COURSE OUTLINE

AVI 216
Course Number
Flight V
Course Title
2
Credits

Hours: 1 / 3
Lecture / Laboratory
Pre-requisite: See Below
Co-requisite: AVI 132
Implementation
Fall 2012

Catalog Description:

This course is limited to only a Helicopter Rated Commercial Certificated Instrument Rated Pilot. The student is expected to acquire the aeronautical skill necessary to meet the requirements for the Single Engine Land and Commercial Certificate with an Instrument Rating. This course consists of 70 hours of flight training or the time needed to meet the FAA Practical Test Standards. Be Advised additional time may be needed to meet the minimum standards. FEE REQUIRED.

Pre-requisites: Helicopter Commercial Certificate with Instrument Rating
FAA-approved Medical
U.S. Citizenship or TSA Approval

Required Texts/Other Materials:

1. Owner’s and Operator’s Manual of Aircraft used in Training

Last Revised: Spring 2014

Course Coordinator: Joan Jones

Information Resources:

Text books: Guided Flight Discovery Instrument/Commercial by Jeppesen Sanderson
The Advanced Pilots Flight Manual by William K. Kershner
Stick and Rudder by Wolfgang Langewiesche

Other Learning Resources:

Learning Center and Tutoring in the Library
Student’s Flight Instructor at Trenton-Mercer Airport
AOPA (www.aopa.org)
Gleim Software (www.gleim.com)
King Schools Software (www.kingschools.com)

Lesson Progress Checks:

_____ 7  Preparations for Advanced Maneuvers
_____ 11  Progress Check for Advanced Maneuvers and Emergency Procedures
_____ 14  Progress Check for Advanced Maneuvers Commercial and Radio NAV
Course Goals:

The Course goals are outlined in detail in the Commercial Pilot Practical Test Standards. The tasks are carefully enumerated within each area of operation. Please refer to this document as it specifically relates to these 11 areas of operation…

1. Pre-flight Preparation – Items A, B, C, D, E, F, G, and J
2. Pre-flight Procedures – Items A, B, C, D, and F
3. Airport Operations – Items A, B, and C
5. Performance Maneuvers – Items A, B, C, and D
8. Slow Flight and Stalls – Items A, B, C, and D
10. High Altitude and Operations – Items A and B
11. Post-flight Procedures – After-Landing, Parking, and Securing the Aircraft

GENERAL EDUCATION GOALS AND OBJECTIVES

<table>
<thead>
<tr>
<th>(✓)</th>
<th>MCCC General Education Goals &amp; Objectives</th>
<th>Activities, projects, assignments, and exams that evaluate student learning of the course’s General Education goals and objectives</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>[Check all that are addressed directly and seriously (not peripherally) in the course.]</td>
<td>Students will interpret and comprehend Practical Test Standards for the Commercial Certificate. Radio communications with ATC will be demonstrated and understood.</td>
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<tr>
<td>1. Communication -- English Language: Students will communicate effectively in both speech and writing.</td>
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<tr>
<td>✓ 1.1. Students will comprehend and evaluate what they read, hear and see.</td>
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<td>✓ 1.2. Students will state and evaluate the views and findings of others.</td>
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<td>✓ 1.3. Students will write and speak clearly and effectively in standard American English.</td>
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<td>1.4. Students will logically and persuasively state and support orally and in writing their points of view or findings.</td>
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<td>1.5. Students will evaluate, revise and edit their communication.</td>
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<td>✓ 1.6. Students will develop an understanding of sensory communication and other forms of non-verbal communication.</td>
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<tr>
<td></td>
<td>General Education Goals and Objectives</td>
<td>Activities, projects, assignments, and exams that will evaluate student learning of the goal and/or objective(s)</td>
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<td>2. Communication -- Foreign Language: Students will have the opportunity to develop competence in a Foreign Language.</td>
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<td>2.1 Students will learn basic vocabulary, grammar and everyday conversation in a foreign language.</td>
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<td>2.2 Students will recognize the uniqueness of foreign countries, their people and their cultures.</td>
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<tr>
<td>2.3 Students will gain a measure of facility at interaction in a foreign language on topics involving that language's history, its cultural and historical context, and current issues of interest to native speakers of the language.</td>
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<td>3. Critical thinking, problem solving and information literacy: Students will use critical thinking and problem solving skills in analyzing information gathered through different media and from a variety of sources.</td>
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<td>✓ 3.1. Students will identify a problem and analyze it in terms of its significant parts and the information needed to solve it.</td>
<td>Students will be able to assess his/her ability to do Commercial maneuvers; determine whether a cross country flight can be safely accomplished; examine an aircraft during pre-flight and determine if the aircraft is safe to fly; be confronted with simulated flight emergencies, analyze the event and choose the proper course of action; utilize online weather to evaluate and determine whether or not it is safe to fly.</td>
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<td>✓ 3.2. Students will use appropriate library tools such as cataloging systems to access information in reference publications, periodicals, bibliographies and databases.</td>
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<td>✓ 3.3. Students will use computers to access, analyze or present information, solve problems, and communicate with others.</td>
<td>Students will be able to utilize computers to interpret and analyze weather.</td>
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<td>✓ 3.4. Students will formulate and evaluate possible solutions to problems, and select and defend the chosen solutions.</td>
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<td>✓ 3.5. Students will recognize weaknesses in arguments, such as the use of false or disputable premises, suppression of contrary evidence, faulty reasoning, and emotional loading.</td>
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<td>✓ 4. Ethical dimension: Students will recognize, analyze and assess ethical issues and situations.</td>
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<td>✓ 4.1. Students will identify ethical implications of an issue or a situation.</td>
<td>Students will comply with the code of Federal Regulations involving Commercial Pilot Operations, interpret and defend their positions and justify their actions based upon the regulations.</td>
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<td>✓ 4.2. Students will analyze and evaluate the strengths and weaknesses of different perspectives on an ethical issue or a situation.</td>
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<td>4.3. Students will integrate their knowledge, take a position on an ethical issue or a situation, and defend it with logical arguments.</td>
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<td>5. Quantitative skills: Students will apply appropriate mathematical and statistical concepts and operations to interpret data and to solve problems.</td>
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<td>✓</td>
<td>5.1. Students will translate quantifiable problems into mathematical terms and solve these problems using mathematical or statistical operations.</td>
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<td>✓</td>
<td>5.2. Students will construct graphs and charts, interpret them, and draw appropriate conclusions.</td>
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<td>6. Science and technology: Students will apply the scientific method of inquiry to draw conclusions based on verifiable evidence, use scientific theories and knowledge to understand the natural world, and explain the impact of scientific theories, discoveries and technological changes on society.</td>
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<tr>
<td>✓</td>
<td>6.1. Students will identify and recall scientific information and theories, and, integrating and applying this knowledge, will use the scientific method to solve problems and draw conclusions from data.</td>
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<td>6.2. Students will distinguish between scientific theory and scientific discovery, will distinguish between science and its technological application, and will explain the impact of science and technology on society.</td>
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<td>6.3. Students will demonstrate a working knowledge of the subject matter of one of the physical or biological sciences.</td>
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<tr>
<td>✓</td>
<td>6.4. Students will demonstrate a working knowledge of a major domain of technological application.</td>
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Students will be able to locate parameters associated with weight and balance, performance characteristics for airplanes, then apply them to graphs and charts and choose the appropriate course of action.
OBJECTIVES:

