan
   d. Pilotage and dead reckoning
   e. Radio navigation
   f. Computing groundspeed and ETA
   g. Proper radio communications

3. Airport Operations

COMPLETION STANDARDS

The student will conduct the assigned cross country flight. The instructor will determine how well the flight was conducted by oral examination and will check to be sure all required flight log entries have been made.

INSTRUCTORS COMMENTS AND RECOMMENDATIONS

Revised November 2007
FLIGHT LESSON 45  1.5 HOURS SOLO CROSS COUNTRY

A/C N__________ DATE________

OBJECTIVE

During this lesson the student will practice cross country planning and procedures. He will gain proficiency using pilotage, dead reckoning and radio navigation. He will demonstrate the ability to safely conduct longer cross country flights with each cross country leg consisting of at least 50 NM or more from the original point of departure.

LESSON CONTENT

1. Preflight planning - checked by instructor
   a. Sectional charts
   b. Altitude selection
   c. Course selection
   d. Checkpoint selection
   e. Distance measurements
   f. Computation of flight time, headings, and fuel requirements
   g. Weather briefing
   h. Aircraft performance
   i. Navigation
   j. VFR flight plan
   k. Weight and balance

2. Cross country flight assigned by the instructor
   a. Departure
   b. Establishing desired course
   c. Opening flight plan/closing flight plan
   d. Pilotage and dead reckoning
   e. Radio navigation
   f. Computing groundspeed and ETA
   g. Proper radio communications

3. Airport Operations

COMPLETION STANDARDS

The student will conduct the assigned cross country flight. The instructor will determine how well the flight was conducted by oral examination and will check to be sure all required flight log entries have been made.

INSTRUCTORS COMMENTS AND RECOMMENDATIONS

Revised November 2007
FLIGHT LESSON 46  
1.5 HOURS SOLO CROSS COUNTRY

A/C N_________ DATE_______

OBJECTIVE

During this lesson the student will practice cross country planning and procedures. He will gain proficiency using pilotage, dead reckoning and radio navigation. He will demonstrate the ability to safely conduct longer cross country flights with each cross country leg consisting of at least 50 NM or more, straight line distance, from the original point of departure.

LESSON CONTENT

1. Preflight planning - checked by instructor
   a. Sectional charts
   b. Altitude selection
   c. Course selection
   d. Checkpoint selection
   e. Distance measurements
   f. Computation of flight time, headings, and fuel requirements
   g. Weather briefing
   h. Aircraft performance
   i. Navigation
   j. VFR flight plan
   k. Weight and balance

2. Cross country flight assigned by the instructor
   a. Departure
   b. Establishing desired course
   c. Opening flight plan/closing flight plan
   d. Pilotage and dead reckoning
   e. Radio navigation
   f. Computing groundspeed and ETA
   g. Proper radio communications

3. Airport Operations

COMPLETION STANDARDS

The student will conduct the assigned cross country flight. The instructor will determine how well the flight was conducted by oral examination and will check to be sure all required flight log entries have been made.

INSTRUCTORS COMMENTS AND RECOMMENDATIONS

Revised November 2007
FLIGHT LESSON 47 1.5 HOURS SOLO CROSS COUNTRY

A/C N_________ DATE_______

OBJECTIVE

During this lesson the student will practice cross country planning and procedures. He will gain proficiency using pilotage, dead reckoning and radio navigation. He will demonstrate the ability to safely conduct longer cross country flights with each cross country leg consisting of at least 50 NM or more, straight line distance, from the original point of departure.

LESSON CONTENT

1. Preflight planning - checked by instructor
   a. Sectional charts
   b. Altitude selection
   c. Course selection
   d. Checkpoint selection
   e. Distance measurements
   f. Computation of flight time, headings, and fuel requirements
   g. Weather briefing
   h. Aircraft performance
   i. Navigation
   j. VFR flight plan
   k. Weight and balance

2. Cross country flight assigned by the instructor
   a. Departure
   b. Establishing desired course
   c. Opening flight plan/closing flight plan
   d. Pilotage and dead reckoning
   e. Radio navigation
   f. Computing groundspeed and ETA
   g. Proper radio communications

3. Airport Operations

COMPLETION STANDARDS

The student will conduct the assigned cross country flight. The instructor will determine how well the flight was conducted by oral examination and will check to be sure all required flight log entries have been made.

INSTRUCTORS COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 48

1.5 HOURS SOLO CROSS COUNTRY

A/C N___________DATE__________

OBJECTIVE

During this lesson the student will practice cross country planning and procedures. He will gain proficiency using pilotage, dead reckoning and radio navigation. He will demonstrate the ability to safely conduct longer cross country flights with one cross country leg of at least 50 NM or more, straight line distance, from the original point of departure.

LESSON CONTENT

1. Preflight planning - checked by instructor
   a. Sectional charts
   b. Altitude selection
   c. Course selection
   d. Checkpoint selection
   e. Distance measurements
   f. Computation of flight time, headings, and fuel requirements
   g. Weather briefing
   h. Aircraft performance
   i. Navigation
   j. VFR flight plan
   k. Weight and balance

2. Cross country flight assigned by the instructor
   a. Departure
   b. Establishing desired course
   c. Opening flight plan/closing flight plan
   d. Pilotage and dead reckoning
   e. Radio navigation
   f. Computing groundspeed and ETA
   g. Proper radio communications

3. Airport Operations

COMPLETION STANDARDS

The student will conduct the assigned cross country flight. The instructor will determine how well the flight was conducted by oral examination and will check to be sure all required flight log entries have been made.

INSTRUCTORS COMMENTS AND RECOMMENDATIONS

Revised November 2007
FLIGHT LESSON 49  DUAL 1.0 HOUR, .3 HOURS PRE AND POST BRIEFING

A/C N_________________INSTRUCTOR_________________GRADE_____DATE___

OBJECTIVE

During this lesson the student will practice areas of weakness in preparation for the Commercial Helicopter Pilot practical test. The instructor will concentrate on the maneuvers, autorotative descents, emergency procedures, and system and equipment failures and malfunctions that the student was unable to practice during his solo time.

LESSON CONTENT

Review

1. Preflight duties, including line inspection and helicopter servicing
2. Straight and level flight, climbs, turns, and descents
3. Air taxiing, hovering, and maneuvering by ground references
4. Normal crosswind takeoff and landings
5. Recognition and recovery from eminent flight at critical/rapid descent with power (settling with power).
6. Airport and traffic pattern operations, including collision avoidance precautions and radio communications.
7. Cross-country flight operations
8. Operations in confined areas and on pinnacles, rapid decelerations, landing on slopes, height altitude takeoffs and run-on landings.
9. Simulated emergency procedures, including failure of an engine or other component system, and autorotational descents with a power recovery to a hover in single engine helicopters.

COMPLETION STANDARDS

This lesson will be complete when the student demonstrates to his instructor the knowledge and proficiency that meets or exceeds the minimum standards as outlined in the current FAA Commercial Rotorcraft - Helicopter Practical Test Standards. This lesson may be repeated if the student has yet to complete the dual instruction as required by FAR 141 or if he fails to meet the standards prescribed.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 50  DUAL 1.5 HOURS, STAGE 3 FLIGHT CHECK

A/C N______INSTRUCTOR______________________GRADE__________DATE________

OBJECTIVE

During this lesson the stage 3 flight check will be conducted by the chief flight instructor or his assistant. He will evaluate the student's commercial knowledge and proficiency in advanced helicopter maneuvers, cross country and emergency procedures.

LESSON CONTENT

Review
1. Oral examination  
   a. Pilot's operating handbook  
   b. Advanced maneuver analysis  
   c. Aircraft performance  
   d. Cross country and offsite procedures and precautions  
   e. Emergency procedures  
   f. Federal Aviation Regulations - Parts 1, 61, 91, 135, NTSB Part 830  
   g. Areas selected by the chief flight instructor

2. Flight Check  
   a. Cross country procedures  
   b. Pinnacle and confined area, and slope operations  
   c. Running takeoff, running landing, and precision autorotations  
   d. Normal and emergency maneuvers chosen by the chief flight instructor

COMPLETION STANDARDS

The student will demonstrate the knowledge and skill which equals or exceeds the standards as outlined in the current Practical Test Standards for Private Pilot - Rotorcraft - Helicopter.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
STAGE FOUR - COMMERCIAL TEST PREPARATION - LESSONS FIFTY-ONE THROUGH SIXTY-SEVEN

10.0 HOURS DUAL (2.0 CROSS COUNTRY/2.0 HOURS STAGE FOUR CHECK)
25.0 HOURS SOLO (12.0 HOURS CROSS COUNTRY)
3.0 HOURS PRE AND POST FLIGHT BRIEFING

STAGE FOUR OBJECTIVES -

During this final stage, the student will complete the solo experience requirements for a Commercial Pilot Certificate. He will conclude the program with dual flights to complete the minimum dual instruction requirements and to prepare for the FAA Commercial Pilot Practical Test.

STAGE FOUR COMPLETION STANDARDS -

The stage will be complete when the student has passed the Stage Four and Final Flight Check, as well as the Stage Four and Final Written Tests. He will demonstrate the knowledge and skill for the Commercial Pilot as outlined in the current Practical Test Standards for Commercial Pilot - Rotorcraft - Helicopter.
STAGE 4
FLIGHT LESSON 51
DUAL NIGHT 1.5 HOURS, .3 HOURS PRE AND POST FLIGHT BRIEFING

A/C N_____________INSTRUCTOR__________________ GRADE_______DATE_______

OBJECTIVE

This lesson will familiarize the student with the special considerations and characteristics of helicopter flight at night while accomplishing a minimum of 10 takeoffs and landings as sole manipulator of the controls. Each takeoff and landing will be conducted in traffic pattern of an airport with an operating control tower.

LESSON CONTENT

Introduction
1. Preflight planning
   a. Night flight planning considerations
   b. Preflight inspection for night flight
   c. Night vision techniques

2. Night flight
   a. Hovering
   b. Use of landing light
   c. Normal takeoff from a hover
   d. Local area night orientation
   e. Traffic pattern operation
   f. Normal approach to a hover
   g. Airport lighting
   h. Straight in autorotations
   i. Hovering autorotations

COMPLETION STANDARDS

The student will become familiar with helicopter flight in the night environment. He will accomplish a minimum of 10 takeoffs and landings with an enroute phase of flight separating each takeoff and landing.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
STAGE 4
FLIGHT LESSON 52 1.5 HOURS NIGHT SOLO

A/C N _______ DATE _______

OBJECTIVE

During this lesson the student will practice basic flight and advanced maneuvers to gain more confidence, proficiency, and precision as well as to build required solo time towards the commercial pilot certificate.

LESSON CONTENT

Practice
1. Vertical takeoff to a hover
2. Normal takeoff from a hover
3. Normal approach to a hover
4. Maximum performance takeoff
5. Steep approach
6. Landing from a hover
7. Rapid deceleration - quick stop
8. Hovering - forward, sideward, and rearward
9. Running takeoff
10. Running landing

COMPLETION STANDARDS

This lesson will be complete when the student has practiced the listed maneuvers.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
STAGE 4
FLIGHT LESSON 53 1.5 HOURS NIGHT SOLO
A/C N__________DATE________

OBJECTIVE

During this lesson the student will practice basic flight and advanced maneuvers to gain more confidence, proficiency, and precision as well as to build required solo time towards the commercial pilot certificate.

LESSON CONTENT

Practice
1. Vertical takeoff to a hover
2. Normal takeoff from a hover
3. Normal approach to a hover
4. Maximum performance takeoff
5. Steep approach
6. Landing from a hover
7. Rapid deceleration - quick stop
8. Hovering - forward, sideward, and rearward
9. Running takeoff
10. Running landing

COMPLETION STANDARDS

This lesson will be complete when the student has practiced the listed maneuvers.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
STAGE 4
FLIGHT LESSON 54

2.0 HOURS SOLO

A/C N_________ DATE_________

OBJECTIVE

During this lesson the student will practice basic flight and advanced maneuvers to gain more confidence, proficiency, and precision as well as to build required solo time towards the commercial pilot certificate.

LESSON CONTENT

Practice
1. Vertical takeoff to a hover
2. Normal takeoff from a hover
3. Normal approach to a hover
4. Maximum performance takeoff
5. Steep approach
6. Landing from a hover
7. Rapid deceleration - quick stop
8. Hovering - forward, sideward, and rearward
9. Running takeoff
10. Running landing

COMPLETION STANDARDS

This lesson will be complete when the student has practiced the listed maneuvers.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
STAGE 4
LESSON 55  1.5 INSTRUMENT .3 PRE/POST FLIGHT BRIEFING

OBJECTIVE

To introduce the student to radio navigation.

LESSON CONTENT

VOR and ADF navigation

- Revision and partial panel
- VOR radial tracking and interception
- Procedure turns
- ADF homing and tracking
- Simulated NDB approach
- Unusual Attitudes
- Partial panel – VFR demo
- Instrument approach – NDB

COMPLETION STANDARDS

The student will be able to maintain control during partial panel and execute instrument approaches.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
STAGE 4
LESSON 56  1.5 INSTRUMENT FLIGHT        .3 PRE/POST FLIGHT BRIEFING

OBJECTIVE

Maneuver the helicopter solely be reference to instruments during simulated emergency situations.

LESSON CONTENT

Simulated radio failure
Simulated gyro failure
No gyro approach

COMPLETION STANDARDS

The student will be able to react and maneuver the helicopter appropriate to each simulated emergency.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS
STAGE 4
FLIGHT LESSON 57  2.0 HOURS NIGHT SOLO

A/C N_________DATE________

OBJECTIVE

During this lesson the student will practice basic flight and advanced maneuvers to gain more confidence, proficiency, and precision as well as to build required solo time towards the commercial pilot certificate. This lesson will include 10 takeoffs and landings (with each landing involving a flight with a traffic pattern) at an airport with an operating control tower.

LESSON CONTENT

Practice
1. Vertical takeoff to a hover
2. Normal takeoff from a hover
3. Normal approach to a hover
4. Maximum performance takeoff
5. Steep approach
6. Landing from a hover
7. Rapid deceleration - quick stop
8. Hovering - forward, sideward, and rearward
9. Running takeoff
10. Running landing

COMPLETION STANDARDS

This lesson will be complete when the student has practiced the listed maneuvers and completed 10 takeoffs and landings (with each landing involving a flight with a traffic pattern) at an airport with an operating control tower.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
STAGE 4
FLIGHT LESSON 58  2.0 HOURS SOLO

A/C N_________DATE____________

OBJECTIVE

During this lesson the student will practice basic flight and advanced maneuvers to gain more confidence, proficiency, and precision as well as to build required solo time towards the commercial pilot certificate.

LESSON CONTENT

Practice
1. Vertical takeoff to a hover
2. Normal takeoff from a hover
3. Normal approach to a hover
4. Maximum performance takeoff
5. Steep approach
6. Landing from a hover
7. Rapid deceleration - quick stop
8. Hovering - forward, sideward, and rearward
9. Running takeoff
10. Running landing

COMPLETION STANDARDS

This lesson will be complete when the student has practiced the listed maneuvers.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
STAGE 4
FLIGHT LESSON 59 2.0 HOURS SOLO

A/C N__________DATE________

OBJECTIVE

During this lesson the student will practice basic flight and advanced maneuvers to gain more confidence, proficiency, and precision as well as to build required solo time towards the commercial pilot certificate.

LESSON CONTENT

Practice
1. Vertical takeoff to a hover
2. Normal takeoff from a hover
3. Normal approach to a hover
4. Maximum performance takeoff
5. Steep approach
6. Landing from a hover
7. Rapid deceleration - quick stop
8. Hovering - forward, sideward, and rearward
9. Running takeoff
10. Running landing

COMPLETION STANDARDS

This lesson will be complete when the student has practiced the listed maneuvers.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
STAGE 4
FLIGHT LESSON 60 2.0 HOURS SOLO

A/C N_________DATE________

OBJECTIVE

During this lesson the student will practice basic flight and advanced maneuvers to gain more confidence, proficiency, and precision as well as to build required solo time towards the commercial pilot certificate.

LESSON CONTENT

Practice
1. Vertical takeoff to a hover
2. Normal takeoff from a hover
3. Normal approach to a hover
4. Maximum performance takeoff
5. Steep approach
6. Landing from a hover
7. Rapid deceleration - quick stop
8. Hovering - forward, sideward, and rearward
9. Running takeoff
10. Running landing

COMPLETION STANDARDS

This lesson will be complete when the student has practiced the listed maneuvers.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
STAGE 4
FLIGHT LESSON 61  3.0 HOURS SOLO CROSS COUNTRY

A/C N___________DATE__________

OBJECTIVE

During this lesson the student will conduct a solo cross country flight with landings at three different points, and one segment must be more than 50 nm. from the original point of departure.

LESSON CONTENT

1. Preflight planning - checked by instructor
   a. Sectional charts
   b. Altitude selection
   c. Course selection
   d. Checkpoint selection
   e. Distance measurements
   f. Computation of flight time, headings, and fuel requirements
   g. Weather briefing
   h. Aircraft performance
   i. Navigation log
   j. VFR flight plan
   k. Weight and balance

2. Cross country flight assigned by the instructor
   a. Departure
   b. Establishing desired course
   c. Opening flight plan/closing flight plan
   d. Pilotage and dead reckoning
   e. Radio navigation
   f. Computing groundspeed and ETA
   g. Proper radio communications

3. Airport operations

COMPLETION STANDARDS

The student will conduct the assigned cross country flight. The instructor will determine how well the flight was conducted by oral examination and will check to be sure all required flight log entries have been made.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
STAGE 4
FLIGHT LESSON 62
DUAL 2.0 HOURS NIGHT CROSS COUNTRY,
.3 HOURS PRE AND POST FLIGHT BRIEFING

A/C N_________INSTRUCTOR_____________________GRADE_________DATE_________

OBJECTIVE

This lesson will familiarize the student with night cross country procedures. The student will gain a better understanding of dead reckoning. It will consist of landings at two or more points. One of which is at least 50 NM straight line distance from the original point of departure.

LESSON CONTENT

Review
1. Preflight planning
   a. Weather briefing
   b. Course selection
   c. Altitude selection
2. Cross country flight
   a. Pilotage, magnetic compass
   b. Dead reckoning
   c. Radio navigation
   d. Emergency procedures
3. Air traffic control procedures

Introduction
1. Night flight considerations
   a. Chart interpretation
   b. Minimum altitude
2. Night emergency procedures

COMPLETION STANDARDS

Upon completion of this lesson, the student will show an increased understanding of preflight planning, especially with regard to night cross country operations. The student should act promptly to simulated emergencies exhibiting good judgement.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
STAGE 4
FLIGHT LESSON 63  3.0 HOURS SOLO CROSS COUNTRY

A/C N________ DATE_______

OBJECTIVE

During this lesson the student will practice cross country planning and procedures. He will gain proficiency using pilotage, dead reckoning and radio navigation. He will demonstrate the ability to safely conduct longer cross country flights with cross country leg consisting of at least 50 NM or more.

LESSON CONTENT

1. Preflight planning - checked by instructor
   a. Sectional charts
   b. Altitude selection
   c. Course selection
   d. Checkpoint selection
   e. Distance measurements
   f. Computation of flight time, headings, and fuel requirements
   g. Weather briefing
   h. Aircraft performance
   i. Navigation log
   j. VFR flight plan
   k. Weight and balance

2. Cross country flight assigned by the instructor
   a. Departure
   b. Establishing desired course
   c. Opening flight plan/closing flight plan
   d. Pilotage and dead reckoning
   e. Radio navigation
   f. Computing groundspeed and ETA
   g. Proper radio communications

3. Airport operations

COMPLETION STANDARDS

The student will conduct the assigned cross country flight. The instructor will determine how well the flight was conducted by oral examination and will check to be sure all required flight log entries have been made.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
STAGE 4
FLIGHT LESSON 64  3.0 HOURS SOLO CROSS COUNTRY

A/C N_________ DATE________

OBJECTIVE

During this lesson the student will practice cross country planning and procedures. He will gain proficiency using pilotage, dead reckoning and radio navigation. He will demonstrate the ability to safely conduct longer cross country flights. This flight will include landings at three points of which one must be more than 50 nautical miles from the original point of departure.

LESSON CONTENT

1. Preflight planning - checked by instructor
   a. Sectional charts
   b. Altitude selection
   c. Course selection
   d. Checkpoint selection
   e. Distance measurements
   f. Computation of flight time, headings, and fuel requirements
   g. Weather briefing
   h. Aircraft performance
   i. Navigation log
   j. VFR flight plan
   k. Weight and balance

2. Cross country flight assigned by the instructor
   a. Departure
   b. Establishing desired course
   c. Opening flight plan/closing flight plan
   d. Pilotage and dead reckoning
   e. Radio navigation
   f. Computing groundspeed and ETA
   g. Proper radio communications

3. Airport operations

COMPLETION STANDARDS

The student will conduct the assigned cross country flight. The instructor will determine how well the flight was conducted by oral examination and will check to be sure all required flight log entries have been made.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS
STAGE 4
FLIGHT LESSON 85 3.0 HOURS SOLO CROSS COUNTRY

A/C N_____________DATE_________

OBJECTIVE

During this lesson the student will practice cross country planning and procedures. He will gain proficiency using pilotage, dead reckoning and radio navigation. He will demonstrate the ability to safely conduct longer cross country flights with each cross country leg consisting of at least 50 NM or more.

LESSON CONTENT

1. Preflight planning - checked by instructor
   a. Sectional charts
   b. Altitude selection
   c. Course selection
   d. Checkpoint selection
   e. Distance measurements
   f. Computation of flight time, headings, and fuel requirements
   g. Weather briefing
   h. Aircraft performance
   i. Navigation log
   j. VFR flight plan
   k. Weight and balance

2. Cross country flight assigned by the instructor
   a. Departure
   b. Establishing desired course
   c. Opening flight plan/closing flight plan
   d. Pilotage and dead reckoning
   e. Radio navigation
   f. Computing groundspeed and ETA
   g. Proper radio communications

3. Airport operations

COMPLETION STANDARDS

The student will conduct the assigned cross country flight. The instructor will determine how well the flight was conducted by oral examination and will check to be sure all required flight log entries have been made.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
STAGE 4
LESSON 66 DUAL 1.5 HOURS .3 HOURS PRE/POST FLIGHT BRIEFING

A/C N __________INSTRUCTOR________________________GRADE____DATE____

OBJECTIVE

During this lesson the student will practice areas of weakness in preparation for the Commercial Helicopter Pilot practical test. The instructor will concentrate on the maneuvers, autorotative descents, emergency procedures, and system and equipment failures and malfunctions that the student was unable to practice during his solo time.