The student will be introduced to the training airplane, its operating characteristics, cabin controls, instruments, and systems. He will learn the preflight activities necessary to insure the airplane is safe for flight. Introduction of some basic flight maneuvers also will be accomplished to help the student learn the use of the engine and flight controls.

CONTENT:

1. PREFLIGHT DISCUSSION AND ORIENTATION
2. INTRODUCTION
   A. Preflight
   B. Use of checklist
   C. Equipment and Familiarization
      (1) First aid kit location
      (2) Fire extinguisher locations
   D. Engine Start and Warmup
   E. Basic Radio Procedures
   F. Pretake off Checklist
   G. Straight-and-Level Flight
   H. Medium Bank Turns (20° - 45°)
   I. Hand Signals
   J. Leveling off from a climb and descent
3. POSTFLIGHT DISCUSSION AND PREVIEW OF NEXT LESSON.

COMPLETION STANDARDS:

The student will display an understanding of the use of the checklist and safety considerations of engine starting and runup. At the completion of this lesson, he will be able to star the engine and perform a runup with instructor assistance. Additionally, the student will understand the control inputs necessary for leveling off and maintaining in turns and level flight.

FLIGHT LESSON 2 – Primary Aircraft

OBJECTIVES:

This lesson has two objectives. The review portion of this flight will be conducted to determine the student understanding of airplane control use to maintain altitude control. Further, during this lesson, the student will become familiar with the techniques for climbs, descents and maintaining specific ground tracks.

1. PREFLIGHT DISCUSSION AND ORIENTATION
2. REVIEW
   A. Basic Radio Procedures
   B. Equipment Familiarization
   C. Medium Bank Turns (25° - 45°)
D. Straight-and-level Flight
E. Leveling off from a climb and a descent

3. INTRODUCTION
   A. Aircraft Serving Procedures (oil, fuel, hydraulic fluid)
   B. Normal and Crosswind Taxi
   C. Normal and Crosswind Takeoffs
   D. Traffic Patterns (AIM and airport requirements)
   E. Straight-and-level Flight
   F. Climbs and Climbing Turns (VR)
   G. Glides (VR) power off 60-65 knots
   H. Level off from Climbs and Glides (VR)
   I. Minimum Controllable Airspeed
   J. Tracking a straight line
   K. Forward and side slips
   L. Normal and Crosswind Landings
   M. Use of Mixture control

4. POSTFLIGHT DISCUSSION AND PREVIEW OF NEXT SESSION

COMPLETION STANDARDS:

The student will understand the techniques used to perform straight-and-level flight, establish proper climbs and descents, and control airspeed with power and attitude. The student will be expected to enter the traffic pattern properly with the instructor’s aid. He will perform all preflight activities, including engine start, taxi, and engine runup, with a minimum of instructor assistance. He will display and understanding of the technique used to control the airplane’s ground track during crosswind conditions. Additional flight time will be assigned at this time, if needed, to meet proficiency requirements.

FLIGHT LESSON 3 – Primary Aircraft

INSTRUCTION

OBJECTIVES:

The student will review each of the listed maneuvers and procedures to increase his proficiency. Through this review, the student’s ability to control the airplane’s attitude about its three axes and to maintain specific ground tracks will be increased.

CONTENT:

1. PREFLIGHT DISCUSSION AND ORIENTATION
2. REVIEW
   A. Airplane Servicing Procedures
   B. Normal and/or Crosswind Taxi
   C. Normal and/or Crosswind Takeoff
   D. Tracking a Straight Line
   E. Medium Bank Turns
   F. Traffic Pattern Departure
G. Straight-and-Level Flight (VR)
H. Climbs and Climbing Turns
I. Leveloff from Climbing Turns and Glides
J. Minimum controllable Airspeed
K. Traffic Pattern Entry Procedures
L. Forward and Side slips
M. Normal and/or Crosswind Landings

3. POSTFLIGHT DISCUSSION AND PREVIEW OF NEXT LESSON

COMPLETION STANDARDS:

The student will be able to perform climbs, glides, turns, straight-and-level flight, and flight at minimum controllable airspeed with proper coordination, while maintaining airspeed within 10 knots and headings within 20° of that desired. He will also display understanding of how the control of airplane attitude affects altitude and headings. In addition, he must display understanding of traffic pattern departure and entry procedures and the use of the appropriate wind correction angles necessary to maintain specific ground tracks.

FLIGHT LESSON 4 – Primary Aircraft

CONTENT:

1. PREFLIGHT DISCUSSION AND ORIENTATION
2. REVIEW
   A. Use of Checklist
   B. Basic Radio Communication Procedures
   C. Engine Starting
   D. Straight-and-Level Flight (VR)
   E. Use the Mixture Control
   F. Medium Bank Turns (VR)
   G. Climbs and Climbing Turns (VR)
   H. Glides and Gliding Turns (VR)
   I. Leveloff Procedures
   J. Minimum Controllable Airspeed
3. INTRODUCTION
   A. Best Rate and Obstacle Clearance Climbs and Turns
   B. Steep turns
   C. Descents and Descending Turns
   D. Airspeed and Configuration Changes
   E. Minimum Controllable Airspeed
   F. Stalls with Power off and Flaps Up
4. POSTFLIGHT DISCUSSION AND PREVIEW OF NEXT LESSON
COMPLETION STANDARDS:

Proficiency in maintaining airspeed within 10 knots of appropriate airspeeds during the performance of all maneuvers will be expected. Loss or gain of altitude will be restricted to within 200 feet and heading control within 20° while in straight-and-level flight.

FLIGHT LESSON 5- Primary Aircraft

OBJECTIVES:

The student will continue to gain proficiency in those maneuvers listed as review. In addition, he will become familiar with ground reference maneuvers which reinforce the student’s ability to correct for wind drift. Takeoff and departure stalls and collision avoidance will be introduced to each safety of flight. In addition, stall awareness, spin entry, spins and spin recovery techniques will be discussed and logged on the folder and endorsed in the logbook.

CONTENT:

1. PREFLIGHT DISCUSSION AND ORIENTATION
   A. Stall awareness, spin entry, spins and spin recovery techniques will be discussed. Coordinated control inputs will be emphasized; i.e., ball centered.

2. REVIEW
   A. Straight-and-Level Flight
   B. Tracking a Straight Line
   C. Medium Bank Turns
   D. Minimum controllable Airspeed
   E. Normal and/or Crosswind Takeoffs
   F. Traffic Patterns
   G. Stalls with Power Off
   H. Steep Turns
   I. Normal and/or Crosswind Landings

3. INTRODUCTION
   A. S-Turns Across a Road
   B. Turns About a Point and Rectangular Courses
   C. Approach-to-Landing Stalls
   D. Takeoff and Departure Stalls
   E. Collision Avoidance Procedures
   F. Critical Attitude Recovery

4. POSTFLIGHT DISCUSSION AND REVIEW OF NEXT LESSON

COMPLETION STANDARDS:

The student will understand the execution of ground reference maneuvers. He will be able to discuss, with understanding, the proper techniques for wind drift correction and entry to maneuvers. Additionally, he will be able to maintain a specific ground track while a straight flight. Takeoff and departure stalls will be performed without harsh or abrupt control usage during recovery and with a minimum loss of altitude.
OBJECTIVES:

The student will practice each of the review items to gain proficiency. He will learn emergency procedures to cope with usual situations. Also, procedures used to change airspeed and confirmation of the aircraft will be practiced so the student will learn to control the aircraft’s attitude at various airspeeds.

CONTENT:

1. PREFLIGHT DISCUSSION AND ORIENTATION
2. REVIEW
   A. Best Rate-of-Climbs and Turns
   B. Obstacle Clearance Climbs and Turns
   C. Minimum Controllable Airspeed
   D. Turns About a Point
   E. Stall Series
3. INTRODUCTION
   A. Simulated Engine Failure
   B. Steep Turns
4. POSTFLIGHT DISCUSSION AND PREVIEW OF NEXT LESSON

COMPLETION STANDARDS:

The student will display, through performance and discussion, complete understanding of possible emergencies and the procedures necessary for safe conduct of flight. During changes in airspeed and configuration, altitude will be maintained within 175 feet and heading within 20°.

FLIGHT LESSON 7- Primary Aircraft

During this flight, the Chief Instructor or his assistant will conduct a progress check to determine that the student can perform the review maneuvers adequately to proceed to the next block of training.

Additionally, aborted landing procedures will be introduced and three takeoffs and landings will be accomplished to prepare the student for airport operations. The pre-solo written examination will be given before this progress check. The passing of this examination will be logged in the log book and the test placed in the student’s record.

CONTENT:

1. PREFLIGHT DISCUSSION AND ORIENTATION
2. REVIEW
   A. Medium Bank Turns (VR)
   B. Climbs, Vx, Vy, Enroute (VR)
   C. Obstacle Clearance Climbs (VR)
   D. Stall Series
   E. Steep Turns (VR)
F. Simulated Engine Failure  
G. Airspeed and Configuration Changes  
H. Normal and Crosswind Takeoffs and Landings  

3. INTRODUCTION  
   A. Go-Around Procedures  
   B. Accelerated Stalls  

4. POSTLIGHT DISCUSSION AND PREVIEW OF NEXT LESSON  

COMPLETION STANDARDS:  
The student will perform proficiency all of the basic flight maneuvers. He will demonstrate the ability to maintain altitude within 150 feet, heading within 15° and airspeed control within 5 knots of preselected airspeed. Evaluation will be based on smoothness and judgment in all maneuvers. Additional flight time will be assigned, if needed, to meet proficiency requirements.  