LESSON CONTENT

Review
1. Areas of student weakness
2. Autorotative descents
3. Emergency procedures
4. System and equipment failures and malfunctions

COMPLETION STANDARDS

This lesson will be completed when the student demonstrates to his instructor increased proficiency in the above listed maneuvers.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
STAGE 4
FLIGHT LESSON 67   DUAL 2.0 HOURS .5 PRE/POST FLIGHT BRIEFING
STAGE 4 AND FINAL FLIGHT CHECK
A/C N________________________INSTRUCTOR_________________GRADE_________DATE_____

OBJECTIVE

During this lesson, the Stage 4 and Final Flight Check will be conducted by the Chief Flight Instructor or his assistant. He will evaluate the student's readiness for the Commercial Pilot Rotorcraft - Helicopter practical test.

LESSON CONTENT

Review
1. Oral examination
   a. Pilot's operating handbook
   b. Weight and balance computation
   c. Aircraft performance
   d. Cross country flight planning
   e. Weather briefing
   f. Federal Aviation Regulations - Part 1, 61, 91, 119, 135 and NTSB Part 830
   g. Areas selected by the Chief Flight Instructor

2. Flight Check
   a. As outlined in the current FAA Practical Test Standards

COMPLETION STANDARDS

The student will demonstrate the knowledge and proficiency that meets or exceed the standards as outlined in the current FAA Rotorcraft - Helicopter Test Standards for the Commercial Pilot.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
Appendix “B”

Description of Facilities
Florida Institute of Technology

ADDING A NEW COURSE TO THE CURRICULUM

SUBJECT  AVF
(e.g., CSSE)

COURSE NO.  2105
(e.g., 1301)

CREDIT HOURS  1

TERM TO BE ADDED TO THE FILE Spring 2011
(e.g., Fall 2010)

CLASS HOURS

LECTURE HOURS

LAB HOURS  27/semester

CONTACT HOURS (CEU ONLY)

DEPARTMENT  Aviation Flight
(e.g., Computer Sciences)

SCHEDULE TYPE  Flight
(e.g., Lecture, Lab or Special Topics/Project)

☑ COLLEGE OF AERONAUTICS – 23
☐ COLLEGE OF PSYCHOLOGY AND LIBERAL ARTS – 25
☐ NATHAN M. BISK COLLEGE OF BUSINESS – 24
☐ COLLEGE OF SCIENCE – 26
☐ COLLEGE OF ENGINEERING – 1
☐ EXTENDED STUDIES DIVISION / NATHAN M. BISK COLLEGE OF BUSINESS – 90

COMPUTER TITLE  Restricted to 25 characters, including spaces

Helo External Load Ops

CATALOG TITLE  Helicopter External Load Operations

CATALOG DESCRIPTION OF COURSE  Restricted to 350 characters, including spaces

Provides advanced flight instruction in the methods and techniques of carrying a load outside the helicopter. Emphasizes flight safety. Includes short- and long-line helicopter external load operations.

In addition, please attach a course syllabus and/or more detailed description.

GRADES TO BE ISSUED

☒ A, B, C, D, F
☐ A, B, C, D, F, CEU
☐ CEU
☐ S, U
☐ P, F
☐ Other

ADDITIONAL RESTRICTION

Requirements: FAA private pilot-helicopter rating

(e.g., Major, Class Level, Department Head Approval)

if this course replaces a course currently offered in BANNER, please indicate old course information and the date/term the course may be removed from the system.

Subject  Alpha Prefix (e.g., CSSE)  COURSE NO. (e.g., 1301)

APPROVALS: Upon completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval below and forward to Catalog Director.

Originator  Date

Chair, Graduate Council  Date

Department Head/Program Chair  Date

OR

Dean or Associate Dean  Date

Chair, Undergraduate Curriculum Committee  Date

CATALOG DIRECTOR

REGISTRAR’S USE ONLY

SCACRSE  SCADETL  SCAPIREQG

SCARRS  Operator Init.  Date

These changes/additions have been made for the University Catalog/policy management system and entered into the BANNER term named above.

Catalog Director  Date

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BRISTOW ACADEMY INC.

TRAINING COURSE OUTLINE -- TRAINING SYLLABUS

ROTORCRAFT EXTERNAL LOAD

ROTORCRAFT HELICOPTER

8 HOURS CLASSROOM INSTRUCTION
15 HOURS DUAL FLIGHT INSTRUCTION
2 HOURS TUTORED INSTRUCTION
2 HOURS PRE AND POST FLIGHT INSTRUCTION
## RECORD OF REVISIONS

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DISTRIBUTION LIST

The following copies will be controlled and subject to revision. If all or part of this document is duplicated those pages will not be subject to amendment and may not be current. These copies shall be clearly stamped "UNPONTROLLED COPY"

Chief Flight Instructor          Main Campus Titusville Florida

FAA Principal Operations Inspector  North Florida FSDO
REVISION PROCESS, PROCEDURES AND NOTIFICATION OF POI

Initiation of changes to the Training Course Outline (TCO) should be done through the appropriate manager of the program by written request of proposed change siting motivation and/or reasons.

A review of the change should be conducted; this review should be conducted by the manager of the program and ensure compliance with the current applicable FAR’s.

After acceptance by the Chief Flight Instructor the revision will be forwarded, along with a revised List of Effective Pages, to the Principal Operations Inspector (POI). Revisions to the applicable TCO’s that may have an effect on the operational specifications must be approved by the POI prior to revised procedures or processes being implemented. If the revision is not accepted by the POI it will not be implemented and the original manual, or most current revision, will be used as a guideline for quality control.

When the revision is accepted by the POI the Chief Flight Instructor will forward copies to any additional manual/course holder at this time.

The revision will be accompanied by a new List of Effective Pages which should be inserted into the document, together with the new pages. Old pages may need to be removed. The list of effective pages will be located in the front of the TCO and will be used to verify the currency of the manual text.

A new line in the Record of Revisions sheet at the front of the document should be filled in and signed by the person making the amendment.

Amendments issued by Bristow Academy may involve the reissue of a section of the document, rather than individual pages.
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APPENDIX

Appendix “A” – Authorized Aircraft / Chief Flight Instructor
Assistant Chief Flight Instructors
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Appendix “B” - Description of Facilities “Titusville”
Central Operations B-1 3 01/04/2010
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# EXTERNAL LOAD COURSE

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TRAINING COURSE OUTLINE

1. Bristow Academy, Inc. located at Space Coast Regional Airport, Titusville, Florida, 32780, operated as:
   Main Operations Base

   Bristow Academy, Inc.
   365 Golden Knights Blvd
   Titusville, Florida 32780

2. COURSE TITLE - External Load Course - Rotorcraft - Helicopter.

3. This training course outline meets all of the curriculum requirements for the Instrument Certification contained in FAR Part 141 Appendix K Special Preparation Course.

4. COURSE OBJECTIVE - The student will obtain knowledge, skill and aeronautical experience necessary to meet the requirements for an Instrument Rating helicopter, as outlined in the current FAA Rotorcraft Practical Test Standards.

5. COMPLETION STANDARDS - The student must demonstrate through knowledge tests, flight tests, and show through appropriate records that he/she meets the knowledge, skill and experience requirements necessary to conduct Rotorcraft External Load Operations, in accordance with FAR 133.23.

6. AIRPORT - Space Coast Regional Airport is the main base for training in this course. Space Coast Regional Airport meets the requirements of Section 141.36 of the FAR's are for day and night operations. Off Airport facility 6 NM North West of KTIX (owned by Bristow Academy Inc) is used for external load training (Area Alpha).

7. AIRCRAFT - All aircraft used in this course will meet the requirements of 141.39 of the FAR's. The aircraft are equipped for day and night VFR flying, in addition, each aircraft will be equipped with at least one 360 channel transceiver radio. The aircraft will also be equipped with an approved external load hook.

8. GROUND TRAINERS - None at this time

9. CHIEF FLIGHT INSTRUCTOR - The Chief Flight Instructor for this course will meet all the requirements for Chief Flight Instructor under FAR 141.35 (c). See Appendix A for name of the designated Chief Flight Instructor.

10. ASSISTANT CHIEF FLIGHT INSTRUCTOR - The Assistant Chief Flight Instructor for this course will meet the requirements under FAR 141.36 a and d. See Appendix A for the names of Assistant Chief Flight Instructors. In addition he or she will be external load qualified.
11. FLIGHT INSTRUCTOR - Each Flight Instructor assigned to this course must be the holder of at least a Commercial Pilot Certificate with a Rotorcraft Category rating and a Class Rating and posses a current Rotorcraft Helicopter Instrument Flight Instructor certificate. In addition, each instructor will be external load qualified and trained by Bristow Academy Inc.

12. GROUND SCHOOL INSTRUCTOR - The Ground School Instructor for this course must possess a Ground Instructor Certificate with Advanced Ground Instructor Rating, and Instrument Ground Instructor Rating, or posses a current Rotorcraft helicopter Instrument Flight Instructor Certificate.

13. AUDIO-VISUAL AIDS - The following list describes the special equipment used for ground training:
   a. White drawing boards
   b. Aircraft models
   c. Various helicopter components
   d. VCR and training tapes
   e. Computers
   f. Overhead Projectors
   g. Slide Projector
   h. Power Point Projection

   See Appendix B for a description of each ground training room.

14. PERSONNEL - Bristow Academy, Inc. maintains a staff of qualified personnel according to FAR 141.33. All personnel have been instructed in the procedures and responsibilities of his or her employment.
SAFETY PROCEDURES AND PRACTICES

1. All training is to be conducted in accordance with Federal Aviation Regulations. The flight instructor will supervise the content of all flights, including solo flights. No student pilot may be authorized to start a solo practice flight from an airport until the flight has been approved by an authorized flight instructor, who is present at that airport.

2. No emergency procedures of any kind may be practiced unless an instructor from Bristow Academy is onboard the aircraft. Minimum altitude for practicing Settling with Power is 1500 feet above ground level (AGL).

3. No student will carry a passenger while on a solo training flight. Any student found to have done so will be reported to the Federal Aviation Administration.

4. Each pilot will check the squawk sheet prior to each flight. Any discrepancies must be noted and reported to maintenance personnel immediately.

5. All pilots will use the appropriate checklist for all operations provided by Bristow Academy, Inc from before starting until after shutdown. All pilots will clear the immediate area of the helicopter prior to starting. Students will not the start the helicopter without the instructor’s permission. When taxiing to and from the ramp area, the student will obey all ATC instructions. Students will give-way to taxiing airplanes and will hover at a skid height of 3 - 5 feet.

6. Solo training flight will be conducted in VFR weather conditions only. Students may not fly solo if the wind speed exceeds 12 kts. At the discretion of your instructor written authorization may be given to exceed this limitation up to 15 kts.

7. In the event that a solo student encounters delays on a flight, he/she may continue the flight after sunset only for the purpose of returning to Space Coast Regional and only if visibility is at least 5 miles and the ceiling is at least 2,500 feet. Additionally he/she may continue only if he/she has received flight training at night and received a logbook endorsement. See FAR 61.87(m) for reference.

8. For dual flights in the Space Coast Regional traffic pattern or the designated training areas, the weather minimums will be 700' ceiling and a half mile visibility. For dual cross-country flights, the weather minimum will be 1,000-foot ceiling and one-mile visibility.

9. A minimum of 20 minutes reserve fuel is required for both cross-country and local flights. Pilots will not trust the fuel gauges and should never fly when they indicate less than quarter-full i.e. not less than 10 gallons.

10. Pilots will not fly at altitude of less than 500 feet above ground level (AGL) while on cross-country or training flights, except for the purpose of take-off or landing. Simulated emergency landings will be terminated at an altitude, which ensures a safe transition into normal flight with respect to obstructions and the height/velocity diagram.
11. Over water flights are not permitted unless the aircraft is within autorotation distance of a suitable landing area unless approved flotation devices are available for every person on board or the aircraft is equipped with approved flotation gear. Safety Procedures & Practices

12. Should a student have to make a precautionary or un-programmed landing for any reason, he/she will notify Bristow Academy by telephone at 800-686-4080 and obtain an airworthiness release and dispatch approval from a Bristow Academy Senior instructor before continuing.

13. An official VFR flight plan must be filed for all solo cross-country flights.

14. Smoking is not allowed in the vicinity of the aircraft or fuel trucks. Students will observe strict fire precautions while in the vicinity of the aircraft or hangar. Students will acquaint themselves with the location and operation of the fire extinguisher. In the event of an engine fire, students will follow the emergency procedure, which is detailed in the aircraft’s operating handbook. If the aircraft is on fire protect human life, but leave the aircraft fire fighting to the professionals.

15. When not in use, the helicopter rotor blades will be secured using the tie downs provided in each aircraft. This will only be necessary when the wind speed exceeds 15 knots. During the day it will not be necessary to secure the aircraft to the ground. Students will not leave the helicopter unattended with the keys left in it under any circumstances.

16. Students will exercise the utmost caution when operating in the vicinity of other aircraft; either on the ground or in flight. When in flight students will follow the collision avoidance procedures as outlined in FAR 91.111, 91.113, 91.115, and will practice the proper scanning technique as described in the Airman’s Information Manual paragraph 8-1-6 and 8-1-8.

17. All solo practice will take place at the airports listed in the training course outline. In addition to these airports, dual-training flights may also be conducted in other locations deemed necessary by the instructor. Information concerning Additional Training Areas can be found in Student Notices. (Your Instructor will show you where to find them and explain these operations)

18. All pilots will adhere to rules, regulations, and policies laid out in the current Bristow Academy Flight Operations Manual.

I have read and agree to comply with all the above conditions,

Signed: __________________________ Date: __________________________
Student Helicopter Pilot

Instructor’s Signature: __________________________ Date: __________________________
Certificate #: __________________________ Exp Date: __________________________
Instructor’s Name: __________________________
SAFETY PROCEDURES AND PRACTICES
EXTERNAL LOAD COURSE

1. All training is to be conducted in accordance with Federal Aviation Regulations.

2. Solo external load flights are not permitted. Each external load training flight must be conducted with an endorsed and authorized flight instructor from Helicopter Adventures Inc.

3. External load training flights Day VFR only

4. The maximum wind is: 18 KTS

5. External Load training will only be conducted at the Space Coast Regional Airport or the practice area “ALPHA” located 8NM North West of Space Coast Regional Airport (owned by HAI)

6. Over flying of any major roads, building or any other person or property on the ground is prohibited.

7. The student must be familiar with all safety procedures and the use of the quick and mechanical release of the cargo hook prior to the first training flight.

8. The inspection of all external load equipment must be performed under the supervision of the External Load Instructor prior to each flight.

9. Only the equipment provided by Bristow Academy Inc. can be used for External Load Training

10. The doors of any external load training helicopter must be removed for any external load operation in order to provide proper and unrestricted vertical view.

I have read and agree to comply with all the above conditions,

Signed: ________________________________ Date: ________________

Student Helicopter Pilot

Instructor's Signature: ________________________________ Date: ________________

Certificate #: ___________________________ Exp Date: ________________

Instructor's Name: ________________________________
BRISTOW ACADEMY, INC.

PROGRESS AND GRADES

Completion standards for each lesson are determined by the student's ability to:

**Describe:** at completion, the student is able to describe the physical characteristics and cognitive elements of the maneuver, procedure or activity, but needs assistance to execute the maneuver or procedure successfully.

**Explain:** at completion the student is able to describe the activity and understand the underlying concepts, principles, and procedures that comprise the activity, but needs assistance to execute the maneuver or procedure successfully.

**Practice:** at completion the student is able to plan and execute the maneuver or procedure, with coaching, instruction and/or assistance to correct deviations and errors identified by the instructor.

**Perform:** at completion the student is able to perform the activity without instructor assistances. The student will identify and correct errors and deviations in an expeditious manner. At no time will the successful completion of the maneuver or procedure be in doubt.

Grading in the Training record should follow:

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<td>Average</td>
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<tr>
<td>Below average</td>
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**FLIGHT TRAINING**

Flight training for each program is divided into stages. The student must pass each stage before they can progress to the next phase. Proficiency stage checks will be given by the Chief Flight Instructor or his designee. Progression to the following stage requires a passing grade. Failure to pass a proficiency stage check will necessitate return to the former stage with review and additional instruction required. Students are graded on their performance during dual flights and must maintain a passing grade in order to remain in the course.
GROUND TRAINING

The percentage system is utilized in the classroom with 70% on examinations considered as a minimum passing grade. A student must receive a passing grade to be entitled to receive a certificate from his ground-training course showing that he/she has satisfactorily completed the ground instruction.
COURSE DESCRIPTION -
EXTERNAL LOAD ROTORCRAFT - HELICOPTER

1. ENROLLMENT PREREQUISITES - Students enrolling in this flight course must be 18 years of age, possess at least a valid private pilot certificate and hold at least a third-class medical certificate.

2. COURSE OBJECTIVES - The student will obtain the knowledge, aeronautical skill and skill and aeronautical experience necessary for him/her to conduct External Load Operations.

3. COURSE COMPLETION STANDARDS - The student must demonstrate through written tests, flight test, and show through appropriate records that he/she meets the skill and aeronautical knowledge to conduct External Load Operations.

4. KNOWLEDGE STAGE TESTS (DESCRIPTION)
The Ground School Knowledge Test will consist of either "multiple choice" or "fill in" type of questions to measure if the student meets the knowledge requirements.

5. This course has been constructed to meet all requirements of FAR 141 and to be as objective and meaningful as possible. Hours shown for dual flight training are offered as a guide to the instructor. Specified minimum times for an entire stage must be complied with, whereas times used on individual lessons may be adjusted to the individual student's needs.
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GROUND TRAINING

10 HOURS CLASSROOM INSTRUCTION

OBJECTIVES -

The student will obtain the ground knowledge necessary for him/her to conduct Rotorcraft External Load Operations. Including:

1. Regulations and equipment
2. Flight technique and safety procedures
3. Load and aircraft rigging
4. 133 regulations and site preparation

GROUND TRAINING COMPLETION STANDARDS -

The stage will be complete when the student completes the instruction listed above and passes the written knowledge test. The student will be able to describe and explain his or her knowledge of external load operations and procedures.
LESSON 1 REGULATIONS & EQUIPMENT

OBJECTIVE

The student will learn the basics of controlling a load and will cover Part 133 regulations and equipment.

CONTENT

1. Introduction
2. FAR Part 133
3. Load type classes (A, B,C,D)
4. Aircraft equipment, weight & balance
5. Cable
6. Hooks
7. Bucket
8. Carabiniers
9. Straps, lashings and nets

COMPLETION STANDARDS

The student will have a thorough understanding of Part 133 regulations and will be able to Pre-flight all equipment.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS
LESSON 2  TECHNIQUES AND SAFETY PROCEDURES

OBJECTIVE

The student will gain the ground knowledge necessary to perform the maneuvers safely during external operations.

CONTENT

Safety procedures
Load pick-up and set down
Load instability
Review emergency procedures
Circle and swing arrests
Hover taxi
Transitions to forward flight
Approaches to a hover
Establishing VNE
Pinnacles
Confined area
Quick stops

COMPLETION STANDARDS

INSTRUCTOR RECOMMENDATIONS
LESSON 3 LOAD RIGGING 2.0 HOURS GROUND

OBJECTIVE

The student will learn how to rig loads for aircraft pick-up and flight.

CONTENT

1. Bucket rigging
2. Logs
3. Netting
4. Boxes
5. Non aerodynamic loads
6. Practical training

COMPLETION STANDARDS

The student will have a good understanding of how to rig loads for flight. This lesson includes practical training where the student will actually rig various loads ready for flight.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON 4   PART 133 MANUAL AND SITE PREPARATION   2.0 HOURS GROUND

OBJECTIVE

During this lesson the student will go through an active Part 133 manual and will conduct a site survey and produce a congested area plan for an external load operation. The student will also cover the items listed in Part 133.23(b).

CONTENT

1. Part 133 Rotorcraft - load combination flight manual.
2. Hand signals
3. Site survey
   a) Steps to be taken before starting operations.
   b) Performance capabilities under approved, operating procedures and limitations for the Rotorcraft to be used.
   c) Proper instructions of flight crew and ground workers.
   d) Proper method of loading, rigging or attaching the external load.
4. Congested area plan
   a) Pick-up site
   b) Drop-off site
   c) Measuring
   d) Map drawing

COMPLETION STANDARDS
The student will perform a site survey of an undisclosed locations and procedure a congested area plan suitable for submitting to the FAA.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON 5 REVIEW 1.0 HOURS GROUND

OBJECTIVE

The student will review everything taught and resolve any questions they have in preparation for the Stage 1 test in accordance with FAR 133.23 (b).

CONTENT

Review Lesson 1 thru 4

COMPLETION STANDARDS

The student will have the knowledge necessary to pass the Stage 1 written test.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT TRAINING

15 HOURS DUAL FLIGHT INSTRUCTION

OBJECTIVES

The student will learn the skills necessary to perform simple external load operations.

COMPLETION STANDARDS

The student must demonstrate through appropriate records and flight test that he/she has the knowledge and skill to perform External Load Operations.
FLIGHT LESSON 1

OBJECTIVE

During this lesson, the student will be introduced to flying the aircraft using vertical and side references with no load attached.

CONTENT

Introduce
1) Circle turns (side references)
2) Vertical climb/descent
3) Hover/zero airspeed auto’s (1500 ft)
4) Acceleration/Decelerations
5) Hover Taxi
6) Quick stops

Review
1) Settling with power
2) RPM control

COMPLETION STANDARDS

At the end of this lesson the student should be starting to develop the skill to control the aircraft using vertical references only.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON -2

1.5 HOURS DUAL .2 HOURS PRE/POST BRIEF

OBJECTIVE

The student will be introduced to controlling the helicopter and a practice load on a 50 foot line. Practice safety procedures and crew coordination.