FLIGHT LESSON 8- Primary Aircraft  

INSTRUCTION  

OBJECTIVES:  
During this lesson, the student will review each of the listed maneuvers to gain proficiency in preparation for solo flight. Additionally, to further prepare the student for solo flight, wake turbulence avoidance and electrical system emergencies are introduced.  

CONTENT:  

1. PREFLIGHT DISCUSSION AND ORIENTATION  
   A. Simulated engine failure on takeoff, initial climb, cruise, descent, and landing pattern.  
   B. Aircraft and personal documents.  

2. REVIEW  
   A. Medium Bank Turns  
   B. Best Rate of Climb and Turns  
   C. Obstacle Clearance Climb  
   D. Stall Series, including accelerated stall  
   E. Steep Turns  
   F. Simulated Engine Failure  
   G. Airspeed and Configuration Changes  
   H. Ground reference maneuvers  

3. INTRODUCTION  
   A. Wake Turbulence Avoidance  
   B. Electrical System Failure  
   C. Electrical Fire and Smoke  
   D. Inoperative Elevator Trim  

4. POSTFLIGHT DISCUSSION AND PREVIEW OF NEXT LESSON  

COMPLETION STANDARDS:  
At the completion of this lesson, the student will demonstrate the correct procedures for wake turbulence avoidance and the handling of electrical system emergencies. In addition, he will be able to perform each of the
basic maneuvers listed in the review and demonstrate the ability to maintain altitude within 150 feet, heading within 10º and airspeed within 5 knots of that desired.

**FLIGHT LESSON 9 – Primary Aircraft**

**OBJECTIVES:**

During this lesson, the student will practice those maneuvers and procedures listed as review to gain the proficiency necessary for solo flight. This lesson will include pattern practice at the Mercer County Airport.

**CONTENT:**

1. **PREFLIGHT DISCUSSION AND ORIENTATION**
2. **REVIEW**
   - A. Straight-and-Level Flight (VR)
   - B. Medium Bank Turns (VR)
   - C. Minimum Controllable Airspeed (VR)
   - D. Normal and/or crosswind Takeoffs
   - E. Stall Series
   - F. Steep turns (VR)
   - G. S-Turns Across a Road
   - H. Turns About a Point
   - I. Traffic Pattern
   - J. Normal and/or Crosswind Landings
   - K. Wake Turbulence
3. **POSTFLIGHT DISCUSSION AND PREVIEW OF NEXT LESSON**

**COMPLETION STANDARDS:**

The student will display skill and understanding in the execution of all maneuvers and procedures practiced. During ground reference maneuvers, he will use proper wind drift correction and display proper use of aircraft controls for coordination. Where appropriate, altitude will be maintained within 125 feet, airspeed within 5 knots of the desired speed, and heading within 10º of the preselected heading.

**FLIGHT LESSON 10 – Primary Aircraft**

**OBJECTIVES:**

During this lesson, the student will demonstrate his ability to safely operate the airplane in the local airport traffic pattern, as sole occupant. In addition, he will complete a supervised solo flight.

**CONTENT:**

1. **PREFLIGHT DISCUSSION AND ORIENTATION**
2. **REVIEW**
   - A. Medium Bank Turns
   - B. Best Rate of Climb
   - C. Obstacle Clearance Climb
D. Stall Series from various flight attitude and power combinations with recovery from imminent and full stalls
E. Steep Turns
F. Simulated Engine Failure on takeoff and ground roll during initial climb (verbal procedures only), descent, cruise, pattern
G. Airspeed and Configuration Changes
H. Normal and Crosswind Takeoffs and landings
I. Go-Around Procedures from final approach and landing flare in various flight configuration including turns
J. Slips to a landing
K. No flap landings

3. INTRODUCTION
   A. Supervised Solo in the Traffic Pattern

4. POSTFLIGHT DISCUSSION AND REVIEW OF NEXT LESSON

COMPLETION STANDARDS:

The student will display the ability to successfully perform and exercises the privileges of solo operation of the aircraft, enabling him to make his first solo flight safely. He will complete this solo flight in the traffic pattern.

FLIGHT LESSON 11 – Primary Aircraft

INSTRUCTION AND SOLO

OBJECTIVES:

The first part of this lesson will be conducted as a progress check by the Chief Instructor or his assistant to determine that the student can safely operate the aircraft as sole occupant. A written examination will precede this flight. The examination must be completed and passed this flight.

CONTENT:

1. PREFLIGHT DISCUSSION AND ORIENTATION
2. REVIEW
   A. Minimum controllable Airspeed
   B. Stall Series
   C. Traffic Pattern Entry and Departure
   D. Normal and Crosswind Landings and Takeoffs
   E. Collision Avoidance Procedures
   F. Ground reference maneuvers
3. POSTFLIGHT DISCUSSION AND REVIEW OF NEXT LESSON

COMPLETION STANDARDS:

The student will display the proficiency and competency required to act as pilot in command of the aircraft on subsequent solo flights. An understanding and demonstration of proper radio procedures, traffic procedures, traffic procedures on the ground, and traffic pattern entry and departure at the airport will be required.
OBJECTIVES:

Through this dual Day – VRF cross-country flight, the student will learn proper method for incorporation into cross-country operations, the piloting skills and knowledge areas learned previously. The student will learn the proper step-by-step procedures for planning and conducting cross-country flights. In addition to the close supervision and aid the student will receive this flight, he will be evaluated carefully on all maneuvers and procedures to determine his ability to conduct a cross-country flight as the solo occupant of the airplane.

This lesson will meet the two-hour dual flight requirement including pilotage, dead reckoning and radio aids.

a. 12A will be TTN-AVP-ABE-TTN
b. 12B will be TTN-MIV-ACY_TTN
c. 12C, if required, will be TTN-RDG-UKT-TTN

CONTENT:

1. PREFLIGHT DISCUSSION AND ORIENTATION
   A. Flight Preparation
      (1) Weather analysis and notices to airmen
      (2) Navigation log
      (3) Airports
      (4) Aircraft performance and loading
      (5) FAA Flight Plan

2. REVIEW
   A. Straight-and-Level Flight
   B. Climbs and Climbing Turns
   C. Glides and Gliding Turns
   D. Leveloff Procedures
   E. Descents and Descending Turns
   F. Emergency Procedures
   G. Airspeed and Configuration Changes
   H. Short-Field and Soft Field Takeoffs
   I. Short-Field and Obstructed Landing
   J. Enroute Radio Procedures
   K. VOR tracking
   L. VOR Position Finding
   M. Critical Attitude Recovery

3. INTRODUCTION
   A. Three-Leg, One-Day, Cross-Country Flight
      (1) Pilot age navigation-all three legs
      (2) Dead reckoning navigation-all three legs
      (3) VOR radio navigation-on two legs
      (4) ADF radio navigation
   B. Departure
   C. Openings Flight Plan with FSS by Radio
   D. Enroute
   E. Diversion to an alternate
F. Calculating Groundspeed
G. Estimates if Arrival Time
H. Emergency Procedures
   (1) Turbulent air
   (2) High density altitude
   (3) Adverse weather
   (4) Icing conditions
   (5) Engine failure
   (6) Lost procedures
   (7) Low fuel
   (8) Communication loss
   (9) Radio navigation loss
   (10) Instrument failure
   (11) Over heating engine
   (12) Engine fire
I. Three Destination Airports
   (1) Tower (including use of approach and departure control)
   (2) UNICOM only
J. Closing Flight Plan

4. POSTFLIGHT DISCUSSION AND PREVIEW OF NEXT LESSON

COMPLETION STANDARDS:

The student will be expected to demonstrate the ability to conduct cross-country flight operations safely as sole occupant of the airplane. Complete familiarization with proper preflight action, flight planning, weather analysis, and available publications should be displayed. The student will conduct all duties of pilot in command with smoothness, accuracy, and competence.

FLIGHT LESSON 13- Primary Aircraft

INSTRUCTION

OBJECTIVES:

The student will receive instruction for the dual night cross-country flight. The flight will be at least 100 NM and the remaining night Takeoffs and landings requirements will be accomplished. The student will plan experience the night flying conditions. This flight must be at least 2 hours of duration in night-VFR conditions.

CONTENT:

   A. The route will be TNN-MTV-ILG-TTN

   1. PREFLIGHT DISCUSSION AND ORIENTATION
   2. PREPARATION
   3. FLIGHT
   4. POSTFLIGHT DISCUSSION AND PREVIEW OF NEXT LESSON
COMPLETION STANDARDS:

This lesson is complete when the student has accomplished the flight as planned. After the flight, the student and instructor will discuss and correct any student problems or questions that may have arisen during the cross-country flight.

FLIGHT LESSON 14 – Primary Aircraft

INSTRUCTION

OBJECTIVES:

This lesson consists of a progress check by the Chief Instructor or his assistant to determine the student’s ability to plan and execute a cross-country flight. The student will have a cross-country flight planned and the Chief Instructor or his assistant will observe the student while he departs on the planned flight.

CONTENT:

1. PREFLIGHT DISCUSSION AND ORIENTATION
   A. Minimum equipment list and airworthiness requirements

2. REVIEW
   A. Departure Procedures
   B. Communications
   C. Establish Predetermined Ground Track
   D. Identifying VFR Checkpoints
   E. Use of navigation Log
   F. Calculating Groundspeed
   G. Emergency Procedures
   H. Diversion
   I. Class “D” full stop landings utilizing ground control

3. POSTFLIGHT DISCUSSION AND PREVIEW OF NEXT LESSON

COMPLETION STANDARDS:

The student will demonstrate the ability to conduct cross-country flights as the sole occupant of the airplane. He will display competent performance in all maneuvers specific for cross-country purposes and an understanding of the principles which will insure safety during cross-country flight.

FLIGHT LESSON 15 – Primary Aircraft

INSTRUCTION

OBJECTIVES:

The student will learn the techniques used to enter and control the bank angle during steep power turns and steep spirals, and the techniques used to judge altitude during accuracy landing approaches. This knowledge will aid the student in learning to control the airplane near its performance limits.
CONTENT:

1. PREFLIGHT ORIENTATION

2. INTRODUCTION
   A. Steep Power Turns (50° Bank)
   B. Steep Spirals
   C. Accuracy Landings
   D. Lazy Eights
   E. Chandelle

3. POSTFLIGHT DISCUSSION

COMPLETION STANDARDS:

At this stage of instruction, the student will be graded primarily on this understanding of the advanced maneuvers rather than his performance. During the steep power turns, the student should understand the techniques necessary to hold the bank within +15°, altitude within 250 feet, and roll-out within +15°. During the steep spirals, the student should be able to demonstrate an understanding of the techniques necessary to hold the heading, upon recovery, within ±20° and the airspeed within ±10 knots. Acceptable performance for accuracy landings should be such that the student does not undershoot the selected point on the runway and the student should understand the techniques required to affect a landing within 200 feet beyond the designated mark.