CONTENT

50 ft. line attached

Introduce practical application of crew coordination and safety procedures.
1) Take off to hover/landing from hover
2) Vertical climb/descent
3) Load pick-up/set down
4) Circle arrest
5) Swing arrest
6) Controlling load

COMPLETION STANDARDS

The student will start to gain the skill necessary to control an external load, by describing and explaining communication and safety procedures required. Practice load stabilization during load pick-up, maneuvering and set-down.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS.
FLIGHT LESSON 3 1.5 HOURS DUAL .2 PRE/POST HOURS BRIEF

OBJECTIVE

The student will continue to gain proficiency in load controllability and will be introduced to flying the load during pattern operations including transitions to and from forward flight, maneuvering and positioning of the aircraft and load. Safety and procedures of transitioning and forward flight.

CONTENTS

50-ft. line attached

Review
1) Load pick-up/set down
2) Circle/swing arrest
3) Load control and maneuvering

Introduce
1) Departure from a hover
2) Establishing VNE
3) Approaches to a hover

COMPLETION STANDARDS

The student will continue to practice load control and show increased understanding of crew communication and safety procedures including determining Vne during forward flight and safety altitudes. The student should be able to pick-up, maneuver and set down a load maintaining load height within 20 feet and a 20 foot radius circle.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 4

OBJECTIVE

During this lesson, the student will use a 100 ft. line, review control techniques in handling the longer line and continue to practice controlling and maneuvering the aircraft and load during vertical reference. Introduced during this lesson to Air taxi, quick stops, and gully walking, when the load remains in contact with the surface simulating Class C techniques including safety procedures and crew communication.

CONTENTS

100-Ft line attached

Review
1) Load pick-up/set down
2) Approaches
3) Circle/swing arrests

Introduction
4) Air taxi with load
5) Gully walking
6) Quick-stop with load

COMPLETION STANDARDS

At the completion of the lesson the student will be able to describe and explain the principals of load control with a longer line and practice techniques of load control and maneuvering while performing safety procedures and crew communications including determining Vne during forward flight and safety altitudes.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 5

1.5 HOURS DUAL

.2 HOURS PRE/POST BRIEF

OBJECTIVE

The student will be introduced to pinnacles and ridge-line operations, safety procedures and crew communications during reconnaissance and transitions. Techniques of aircraft/load control will be introduced while operating with vertical reference and depth perception changes due to the characteristics of the surfaces.

CONTENTS

100 ft. line attached

Introduce
1) High reconnaissance
2) Depth perception
3) Pinnacle approaches
4) Pinnacle departures
5) Flying abeam and across ridge-lines

COMPLETION STANDARDS

The student will show an increased knowledge and skill by describing and explaining the principals of aircraft performance and load handling during pinnacle area operations while practicing handling skills required for aircraft/load control and performing safety procedures and crew communication as required including determining Vne during forward flight and safety altitudes.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 6

1.5 HOURS DUAL

.2 HOURS PRE/POST BRIEF

OBJECTIVE

The student will be introduced to confined area operations, safety procedures, including performance calculation; crew communication required, and techniques.

CONTENTS

100-ft. line attached

Introduce

1) High reconnaissance
2) Depth perception
3) Confined areas
4) Tree top operations
5) Lowering/climbing load through trees

COMPLETION STANDARDS

The student will be able to describe and explain the principals and techniques required for confined area operations and tree top operations, practice and perform aircraft/load control and maneuvering while performing safety procedures and crew communications as required.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 7  1.5 HOURS DUAL  .2 HOURS PRE/POST BRIEF

OBJECTIVE

During the lesson the student will experiment with different loads, review safety procedures including: load rigging, crew communication, determining Vne with different loads and maneuvering techniques.

CONTENTS

100-ft. line attached

Introduce aerodynamic and non-aerodynamic loads
1) Water buckets
2) Nets
3) Logs and small trees
4) Boxes
5) Flat objects

COMPLETION STANDARDS

At the completion of this lesson the student will show and increased understanding by describing and explaining how different size, shape and weight loads will fly while under the aircraft. the student will perform techniques and safety procedures during maneuvering flight, transitions and load positioning.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 8 1.5 HOURS DUAL .2 HOURS PRE/POST BRIEF

OBJECTIVE

During this lesson the student will be introduced to long line techniques and procedures using a 150 foot line.

CONTENTS

150-ft. line attached

Review
1) Pick-ups/set down
2) Approaches/departure transitions
3) Spotting load
4) Pinnacles
5) Confined area's (tree canopy drops)

COMPLETION STANDARDS

The student will be able to describe and explain the techniques and procedures necessary to operate with a 150 foot line, practice aircraft and load control and perform safety procedures and crew communications as required.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 9                                      1.5 HOURS DUAL                                      .2 HOURS PRE/POST BRIEF

OBJECTIVE

The student will practice all the maneuvers and skills presented in the course in preparation for the final stage check.

CONTENT

50-ft line
100-Ft. line
150- ft line

Review All maneuvers

COMPLETION STANDARDS

The student at the end of this lesson will have practiced all skills and resolved any weak areas in preparation for the final stage check.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 10

OBJECTIVE

The chief flight instructor or his designee will perform a final stage check. The skill test will follow the procedures laid out in FAR 133.23(c).

CONTENTS

Perform all maneuvers using a 100-ft. fine.

FAR 133.23(c) skill test
  a) Takeoffs and landings
  b) Demonstration of directional control while hovering
  c) Acceleration from a hover
  d) Flight at operational airspeeds
  e) Approaches to landing or working area
  f) Maneuvering the external load into the release position

COMPLETION STANDARDS

The student will perform the skill necessary to perform external load operations commercially, including techniques, safety procedures and crew communications as required.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
APPENDIX “A”

1. AIRCRAFT – The Schweizer 269C-1 (S300CB / S300CBI), will be used for this course of training.


3. ASSISTANT CHIEF FLIGHT INSTRUCTOR- None at this time

4. CHIEF GROUND INSTRUCTOR – None at this time.
Florida Institute of Technology

ADDING A NEW COURSE TO THE CURRICULUM

This course is available for student registration only after the approval process has been completed.

SUBJECT A V F (e.g., CSE)

COURSE NO. 3 0 1 3 (e.g., 1301)

CREDIT HOURS 3

TERM TO BE ADDED TO THE FILE Spring 2011

CLASS HOURS 40

LECTURE HOURS

LAB HOURS 28/semester

CONTACT HOURS (CEU ONLY)

DEPARTMENT Aviation Flight

SCHEDULE TYPE Flight

(e.g., Computer Sciences)

COLLEGE OF AERONAUTICS - 23

NATHAN M. BISK COLLEGE OF BUSINESS - 24

COLLEGE OF SCIENCE - 26

EXTENDED STUDIES DIVISION / NATHAN M. BISK COLLEGE OF BUSINESS - 90

COMPUTER TITLE Restricted to 25 characters, including spaces Helicopter Flight Instructor

CATALOG TITLE Helicopter Flight Instructor

CATALOG DESCRIPTION OF COURSE Restricted to 350 characters, including spaces

Provides training for helicopter commercial- and instrument-rated pilots to qualify for the FAA certified flight instructor-helicopter certificate. Certificate awarded by FAA on successful completion of this course and the required FAA knowledge and flight tests.

In addition, please attach a course syllabus and/or more detailed description.

REQUIREMENTS

PREREQUISITE AVT 3101

Course Number

Corequisite

Course Number

Prerequisite

Course Number

Corequisite

Course Number

Prerequisite

Course Number

Corequisite

Course Number

GRADES TO BE ISSUED

A, B, C, D, F

A, B, C, D, F, CEU

CEU

S, U

P, F

Other

ADDITIONAL RESTRICTION

Requirements: FAA commercial pilot-helicopter instrument rating; Instructor approval

If this course replaces a course currently offered in BANNER, please indicate old course information and the date/term the course may be removed from the system.

SUBJECT Alpha Prefix (e.g., CSE) COURSE NO. (e.g., 1301)

APPROVALS: Upon completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval below and forward to Catalog Director.

Originator Date

Chair, Graduate Council Date

Department Head/Program Chair Date

Dean or Associate Dean Date

Chair, Undergraduate Curriculum Committee Date

CATALOG DIRECTOR

These changes/additions have been made for the University Catalog/policy management system and entered into the BANNER term named above.

Catalog Director Date

REGISTRAR'S USE ONLY

SCARSE SCADTL SCAPREQ

SCARES Operator Init Date
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BRISTOW ACADEMY, INC.

CERTIFIED FLIGHT INSTRUCTOR COURSE

40 GROUND INSTRUCTION
25 FLIGHT INSTRUCTIONS (DUAL)
3.0 PRE & POST BRIEFCING

Revised November 2007
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## STAGE ONE Ground Instruction

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### Stage 2, Flight Training

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**Appendix “B” Description of Facilities**

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TRAINING COURSE OUTLINE

1. Bristow Academy, Inc. located at Space Coast Regional Airport, Titusville, Florida, 32780, operated as:

<table>
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<tr>
<th>Main Operations Base</th>
<th>Satellite Base</th>
<th>Satellite Base</th>
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<tr>
<td><strong>Bristow Academy, Inc.</strong></td>
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<td><strong>Bristow Academy Inc.</strong></td>
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<tr>
<td>365 Golden Knights Blvd</td>
<td>81 John Glenn Drive</td>
<td>1113 Vortex Drive</td>
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<tr>
<td>Titusville, Florida 32780</td>
<td>Concord, CA 94520</td>
<td>New Iberia LA 70560</td>
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2. COURSE TITLE - Certified Flight Instructor - Rotorcraft-Helicopter

3. This training course outline meets all the curriculum requirements for the Flight Instructor Certification Course contained in FAR 141 Appendix H Section 3(a).

4. COURSE OBJECTIVE - The student will obtain the knowledge, skill and aeronautical experience necessary for him/her to pass the Flight Instructor (Rotorcraft-Helicopter) practical test.

5. COMPLETION STANDARDS - The student must demonstrate through written tests, flight test, and show through appropriate records that he/she meets the skill, aeronautical knowledge and experience requirements necessary to obtain a Flight Instructor Certificate (Rotorcraft-Helicopter).

6. AIRPORT - Space Coast Regional Airport is the main base for training in this course. Space Coast Regional Airport meets the requirements of Section 141.38 of the FAR's are for day and night operations.

7. AIRCRAFT - All aircraft used in this course will meet the requirements of 141.39 of the FAR's. The aircraft are equipped for day and night VFR flying. In addition, each aircraft will be equipped with at least one 360 channel transceiver radio.

8. GROUND TRAINER - None at this time.

9. CHIEF FLIGHT INSTRUCTOR - The Chief Flight Instructor for this course will meet all the requirements for Chief Flight Instructor under FAR 141.35 (a) and (d). He/she will also meet the requirements of FAR 61.187(b). (See Appendix A for name of Chief Flight Instructor).

10. ASSISTANT CHIEF FLIGHT INSTRUCTOR - The Assistant Chief Flight Instructor for this course will meet the requirements under FAR 146.36 (a) and (d). He/she will also meet the requirements of FAR 61.187(b). (See Appendix A for name of Assistant Chief Flight Instructor.)

Revised November 2007
11. FLIGHT INSTRUCTOR - Each Flight Instructor assigned to this course must be the holder of at least a Commercial Pilot Certificate with a Rotorcraft Category rating Helicopter Class Rating and a Certified Flight Instructor (Rotorcraft-Helicopter).

12. GROUND SCHOOL INSTRUCTOR - The Ground School for this course must be approved by the chief instructor.

13. AUDIO-VISUAL AIDS - The following list describes the special equipment used for ground training:

- White drawing boards
- VCR and training tapes
- Slide Projector
- Aircraft models
- Computers
- Various helicopter components
- Power Point Projection
- Overhead Projectors

See Appendix for a description of each ground training room.

14. AIRPORTS USED FOR CROSS-COUNTRY FLIGHTS - According to FAR Part 1, an airport is an area of land or water that is used for takeoff and landing of aircraft. This definition is most applicable to the helicopter. In order to encompass a wide variety of cross-country destination and origination points indicative of the type of flights and varied destinations assigned to Private Helicopter Pilots, it is important for the student to experience an endless supply of landing sites. More "airports" exist for possible use than we could ever list. The following list represents some of the assigned cross-country airports in this course of training. The Chief Flight Instructor will approve all other destination and origination points.

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15. The training syllabus herein contains two stages. Stage one is ground training and stage two is flight training. The stages may be taken concurrently.

16. PERSONNEL - Bristow Academy, Inc. maintains a staff of qualified personnel according to FAR 141.33. All personnel have been instructed in the procedures and responsibilities of his or her employment.

17. CREDIT GRANTING PROCEDURES - There will be no credit that can be applied to this course.

Revised November 2007
APPENDIX “A”

1. AIRCRAFT – The Schweizer 269C-1 (S300CB / S300CBI) and RHC Robinson R22 Beta II helicopter will be used for this course of training.


6. CHIEF GROUND INSTRUCTOR – None at this time.

Satellite Base New Iberia LA


Satellite Base Concord CA

BRISTOW ACADEMY

PROGRESS AND GRADES

A. STAGE ONE - GROUND TRAINING

The percentage system is utilized on the ground examination with 70% considered as the minimum passing grade. The student must receive a passing grade in order to pass stage one. Failure to pass a proficiency stage check will necessitate a return to the first stage for additional instruction, as required.

B. STAGE TWO - FLIGHT TRAINING

Students are graded on their performance during all flights and must maintain a passing grade in order to remain in the course. The chief flight instructor or his designee will conduct the final proficiency stage check. Grading system values are as follows:

Grading system values are as follows:

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<td>Below average</td>
<td>4 Minimum passing</td>
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<td>Unsatisfactory</td>
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Revised November 2007
COURSE DESCRIPTION

1. ENROLLMENT PREREQUISITES - Students enrolling in this course must be 18 years of age, possess a valid commercial pilot certificate (Rotorcraft Helicopter) and hold at least a second-class medical certificate.

2. COURSE OBJECTIVE - The student will obtain the knowledge, skill and aeronautical experience necessary for him/her to pass the Flight Instructor (Rotorcraft-Helicopter) practical test.

3. COMPLETION STANDARDS - The student must demonstrate through written tests, flight test, and show through appropriate records that he/she meets the skill, aeronautical knowledge and experience requirements necessary to obtain a Flight Instructor Certificate (Rotorcraft-Helicopter).

4. STAGE TESTS (DESCRIPTION)

   The stage 1 test will consist of either "multiple choice" or "fill in" type questions to measure the students' knowledge to proceed to stage 2.

   The stage 2 test will consist of an oral question and answer session followed by a flight test conducted by the Chief Flight Instructor or his designee.

5. This course has been constructed to meet all requirements of FAR 141 Appendix F and to be as objective and meaningful as possible. Hours shown for dual flight training are offered as a guide to the instructor. Specified minimum times for an entire stage must be complied with, whereas times used on individual lessons may be adjusted to the individual student's needs.

Revised November 2007
SAFETY PROCEDURES AND PRACTICES

1. All training is to be conducted in accordance with Federal Aviation Regulations. The flight instructor will supervise the content of all flights, including solo flights. No student pilot may be authorized to start a solo practice flight from an airport until the flight has been approved by an authorized flight instructor, who is present at that airport.

2. No emergency procedures of any kind may be practiced unless an instructor from Bristow Academy is onboard the aircraft. Minimum altitude for Emergency Procedure Training is 1500 feet above ground level (AGL).

3. No student will carry a passenger while on a solo training flight. Any student found to have done so will be reported to the Federal Aviation Administration.

4. Each pilot will check the squawk sheet prior to each flight. Any discrepancies must be noted and reported to maintenance personnel immediately.

5. All pilots will use the appropriate checklist for all operations provided by Bristow Academy, Inc from before starting until after shutdown. All pilots will clear the immediate area of the helicopter prior to starting. Students will not start the helicopter without the instructor's permission. When taxiing to and from the ramp area, the student will obey all ATC instructions. Students will give-way to taxiing airplanes and will hover at a skid height of 3 - 5 feet. All pilots will use surface taxi procedures when moving past "slow turning rotors" and when other aircraft doors are open.

6. Solo training flight will be conducted in VFR weather conditions only. Students may not fly solo if the wind speed exceeds 12 kts. At the discretion of your instructor written authorization may be given to exceed this limitation up to 15 kts.

7. In the event that a solo student encounters delays on a flight, he/she may continue the flight after sunset only for the purpose of returning to Space Coast Regional and only if visibility is at least 5 miles and the ceiling is at least 2,500 feet. Additionally he/she may continue only if he/she has received flight training at night and received a logbook endorsement. See FAR 61.87(m) for reference.

8. For dual flights in the Space Coast Regional traffic pattern or the designated training areas, the weather minimums will be 700' ceiling and a half mile visibility. For dual cross-country flights, the weather minimum will be 1,000-foot ceiling and one-mile visibility.

9. A minimum of 20 minutes reserve fuel is required for both cross-country and local flights. Pilots will not trust the fuel gauges and should never fly when they indicate less than quarter-full.

10. Pilots will not fly at altitude of less than 500 feet above ground level (AGL) while on cross-country or training flights, except for the purpose of take-off or landing. Simulated emergency landings will be terminated at an altitude, which ensures a safe transition into normal flight with respect to obstructions and the height/velocity diagram.

11. Over water flights are not permitted unless the aircraft is within autorotation distance of a suitable landing area unless approved flotation devices are available for every person on board or the the aircraft is equipped with approved flotation gear. Additionally the aircraft needs to be equipped with a flare gun.

Revised November 2007
Safety Procedures & Practices
Continued

12. Should a student have to make a precautionary or un-programmed landing for any reason, he/she will notify Bristow Academy by telephone at 800-686-4080 and obtain an airworthiness release and dispatch approval from a Bristow Academy instructor before continuing.

13. An official VFR flight plan must be filed for all solo cross-country flights.

14. Students must obtain a written endorsement from their flight instructor before practicing off-airport landings, pinnacle, ridge, or confined area approaches.

15. Smoking is not allowed in the vicinity of the aircraft or fuel trucks. Students will observe strict fire precautions while in the vicinity of the aircraft or hangar. Students will acquaint themselves with the location and operation of the fire extinguisher. In the event of an engine fire, students will follow the emergency procedure, which is detailed in the aircraft’s operating handbook. If the aircraft is on fire protect human life, but leave the aircraft fire fighting to the professionals.

16. When not in use, the helicopter rotor blades will be secured using the tie downs provided in each aircraft. This will only be necessary when the wind speed exceeds 15 knots. During the day it will not be necessary to secure the aircraft to the ground. Students will not leave the helicopter unattended with the keys left in it under any circumstances.

17. Students will exercise the utmost caution when operating in the vicinity of other aircraft; either on the ground or in flight. When in flight students will follow the collision avoidance procedures as outlined in FAR 91.111, 91.113, 91.115, and will practice the proper scanning technique as described in the Airmans Information Manual paragraph 8-1-6 and 8-1-8.

18. All solo practice will take place at the airports listed in the training course outline. In addition to these airports, dual-training flights may also be conducted in other locations deemed necessary by the instructor. Information concerning Additional Training Areas can be found in Student Notices. (Your Instructor will show you where to find them and explain these operations)

19. All pilots will adhere to rules, regulations, and policies laid out in the current Bristow Academy Flight Operations Manual.

I have read and agree to comply with all the above conditions,

Signed: ____________________________ Date: ________________
Student Helicopter Pilot

Instructor’s Signature: ____________________________ Date: ________________

Certificate #: ____________________________ Exp Date: ____________________________

Instructor’s Name: ____________________________

Revised November 2007
RECORD OF PARTICULARS

STUDENT'S NAME____________________ PHONE________________________

ADDRESS__________________________________________________________

Street & Number, City

DATE OF ENROLLMENT____________________

MEDICAL CERTIFICATE CLASS________DATE________NUMBER_____________

COMMERCIAL CERTIFICATE NUMBER________________DATE_________________

TRAINING REQUIREMENTS

STAGE 1 WRITTEN________DATE____SCORE________

STAGE 2 ORAL______DATE____GRADE________

STAGE 2 FLIGHT_______DATE____GRADE________

GRADUATION CERTIFICATE ISSUED________________________

I hereby certify that the above information is true and correct and the above student has completed this course under FAR Part 141.

______________________________
Chief Flight Instructor

Revised November 2007
CERTIFICATE OF ENROLLMENT

This is to certify that___________has been enrolled as of_________ in the following training course:

CERTIFIED FLIGHT INSTRUCTOR

This course will be conducted by Bristow Academy, Inc. in accordance with Part 141 of Federal Aviation Regulations.

________________________________________
Chief Flight Instructor

Revised November 2007
CERTIFICATE OF GRADUATION

This is to certify that

__________________________________________

has satisfactorily completed each
required stage of training,
as prescribed by the
Federal Aviation Administration's Approved
Certified Flight Instructor Rotorcraft – Helicopter Curriculum

Date of Graduation______________

Given under my hand and seal

this ___ day of _____________, ____.

I certify the above statements are true.

Bristow Academy, Inc.

HIAS182B (Air Agency Certificate Number)

______________________________________
(Signature)

______________________________________
(Title)
STAGE ONE - GROUND TRAINING

40 HOURS CLASSROOM INSTRUCTION

5 HOURS PRACTICE GROUND INSTRUCTION

STAGE ONE OBJECTIVES -

The student will obtain a full understanding of the fundamentals of instruction. The student will also gain knowledge of instructing all subject areas required for solo, x-country, private pilot, commercial pilot and flight instructor.

STAGE ONE COMPLETION STANDARDS -

The student must demonstrate through knowledge tests, and show through appropriate records that he/she has the knowledge to teach all subject areas for certificates and ratings. In additions he/she will demonstrate sufficient understanding of all privileges, limitations and regulations that apply to Certified Flight Instructors.
LESSON 1  FUNDAMENTALS OF INSTRUCTION  2 hours ground training

OBJECTIVE

The student will gain knowledge of the elements of the learning process, the teaching process and teaching methods.