FLIGHT LESSON 16 – Primary Aircraft INSTRUCTION

OBJECTIVES:

During Flight Lesson 16, the student will review flight maneuvers to gain proficiency and increase his understanding of the performance criteria of each maneuver.

CONTENT:

1. REVIEW
   A. Chandelles
   B. Steep Power Turns
   C. Steep Spirals
   D. Accuracy Landings
   E. Slips to Landings
   F. Lazy Eights

2. INTRODUCE
   A. Eights on Pylons

3. POSTFLIGHT DISCUSSION

COMPLETION STANDARDS:

These lessons are complete when the student has performed each of the listed maneuvers. He should attempt to maintain altitude control while executing step power turns within 250 feet, bank within 10°, and recover on a
heading within 15° of the entry heading. During the execution of steep spirals, bank should be held within 10° of the entry heading, and airspeed should be 10 knots. Accuracy landings should be achieved within 200 feet of the designated mark.

FLIGHT LESSON 17 – Primary Aircraft

OBJECTIVES:

During this flight lesson, the student will review and practices the maneuvers learned in the previous two lessons. He will learn to control the airplane while his attention is diverted to outside references and to obtain its maximum performance while precisely pitch and bank attitude.

CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW
   A. Steep Power Turns
   B. Steep Spirals
   C. Accuracy Landings
   D. Slips to a Landings
   E. Chandelles
   F. Lazy Eights
   G. Eights on Pylons

COMPLETION STANDARDS:

The student is expected to perform those maneuvers which he has had an opportunity to practice in a manner which demonstrate increased understanding. While executing chandelles, the student should understand how the roll-out affects a roll-out so as to complete the maneuver after 180° of turn. The airspeed, at the time of roll-out, should be within 10 knots of stalling speed. During the execution of pylon eights, the student should show reasonable proficiency the pylon without the use of slips.

FLIGHT LESSON 18 – Primary Aircraft

OBJECTIVES:

During this lesson, the student will demonstrate the listed commercial maneuvers. The student will practice the listed maneuvers to further develop his skill in flying the airplane in a smooth and coordinated manner.

CONTENT:

1. REVIEW
   A. Steep Power Turns
   B. Steep Spirals
   C. Chandelles
   D. Lazy Eights
   E. Accuracy Landings
   F. Eights on Pylons
2. POSTFLIGHT DISCUSSION

COMPLETION STANDARDS:

This lesson is complete when the student has performed each of the listed maneuvers. In addition, the student should realize increasing insight and precision in advanced flight maneuvers. Increased proficiency should be evident by the student’s increased coordination and smooth control application. In addition, he will learn the control usage necessary to perform the lazy eight without persistent slipping.

FLIGHT LESSON 19 – Primary Aircraft

OBJECTIVES:

During this lesson, the Instructor will review the student previously learned maneuvers so any faulty areas of performance can be corrected.

CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW
   A. Steep Power Turns
   B. Steep Spirals
   C. Chandelles
   D. Accuracy Landings
      (1) Power off with flaps
      (2) Power off without flaps
      (3) Power on with flaps
   E. Lazy Eights
   F. Eights on Pylons
3. POSTFLIGHT DISCUSSION

COMPLETION STANDARDS:

The student must demonstrate to his instructor that he can plan and execute maneuvers in a precise, coordinated manner. Accuracy landings must be within 200’ of selected touchdown points.

FLIGHT LESSON 20 – Primary Aircraft

During this Progress Check, the Chief Instructor or his Assistant will review with the student previously learned maneuvers so any faulty areas of performance can be corrected.

CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW
   A. Steep Power Turns
   B. Steep Spirals
C. Chandelles
D. Lazy Eights
E. Eights on Pylons
F. Accuracy Landings
   (1) Power off with flaps
   (2) Power off without flaps
   (3) Power on with flaps
G. Emergency Procedure

3. POSTFLIGHT DISCUSSION

COMPLETION STANDARDS:

Performance will be judged on the student’s ability to plan and execute maneuvers in a precise, coordinated manner. Entry procedures, wind position, memory items in bold letters for emergency procedures, and accuracy landings within 200’ of selected touchdown point represent objectives which must be demonstrated.

FLIGHT LESSON 21 – Primary Aircraft

INSTRUCTION

OBJECTIVES:

During this lesson, the student will show added proficiency in the performance of advance maneuvers, and make further progress toward meeting commercial pilot-proficiency.

CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW
   A. Steep Power Turns
   B. Steep Spirals
   C. Chandelles
   D. Lazy Eights
   E. Eights on Pylons
   F. Accuracy Landings
      (1) Power off with flaps
      (2) Power off without flaps
3. POSTFLIGHT DISCUSSION

COMPLETION STANDARDS

This lesson is complete when the student can perform a steep spiral + 10 knots of recommended AS, three turns, proper entry. For steep power turns, the student must be able to perform two circles in the same direction + 150 feet + 10 knots and + 15º on heading. Perform this maneuver visually. The student will also increase his proficiency in the remaining maneuvers.

FLIGHT LESSON 22 – Primary Aircraft

INSTRUCTION

OBJECTIVES:
During this lesson, the student will demonstrate improved performance on the commercial maneuvers. The student will concentrate on Chandelles and Accuracy landings.

CONTENT:
1. PREFLIGHT ORIENTATION
2. REVIEW
   A. All Commercial Maneuvers
3. POSTFLIGHT DISCUSSION

COMPLETION STANDARDS:

The student at the completion of this lesson will demonstrate that he can perform chandelles and accuracy landings according to Practical Test Standards.