LESSON CONTENT

1. The learning process
   a. Definition of learning
   b. Characteristics of learning
   c. Practical application of the laws of learning
   d. How people learn
   e. Levels of learning
   f. Forgetting and retention
   g. Transfer of learning
   i. Habit patterns

2. The teaching process
   a. Preparation
   b. Presentation
   c. Application
   d. Review

3. Teaching methods
   a. Lesson organization, introduction, development, and conclusion
   b. Lecture method
   c. Guided discussion method
   d. Demonstration - performance method
   e. Programmed instruction
   f. Audio - visual instruction

COMPLETION STANDARDS

The lesson will be complete when the student shows an understanding of the material presented.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON 2  FUNDAMENTALS OF INSTRUCTION cont.  2 hours ground training

OBJECTIVE

The student will gain knowledge of the elements of an evaluation, human factors and will learn how to plan instructional activity.

LESSON CONTENT

1. Evaluations
   a. Purpose
   b. Oral evaluations
   c. Written evaluations
   d. Performance evaluations
   e. Practical test standards

2. Human Factors
   a. Control of human behavior
   b. Development of student potential
   c. Human needs
   d. Defense mechanisms
   e. Human relations

3. Planning instructional activity
   a. Course development
   b. Training syllabi
   c. Characteristics and use of lesson plans
   d. Writing lesson plans

COMPLETION STANDARDS

This lesson will be complete when the student shows an understanding of the material presented and has completed the homework assignment.

HOMEWORK ASSIGNMENT

Write lesson plan on a subject selected by the instructor and then teach from it.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON 3  AEROMEDICAL FACTORS  2 hours ground training

OBJECTIVE

During this lesson the student will learn the elements related to aeromedical factors and how they would be taught to students.

LESSON CONTENT

a. Medical certificates (including deficiencies)
   b. Hypoxia / Hyperventilation
   c. Middle ear & sinus
   d. Spatial disorientation
   e. Motion sickness
   f. Alcohol and drugs
   g. Carbon monoxide poisoning
   h. Nitrogen excess
   i. The eye
   j. Visual scanning and collision avoidance
   k. Night flight operations

COMPLETION STANDARDS

The lesson will be complete when the student demonstrates an understanding of the material presented.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON 4  PRINCIPLES OF FLIGHT  6 hours ground training

OBJECTIVE

During this lesson the student will learn the elements of aerodynamics and principles of flight as related to rotorcraft and how they should be taught to students.

LESSON CONTENT

Newton's Laws   Airfoils   Relative wind   Four forces
Pendular action Lift Torque Gyroscopic precession
Translational lift Dissymmetry of lift Blade flapping Translating tendency
Coriolis effect Ground effect Mast bumping Transverse flow effect
Load factors Phase leg Tip plane path Settling with power
Dynamic stability Blade stall Rotor systems Vibrations:
Static Stability Pitch angle Coning Low frequency
Angle of Attack Ground resonance -Medium frequency Dynamic Rollover
Solidity ratio High frequency Bernoulli's Principle

Autorotation airfoil and airflow

COMPLETION STANDARDS

This lesson will be complete when the student shows an understanding of the material presented.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
LESSON 5  HELICOPTER FLIGHT CONTROLS  1 hour ground training

OBJECTIVE

During this lesson the student will learn the elements and effects of the flight controls and how this should be taught to students.

LESSON CONTENT

Control rod ends
Bellcranks
Swashplates
Collective control path
Cyclic control path
Pedal control path
Throttle operation

COMPLETIONS STANDARDS

This lesson will be complete when the student shows an understanding of the material presented.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
LESSON 6  WEIGHT AND BALANCE  3 hours ground instruction

OBJECTIVES

During this lesson the student will learn the elements of rotorcraft weight and balance and how they should be taught to students.

LESSON CONTENT

Terms
Weight
Arm
Moment
Fulcrum
Adding, subtracting, shifting weights
Longitudinal limits
Lateral limits
Performance effects

COMPLETION STANDARDS

This lesson will be complete when the student shows an understanding of the material presented and has completed a home study assignment.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON 7  CHARTS AND AIRSPACE  3 hours ground instruction

OBJECTIVE

During this lesson the students will gain a thorough understanding of charts and airspace and learn how this information should be taught to new students.

LESSON CONTENT

Charts
- TCA
- Sectional
- WAC
- Airport maps
- Helicopter route charts
- Aeronautical chart users guide

Airspace
- Class A: Federal airways
- Class B: Airport advisory
- Class C: Wildlife refugees
- Class D: MTR's
- Class E: US ADIZ
- Class G: MOA's
- Prohibited areas: Oceanic control areas
- Restricted areas: Flight information regions
- Warning areas: PJA's
- Alert areas: Airport and heliport markings

COMPLETION STANDARDS

This lesson will be complete when the student shows a thorough understanding of airspace.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON 8  NAVIGATION  3 hours ground instruction

OBJECTIVE

During this lesson the students will learn the elements of navigation and flight planning and how they should be taught to new students.

LESSON CONTENT

Pilotage
Dead reckoning
Radio navigation
Plotter
E6B
1/60 rule
Route of flight
Check points
Distance
PA, DA, temp

CAS, TAS, GS
Heading/Track, true, magnetic, cal
Time, Fuel
Completing flight log/plan
Filing Flight Plan
Opening/Closing flight plan
Flying the route
Lost procedure
Diversion procedures

COMPLETION STANDARDS

This lesson will be complete when the student shows an understanding of the material presented and has completed a homework assignment.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON 9 REGULATIONS 3 hours ground instruction

OBJECTIVE

During this lesson the student will review Federal Aviation Regulations and NTSB 830 and publications.

LESSON CONTENT

FAR
1
61
67
91
121
133
135
141
175 HMR
830 NTSB
Practical test standards
AC's
Airport facility directory

COMPLETION STANDARDS

This lesson will be complete when the student has an understanding of the material presented and how it should be taught to a student.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
LESSON 10 LOGBOOK ENTRIES, ENDORSEMENTS AND CFI REGULATIONS
3 hours ground instruction

OBJECTIVE

During this lesson the student will learn all logbook entries and endorsements required for students and all CFI regulations.

LESSON CONTENT

Student pilot certificate
Pre-solo training requirements
Solo endorsements
X-country training requirements
X-country endorsements
Pre private training requirements
Written test endorsements
Commercial pilot requirements
Private/commercial practical test endorsements
CFI training requirements
CFI practical test endorsements
Biannual flight reviews AC-61-98A
Add on ratings
FAR 61 subpart G (Flight Instructors)

COMPLETION STANDARDS

This lesson will be complete when the student has a thorough understanding of the material presented and has completed a homework assignment.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS
LESSON 11  CERTIFICATES AND DOCUMENTS  1 hour

OBJECTIVE

During this lesson the student will learn the elements related to certificates and documents.

LESSON CONTENT

Airworthiness certificate
Registration certificate
Radio station license
Medical certificates
Pilots operating handbook including:
   Emergency procedures
      partial power
      engine failure
      emergency landings
      engine roughness or overheat
      engine restart
      loss of oil pressure
      smoke or fire
      icing
      pitot static system
      electrical failure
      alternator light
      max glide distance
      ditching power off and on
      tail rotor failure
      tachometer failure
      warning light and horn 97%
      clutch light
      ELT

COMPLETION STANDARDS

The lesson will be complete when the student has a thorough understanding of the material presented.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
LESSON 12 AVIATION WEATHER 4 hours

OBJECTIVE

During this lesson the student will learn the elements of weather and how to obtain weather information and how this should be taught to students.

LESSON CONTENT

WEATHER
- pressure
- temperature
- winds
- moisture
- stability
- clouds
- charts
- coriolis force
- air masses
- fronts
- turbulence
- icing
- thunderstorms
- forecasts
- weather hazards

WEATHER SERVICES
- T.W.E.B
- Terminal Forecast
- Radar Summary
- Winds aloft
- Surface analysis
- Sigmets
- Pireps
- DUAT system
- How to obtain weather
- Surface observations
- Area Forecast
- Significant prognosis
- Airmets
- Convective sigmets
- AWOS
- Making go / no go decisions

COMPLETION STANDARDS

This lesson will be complete when the student shows an understanding of the material presented.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON 13 PERFORMANCE CHARTS AND LIMITATIONS 1 hour ground instruction

OBJECTIVE

During this lesson the student will learn how to interpret performance and limitation charts and how this should be taught to students.

LESSON CONTENT

Performance / limitation charts - purpose
Calibrated Airspeed charts
Hover charts
HV diagram
VNE chart
Manifold pressure charts
Limitations

COMPLETION STANDARDS

This lesson will be complete when the student shows an understanding of the material presented.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON 14 OPERATION OF SYSTEMS & EQUIPMENTS 3 hours ground instruction

OBJECTIVE

During this lesson the student will learn the elements of helicopter systems and equipment, including their operation, malfunction and maintenance. Also the student will learn all the elements of maintenance requirements.

LESSON CONTENT

HELICOPTER SYSTEMS

components
controls
gas
ingredients
carb heat
free wheeling unit
swash plate and star
tail rotor
delta hinge
locate all senders
engine

manifold gauge
landing gear
clutches
collective pitch
cyclic pitch
anti-torque
throttle control
electrical - DC to AC, etc
fuel/system - pre-ignition/detonation
oil/system - new ship mineral oil first 50 hours
magnetos

PREFLIGHT AND MAINTENANCE

FAR 91 maintenance section
FAR 43
AD and SB
Progressive inspection
Alterations and major repair
Form 337
Preventive maintenance

Transponder
Log books
STC’s
Inspections - 100 hr/annual/overspeeds
A&P/IA sign-offs
Inoperative instruments
Full preflight inspection

COMPLETION STANDARDS

This lesson will be complete when the student shows an understanding of the material presented.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS

Revised November 2007
LESSON 15 MANEUVER ANALYSIS 3 hours ground instruction

OBJECTIVE

During this lesson the student will analysis the elements of maneuvers including correct performance, common errors, detection and correction of those errors. The student will also learn different methods of teaching these maneuvers.

LESSON CONTENT

straight and level
accel/decel
climbs/descents
turns
hovering
normal takeoffs
ETL and TL
traffic patterns
crosswind takeoffs/approaches
max. performance takeoff
steep approach
hover taxi
hover turns
vertical takeoffs/landings
low RPM recognition and recovery
low RPM recovery on approach
low RPM recovery during flight
rapid decent with power

rapid deceleration (quick stops)
surface taxi
fast taxi
air taxi
straight-in/180 autos
settling with power at altitude and on approach
throttle cuts-forced landings
hover autos
running takeoff/landings
low G recognition and recovery/mast bumping
confined areas
pinnacles
slope landings
anti-torque system failure
tail rotor vortex ring state
dynamic rollover
ground resonance

COMPLETION STANDARDS

This lesson will be complete when the student understands the flight maneuvers and how they should be taught.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
LESSON 16  PRACTICE TEACHING  5 hours ground instruction and complete final knowledge stage check.

OBJECTIVES

During this lesson the student will practice his/her teaching skills by preparing and teaching lessons assigned by the instructor.

CONTENT

The instructor will assign subjects for the student to teach. The following are examples but is in no way a complete list.

- Navigation
- Autorotation theory
- Transverse flow effect
- Dissymmetry of lift
- Rotor systems
- Communications
- Helicopter controls
- Slopes
- Quick stops
- Settling with power
- Altimetry

COMPLETION STANDARDS

The lesson will be complete when the student is able to prepare a lesson plan and teach a subject to the satisfaction of the instructor and have passed the final knowledge stage check with a minimum passing score of 70% (Grade 3).

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
STAGE TWO - FLIGHT TRAINING

12.5 HOURS DUAL FLIGHT INSTRUCTION
12.5 HOURS PRACTICE INSTRUCTION
3 HOURS PRE & POST FLIGHT BRIEFINGS
2 HOURS GROUND

STAGE TWO OBJECTIVES -
During stage two all flight lessons are divided in two. The first part of the lesson is devoted to learning how to teach the maneuvers and analyzing common errors and their correction. The second part of the lesson is devoted to practicing 180E touchdown autorotations.

STAGE TWO COMPLETION STANDARDS
This stage will be complete when the student has been taught all maneuvers and is able to teach those maneuvers to the standard required by the CFI practical test standards.
FLIGHT LESSON 1 - DUAL 1.5 HOURS - .2 HOURS PRE AND POST BRIEFING

A/C N_________INSTRUCTOR____________________GRADE_______DATE_______

OBJECTIVE

This lesson is to learn how to teach basic on airport maneuvers and to recognize and correct common errors. The student will also learn how to perform 180E touchdown autorotations.

LESSON CONTENT

1. Preflight inspection - locating all systems and components
2. Engine starting
3. Engine and systems preflight check - in accordance with POH
4. Vertical takeoff to a hover
5. Hover taxiing - sideward, forward, rearward and turns
6. Radio communications-including light gun signals
7. Normal takeoff from a hover
8. Traffic pattern procedures and collision avoidance precautions
12. Normal approach to a hover
14. Landing from a hover
15. Quick stops
16. Practice 180E full touch down autorotations
17. Post flight procedures

COMPLETION STANDARDS

The student will show the knowledge and proficiency to teach on airport maneuvers.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
FLIGHT LESSON 2  1.5 hours dual  .2 hours Pre & Post Briefing

A/C N_______INSTRUCTOR_________GRADE_________________DATE_____

OBJECTIVE

This lesson is to learn how to teach on airport maneuvers and to recognize and correct common errors. The student will also continue to practice 180E touchdown autorotations.

CONTENT

Crosswind takeoffs and approaches
Straight and level flight
Turns (both directions)
Steep turns
Climbs/descents
Climbing and descending turns
Speed changes
Practice 180E touchdown autorotations

COMPLETION STANDARDS

The student will show an increased proficiency in touchdown autorotations.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
FLIGHT LESSON 3  1.5 hours dual .2 hours Pre & Post Briefing

A/C N____INSTRUCTOR_________GRADE_________________DATE______

OBJECTIVE

The lesson is to continue to learn how to teach on airport maneuvers and practice 180E touchdown autorotations.

CONTENT

Maximum performance takeoff and climb
Steep approach
Fast taxi
Air taxi
Slope landings
Practice 180E touchdown autorotations

COMPLETION STANDARDS

The student will continue to gain proficiency in full down autorotations.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
FLIGHT LESSON 4  1.5 hours dual  .2 hours Pre & Post Briefing

A/C N_______INSTRUCTOR_________GRADE________________DATE_____

OBJECTIVE

During this lesson the student will learn how to teach off airport maneuvers.

CONTENT

Rapid descent with power
Pinnacles approach/departure
Confined areas approach/departure
High reconnaissance
Low reconnaissance
Airspeed over altitude takeoff

COMPLETION STANDARDS

The student will demonstrate proficiency in teaching all aspects of pinnacles and confined areas.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
LIGHT LESSON 5  1.5 hours dual  .2 hours Pre & Post Briefing

A/C N______INSTRUCTOR________GRADE________________DATE_____

OBJECTIVE

During this lesson the student will continue to learn how to teach on airport maneuvers and will practice emergency procedures.

CONTENTS

Surface taxi
Running takeoffs & climb
Shallow approach & Running landings
Settling with power
Low G
Anti torque system failure
Stuck collective
Low RPM (all phases of flight)
Practice 180E touchdown autorotations

COMPLETION STANDARDS

The lesson will be complete when the student demonstrates proficiency in the maneuvers taught.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
FLIGHT LESSON 6  1.5 hours dual  .2 hours Pre & Post Briefing

A/C N____ INCSTRUCTOR_________GRADE________________DATE_____

OBJECTIVE

During this lesson the student will practice autorotations and learn how they should be taught to students.

CONTENTS

Straight in autorotations
180E autorotations
Forced landings (throttle cuts)
Hover autorotations
Partial power failure
Systems & equipment malfunctions
Emergency equipment & survival gear

COMPLETION STANDARDS

The lesson will be complete when the student demonstrates proficiency in the maneuvers listed above.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
FLIGHT LESSON 7  1.5 hours dual .2 hours Pre & Post Briefing

A/C N_ INSTRUCTOR_ GRADE_ DATE_

OBJECTIVE

During this lesson the student will learn how to teach the elements of airborne navigation.

CONTENTS

Airport departures
Checkpoints
Heading flying
Diversion
Communications
Airport arrivals
In-flight calculations (1/60 rule)
Time/Distance
Pilotage
Dead reckoning
Radio navigation

COMPLETION STANDARDS

This lesson will be complete when the student has learned how to teach cross-country flying.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 8  1.5 hours dual  .2 hours Pre & Post Briefing

A/C N_______INSTRUCTOR_________GRADE_________________DATE_____

OBJECTIVE

During the lesson the student will practice those areas in which he feels weak and will continue to practice 180E touchdown autorotations.

CONTENTS

Maneuvers as required
180E touchdown autorotations

COMPLETION STANDARDS

This lesson is complete when the student can perform all maneuvers to the standard required for commercial pilot.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS

Revised November 2007
LIGHT LESSON 9 - DUAL 1.5 HOURS - .2 HOURS PRE AND POST BRIEFING

A/C N_________________INSTRUCTOR__________GRADE__________DATE__________

OBJECTIVE

The student will practice teaching basic on airport maneuvers and to recognize and correct common errors. The student will also practice performing 180E touchdown autorotations.

LESSON CONTENT

1. Preflight inspection - locating all systems and components
2. Engine starting
3. Engine and systems preflight check - in accordance with POH
4. Vertical takeoff to a hover
5. Hover taxiing - sideward, forward, rearward and turns
6. Radio communications - including light gun signals
7. Normal takeoff from a hover
8. Traffic pattern procedures and collision avoidance precautions
12. Normal approach to a hover
14. Landing from a hover
15. Quick stops
16. Practice 180E full touch down autorotations
17. Post flight procedures

COMPLETION STANDARDS

The student will show the knowledge and proficiency to teach on airport maneuvers.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
FLIGHT LESSON 10  1.5 HOURS DUAL  .2 HOURS PRE & POST BRIEFING
A/C N____INSTRUCTOR_________GRADE________________DATE____

OBJECTIVE

The student will practice teaching on airport maneuvers and to recognize and correct common errors. The student will also continue to practice 180E touchdown autorotations.

CONTENT

Crosswind takeoffs and approaches
Straight and level flight
Turns (both directions)
Steep turns
Climbs/descents
Climbing and descending turns
Speed changes
Practice 180E touchdown autorotations

COMPLETION STANDARDS

The student will show proficiency in teaching the maneuvers listed.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
FLIGHT LESSON 11  1.5 HOURS DUAL  .2 HOURS PRE & POST BRIEFING

A/C N__INSTRUCTOR_________GRADE________________DATE____

OBJECTIVE

The student will practice teaching on airport maneuvers and practice 180E touchdown autorotations.

CONTENT

- Maximum performance takeoff & climbs
- Steep approach
- Fast taxi
- Air taxi
- Slope landings
- Practice 180E touchdown autorotations

COMPLETION STANDARDS

The student will gain increased proficiency in general teaching ability.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
FLIGHT LESSON 12  1.5 HOURS DUAL .2 HOURS PRE & POST BRIEFING

A/C N______INSTRUCTOR_________GRADE_________________DATE______

OBJECTIVE
During this lesson the student will practice teaching off airport maneuvers.

CONTENT

Rapid descent with power
Pinnacles approach/departure
Confined areas approach/departure
High reconnaissance
Low reconnaissance
Airspeed over altitude takeoff

COMPLETION STANDARDS
The student will demonstrate proficiency in teaching all aspects of pinnacles and confined areas.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
LIGHT LESSON 13  1.5 HOURS DUAL  .2 HOURS PRE & POST BRIEFING

A/C N______INSTRUCTOR__________GRADE____________________DATE______

OBJECTIVE

During this lesson the student will practice teaching on airport maneuvers and emergency procedures.

CONTENTS

Surface taxi
Running takeoffs & climb
Shallow Approach & Running landings
Settling with power
Low G
Anti torque system failure
Stuck collective
Low RPM (all phases of flight)
Practice 180E touchdown autorotations

COMPLETION STANDARDS

The lesson will be complete when the student demonstrates proficiency in teaching maneuvers.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 14  1.5 HOURS DUAL  .2 HOURS PRE & POST BRIEFING

A/C N______INSTRUCTOR__________GRADE________________DATE_____

OBJECTIVE

During this lesson the student will practice teaching autorotations.

CONTENTS

Straight in autorotations
180E autorotations
Forced landings (throttle cuts)
Hover autorotations
Partial power failure
Systems & equipment malfunctions
Emergency equipment & survival gear

COMPLETION STANDARDS

The lesson will be complete when the student demonstrates proficiency in teaching the maneuvers listed above.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
LIGHT LESSON 15  1.5 HOURS DUAL .2 HOURS PRE & POST BRIEFING

A/C N_______INSTRUCTOR_________GRADE________________DATE_____

OBJECTIVE

During this lesson the student will practice teaching the elements of airborne navigation.

CONTENTS

Airport departures
Checkpoints
Heading flying
Diversions
Communications
Airport arrivals
In-flight calculations (1/60 rule)
Time/Distance
Pilotage
Dead reckoning
Radio navigation

COMPLETION STANDARDS

This lesson will be complete when the student shows proficiency in teaching cross-country flying.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 16  2.0 HOURS DUAL  2.0 HOURS GROUND INSTRUCTION
A/C N______INSTRUCTOR_________GRADE______________DATE_____

OBJECTIVE

During this stage check, the Chief Flight Instructor or his assistant will conduct the final check. Through oral examination and flight test, the student will demonstrate the knowledge and skill required to teach each maneuver required by a Certified Flight Instructor.

LESSON CONTENT

As outlined in the current FAA Practical Test Standards

COMPLETION STANDARDS

The student will demonstrate the knowledge and proficiency that meets or exceeds the standards, as outlined in the current FAA Rotorcraft CFI Practical Test Standards.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised November 2007
Appendix "B"

Description of Facilities
**Florida Institute of Technology**

**ADDING A NEW COURSE TO THE CURRICULUM**

This course is available for student registration only after the approval process has been completed.

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>V</th>
<th>F</th>
<th>COURSE NO.</th>
<th>CREDIT HOURS</th>
<th>TERM TO BE ADDED TO THE FILE</th>
<th>COLLEGE</th>
<th>DEPARTMENT</th>
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<td>3 0 1 4</td>
<td>2</td>
<td>Spring 2011</td>
<td>NATHAN M. BISK COLLEGE OF BUSINESS - 24</td>
<td>Aviation Flight</td>
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<th>LAB HOURS</th>
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<tr>
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- COLLEGE OF AERONAUTICS - 23
- COLLEGE OF PSYCHOLOGY AND LIBERAL ARTS - 25
- COLLEGE OF SCIENCE - 26
- EXTENDED STUDIES DIVISION / NATHAN M. BISK COLLEGE OF BUSINESS - 90

**COMPUTER TITLE** Restricted to 25 characters, including spaces: Helicopter Flight Instructor - Instrument

**CATALOG TITLE**

**CATALOG DESCRIPTION OF COURSE** Restricted to 350 characters, including spaces:

Prepares certified flight instructors to become instrument flight instructors in helicopters. Develops skills in analyzing student procedures and maneuvers in all instrument flight procedures through ground instruction and flight in the instructor's seat. Requires passing the FAA knowledge test and flight test.

In addition, please attach a course syllabus and/or more detailed description.

**Restrictions**

<table>
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<tr>
<th>Restriction</th>
<th>Course Number</th>
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<td>Corequisite</td>
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<tr>
<td>Prerequisite</td>
<td></td>
<td>Corequisite</td>
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</table>

**Additional Restrictions**

Requirements: FAA flight instructor-helicopter certificate

If this course replaces a course currently offered in BANNER, please indicate old course information and the date/term the course may be removed from the system.

**Subject** Alpha Prefix (e.g., CSE) ____________ **Course No.** (e.g., 1301) ____________

**APPROVALS:** Upon completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval below and forward to Catalog Director.

<table>
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<th>Originator</th>
<th>Date</th>
<th>Chair, Graduate Council</th>
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<td>OR</td>
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<tr>
<td>Department Head/Program Chair</td>
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<thead>
<tr>
<th>Dean or Associate Dean</th>
<th>Date</th>
<th>Chair, Undergraduate Curriculum Committee</th>
<th>Date</th>
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**Catalog Director**

These changes/additions have been made for the University Catalog/policy management system and entered into the BANNER term named above.

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**Registrar's Use Only**

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**Distribution**

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BRISTOW ACADEMY, INC.

TRAINING COURSE OUTLINE - TRAINING SYLLABUS

CERTIFIED INSTRUCTOR INSTRUMENT RATING

ROTORCRAFT HELICOPTER

15 HOURS CLASSROOM INSTRUCTION
15 HOURS INSTRUMENT HELICOPTER FLIGHT
7 HOURS PRE/POST FLIGHT BRIEFING
2 HOURS FLIGHT CHECK

Revised November 2007
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<td>Student Records</td>
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<tr>
<td>Appendix “A” Aircraft and Chief Flight Instructor</td>
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<tr>
<td>Appendix “B” Description of Facilities</td>
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<td>September 2008</td>
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</table>
1. Bristow Academy, Inc. located at Space Coast Regional Airport, Titusville, Florida, 32780, operated as:

<table>
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<tr>
<th>Main Operations Base</th>
<th>Satellite Base</th>
<th>Satellite Base</th>
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<tbody>
<tr>
<td><strong>Bristow Academy, Inc.</strong></td>
<td>Bristow Academy, Inc.</td>
<td>Bristow Academy Inc.</td>
</tr>
<tr>
<td>365 Golden Knights Blvd</td>
<td>81 John Glenn Drive</td>
<td>1113 Vortex Drive</td>
</tr>
<tr>
<td>Titusville, Florida 32780</td>
<td>Concord, CA 94520</td>
<td>New Iberia LA 70560</td>
</tr>
</tbody>
</table>

2. COURSE TITLE - Instrument Instructor Certification Course - Rotorcraft - Helicopter.

3. This training course outline meets all of the curriculum requirements for the Instrument Certification contained in Appendix G of FAR Part 141.

4. COURSE OBJECTIVE - The student will obtain knowledge, skill and aeronautical experience necessary to meet the requirements for a Certified Instrument Instructor helicopter.

5. COMPLETION STANDARDS - The student must demonstrate through knowledge tests, flight tests, and show through appropriate records that he meets the knowledge, skill and experience requirements necessary to obtain an Instructor Instrument Rating Certificate with a Rotorcraft Category and Helicopter Class rating.

6. AIRPORT - Space Coast Regional Airport is the main base for training in this course. Space Coast Regional Airport meets the requirements of Section 141.38 of the FAR's are for day and night operations.

7. AIRCRAFT - All aircraft used in this course will meet the requirements of 141.39 of the FAR's. Each aircraft is equipped for day and night VFR flying, and meets the minimum equipment requirement for IFR flight 91.205 D. In addition, each aircraft will be equipped with radio navigation equipment consisting of a VOR receiver, localizer and Glide Slope capabilities, and any combination of GPS and/or ADF receivers.

8. CHIEF FLIGHT INSTRUCTOR - The Chief Flight Instructor for this course will meet all the requirements for Chief Flight Instructor under FAR 141.35 (c). See Appendix A for name of the designated Chief Flight Instructor.

9. ASSISTANT CHIEF FLIGHT INSTRUCTOR - The Assistant Chief Flight Instructor for this course will meet the requirements under FAR 141.36 (c). See Appendix A for name of Assistant Chief Flight Instructor.

10. FLIGHT INSTRUCTOR - Each Flight Instructor assigned to this course must be the holder of at least a Commercial Pilot Certificate with a Rotorcraft Category rating and a Instrument Helicopter, Class Rating as well as a current Flight Instructor Instrument certificate.

Revised April 2007
11. GROUND SCHOOL INSTRUCTOR - The Ground School Instructor for this course must possess a Ground Instructor Certificate with Advanced Ground Instructor Rating, and Instrument Ground Instructor Rating or Flight Instructor Instrument (Rotorcraft – Helicopter).

12. AUDIO-VISUAL AIDS - The following list describes the special equipment used for ground training:

a. White drawing boards
b. Aircraft models
c. Various helicopter components
d. VCR and training tapes
e. Computers
f. Overhead Projectors
g. Slide Projector
h. Power Point Projection

See Appendix for a description of each ground training room.

13. CREDIT GRANTING PROCEDURES - According to FAR 141.77 (c)

Credit for previous pilot experience or knowledge may be granted after evaluation testing by the Chief Flight Instructor or his designee. The student will be tested against either the Stage 1 or 2 completion standards set forth in the training syllabus. The appropriate stage test to be administered will be determined by the Chief Flight Instructor or his designee based on the applicant's logged or certified experience or training. The passing scores and grades will be consistent with standard Bristow Academy policy. If an applicant fails either the flight or knowledge portion of the stage test, the Chief Instructor or his designee will note the areas that are found to be deficient and prescribe lessons from the training syllabus to bring the applicant up to the completion standards of the particular stage of training. The student must pass the appropriate stage test before proceeding onto the next stage of training.

MAXIMUM CREDIT GRANTED - For students with previous pilot experience not based upon a part 141 approved training course, up to 25% of the curriculum requirements may be granted by the Chief flight Instructor or his designee after evaluation testing. For students with previous 141 experience who meet the requirements of Part 141.77(c) (1-4), the Chief Flight Instructor or his designee shall determine the amount of credit transferred after evaluation testing. This amount shall not exceed 50% of the curriculum requirements.

14. AIRPORTS USED FOR CROSS-COUNTRY FLIGHTS - According to FAR Part 1, an airport is an area of land or water that is used for takeoff and landing of aircraft. This definition is most applicable to the helicopter. In order to encompass a wide variety of cross country destination and origination points indicative of the type of flights and varied destinations assigned to Private Helicopter Pilots, it is important for the student to experience an endless supply of landing sites. More "airports" exist for possible use than we could ever list. The following list represents some of the assigned cross-country airports in this course of training. The Chief Flight Instructor will approve all other destination and origination points.
Bristow Academy, Inc.  
Certified Flight Instructor Instrument Course

Jacksonville Sectional

<table>
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<td>Zephyrhills</td>
<td>Orlando Executive</td>
<td>Melbourne</td>
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<tr>
<td>Lakeland Linder</td>
<td>Orlando Co</td>
<td>Winter Haven</td>
<td>International</td>
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<td>Orlando Sanford</td>
<td>Kissimmee</td>
<td>Pilot Co</td>
<td>Tampa North</td>
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<td>Plant City</td>
<td>Hernando Co</td>
<td>New Smyrna Beach</td>
<td>Delene Taylor</td>
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<td>Leesburg Regional</td>
<td>Daytona Beach</td>
<td></td>
<td>Vandenberg</td>
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<td></td>
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Miami Sectional

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<th>Location</th>
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<td>Valkaria</td>
<td>Okeechobee</td>
<td>River Ranch</td>
<td>Babastian</td>
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<tr>
<td>Sebring</td>
<td>Avon Park</td>
<td>Vero Beach</td>
<td>Arcadia</td>
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<td></td>
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<td>St Lucie</td>
<td>Wauchula</td>
<td>LaBelle</td>
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<tr>
<td>Witham</td>
<td>Lake Wales</td>
<td>Airglades</td>
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</table>

15. The instrument training syllabus herein contains three stages. Stage one must be completed prior to the student's first instrument flight. Upon completion of the ground training course, the student must pass Bristow Academy knowledge examination on the material covered in stage one. After passing this examination, the student will be signed off to take the FAA knowledge examination for Instrument Instructor - Rotorcraft - Helicopter.

16. PERSONNEL - Bristow Academy, Inc. maintains a staff of qualified personnel according to FAR 141.33. All personnel have been instructed in the procedures and responsibilities of his or her employment.
SAFETY PROCEDURES AND PRACTICES

1. All training is to be conducted in accordance with Federal Aviation Regulations. The flight instructor will supervise the content of all flights, including solo flights. No student pilot may be authorized to start a solo practice flight from an airport until the flight has been approved by an authorized flight instructor, who is present at that airport.

2. No emergency procedures of any kind may be practiced unless an instructor from Bristow Academy is onboard the aircraft. Minimum altitude for Emergency Procedure Training is 1500 feet above ground level (AGL).

3. No student will carry a passenger while on a solo training flight. Any student found to have done so will be reported to the Federal Aviation Administration.

4. Each pilot will check the squawk sheet prior to each flight. Any discrepancies must be noted and reported to maintenance personnel immediately.

5. All pilots will use the appropriate checklist for all operations provided by Bristow Academy, Inc from before starting until after shutdown. All pilots will clear the immediate area of the helicopter prior to starting. Students will not the start the helicopter without the instructor's permission. When taxiing to and from the ramp area, the student will obey all ATC instructions. Students will give-way to taxing airplanes and will hover at a skid height of 3 - 5 feet. All pilots will use surface taxi procedures when moving past "slow turning rotors" and when other aircraft doors are open.

6. Solo training flight will be conducted in VFR weather conditions only. Students may not fly solo if the wind speed exceeds 12 kts. At the discretion of your instructor written authorization may be given to exceed this limitation up to 15 kts.

7. In the event that a solo student encounters delays on a flight, he/she may continue the flight after sunset only for the purpose of returning to Space Coast Regional and only if visibility is at least 5 miles and the ceiling is at least 2,500 feet. Additionally he/she may continue only if he/she has received flight training at night and received a logbook endorsement. See FAR 61.87(m) for reference.

8. For dual flights in the Space Coast Regional traffic pattern or the designated training areas, the weather minimums will be 700' ceiling and a half mile visibility. For dual cross-country flights, the weather minimum will be 1,000-foot ceiling and one-mile visibility.

9. A minimum of 20 minutes reserve fuel is required for both cross-country and local flights. Pilots will not trust the fuel gauges and should never fly when they indicate less than quarter-full.

10. Pilots will not fly at altitude of less than 500 feet above ground level (AGL) while on cross-country or training flights, except for the purpose of take-off or landing. Simulated emergency landings will be terminated at an altitude, which ensures a safe transition into normal flight with respect to obstructions and the height/velocity diagram.

11. Over water flights are not permitted unless the aircraft is within autorotation distance of a suitable landing area unless approved flotation devices are available for every person on board or the the aircraft is equipped with approved flotation gear. Additionally the aircraft needs to be equipped with a flare gun.

Revised April 2007
Safety Procedures & Practices

Continued

12. Should a student have to make a precautionary or un-programmed landing for any reason, he/she will notify Bristow Academy by telephone at 800-886-4080 and obtain an airworthiness release and dispatch approval from a Bristow Academy instructor before continuing.

13. An official VFR flight plan must be filed for all solo cross-country flights.

14. Students must obtain a written endorsement from their flight instructor before practicing off-airport landings, pinnacle, ridge, or confined area approaches.

15. Smoking is not allowed in the vicinity of the aircraft or fuel trucks. Students will observe strict fire precautions while in the vicinity of the aircraft or hangar. Students will acquaint themselves with the location and operation of the fire extinguisher. In the event of an engine fire, students will follow the emergency procedure, which is detailed in the aircraft’s operating handbook. If the aircraft is on fire protect human life, but leave the aircraft fire fighting to the professionals.

16. When not in use, the helicopter rotor blades will be secured using the tie downs provided in each aircraft. This will only be necessary when the wind speed exceeds 15 knots. During the day it will not be necessary to secure the aircraft to the ground. Students will not leave the helicopter unattended with the keys left in it under any circumstances.

17. Students will exercise the utmost caution when operating in the vicinity of other aircraft; either on the ground or in flight. When in flight students will follow the collision avoidance procedures as outlined in FAR 91.111, 91.113, 91.115, and will practice the proper scanning technique as described in the Airman’s Information Manual paragraph 8-1-6 and 8-1-8.

18. All solo practice will take place at the airports listed in the training course outline. In addition to these airports, dual-training flights may also be conducted in other locations deemed necessary by the instructor. Information concerning Additional Training Areas can be found in Student Notices. (Your Instructor will show you where to find them and explain these operations)

19. All pilots will adhere to rules, regulations, and policies laid out in the current Bristow Academy Flight Operations Manual.

I have read and agree to comply with all the above conditions,

Signed: ___________________________________________ Date: ______________
Student Helicopter Pilot

Instructor’s Signature: ___________________________________________ Date: __________

Certificate #: ___________________________ Exp Date: ____________________________

Instructor’s Name: ________________________________________________
PROGRESS AND GRADES

A. INSTRUMENT TRAINING

Instrument training is divided into stages. The student must pass each stage before they can progress to the next stage. Proficiency stage checks will be given by the Chief Flight Instructor or his designee. Progression to the following stage requires a passing grade. Failure to pass a proficiency stage check will necessitate return to the former stage with review and additional instruction required. Students are graded on their performance during dual flights and must maintain a passing grade in order to remain in the course.

Grading system values are as follows:

<table>
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<tr>
<th>RATING</th>
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<tr>
<td>Well above average</td>
<td>1</td>
</tr>
<tr>
<td>Above average</td>
<td>2</td>
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<tr>
<td>Average</td>
<td>3</td>
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<tr>
<td>Below average</td>
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<tr>
<td>Unsatisfactory</td>
<td>5</td>
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</table>

B. GROUND TRAINING

The percentage system is utilized in the classroom with 70% on examinations considered as a minimum passing grade. A student must receive a passing grade to be entitled to receive a certificate from his ground training course showing that he has satisfactorily completed the ground instruction.
COURSE DESCRIPTION -
INSTRUMENT INSTRUCTOR CERTIFICATION COURSE ROTORCRAFT - HELICOPTER

1. ENROLLMENT PREREQUISITES - Students enrolling in this flight course must be 18 years of age, possess a valid commercial helicopter pilot certificate or an airline transport pilot certificate with an instrument helicopter rating and hold at least a third-class medical certificate.

2. COURSE OBJECTIVES - The student will obtain the knowledge, aeronautical skill and experience necessary to meet the requirements for a Flight Instructor Instrument Rating with a Rotorcraft Category Rating and a Helicopter Class Rating.

3. COURSE COMPLETION STANDARDS - The student must possess a Commercial Helicopter Pilot certificate or an airline transport pilot certificate and demonstrate through flight tests, knowledge tests, and school records that he/she has the necessary knowledge, skill and experience to obtain an Instrument Instructor Certificate.

4. KNOWLEDGE STAGE TESTS (DESCRIPTION)

   The Stage I Knowledge test will consist of either "multiple choice" or "fill in" type of questions to measure if the student meets the knowledge requirements of Flight Instruments/Radio Navigation and IFR procedures, helicopter Instrument FAR's and weather forecasts. It will also measure the student's readiness to take the FAA Instrument Pilot Knowledge Test for Helicopters.

5. This course has been constructed to meet all requirements of FAR 141 and to be as objective and meaningful as possible. Hours shown for dual flight training are offered as a guide to the instructor. Specified minimum times for an entire stage must be complied with, whereas times used on individual lessons may be adjusted to the individual student's needs.
CERTIFIED FLIGHT INSTRUCTOR COURSE / ROTORCRAFT - HELICOPTER

STUDENT'S NAME____________________ PHONE

ADDRESS
    Street & Number,     City

DATE OF ENROLLMENT

MEDICAL CERTIFICATE CLASS_________ DATE

COMMERCIAL PILOT CERTIFICATE NUMBER________ DATE

EVALUATION FLIGHT DATE______ EVALUATION PILOT

(GND)
STAGE 1 KNOWLEDGE____ DATE____ ORAL____ DATE____ FLIGHT____ DATE____

(FLT)
STAGE 2
    ORAL____ DATE____ FLIGHT____ DATE____
STAGE 3 EMERGENCY
    ORAL____ DATE____ FLIGHT____ DATE____

PRACTICAL TEST DATE: ____________________________
CERTIFIED FLIGHT INSTRUCTOR INSTRUMENT COURSE ROTORCRAFT - HELICOPTER

CREDIT GRANTED FOR GROUND SCHOOL/STAGE 1

GROUND TRAINING FINAL KNOWLEDGE SCORE DATE RETEST

FAA KNOWLEDGE TEST SCORE DATE

STAGE I COMPLETION DATE

STAGE II COMPLETION DATE

STAGE III COMPLETION DATE

GRADUATION CERTIFICATE ISSUED

I hereby certify that the above information is true and correct and the above student has completed this course under FAR Part 141

__________________________
CHIEF FLIGHT INSTRUCTOR

The above student has been terminated/transfered from this course of training under FAR Part 141.

__________________________
CHIEF FLIGHT INSTRUCTOR

Date

Revised April 2007
CERTIFICATE OF ENROLLMENT

This is to certify that ______has been enrolled as of ________ in the following training course:

CERTIFIED FLIGHT INSTRUCTOR INSTRUMENT COURSE

This course will be conducted by Bristow Academy, Inc. in accordance with Part 141 of Federal Aviation Regulations.

________________________
Chief Flight Instructor

Revised April 2007
GRADUATION CERTIFICATE

CERTIFICATE OF GRADUATION

This is to certify that

_________________________

has satisfactorily completed each

required stage of training, and meets

cross-country flight requirements

as prescribed by the

Federal Aviation Administration’s Approved

Flight Instructor Instrument Certification Course – Rotorcraft Helicopter

Date of Graduation_____  

Given under my hand and seal

this ______ day of _____, ____.

I certify the above statements are true.

Bristow Academy, Inc.  
Titusville, Florida  
HIAS182B (Air Agency Certificate Number)

_________________________
(Signature)

_________________________
(Title)
TRAINING RECORD
STAGE ONE - IFR GROUND TRAINING

15 HOURS GROUND TRAINING

STAGE ONE OBJECTIVES -

The student will have a full understanding of the fundamentals of instruction. The student will have a thorough working knowledge of the IFR Flight environment. Part 141 Appendix G (3)(b). The student will also gain a knowledge of instructing all subject areas required for the IFR flight environment.

a) The fundamentals of instruction to include: The learning process, elements of affective teaching, student evaluation and testing, course development, lesson planning, classroom training techniques.

b) The Federal Aviation Regulations that apply to flight under IFR conditions, the IFR traffic system and procedures, and the provisions of the Airman's Information Manual pertinent to IFR flights.

c) Dead reckoning appropriate to IFR navigation, IFR navigation by radio aids using the VOR, ADF, GPS and ILS systems, and the use of IFR charts and instrument approach procedures charts.

d) The procurement and use of aviation weather reports and forecasts, and the elements of forecasting weather trends on the basis of that information and personal observation of weather conditions.

e) The function, use, and limitations of flight instruments required for IFR flights, including transponders, radar and radio aids to navigation.

f) The aircraft's performance capabilities by calculating the estimated time enroute and total fuel requirement based upon such factors as -

   a) Power settings.
   b) Operating altitude or flight level.
   c) Wind.
   d) Fuel reserve requirements.
(Continued)

g) The applicable aircraft anti-icing/deicing system(s) and their operating methods to include:
   a) Airframe.
   b) Propeller/intake/rotor.
   c) Fuel system.

h) The preflight instrument, avionics, and navigation equipment cockpit check by explaining the reasons for the check and how to detect possible defects.

The preflight instrument, avionics, and navigation equipment cockpit check by following the checklist appropriate to the aircraft flown.

The aircraft is in condition for safe instrument flight including -

a) Radio communications equipment
b) Radio navigation equipment including the following, as appropriate, to the aircraft flown
   1) VOR/VORTAC receiving
   2) ADF receiving equipment.
   3) GPS receiving equipment
   4) ILS/MLS receiving equipment

c) Magnetic compass.
d) Heading indicator.
e) Attitude indicator.
f) Altimeter.
g) turn-and-slip indicator/turn coordinator.
h) Vertical speed indicator.
i) Airspeed indicator.
j) Clock.
k) Power source for gyro-instruments.
l) Pitot heat.

Determines whether the aircraft is safe for instrument flight or requires maintenance.

STAGE ONE COMPLETION STANDARDS -

The stage will be complete when the student completes the instruction listed above and passes Oral and Knowledge Tests. The student will demonstrate his or her knowledge to teach all subject areas for certificates and ratings pertaining to IFR.

Revised April 2007
LESSON ONE 1.0 HOURS

OBJECTIVE

The student will be introduced to the fundamentals of instruction

LESSON CONTENT

A. The learning process
B. Elements of effective teaching
C. Student evaluation and testing
D. Course development
E. Lesson planning
F. Classroom training techniques

COMPLETION STANDARDS

The lesson will be complete when the student shows an understanding of the material presented.