FLIGHT LESSON 23 – Primary Aircraft

OBJECTIVES:

During these lessons, the student will continue to practice and review commercial maneuvers.

1. REVIEW
   A. Commercial Maneuvers
   B. Accuracy Landings
      (1) Power off with flaps
      (2) Power off without flaps

COMPLETION STANDARDS:

The student at the completion of these maneuvers should be approaching the skill level as described in Practical Test Standards.

FLIGHT LESSON 24 – Primary Aircraft

OBJECTIVES:

This lesson will be conducted as a progress check by the Chief Instructor or his Assistant to determine the student’s ability to correctly perform each of the listed maneuvers and procedures.

CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW
   A. Steep Power Turns
   B. Steep Spirals
   C. Chandelles
D. Lazy Eights
E. Short-Field and Soft-field Takeoffs and Landings
F. Accuracy Landings
G. Slips to Landings
H. Eights on Pylons
I. Cross-country Planning with a Flight Log

3. POSTFLIGHT STANDARDS:

COMPLETION STANDARDS:

At the completion of this lesson, the student will be able to perform all advanced flight maneuvers demonstrating the ability to preplan and execute the maneuver according to that plan. During the execution of the maneuvers, the student will be expected to demonstrate the ability to perform at the competency level of the Commercial Practical Test Standards.

FLIGHT LESSON 25 – Primary Aircraft

INSTRUCTION

OBJECTIVES:

The student will be introduced to the operational and regulatory aspects of night operations. The lesson will include takeoffs and landings in the local area to prepare the student for solo night operations.

CONTENT:

1. PREFLIGHT ORIENTATION
   A. Aircraft Equipment (91.205) and MEL Lists (91.213)
   B. Aircraft Lights (91.209)
   C. Recency of Experience (61.57)
   D. Weight and Balance including adding and removing weight and the shifting of weight.

2. INTRODUCTION
   A. Aircraft Preflight Action.
      The student will be taught the preflight procedures needed prior to conducting a safe night operation. Items to be covered will include:
         (1) Electrical systems
         (2) Lighting systems
   B. Take offs.
      The student will become acquainted with the proper visual references for night takeoffs, including the possibility of the loss of ground references.
   C. Landings.
      The student will become acquainted with proper visual references and will execute normal and crosswind landings from both Power-on and Power-off approaches.
   D. Emergency Procedures.
   E. Physiological Effects.
      The student should be made aware of the special problems of hypoxia and depth perception.
   F. Controlled Airport Operations
3. POSTFLIGHT DISCUSSION

COMPLETION STANDARDS:

At the conclusion of this lesson, the student will demonstrate an adjustment of visual references for night takeoffs and landings. The student will also correctly answer questions pertinent to the aircraft’s electrical and lighting systems and demonstrate that he can safely act as pilot in command during local night flight.

FLIGHT LESSONS 26 and 27 – Primary Aircraft

INSTRUCTION

OBJECTIVES:

During the two dual lessons, the student will review and gain proficiency in night flight operations.

CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW
   A. Takeoffs
   B. Steep Turns
   C. Minimum Controllable Airspeed
   D. Landings
   E. Night Operations at controlled airports and airports within 25 NM

3. POSTFLIGHT DISCUSSION

COMPLETION STANDARDS:

The two lessons are complete when the student had conducted the assigned flights. During the lessons, the student should attempt to gain proficiency in his night flight abilities. All landing approaches and initial climbs after takeoff should be stabilized. Altitude control during turns and flight at minimum controllable airspeed should be within 150 feet.

FLIGHT LESSON 28 – Primary Aircraft

INSTRUCTION

OBJECTIVES:
This progress check, conducted by the Chief Instructor or his assistant, evaluates the student’s ability to perform local night flight operations with the competency of a commercial pilot. Safety in night flight operations, cross-country procedures and emergency situations will be emphasized.

CONTENT:

1. FLIGHT ORIENTATION
2. REVIEW
   A. Preflight Action
   B. Takeoff
   C. Steep Turns
   D. Minimum Controllable Airspeed
   E. Emergency Procedures
   F. Landings
   G. Controlled and Uncontrolled Airport Operations
3. POSTFLIGHT DISCUSSION

COMPLETION STANDARDS:

The student will demonstrate that he can safely act as pilot in command in the night environment, which includes the use of the proper procedures and the handling of emergency situations.

INSTRUMENT FLIGHT – MCCC Instrument Training Device INSTRUCTION
FLIGHT LESSON 29

OBJECTIVES:

During the lesson, the student is introduced to the instrument training device. Additionally, he will be introduced to basic attitude instrument flight in the training device and will learn the technique for establish power settings for the various phases of flight.

CONTENT:

1. PREFLIGHT ORIENTATION
   This includes preflight inspection of the training device, its operating characteristics, and the cabin. The student will be shown the locations and procedures for operation of throttle, propeller, mixture control, trim control, and all flight instruments.

2. POSTFLIGHT DISCUSSION

COMPLETION STANDARDS:

The student will display understanding of the use of the checklist, safety considerations of engine starting, instrument indications on the ground, and run-up. The student will be required to display understanding of the proper procedures for entering and executing the basic instrument flight maneuvers. Roll out from turns should
be within 10° of the preselected heading. Altitude will be held within 100 feet, and airspeed within 10 knots of assigned airspeed.

INSTRUMENT FLIGHT – MCCC Instrument Training Device

FLIGHT LESSON 30

OBJECTIVES:

The student will acquire additional proficiency in altitude instrument flying and he will learn the basics of IFR radio communication.