INSTRUCTOR COMMENTS AND RECOMMENDATIONS
LESSON TWO 1.0 HOUR

OBJECTIVE

The student will be introduced to the flight instruments as related to IFR flying.

LESSON CONTENT

A. Pitot-Static System

Static source
  Altimeter
    review of altitude definitions
    principle of operation

  Vertical Speed Indicator
    principle of operation
    limitations - lag

  Pitot and Static
    Airspeed Indicator
    principle of operation
    errors
      instrument
      position - pitot source
    compressibility
    airspeeds
      indicated
      calibrated
      equivalent
      true

  Pitot/Static system blockages

B. Gyroscopic

  Principles of Gyro
    precession
    rigidity + factors affecting rigidity
  Electric/vacuum/venturi gyro systems
LESSON TWO - Continued

Attitude Indicator
- method of operation - roll + pitch
- construction
- erecting mechanisms
- errors - centrifugal forces, unbalanced flight
topping
caging

Turn Indicator
- method of operation - yaw, rate gyro
- turn coordinator
- slip ball

Heading Indicator
- method of operation - DG
- errors - bearing friction, precession, 15 min cx
- remote reading compass, flux detector
- HSI

C. Magnetic Compass
- operations
- variation
deviation
dip errors
- oscillation errors

D. Instrument Checks
- off flags
- vacuum gauge/ammeter
- altimeter

COMPLETION STANDARDS

The student will have an understanding of the Pitot-Static system, gyroscopic system and Magnetic Compass system and the errors appropriate to each.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON THREE - 1.0 Hour

OBJECTIVE

The student will be instructed in the use and operation of radio navigation aids.

LESSON CONTENT

A. RADIO NAVIGATION

VOR
- ground facilities
- method of operation
- classification
- accuracy checks
- ident including T.E.S.T
VOT
- VOR indicators
- interpreting indications
  - orientation, intercepts, station passage
- time and distance
- limitation - line of sight

DME
- principles of operation
- accuracy

TACAN
- principle of operation

NDB
- principle of operation
- errors
  - coastal refraction
  - twilight effect
  - reflection
  - precipitation static
  - thunderstorms
- commercial radio stations

ILS
- Components
  - Localizer
  - Marker Beacons

TRANSPONDERS
- Basic operations
  - Codes
  - Altitude encoding

GPS
- principle of operation
- accuracy
- limitations
- errors
  - satellite clock error
  - ionosphere error
  - satellite ephemeris error
  - receiver error
  - satellite geometry error

COMPLETION STANDARDS

The student will demonstrate his working knowledge of radio navigation aids.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON FOUR – 0.5 HOUR

OBJECTIVE

The student will be introduced to the maneuvers related to Instrument Flying. Review of Lessons One and Two.

LESSON CONTENT

A. ATTITUDE FLYING

control and performance concept
primary/support concept - pitch, bank, power
cross-check, interpretation, aircraft control
cross-check errors - fixation, omission, emphasis
disorientation
straight and level - heading speed and height control
level turns - bank for standard rate
steep turns
climbs and descents - 10% lead
constant airspeed climbs
constant airspeed descents
constant-rate climbs
constant-rate descents
climbing and descending turns
unusual attitude recovery
partial panel flying
timed turns
autorotations

COMPLETION STANDARDS

The student will continue to demonstrate his/her knowledge from Lesson One and Two and to understand the basics of attitude flying.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON FIVE - 2 HOURS

OBJECTIVE

The student will review FAR's related to IFR, IFR clearance's and procedures as they relate to helicopter flight. Review the ATC system, airports, and airspace.

LESSON CONTENT

A. FAR'S
   FAR 1       FAR 95
   FAR 61      FAR 97
   FAR 91

B. ATC SYSTEM
   Air Route Traffic Control Center
   processing the IFR flight plan
   enroute traffic separation
   weather information
   safety alerts
   emergency assistance
   ATIS
   clearance delivery
   control tower
   approach and departure control
   radar service for VFR aircraft
   Class A airspace
   Class B airspace
   Class C airspace
   Class D airspace
   traffic advisories
   Flight Service Stations

C. ATC CLEARANCES
   where a clearance is required
   elements of an IFR clearance
   abbreviated IFR departure clearance
   cruise clearance
   approach clearance
   VFR on top
   VFR restrictions to an IFR clearance
   composite flight plan
   hold for release
   clearance void time
   clearance readback
   clearance shorthand

Revised April 2007
LESSON FIVE - Continued

D. AIRPORTS, AIRSPACE, AND FLIGHT INFORMATION

runway markings
special purpose areas
lighting systems
runway lighting
controlled airspace
special use airspace
uncontrolled airspace
Airport facility directory
AIM
NOTAM
advisory circular

COMPLETION STANDARDS

The student will have a basic understanding of ATC system and IFR regulations.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
ESSON SIX 1.0 HOUR

OBJECTIVE

The student will be introduced to instrument approach charts. Review of Lesson Four.

LESSON CONTENT

A. INSTRUMENT APPROACH CHARTS

- approach chart
- approach segments
- heading section
- plan view
- profile view
- step-down fix and VDP
- landing minima
- aircraft categories
- visibility requirements
- minimum altitude requirements
- inoperative components
- airport chart
- heading section
- plan view and runway information
- takeoff and alternate minima

COMPLETION STANDARDS

The student will have a working knowledge of Instrument Approach Procedures.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised April 2007
LESSON SEVEN - 1.0 HOUR

OBJECTIVE

The student will be introduced to navigation departure and arrival charts.

LESSON CONTENT

A. ENROUTE AND AREA CHARTS

enroute charts
front panel
navigation aids
victor airways
communications
airports
airspace
area charts

B. DEPARTURE AND ARRIVAL CHARTS

standard instrument departure
pilot nav DP (Departure Procedure)
vector DP
standard terminal arrival charts

COMPLETION STANDARDS

The student will have a thorough understanding of instrument chart interpretation.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS
LESSON EIGHT 1.0 HOUR

OBJECTIVE

The student will review approach procedures as they apply to helicopters.

LESSON CONTENT

A. APPROACHES

- ILS components
- ILS visual aids
- ILS categories
- flying the ILS approach
- non radar ILS procedures
- transition via DME arc
- ADF transition
- back course approaches
- approach clearance
- VOR approach procedure
- off-airport facility
- on-airport facility
- VOR/DME procedure
- RNAV approach procedures
- GPS approach procedure
- flying the approach
- phases of GPS approaches
- NDB approach charts
- NDB approach procedures
- flying the approach

COMPLETION STANDARDS

The student will demonstrate his/her knowledge from lesson six and show an understanding of the approach procedures.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON NINE     1.5 HOURS

OBJECTIVE

The student will review instrument departure procedures and enroute operations.

LESSON CONTENT

A. DEPARTURES

- takeoff minima
- visibility
- departure considerations
- standard instrument departure / departure procedure
- IFR departure procedures
- radar departure

B. ENROUTE OPERATIONS

- enroute radar procedures
- communications
- facility radio failure
- compulsory reporting procedures
- special use airspace
- holding patterns and procedures
- IFR cruising altitudes
- descending from the enroute segment

COMPLETION STANDARDS

The student will be able to depart into IFR systems, operate enroute, enter and maintain holds and determine descents from enroute.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON TEN       1.5 HOURS

OBJECTIVE

The student will review the basics of weather, obtaining weather, interpretation of weather and weather hazards.

LESSON CONTENT

A.  WEATHER FACTORS

   the atmosphere
   moisture
   atmospheric stability
   clouds
   airmasses
   fronts
   types of fronts

B.  HAZARDS AND CRITICAL WEATHER SITUATIONS

   thunderstorms
   thunderstorm avoidance
   turbulence
   reporting turbulence
   wake turbulence
   low visibility
   icing
   cold weather operations
   windshear and avoidance

C.  REPORTS AND FORECASTS

   Duat usage and interpretation
   surface aviation weather reports
   pilot weather reports
   terminal forecasts
   area forecasts
   wind and temperatures aloft forecasts
   severe weather reports and forecasts
   in-flight weather services
   hazardous in-flight weather advisory service
   automated weather observing system
LESSON TEN       Continued

D. GRAPHIC WEATHER PRODUCTS

   surface analysis chart
   weather depiction chart
   radar summary chart
   constant pressure chart
   freezing level chart
   low-level significant weather prognostic
   significant weather panels
   surface prognostic panels
   severe weather outlook chart

COMPLETION STANDARDS

   The student will be able to obtain, interpret and recognize weather and weather hazards.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON ELEVEN  1.0 HOUR

OBJECTIVE

The student will review IFR planning.

LESSON CONTENT

A. IFR FLIGHT PLANNING

  initial planning
  route selection
  flight information publications
  standard weather briefing
  alternate airport requirements
  altitude selection
  completing the navigation log
  filing the flight plan
  composite flight plan

COMPLETION STANDARDS

The student will be able to obtain information to plan route, complete and file a flight plan.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON TWELVE 1.0 HOUR

OBJECTIVE

The student will review IFR emergency procedures. Review Lesson 1 thru 11.

LESSON CONTENT

A. IFR EMERGENCY PROCEDURES

- declaring an emergency
- alerting ATC
- use of a transponder
- route
- altitude
- leave clearance limit
- surveillance approach
- no-gyro approach
- malfunction reports
- the decision making process
- hazardous attitudes
- IFR flight considerations
- cockpit organization
- role of the crew, communication, and coordination
- pilot's weather
- limitations of aviation forecasts

COMPLETION STANDARDS

The student will be able to pass the oral and knowledge test on IFR operations and procedures.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised April 2007
LESSON THIRTEEN  1.5 HOURS - ORAL STAGE CHECK

OBJECTIVE
To examine the student's overall knowledge of the IFR system and his/her readiness for the Instrument helicopter knowledge test.

LESSON CONTENT
Knowledge test material covered in Stage One Lessons One through Thirteen.

COMPLETION STANDARDS
The student will need to pass the knowledge and oral tests to the chief instructor's satisfaction.
STAGE TWO IFR FLIGHT TRAINING

11 HOURS HELICOPTER IFR + 2.0 FLIGHT CHECK
2.4 HOURS PRE AND POST FLIGHT BRIEFING

OBJECTIVES

The student will obtain the necessary skill to:

1. control and maneuver the aircraft solely by reference to instruments,

2. navigate with VOR's and ADF's, including time, speed and distance calculations, and

3. execute all instrument approaches to published minimums.

COMPLETION STANDARDS

The stage will be completed when the student performs areas 1 - 3 of above and passes a flight check after each area to the chief instructor’s satisfaction. The student will demonstrate his ability to perform in the IFR system and teach related subject material.

Airports listed in Phase 2 may be changed to suit weather conditions, or operations from a satellite base.

Revised April 2007
LESSON ONE - 1.0 INSTRUMENT  .2 PRE/POST FLIGHT BRIEFING

OBJECTIVE

To introduce the student to the basics of attitude helicopter flying.

LESSON CONTENT

Introduction to Instrument Flying
Preflight Preparation
Fundamentals of instructing
Technical subject areas
Pitch instruments, pitch associated with speeds
Bank instruments. Magnetic compass errors.
Timing turns vs. turn coordinator
Disorientation: procedure and recovery technique
Autorotation
Steep turns
Instrument approach – GPS or NDB
Post flight procedures – gyro shutdown, visual inspection of aircraft

COMPLETION STANDARDS

The student will be able to demonstrate the skills in basic attitude flying and how they should be taught.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised April 2007
LESSON TWO - 1.0 INSTRUMENT .2 PRE/POST FLIGHT BRIEFING

OBJECTIVE

To continue the basics of attitude flying.

LESSON CONTENT

Practice of basic instrument flying and scan
  Preflight Preparation
  Fundamentals of instructing
  Technical subject areas
  Straight and level
  Straight climbs and descents - constant speed & rate
  Standard rate turns
  Accelerations and decelerations
  Vertical S's
  Instrument approach - ILS

COMPLETION STANDARDS

The student will be able to demonstrate the ability to perform practiced maneuvers and how they should be taught.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised April 2007
LESSON THREE - 1.0 HOURS INSTRUMENT FLIGHT CHECK .2 PRE/POST FLIGHT BRIEFING

OBJECTIVE

During the stage check, the Chief Flight Instructor or his assistant will evaluate the student's proficiency on maneuvering the helicopter solely by reference to the instruments and ability to teach related material.

LESSON CONTENT

Preflight Preparation
Fundamentals of instructing
Technical subject areas
Pitch instruments, pitch associated with speeds
Bank instruments. Magnetic compass errors.
Timing turns vs. turn coordinator
Disorientation: procedure and recovery technique
Autorotation
Steep turns
Instrument approach – GPS or NDB

Straight and level
Straight climbs and descents - constant speed & rate
Standard rate turns
Accelerations and decelerations
Vertical S's
Instrument approach - ILS

COMPLETION STANDARDS

The lesson will be complete when the student displays skill and understanding necessary to fly solely by reference to instruments. He will maintain altitude within 150 feet, airspeed within 15 knots, and heading within 10 degrees. The student will also demonstrate sufficient knowledge of emergency operations, and the pilot’s operating handbook (safety notice review optional) and how they should be taught.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS

Revised April 2007
LESSON FOUR - 1.0 INSTRUMENT .2 PRE/POST FLIGHT BRIEFING

OBJECTIVE

To introduce the student to radio navigation.

LESSON CONTENT

Preflight Preparation
Fundamentals of instructing
Technical subject areas
Unusual Attitudes
VOR and, ADF or GPS navigation
Revision and partial panel
VOR radial tracking and interception
Procedure turns
ADF or GPS homing and tracking
Simulated NDB or GPS approach Partial panel (VFR demo)
Instrument approach – LOC Partial Panel

COMPLETION STANDARDS

The student will be able to maintain control during partial panel and execute instrument approaches while demonstrating how they should be taught.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS
LESSON FIVE - 1.0 HOURS INSTRUMENT .2 PRE/POST FLIGHT BRIEFING

OBJECTIVE

The student will be able to gain proficiency in holding procedures.

LESSON CONTENT

Preflight Preparation
Fundamentals of instructing
Technical subject areas

Holding

Revision
Hold entries
Holding at a VOR, NDB, GPS or intersection
Instrument approach

COMPLETION STANDARDS

The student will be able to enter and maintain various holdings while demonstrating how they should be taught.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON SIX - 1.0 HOURS INSTRUMENT .2 PRE/POST FLIGHT BRIEFING

OBJECTIVE

To introduce the student to complete IFR operations.

LESSON CONTENT

Preflight Preparation
Fundamentals of instructing
Technical subject areas
Holding and Approaches

SID / DP
Revision – intersection or station holding
Precision approach
Non-Precision approach Partial Panel

COMPLETION STANDARDS

The student will be able to comply with complete IFR operations and how they should be taught.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised April 2007
LESSON SEVEN - 1.0 HOURS INSTRUMENT FLIGHT CHECK .2 PRE/POST FLIGHT BRIEFING

OBJECTIVE

To determine the student's ability to navigate by VOR's and NDB's or GPS's, including time and distance calculations and teach related material.

LESSON CONTENT

Preflight Preparation
Fundamentals of instructing
Technical subject areas

Maneuvers of lessons 4, 5 and 6

COMPLETION STANDARDS

The student will be able to demonstrate the ability to navigate in IFR systems, comply with ATC instructions and teach related subject material.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised April 2007
LESSON EIGHT - 1.0 HOUR INSTRUMENT  .2 PRE/POST FLIGHT BRIEFING

OBJECTIVE

To review the IFR environment.

LESSON CONTENT

Preflight Preparation
Fundamentals of instructing
Technical subject areas

Clearance + airborne filing and clearance
SID's / DP's
Vectoring and Communications
ILS approach
NDB or GPS approach
VOR approach
Fuel stop discretion of instructor

COMPLETION STANDARDS

The student will be able to file, obtain clearance and fly IFR; execute approaches and communicate with ATC.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON NINE - 1.0 HOURS INSTRUMENT  .2 PRE/POST FLIGHT BRIEFING

OBJECTIVE

To gain proficiency in partial panel and unusual attitudes.

LESSON CONTENT

Preflight Preparation
Fundamentals of instructing
Technical subject areas

Unusual Attitudes
VOR approach
Intersection hold
NDB or GPS approach

1 Partial Panel approach

COMPLETION STANDARDS

The student will be able to demonstrate the ability to recover from unusual attitudes and teach.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
STAGE CHECK

LESSON TEN  1.0 HOUR INSTRUMENT FLIGHT   0.5 PRE/POST FLIGHT BRIEFING

OBJECTIVE

The Chief Instructor, or his designee will review the student's ability to execute instrument approach procedures.

LESSON CONTENT

Preflight Preparation
Fundamentals of instructing
Technical subject areas

VOR approach
NDB or GPS approach
ILS approach
Missed approach

COMPLETION STANDARDS

The student will be able to perform in IFR system and approaches to published minimums while remaining in the published standards.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
STAGE THREE - IFR EMERGENCY OPERATIONS
PROCEDURES, AND FINAL FLIGHT CHECK

FIVE HOURS HELICOPTER INSTRUMENT FLIGHT TIME
0.8 PRE/POST FLIGHT BRIEFING
2.0 HOURS HELICOPTER INSTRUMENT FLIGHT CHECK
LESSON ONE - 1.1 HOURS INSTRUMENT FLIGHT

OBJECTIVE

To practice radio communication failure procedures, continue partial panel operations.

LESSON CONTENT

Simulate IFR clearance
and communication failure
Partial Panel Approach X2

COMPLETION STANDARDS

The student will be able to comply with IFR two-way radio communication failure procedures or teach as appropriate.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised April 2007
LESSON TWO - 1.0 INSTRUMENT FLIGHT  .2 PRE/POST FLIGHT BRIEFING

OBJECTIVE

Continue maneuvering the helicopter solely by reference to instruments during simulated emergency situations.

LESSON CONTENT

Simulated radio failure
Simulated gyro failure
No gyro approach

COMPLETION STANDARDS

The student will be able to react and maneuver the helicopter appropriate to each simulated emergency or teach as appropriate.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS
LESSON THREE - 1.2 HOURS INSTRUMENT FLIGHT .2 PRE/POST FLIGHT BRIEFING

OBJECTIVE

To continue emergency procedures operations and prepare the student for the final check.

LESSON CONTENT

SID / DP
ILS approach
Missed approach
Holding partial panel
VOR approach
Circle to land (optional at either airport)
NDB or GPS approach

COMPLETION STANDARDS

The student will be able to perform each operation to the published IFR standards and teach.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised April 2007
LESSON FOUR - 1.7 INSTRUMENT FLIGHT

0.2 PRE/POST FLIGHT BRIEFING

OBJECTIVE

During this stage check, the Chief Flight Instructor or his assistant will conduct the final check. Through oral examination and flight test, the student will demonstrate the knowledge and skill required to perform and teach each maneuver required by an instrument pilot in preparation for the Practical Test.

LESSON CONTENT

As outlined in the current FAA Practical Test Standards

COMPLETION STANDARDS

The student will demonstrate the knowledge and proficiency that meets or exceeds the standards, as outlined in the current FAA Rotorcraft Instrument Instructor Practical Test Standards.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised April 2007
LESSON FIVE - 2.0 INSTRUMENT FLIGHT  1.0 PRE/POST FLIGHT BRIEFING

OBJECTIVE
During this lesson the student will conduct the Certificated Flight Instructor Instrument Practical Test.

LESSON CONTENT
As outlined in the current FAA Practical Test Standards

COMPLETION STANDARDS
The student will demonstrate the knowledge and proficiency that meets or exceeds the standards, as outlined in the current FAA Rotorcraft Instructor Instrument Practical Test Standards.

INSTRUCTOR COMMENTS AND RECOMMENDATIONS
APPENDIX "A"

1. AIRCRAFT – The Schweizer 269C-1 (S300CB / S300CBI) and RHC Robinson R22 Beta II helicopter will be used for this course of training.


6. CHIEF GROUND INSTRUCTOR – None at this time.

Satellite Base New Iberia LA


Satellite Base Concord CA

APPENDIX "B"

DESCRIPTION OF FACILITIES
## Florida Institute of Technology

### ADDING A NEW COURSE TO THE CURRICULUM

This course is available for student registration only after the approval process has been completed.

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>A</th>
<th>V</th>
<th>F</th>
<th>COURSE NO.</th>
<th>4 0 0 7</th>
<th>CREDIT HOURS</th>
<th>1</th>
<th>TERM TO BE ADDED TO THE FILE</th>
<th>Spring 2011</th>
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| CLASS HOURS | LECTURE HOURS | LAB HOURS | CONTACT HOURS (CEU ONLY) | 29.5/semester |

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<td>(e.g., Lecture, Lab or Special Topics/Project)</td>
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<th>COLLEGE OF PSYCHOLOGY AND LIBERAL ARTS – 25</th>
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<td>NATHAN M. BISK COLLEGE OF BUSINESS – 24</td>
<td>COLLEGE OF SCIENCE – 26</td>
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<td>☐</td>
<td>COLLEGE OF ENGINEERING – 1</td>
<td>EXTENDED STUDIES DIVISION / NATHAN M. BISK COLLEGE OF BUSINESS – 90</td>
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| COMPUTER TITLE | Restricted to 25 characters, including spaces | Helo Mountain Flying |

| CATALOG TITLE | Helicopter Mountain Flying |

| CATALOG DESCRIPTION OF COURSE | Restricted to 350 characters, including spaces |

Provides the theory and practice of helicopter operations in mountainous/high altitude conditions. Emphasizes safety techniques in rotary wing operations in challenging environments such as high density altitude conditions.

In addition, please attach a course syllabus and/or more detailed description.

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ADDITIONAL RESTRICTIONS: FAA private pilot-helicopter rating

(e.g., Major, Class Level, Department Head Approval)

If this course replaces a course currently offered in BANNER, please indicate old course information and the date/term the course may be removed from the system.

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APPROVALS: Upon completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval below and forward to Catalog Director.

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<th>Chair, Graduate Council</th>
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<tr>
<td>Department Head/Program Chair</td>
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| Dean or Associate Dean | Date | Chair, Undergraduate Curriculum Committee | Date |

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Catalog Director | Date |

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BRISTOW ACADEMY, INC.

TRAINING COURSE OUTLINE-TRAINING SYLLABUS

HIGH ALTITUDE-MOUNTAIN FLYING COURSE

ROTORCRAFT HELICOPTER

12 HOURS GROUND INSTRUCTION
12 HOURS DUAL FLIGHT INSTRUCTION
3.0 HOURS TUTORED INSTRUCTION
2.5 HOURS PRE AND POST FLIGHT INSTRUCTION

Revised April 2007
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Revised April 2007
TRAINING COURSE OUTLINE

1. Bristow Academy, Inc. located at Space Coast Regional Airport, Titusville, Florida, 32780, operated as:

   Bristow Academy, Inc.
   365 Golden Knights Blvd
   Titusville, Florida 32780

2. COURSE TITLE - High Altitude/Mountain Flying Course - Rotorcraft - Helicopter.

3. This training course outline meets standards that are comparable to those in FAR Part 141.

4. COURSE OBJECTIVE - The student will obtain the knowledge, skill and aeronautical experience necessary for him/her to fly safely in Mountainous Terrain.

5. COMPLETION STANDARDS - The student must demonstrate through written tests, flight tests, and show through appropriate records that he/she meets the skill and aeronautical knowledge to fly safely in Mountainous Terrain.

6. AIRPORTS - The chief Flight Instructor will determine appropriate airports and training areas for training in this course. All airports will meet the requirements of Section 141.38 of the FAR's for day and night operations.

7. AIRCRAFT - All aircraft used in this course will meet the requirements of 141.39 of the FAR's. Each aircraft is equipped for day and night VFR flying. In addition, each aircraft will be equipped with at least one 360-channel transceiver radio. At least one aircraft will have radio navigation equipment consisting of a Loran C receiver.

8. GROUND TRAINER - None at this time.

9. CHIEF FLIGHT INSTRUCTOR - The Chief Flight Instructor for this course will meet all the requirements for Chief Flight Instructor under FAR 141.35 (a) and (d). (See Appendix A for the name of the Chief Flight Instructor). He/she will have 1500 hours helicopter time, of which at least 50 are mountain flight hours.

10. ASSISTANT CHIEF FLIGHT INSTRUCTOR - The Assistant Chief Flight Instructor for this course will meet the requirements under FAR 141.36 (a) and (d). (See Appendix A for name of Assistant Chief Flight Instructor.) He/she will have at least 1000 hours helicopter flight time, of which 25 are mountain flight time.

Revised April 2007
11. FLIGHT INSTRUCTOR - Each Flight Instructor assigned to this course must be the holder of at least a Commercial Pilot Certificate with a Rotorcraft Category rating Helicopter Class Rating, and at least 500 hours helicopter of which 10 are mountain time.

12. GROUND SCHOOL INSTRUCTOR - The Ground School Instructor for this course must possess a Ground Instructor Certificate with Advanced Ground Instructor Rating. (See Appendix A for name of Ground Instructor)

13. AUDIO-VISUAL AIDS - The following list describes the special equipment used for ground training:

- White drawing boards
- Aircraft models
- Various helicopter components
- VCR and training tapes
- Computers
- Overhead Projectors
- Slide Projector
- Power Point Projection

See Appendix for a description of each ground training room.

14. AIRPORTS USED FOR CROSS-COUNTRY FLIGHTS - According to FAR Part 1, an airport is an area of land or water that is used for takeoff and landing of aircraft. This definition is most applicable to the helicopter. Cross-country flight experience is not required for completion of this course. The Chief Flight Instructor will approve all destination and origination points.

15. The training syllabus herein contains two stages. Stage one is ground training and must be completed prior to the commencement of stage two (flying). The student must also pass a written test on the ground knowledge taught during stage one.

16. PERSONNEL - Bristow Academy, Inc. maintains a staff of qualified personnel according to FAR 141.33. All personnel have been instructed in the procedures and responsibilities of his or her employment.

Revised April 2007
PROGRESS AND GRADES

STAGE ONE - GROUND TRAINING

The percentage system is utilized on the ground examination with 70% considered as the minimum-passing grade. The student must receive a passing grade in order to progress to stage two. Failure to pass a proficiency stage check will necessitate a return to the first stage for additional instruction, as required.

B, STAGE TWO - FLIGHT TRAINING

Students are graded on their performance during all flights and must maintain a passing grade in order to remain in the course. The chief flight instructor or his designee will conduct the final proficiency stage check. Grading system values are as follows:

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<tr>
<td>Above average</td>
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<tr>
<td>Below average</td>
<td>4 (minimum passing)</td>
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<tr>
<td>Unsatisfactory</td>
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Revised April 2007
HIGH ALTITUDE/MOUNTAIN FLYING COURSE ROTORCRAFT - HELICOPTER

1. ENROLLMENT PREREQUISITES - Students enrolling in this course must be 18 years of age, possess a valid private pilot certificate (Rotorcraft Helicopter) and hold at least a second-class medical certificate.

2. COURSE OBJECTIVE - The student will obtain the knowledge, skill and aeronautical experience necessary for him/her to fly safely in Mountainous Terrain.

3. COMPLETION STANDARDS - The student must demonstrate through written tests, flight test, and show through appropriate records that he/she meets the skill and aeronautical knowledge to fly safely in Mountainous Terrain.

4. STAGE TESTS (DESCRIPTION)

The stage 1 test will consist of either "multiple choice" or "fill in" type questions to measure the student's knowledge to proceed to stage 2.

The stage 2 test will consist of an oral question and answer session followed by a flight test conducted by the Chief Flight Instructor or his designee.

5. This course has been constructed to meet all requirements of FAR 141 and to be as objective and meaningful as possible. Hours shown for dual flight training are offered as a guide to the instructor. Specified minimum times for an entire stage must be complied with, whereas times used on individual lessons may be adjusted to the individual student's needs.

Revised April 2007
SAFETY PROCEDURES AND PRACTICES

1. All training is to be conducted in accordance with Federal Aviation Regulations. The flight instructor will supervise the content of all flights, including solo flights. No student pilot may be authorized to start a solo practice flight from an airport until the flight has been approved by an authorized flight instructor, who is present at that airport.

2. No emergency procedures of any kind may be practiced unless an instructor from HAI is onboard the aircraft. Minimum altitude for Emergency Procedure Training is 1500 feet above ground level (AGL).

3. No student will carry a passenger while on a solo training flight. Any student found to have done so will be reported to the Federal Aviation Administration.

4. Each pilot will check the squawk sheet prior to each flight. Any discrepancies must be noted and reported to maintenance personnel immediately.

5. All pilots will use the appropriate checklist for all operations provided by Bristow Academy, Inc from before starting until after shutdown. All pilots will clear the immediate area of the helicopter prior to starting. Students will not start the helicopter without the instructor's permission. When taxiing to and from the ramp area, the student will obey all ATC instructions. Students will give-way to taxing airplanes and will hover at a skid height of 3 - 5 feet. All pilots will use surface taxi procedures when moving past “slow turning rotors” and when other aircraft doors are open.

6. Solo training flight will be conducted in VFR weather conditions only. Students may not fly solo if the wind speed exceeds 12 kts, unless he/she has written authorization from a HAI instructor. No solo night flights will be allowed.

7. In the event that a solo student encounters delays on a flight, he/she may continue the flight after sunset only for the purpose of returning to Space Coast Regional and only if visibility is at least 5 miles and the ceiling is at least 3,000 feet. Additionally he/she may continue only if he/she has received flight training at night and received a logbook endorsement. See FAR 61.87(m) for reference.

8. For dual flights in the Space Coast Regional traffic pattern or the designated training areas, the weather minimums will be 700' ceiling and a half mile visibility. For dual cross-country flights, the weather minimum will be 1,000-foot ceiling and one-mile visibility.

9. A minimum of 20 minutes reserve fuel is required for both cross-country and local flights. Pilots should not trust the fuel gauges and should never fly when they indicate less than quarter-full.

10. Pilots will not fly at altitude of less than 500 feet above ground level (AGL) while on cross-country or training flights, except for the purpose of take-off or landing. Simulated emergency landings will be terminated at an altitude, which ensures a safe transition into normal flight with respect to obstructions and the height/velocity diagram.

11. Over water flights are not permitted unless the aircraft is within autorotation distance of a suitable landing area. Lifejackets will be worn.

Revised April 2007
Safety Procedures & Practices
Continued

12. Should a student have to make a precautionary or unprogrammed landing for any reason, he/she will notify HAI by telephone at 800-686-4080 and obtain an airworthiness release and dispatch approval from an HAI instructor before continuing.

13. An official VFR flight plan must be filed for all solo cross-country flights.

14. Students must obtain a written endorsement from their flight instructor before practicing off-airport landings, pinnacle, ridge, or confined area approaches.

15. Smoking is not allowed in the vicinity of the aircraft or fuel trucks. Students will observe strict fire precautions while in the vicinity of the aircraft or hangar. Students will acquaint themselves with the location and operation of the fire extinguisher. In the event of an engine fire, students will follow the emergency procedure, which is detailed in the aircraft’s operating handbook. If the aircraft is on fire protect human life, but leave the aircraft fire fighting to the professionals.

16. When not in use, the helicopter rotor blades will be secured using the tie downs provided in each aircraft. This will only be necessary when the wind speed exceeds 15 knots. During the day it will not be necessary to secure the aircraft to the ground. Students will not leave the helicopter unattended with the keys left in it under any circumstances.

17. Students will exercise the utmost caution when operating in the vicinity of other aircraft; either on the ground or in flight. When in flight students will follow the collision avoidance procedures as outlined in FAR 91.111, 91.113, 91.115, and will practice the proper scanning technique as described in the Airman’s Information Manual paragraph 8-1-6 and 8-1-8.

18. All solo practice will take place at the airports listed in the training course outline. In addition to these airports, dual-training flights may also be conducted in other locations deemed necessary by the instructor. Information concerning Additional Training Areas can be found in Student Notices. (Your Instructor will show you where to find them and explain these operations)

I have read and agree to comply with all the above conditions,

Signed: __________________________ Date: ______________
Student Helicopter Pilot

Instructor’s Signature: __________________________ Date: ______________

Certificate #: __________________________ Exp Date: ______________

Instructor’s Name: __________________________

Revised April 2007
HIGH ALTITUDE/MOUNTAIN FLYING COURSE

STUDENT'S NAME:________________________________________

ADDRESS______________________________________________
Street & Number, City, State + zip

PHONE_________________________________________________________________________

DATE OF ENROLLMENT:________________________

MEDICAL CERTIFICATE CLASS:_____ DATE:_______ NUMBER:__________

PRIVATE CERTIFICATE NUMBER:____________ DATE:____________

TRAINING REQUIREMENTS

STAGE 1 WRITTEN DATE _______________ SCORE ________________

STAGE 2 ORAL DATE _______________ GRADE ________________

STAGE 2 FLIGHT DATE _______________ GRADE ________________

GRADUATION CERTIFICATE ISSUED ________________

I hereby certify that the above information is true and correct and the above student has completed this course under FAR Part 141.

________________________________________
Chief Flight Instructor

Revised April 2007
CERTIFICATE OF ENROLLMENT

This is to certify that __________________________ has been enrolled as of __________________________ in the following training course:

HIGH ALTITUDE - MOUNTAIN FLYING COURSE

This course will be conducted by Bristow Academy, Inc. in accordance with Part 141 of Federal Aviation Regulations

______________________________
Chief Flight Instructor
STAGE ONE

FLAT LAND REFRESHER
STAGE ONE

Ground and Flat Land Refresher

12 HOURS CLASSROOM INSTRUCTION

2.5 HOURS DUAL FLIGHT

SECTION ONE -

The student will obtain the ground knowledge, necessary for him/her to fly safely in mountainous terrain. The student will also review all flight maneuvers in flat land terrain.

STAGE ONE COMPLETION STANDARDS -

The student must demonstrate through written tests, flight tests and show through appropriate records that he/she meets the skill and aeronautical knowledge to fly safely in mountainous terrain.

Revised April 2007
LESSON 1 .5 HOURS GROUND TRAINING

OBJECTIVE

This lesson will introduce the course and will explain the objectives, completion standards and course structure. It will also cover the safety procedures and practices.

LESSON CONTENT

a) Introduction
b) Outline
c) Operating Policy
d) Payment
e) Area Rules and Airspace
f) Fuel and Oil
g) Noise Abatement
h) Accommodation and Administration

COMPLETION STANDARDS

This lesson is complete when the student understands the structure of the course and has resolved any questions.

INSTRUCTORS COMMENTS AND RECOMMENDATIONS
LESSON 2 MOUNTAIN WEATHER 1.5 HOURS GROUND TRAINING

OBJECTIVE

The student will obtain an understanding of mountain weather.

LESSON CONTENT

a) Wind
   Circulation
   Pressure gradient
   Coriolis force
   Frictional force
b) Convection and Airmass stability
c) Wind patterns across land masses, standing waves
d) Turbulence - updrafts, downdrafts, wind shear
e) Snow, blowing snow
f) Thunderstorms
g) Clear air turbulence
h) Temperature
i) Valley and mountain breeze
j) Obtaining and understanding weather reports
k) Fog

COMPLETION STANDARDS

This lesson will be complete when, by oral examination the student displays an understanding of the material presented.

INSTRUCTORS COMMENTS AND RECOMMENDATIONS
LESSON 3 HELICOPTER PERFORMANCE 2.0 HOURS GROUND TRAINING

OBJECTIVE

The student will be introduced to helicopter performance in mountainous conditions.

LESSON CONTENT

1) Effects of temperature
   a) structural icing
   b) blade icing
   c) windshield icing and fogging
   d) static electricity
   e) instruments
   f) plastics and rubber
   g) batteries
   h) fuel & oil

2) Effects of Altitude on -
   a) engine
   b) power
   c) pressure instruments
   d) lift
   e) fuel consumption

3) Charts
   a) HIGE
   b) HOGE
   c) Manifold pressure
   d) VNE
   e) Pressure and density altitude

COMPLETION STANDARDS

This lesson will be complete when, by oral examination the student displays an understanding of the material presented.

INSTRUCTORS COMMENTS AND RECOMMENDATIONS

Revised April 2007
LESSON 4 MOUNTAIN NAVIGATION 2.0 HOURS GROUND TRAINING

OBJECTIVE

The student will be introduced to mountain navigation.

LESSON CONTENT

Review
a) variation
b) latitude & longitude
c) nautical mile measurement
d) basic flight planning calculations
e) 1/60 rule

Introduction
a) geographic features
b) ridges
c) valleys
d) plateaus
e) ice & snow formations – avalanches
f) contour reading

Homework assignment on planning a route.

COMPLETION STANDARDS

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

INSTRUCTORS COMMENTS AND RECOMMENDATIONS
LESSON 5 FLYING TECHNIQUES 2.0 HOURS GROUND TRAINING

OBJECTIVE

The student will be introduced to mountain flying techniques and how they differ from sea level flying.

LESSON CONTENT

a) hovering - power check
b) surface taxi
c) running take offs & landings
d) straight & level
e) turns, climbs, descents
f) crossing ridges
g) valley flying
h) wind determinations
i) pinnacle approaches & departures
j) confined area approaches & departures
k) snow flying - approaches & departures
l) emergency procedures
m) formation flying

COMPLETION STANDARDS

This lesson will be complete when, by oral examination the student displays an understanding of the material presented.

INSTRUCTORS COMMENTS AND RECOMMENDATIONS
LESSON 6 MOUNTAIN SURVIVAL 2.0 HOURS GROUND TRAINING

OBJECTIVE

The student will be introduced to cold weather and mountain survival.

LESSON CONTENT

1) Effects of altitude & temperature on body
   a) hypoxia
   b) hypothermia
   c) frost bite
   d) wounds
   e) eyes & ears
   f) survival priorities

2) Protection
   a) clothes
   b) shelter

3) Location
   a) heliograph, tinfoil, fires, radio
   b) navigation

4) Water
   a) sources
   b) storage

5) Food
   a) sources
   b) storage
   c) cooking
   d) eating

COMPLETION STANDARDS

This lesson will be complete when, by oral examination the student displays an understanding of the material presented.

INSTRUCTORS COMMENTS AND RECOMMENDATIONS
LESSON 7 REVIEW 2.0 HOURS GROUND TRAINING

OBJECTIVE

To review the material presented in Lesson 1 thru 7 in preparation for the Stage I written test.

LESSON CONTENT

Review

COMPLETION STANDARDS
This lesson and Stage I will be complete when the student has passed the Stage 1 written test, with a minimum score of 70 percent.

INSTRUCTORS RECOMMENDATIONS AND COMMENTS
LESSON 8 To be conducted below 3000 ft. density altitude

1.2 HOUR DUAL FLIGHT

.3 HOURS PRE & POST BRIEFING

A/C N _______INSTRUCTOR ________________ GRADE _______DATE _______

OBJECTIVE

To review the students ability to perform 'on airport' maneuvers in preparation for mountain flying.

LESSON CONTENT

Review
a) Flight preparation procedures, including preflight inspections and powerplant operations.
b) Hover turns and air taxi.
c) Straight and level flight, turns, climbs and descents.
d) Rapid decelerations.
e) Normal takeoffs and landings.
f) Running takeoffs and landings.
g) Emergency procedures including autorotational descents to a power recovery.
h) Low RPM recovery in-flight and in the hover including full run on during RPM loss.
i) surface taxi

COMPLETION STANDARDS

The student will demonstrate the ability to perform all maneuvers with smoothness and accuracy without over controlling.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON 9 To be conducted below 3000 ft. density altitude

1.3 HOURS DUAL FLIGHT .3 HOURS PRE & POST BRIEFING

A/C N INSTRUCTOR GRADE DATE

OBJECTIVE

The instructor will review the students ability to perform 'off airport' maneuvers in preparation for mountain flying.

LESSON CONTENT

Review

1) Maximum performance takeoffs and climbs.
2) Steep approaches.
3) Slope landings and takeoffs.
4) Confined area and pinnacle operations.
   a. high reconnaissance
   b. low reconnaissance
   c. entry and exit routes
   d. wind evaluation
5) Obstruction avoidance - natural and man made.
6) Turbulence.

COMPLETION STANDARDS

The student will demonstrate the ability to perform all maneuvers with smoothness and accuracy consistent with the PTS standards for the student’s grade of pilot certificate. He/she will demonstrate good judgment at all times.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised April 2007
STAGE TWO

Mountain Flying High Altitude

9.5 HOURS DUAL (5.0 HOURS CROSS COUNTRY 1.5 HOURS STAGE CHECK)

STAGE TWO OBJECTIVES

The student will learn the basic techniques of Helicopter Mountain flying along with navigation, formation flying and mountain/cold weather survival. If conditions permit all training will be done at snow covered locations.

STAGE TWO COMPLETION STANDARDS

The course will be complete when the student has passed the stage two flight test and has demonstrated that he/she can fly in the mountains safely without over-controlling and exercises good judgment at all times.
LIGHT LESSON 10  1.3 HOURS DUAL .3 HOURS PRE & POST BRIEFING

A/C N ___   INSTRUCTOR ___   GRADE ___    DATE ___

OBJECTIVE

The student will be introduced to high altitude on airport operations.

LESSON CONTENT

Introduce

a) Hover and hover turns
b) RPM control
c) Normal patterns
d) Running take-offs and landings
e) Quick stops
f) Autorotations
g) Surface taxi
h) Low RPM recovery

COMPLETION STANDARDS

The student will be able to perform all the above maneuvers without settling to the ground at 4000 ft. density altitude.

INSTRUCTORS COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 11 1.5 DUAL 1 HOUR GROUND .4 HOURS PRE & POST BRIEFING

A/C N ___________ INSTRUCTOR _______________ GRADE ___________ DATE ______

OBJECTIVE

The student will be introduced to formation flying (x-country and airport arrivals and departures) and will practice normal approaches and take-offs. This lesson will also include an off airport landing at a remote site for practical survival training.

LESSON CONTENT

Introduce

a) Formation joins/breaks
b) Line astern/abreast/echelon
c) Formation turns
d) Formation airport arrivals/departures

Review

a) Normal take-offs/landings
b) Navigation
c) Survival - Protection, location, water, food

COMPLETION STANDARDS

The student should be able to join and hold a formation of 5 rotor diameters without endangering the safety of any aircraft in the formation.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS

Revised April 2007
FLIGHT LESSON 12 1.3 DUAL .3 HOURS PRE & POST BRIEFING

A/C N  INSTRUCTOR GRADE DATE

OBJECTIVE

During this lesson the student will be introduced to high altitude pinnacles and confined areas.

LESSON CONTENT

Introduce

a) High reconnaissance
b) Low reconnaissance
c) Pinnacle approaches
d) Pinnacle departures
e) Confined areas
f) Ridgeline operations

COMPLETION STANDARDS

The student will gain proficiency in high altitude pinnacles and confined areas.

INSTRUCTORS COMMENTS AND RECOMMENDATIONS
LESSON 13 1.3 DUAL .3 HOURS PRE & POST BRIEFING

A/C N________ INSTRUCTOR _______________ GRADE ___________DATE _____

OBJECTIVE

During this lesson the student will practice on-airport operations.

LESSON CONTENT

Review

a) Hovering
b) RPM control
c) Normal patterns
d) Running take-offs and landings
e) Quick stops
f) Autorotations
g) Surface taxi
h) Low RPM

COMPLETION STANDARDS

The student will continue to gain proficiency in on-airport operations.

INSTRUCTORS COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 14 1.3 DUAL .3 HOURS PRE & POST BRIEFING

A/C N _____ INSTRUCTOR _______________ GRADE _____ DATE __________

OBJECTIVE

The student will further practice off airport operations.

LESSON CONTENT

Review

a) Formation flying
b) Pinnacle operations
c) Confined areas

COMPLETION STANDARDS

The student will show increase proficiency in all off airport operations.

INSTRUCTORS COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 15

1.4 DUAL  .3 PRE & POST BRIEFING       2.0 HRS TUTORED INSTRUCTION

A/C N _______ INSTRUCTOR _______________ GRADE ___ DATE ______

OBJECTIVE

During this lesson the student will practice areas of weakness as assigned by the instructor in preparation for the final stage check.

LESSON CONTENTS

Review all maneuvers and ground subjects

COMPLETION STANDARDS

This lesson will be complete when the student demonstrates to the instructor the knowledge and proficiency to pass the final stage check.

INSTRUCTOR COMMENTS AND RECOMMENDATIONS

Revised April 2007
FLIGHT LESSON 16 FINAL STAGE CHECK 1.4 HOURS DUAL 1.5 PRE & POST BRIEFING

A/C N ___________INSTRUCTOR ___________GRADE ___________ DATE ___________

OBJECTIVE

During this lesson the Chief Flight Instructor or his assistant will conduct the final check out. He/she will evaluate the student’s ability to operate in high altitude/mountainous terrain.

LESSON CONTENT

Review

1) Oral examination
   a) Weather
   b) Performance charts
   c) Navigation and flight planning
   d) Survival

2) Flight check
   a) Formation flying
   b) Pinnacles and confined areas
   c) Navigation
   d) On airport maneuvers
   e) Emergency procedures

COMPLETION STANDARDS

The student will demonstrate to the satisfaction of the Chief Instructor that he/she has the knowledge and ability to operate safely in high altitude mountainous terrain.

INSTRUCTORS COMMENTS AND RECOMMENDATIONS

Revised April 2007
APPENDIX "A"

1. AIRCRAFT - The Schweizer 300 series helicopters will be used in this course of training.

   CHIEF FLIGHT INSTRUCTOR – Stephane Rebeix Certified Flight Instructor-Rotorcraft-Helicopter, Instrument Helicopter, 2575954CFI 04/03.

3. ASSISTANT CHIEF FLIGHT INSTRUCTOR – None at this time.

4. CHIEF GROUND INSTRUCTOR - None at this time.
APPENDIX "B"

CERTIFICATE OF GRADUATION

This is to certify that

has satisfactorily completed each
required stage of training,
as prescribed by the

Federal Aviation Administration's Approved

High Altitude - Mountain Flying Course

Date of Graduation ______________________

The student has met the cross country
requirements of this course.

Given under my hand and seal

I certify the above statements are true.

Bristow Academy, 81 John Glenn Drive Concord, California
HIAS182B (Air Agency Certificate Number)

_________________________   ________________________
Patrick Corr               Michael D. Jackley
President                  Chief Flight Instructor
APPENDIX "C"

TRAINING RECORD
APPENDIX "D"

DESCRIPTION OF FACILITIES
Florida Institute of Technology

ADDING A NEW COURSE TO THE CURRICULUM

This course is available for student registration only after the approval process has been completed.

Subject: AVF (e.g., Computer Sciences)  
Course No.: 4009  
Credit Hours: 1  
Term to be added to the file: Spring 2011  
(e.g., Fall 2010)

Class Hours:  
Lecture Hours:  
Lab Hours: 16/semester  
Contact Hours: (CEU only)

Department: Aviation Flight  
Schedule Type: Flight  
(e.g., Lecture, Lab or Special Topics/Project)

College of Aeronautics – 23  
Nathan M. Bisk College of Business – 24  
College of Engineering – 1  
College of Psychology and Liberal Arts – 25  
College of Science – 26  
Extended Studies Division / Nathan M. Bisk College of Business – 90

Computer Title: Restricted to 25 characters, including spaces  
Help Turbina Transition

Catalog Title: Helicopter Turbina Transition

Catalog Description: Restricted to 350 characters, including spaces  
Provides advanced flight instruction in larger, turbine-powered helicopters such as the Bell 206 Jet Ranger. Includes the challenges associate with flying a turbine-engine aircraft. Emphasizes maximum performance takeoffs, auto-rotations and emergency procedures.

In addition, please attach a course syllabus and/or more detailed description.

Restrictions:  
Prerequisite: AVF 1004  
Corequisite: AVT 1003

Grades to be issued:  
A, B, C, D, F  
A, B, C, D, F, CEU  
CEU  
S, U  
P, F  
Other

Additional Restrictions: FAA private pilot-helicopter rating
(e.g., Major, Class Level, Department Head Approval)

If this course replaces a course currently offered in Banner, please indicate old course information and the date/term the course may be removed from the system.

Subject: Alpha Prefix (e.g., CSF)  
Course No. (e.g., 1301)

Approval: Upon completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval below and forward to Catalog Director.

Originator:  
Date:  
Chair, Graduate Council:  
Date:
Or

Department Head/Program Chair:  
Date:  
Chair, Undergraduate Curriculum Committee:  
Date:

Catalog Director:  
Date:

Registrar's Use Only:  
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SACRES  
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(2) 2008-06-06

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TURBINE MANUAL

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STAGE ONE

Stage One Objectives
Lesson 1
Lesson 2
Lesson 3
Lesson 4
Lesson 5

STAGE TWO

Stage Two Objectives
Lesson 1
Lesson 2
Lesson 3
Lesson 4

Appendix “B”
TRAINING COURSE OUTLINE

1. Bristow Academy, Inc. located at Space Coast Regional Airport, Titusville, Florida, 32780, operated as:

   Bristow Academy, Inc.
   365 Golden Knights Blvd
   Titusville, Florida 32780

2. COURSE TITLE - Turbine Transition - Rotorcraft-Helicopter

3. This training course outline meets all standards comparable to those in FAR 141.

4. COURSE OBJECTIVE - The student will obtain the knowledge, skill and aeronautical experience necessary for him/her to act as pilot in command of turbine helicopters.

5. COMPLETION STANDARDS - The student must demonstrate through written tests, flight test, and show through appropriate records that he/she meets the skill, aeronautical knowledge and experience requirements necessary to fly turbine helicopters.

6. AIRPORT - Space Coast Regional Airport is the main base for training in this course. Space Coast Regional Airport meets the requirements of Section 141.38 of the FAR’s for day and night operations.

7. AIRCRAFT - All aircraft used in this course will meet the requirements of 141.39 of the FAR’s. The aircraft are equipped for day and night VFR flying. In addition, each aircraft will be equipped with at least one 360-channel transceiver radio.

8. GROUND TRAINER - None at this time.

9. CHIEF FLIGHT INSTRUCTOR - The Chief Flight Instructor for this course will meet all the requirements for Chief Flight Instructor under FAR 141.35 (a) and (d). (See Appendix A for name of Chief Flight Instructor).

10. ASSISTANT CHIEF FLIGHT INSTRUCTOR - The Assistant Chief Flight Instructor for this course will meet the requirements under FAR 146.36 (a) and (d). (See Appendix A for name of Assistant Chief Flight Instructor.)

11. FLIGHT INSTRUCTOR - Each Flight Instructor assigned to this course must be the holder of at least a Commercial Pilot Certificate with a Rotorcraft Category rating Helicopter Class Rating and a Certified Flight Instructor (Rotorcraft-Helicopter).

Revised April 2007
12. GROUND SCHOOL INSTRUCTOR - Ground School Instructors for this course must be approved by the chief instructor.

13. AUDIO-VISUAL AIDS - The following list describes the special equipment used for ground training:

   a. White drawing boards  
   b. Aircraft models  
   c. Various helicopter components  
   d. VCR and training tapes  
   e. Computers  
   f. Overhead Projectors  
   g. Slide Projector  
   h. Power Point Projection

See Appendix for a description of each ground training room.

14. AIRPORTS USED FOR CROSS-COUNTRY FLIGHTS - According to FAR Part 1, an airport is an area of land or water that is used for takeoff and landing of aircraft. This definition is most applicable to the helicopter. In order to encompass a wide variety of cross country destination and origination points indicative of the type of flights and varied destinations assigned to Private Helicopter Pilots, it is important for the student to experience an endless supply of landing sites. More "airports" exist for possible use than we could ever list. The following list represents some of the assigned cross-country airports in this course of training. The Chief Flight Instructor will approve all other destination and origination points.

**Jacksonville Sectional**

- Merrit Island
- Zephyrhills
- Executive
- Lakeland Linder
- Orlando Co
- Winter Haven
- Tampa North
- Orlando Sanford
- Kissimmee
- Pilot Co
- Delene Taylor
- Plant City
- Hernando Co
- New Smyrna Beach
- Vandenburg
- Leesburg Regional
- Daytona Beach International
- Melbourne International

**Miami Sectional**

- Valkaria
- Okeechobee
- River Ranch
- Babaatian
- Avon Park
- Vero Beach
- Arcadia
- Palm Beach
- St Lucie
- Wauchula
- LaBelle
- Wiham
- Lake Wales
- Airglades
- Sebring Regional

15. The training syllabus herein contains two stages. Stage one is ground training and stage two is flight training. The stages may be taken concurrently.

16. PERSONNEL - Bristow Academy, Inc. maintains a staff of qualified personnel according to FAR 141.33. All personnel have been instructed in the procedures and responsibilities of his or her employment.

17. CREDIT GRANTING PROCEDURES - There will be no credit that can be applied to this course.
APPENDIX “A”

1. AIRCRAFT – The Schweizer 269C-1 (S300CB / S300CBI) and RHC Robinson R22 Beta II helicopter will be used for this course of training.


6. CHIEF GROUND INSTRUCTOR – None at this time.
BRISTOW ACADEMY

PROGRESS AND GRADES

A. STAGE ONE - GROUND TRAINING

The percentage system is utilized on the ground examination with 70% considered as the minimum-passing grade. The student must receive a passing grade in order to pass stage one. Failure to pass a proficiency stage check will necessitate a return to the first stage for additional instruction, as required.

B. STAGE TWO - FLIGHT TRAINING

Students are graded on their performance during all flights and must maintain a passing grade in order to remain in the course. The final proficiency stage check will be conducted by the chief flight instructor or his designee. Grading system values are as follows:

Grading system values are as follows:

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<td>Average</td>
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<tr>
<td>Below average</td>
<td>4 (minimum passing)</td>
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<tr>
<td>Unsatisfactory</td>
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TURBINE TRANSITION COURSE

1. ENROLLMENT PREREQUISITES - Students enrolling in this course must be 18 years of age, possess a valid private pilot certificate (Rotorcraft Helicopter) and hold at least a second-class medical certificate.

2. COURSE OBJECTIVE - The student will obtain the knowledge, skill and aeronautical experience necessary for him/her to act as pilot in command of turbine helicopters.

3. COMPLETION STANDARDS - The student must demonstrate through written tests, flight test, and show through appropriate records that he/she meets the skill, aeronautical knowledge and experience requirements necessary to act as pilot in command of turbine helicopters.

4. STAGE TESTS (DESCRIPTION)

   The stage 1 test will consist of either "multiple choice" or "fill in" type questions to measure the students knowledge to proceed to stage 2.

   The stage 2 test will consist of an oral question and answer session followed by a flight test conducted by the Chief Flight Instructor or his designee.

5. This course has been constructed to meet all requirements of FAR 141 and to be as objective and meaningful as possible. Hours shown for dual flight training are offered as a guide to the instructor. Specified minimum times for an entire stage must be complied with, whereas times used on individual lessons may be adjusted to the individual student's needs.
SAFETY PROCEDURES AND PRACTICES

1. All training is to be conducted in accordance with Federal Aviation Regulations. The flight instructor will supervise the content of all flights, including solo flights. No student pilot may be authorized to start a solo practice flight from an airport until the flight has been approved by an authorized flight instructor, who is present at that airport.

2. No emergency procedures of any kind may be practiced unless an instructor from HAI is onboard the aircraft. Minimum altitude for Emergency Procedure Training is 1500 feet above ground level (AGL).

3. No student will carry a passenger while on a solo training flight. Any student found to have done so will be reported to the Federal Aviation Administration.

4. Each pilot will check the squawk sheet prior to each flight. Any discrepancies must be noted and reported to maintenance personnel immediately.

5. All pilots will use the S300CB checklist for all operations provided by Bristow Academy, Inc from before starting until after shutdown. All pilots will clear the immediate area of the helicopter prior to starting. Students will not start the helicopter without the instructor’s permission. When taxiing to and from the ramp area, the student will obey all ATC instructions. Students will give-way to taxiing airplanes and will hover at a skid height of 3 - 5 feet. All pilots will use surface taxi procedures when moving past “slow turning rotors” and when other aircraft doors are open.

6. Solo training flight will be conducted in VFR weather conditions only. Students may not fly solo if the wind speed exceeds 12 kts, unless he/she has written authorization from a HAI instructor. No solo night flights will be allowed.

7. In the event that a solo student encounters delays on a flight, he/she may continue the flight after sunset only for the purpose of returning to Space Coast Regional and only if visibility is at least 5 miles and the ceiling is at least 3,000 feet. Additionally he/she may continue only if he/she has received flight training at night and received a logbook endorsement. See FAR 61.87(m) for reference.

8. For dual flights in the Space Coast Regional traffic pattern or the designated training areas, the weather minimums will be 700’ ceiling and a half mile visibility. For dual cross-country flights, the weather minimum will be 1,000-foot ceiling and one-mile visibility.

9. A minimum of 20 minutes reserve fuel is required for both cross-country and local flights. Pilots should not trust the fuel gauges and should never fly when they indicate less than quarter-full.

10. Pilots will not fly at altitude of less than 500 feet above ground level (AGL) while on cross-country or training flights, except for the purpose of take-off or landing. Simulated emergency landings will be terminated at an altitude, which ensures a safe transition into normal flight with respect to obstructions and the height/velocity diagram.

Revised April 2007
Safety Procedures & Practices

11. Over water flights are not permitted unless the aircraft is within autorotation distance of a suitable landing area. Lifejackets will be worn.

12. Should a student have to make a precautionary or unprogrammed landing for any reason, he/she will notify HAI by telephone at 800-686-4080 and obtain an airworthiness release and dispatch approval from an HAI instructor before continuing.

13. An official VFR flight plan must be filed for all solo cross-country flights.

14. Students must obtain a written endorsement from their flight instructor before practicing off-airport landings, pinnacle, ridge, or confined area approaches.

15. Smoking is not allowed in the vicinity of the aircraft or fuel trucks. Students will observe strict fire precautions while in the vicinity of the aircraft or hangar. Students will acquaint themselves with the location and operation of the fire extinguisher. In the event of an engine fire, students will follow the emergency procedure, which is detailed in the aircraft's operating handbook. If the aircraft is on fire protect human life, but leave the aircraft fire fighting to the professionals.

16. When not in use, the helicopter rotor blades will be secured using the tie downs provided in each aircraft. This will only be necessary when the wind speed exceeds 15 knots. During the day it will not be necessary to secure the aircraft to the ground. Students will not leave the helicopter unattended with the keys left in it under any circumstances.

17. Students will exercise the utmost caution when operating in the vicinity of other aircraft; either on the ground or in flight. When in flight students will follow the collision avoidance procedures as outlined in FAR 91.111, 91.113, 91.115, and will practice the proper scanning technique as described in the Airman's Information Manual paragraph 8-1-6 and 8-1-8.

18. All solo practice will take place at the airports listed in the training course outline. In addition to these airports, dual-training flights may also be conducted in other locations deemed necessary by the instructor. Information concerning Additional Training Areas can be found in Student Notices. (Your Instructor will show you where to find them and explain these operations)

I have read and agree to comply with all the above conditions,

Signed: ___________________________ Date: ________________
Student Helicopter Pilot

Instructor's Signature: ___________________________ Date: ________________

Certificate #: ___________________________ Exp Date: ________________

Instructor's Name: ___________________________
TURBINE TRANSITION

STUDENT'S NAME ______________________ PHONE ______________

ADDRESS ________________________________ Street & Number, city

DATE OF ENROLLMENT ______________________

MEDICAL CERTIFICATE CLASS _____ DATE _____ NUMBER ______________

PILOT CERTIFICATE NUMBER ________________ DATE ______________

TRAINING REQUIREMENTS

STAGE 1 WRITTEN _______ DATE ___________ SCORE ____________

STAGE 2 ORAL _________ DATE ___________ GRADE ______________

STAGE 2 FLIGHT _________ DATE ___________ GRADE ______________

GRADUATION CERTIFICATE ISSUED __________________________

I hereby certify that the above information is true and correct and the above student has completed this course under FAR Part 141.

________________________
Chief Flight Instructor

Revised April 2007
CERTIFICATE OF ENROLLMENT

This is to certify that ___________________________ has been enrolled as of __________ in the following training course:

TURBINE TRANSITION COURSE

This course will be conducted by Bristow Academy, Inc. in accordance with Part 141 of Federal Aviation Regulations.

______________________________
Chief Flight Instructor
CERTIFICATE OF GRADUATION

This is to certify that

__________________________________________

has satisfactorily completed each
required stage of training, as prescribed by the

Federal Aviation Administration's Approved

Turbine Transition Course

Date of Graduation ________________________

The student has met the cross-country
requirements of this course.

Given under my hand and seal

this ________ day of 1999

I certify the above statements are true.

Bristow Academy, Inc.

HIAS182B(Air Agency Certificate Number)

__________________________________________

Chief Flight Instructor
STAGE ONE - GROUND TRAINING

10 HOURS CLASSROOM INSTRUCTION

STAGE ONE OBJECTIVES

The student will learn the theory of operation of turbine engines and aircraft.

STAGE ONE COMPLETION STANDARDS -

The student must show through appropriate records and written tests that he/she fully understands the theory behind turbine engine operation.
LESSON 1 TURBINE DESIGN, STRUCTURE AND OPERATION  2 hours ground training

OBJECTIVE

The student will be introduced to the aircraft design, structure and operation of the primary controls.

LESSON CONTENT

General description
  Cabin section
  Empennage
  Main rotor system
  Tail rotor system
  Landing gear
  Control system

COMPLETION STANDARDS

The lesson will have an understanding of the components that make up the aircraft.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised April 2007
LESSON 2   TURBINE ENGINE FAMILIARIZATION 3 hours ground training

OBJECTIVE

The student will learn the theory behind turbine engines and their operation.

LESSON CONTENT

General
Compressor Assembly
Combustion Assembly
Turbine Assemblies
Exhaust System
Engine Fuel Controls (NR, N1 and N2)
Rotor Speed Control
Accessory Gearbox
Engine Ignition System
Fuel Nozzle
Air Bleed Control Valve
TOT System
Torquemeter System
Engine Efficiency Check
Engine Performance and Operation
Power Check Chart

COMPLETION STANDARDS

The student should fully understand the theory behind the operation of turbine engines.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
LESSON 3 AIRCRAFT SYSTEMS 2 hours ground training

OBJECTIVE

The student will learn the layout and operation of the aircraft systems.

LESSON CONTENT

Oil and Fuel Supply System
Oil Supply System
  Engine Oil Supply Distribution
  Lubricating Oils
Fuel System
  Aircraft Fuel Supply System
  Engine/Airframe Fuel Flow Distribution
  Fuel Consumption
  Fuel Type
Heating and Ventilating Systems
  Heat and Defogging
  Ventilation System
Powertrain System
  Electrical and Instruments
    Electrical
    Warning Lights
    Dual Tachometer
    Electrical Switches
    Anti-ice systems

COMPLETION STANDARDS

The student will understand all the systems presented during this lesson.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS
LESSON 4 PILOTS OPERATING HANDBOOK 1.5 hours ground training

OBJECTIVE

The student will be taught the contents of the Pilots Operating Handbook including limitations and emergency procedures as they apply to the aircraft.

LESSON CONTENT

Limitations section
Emergency procedures
Normal operations
Performance section including:
   Hover charts
   HIV diagram
   Airspeed
   Engine performance
Weight and Balance section including:
   Loading
   Limitations

COMPLETION STANDARDS

The student will have a thorough understanding of the manual.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised April 2007
LESSON 5 PRE-FLIGHT INSPECTION & MAINTENANCE 1.5 hours ground training

OBJECTIVE

During this lesson the student will learn a full preflight inspection and loam the maintenance schedule.

LESSON CONTENT

Preflight inspection
Special inspections
Pilot maintenance
Start procedure

COMPLETIONS STANDARDS

The student will be able to complete a pre-flight inspection and will understand the start procedure.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
STAGE TWO - FLIGHT TRAINING

5 HOURS DUAL FLIGHT INSTRUCTION

1 HOUR PRE & POST FLIGHT BRIEFINGS

STAGE TWO OBJECTIVES -

The student will be introduced to flying turbine helicopters and operating the systems in a commercial environment.

STAGE TWO COMPLETION STANDARDS

The student will be able to safety fly a turbine helicopter.
LIGHT LESSON 1 1.2 hours dual .2 hours r & post

OBJECTIVE

During this lesson the student will be introduced to basic maneuvers.

LESSON CONTENT

Start up/shutdown
Hovering
Take offs & approaches
Straight and level
Turns, climbs and descents
Quick stops
Systems operation

COMPLETION STANDARDS

The student will understand the operation of systems and will pilot the aircraft with smoothness and accuracy

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised April 2007
FLIGHT LESSON 2 1.2 hours dual .2 hours Pre & Post Briefing

OBJECTIVE

The student will continue to learn the basic and advanced on airport maneuvers and will be introduced to autorotations.

CONTENT

Max performance takeoffs
Steep approach
Running takeoffs and landing
HOGE
Settling with power
Low G
Autorotations Hover
  Straight in
  180
  zero airspeed

COMPLETION STANDARDS

The student will continue to gain competency in piloting the aircraft.

INSTRUCTOR’S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 3  1.2 hours dual  .2 hours Pre & Post Briefing

OBJECTIVE

During this lesson the student will practice off airport maneuvers.

CONTENT

Pinnacles
Confined areas
Slopes
High altitude operations

COMPLETION STANDARDS

The student will pilot the aircraft with smoothness and exercise good judgment at all times.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS
FLIGHT LESSON 4 1.4 hours dual .4 hours Pre & Post Briefing

OBJECTIVE

During this lesson the student will be introduced to some commercial operations and emergency procedures by the Chief Instructor.

CONTENT

Emergency procedures
Power/pipeline patrols
Photo/video flights

COMPLETION STANDARDS

The student will satisfy the chief instructor that he/she can safely pilot the aircraft with the outcome of all maneuvers never seriously in doubt.

INSTRUCTOR'S COMMENTS AND RECOMMENDATIONS

Revised April 2007
APPENDIX “B”

DESCRIPTION OF FACILITIES