1. PREFLIGHT ORIENTATION

2. REVIEW
   A. Starting the Engine
   B. Level Off Procedures
   C. Power Settings
   D. Straight and Level
   E. Standards-Rate Turns

3. INTRODUCTION
   A. Enroute Cruise Descent, Approach Cruise Descent and Missed Approach Climb
   B. Pattern B
   C. NACO and Jeppesen Approach Plates

4. POSTFLIGHT STANDARDS:

COMPLETION STANDARDS:

The student will be able to perform leveling off procedures, straight and level flight and standard rate turns. The student will also be familiar with IFR communications procedures.

INSTRUMENT FLIGHT – MCCC Instrument Training Device

FLIGHT LESSON 31

OBJECTIVES:

During this lesson, the student will practice basic attitude instrument flight to gain added proficiency. Additionally, he will learn the basic techniques used to control airplane attitude using only the emergency panel. He also will learn to comply with the provisions of FAR 91.185 concerning communications failure.

CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW
   A. Power Settings
      (1) Enroute cruise and descent
(2) Approach cruise
(3) Descent and Missed approach climb

B. Pattern B

3. POSTFLIGHT DISCUSSION

The student will acquire further proficiency in IFR scan techniques. The student will also demonstrate the ability to read and understand instrument approach plates. Communication failure procedures shall be explained by the student to the instructor.

INSTRUMENT FLIGHT – MCCC Instrument Training Device

INSTRUCTION

FLIGHT LESSON 32

OBJECTIVES:

In this lesson, the student will review maneuvers and procedures learned in previous lessons. In addition to review items, the student will be introduced to VOR and ADF orientation procedures and will learn to orient himself from an unknown position in respect to VHF and low frequency navigation aids. From the established position, the student will learn how to proceed to the navigational fixes via simulated clearance routes prescribed by the instructor.

CONTENT:

1. PREFLIGHT ORIENTATION

2. REVIEW
   A. Enroute Cruise and Descent, Approach Cruise and Descent, and Climbs With Proper Power Settings

3. INTRODUCTION
   A. VOR Orientation
   B. VOR Holdings Patterns
   C. Radio Communication Procedures
   D. IFR Pretakeoff Checklist

4. POSTFLIGHT DISCUSSION

COMPLETION STANDARDS:

The student will demonstrate the ability to locate himself and proceed to the hold via the instructor’s clearance. During the radio navigation and orientation procedures the student will be expected to display proficiency in maintaining airspeed within 5 knots of the appropriate airspeed during the performance of all maneuvers. Loss or gain of altitude will be restricted to within 100 feet and heading controlled within 5º while in straight flight configuration. Understanding of VOR holds pattern entries is also required.

INSTRUMENT FLIGHT – MCCC Instrument Training Device

INSTRUCTION

FLIGHT LESSON 33

OBJECTIVES:
In this lesson the student will review VOR and ADF navigational Procedures including bracketing, tracking and VOR holds and ADF navigational Procedures including bracketing, tracking and VOR holds. The student will also be introduced to ADF tracking and holds. Simulated wind conditions of up to 20 knots should be used.

CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW
   A. VOR Tracking and Bracketing
   B. VOR Holds
3. INTRODUCTION
   A. ADF Tacking and Bracketing
   B. ADF Holds
4. POSTFLIGHT DISCUSSION

COMPLETION STANDARDS:

The student should demonstrate understanding and proficiency of VOR and ADF bracketing, tracking and holding patterns. Throughout the maneuvers, airspeed should be maintained within 5 knots and attitude within 100 feet. These conditions should be met in up to a 20 knot simulated crosswind. The student must have ten (10) hours logged on the simulator to proceed.

INSTRUMENT FLIGHT – MCCC Instrument Training Device
INSTRUCTION
FLIGHT LESSON 34

OBJECTIVES:

This progress check, conducted by the Chief Instructor or his assistant, evaluates the student’s performance of all maneuvers of all maneuvers learned in previous lessons.

CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW
   A. Pattern B
   B. Scan Proficiency
   C. Power Settings
   D. NACO and Jeppesen Approach Plates
   E. VOR Holds, Tracking and bracketing
   F. ADF Holds
   G. Tracking ADF and bracketing

3. POSTFLIGHT STANDARDS:
INSTRUMENT FLIGHT – Instrument Aircraft
FLIGHT LESSON 35

OBJECTIVES:
The student will learn the proper method of controlling the aircraft by sole reference to the instrument while executing holdings procedures. The student will learn and practice the various methods of entering the standard and non-standards holding patterns, along with the proper method of departing the assigned holding pattern. He will also learn to interpret and comply with ATC clearances regarding holding patterns.

CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW
   A. Straight-and-Level Flight
   B. Level Standard-Rate Turns (Left and Right)
   C. VOR Orientation
3. INTRODUCTION
   A. Holding Pattern Entries
   B. Holding Pattern
      (1) VOR and/or DME
      (2) ADF
      (3) Intersection
   C. Power Settings
4. POSTFLIGHT DISCUSSION

INSTRUMENT FLIGHT – Instrument Aircraft
FLIGHT LESSON 36

OBJECTIVES:

This airplane lesson will be conducted as a review with particular emphasis on increasing the student’s understanding of holding patterns and holding pattern entries.
1. PREFLIGHT ORIENTATION
2. REVIEW
   A. Straight-and-Level Flight
   B. Level Standard-Rate Turns (Left and Right)
   C. VOR Orientation
   D. Holding Patterns
3. INTRODUCTION
   A. Stalls
   B. Minimum Controllable Airspeed
4. POSTFLIGHT DISCUSSION

COMPLETION STANDARDS:

The student will display an increased proficiency in understanding and executing holding patterns and holding pattern entries. The student will select the proper holding pattern entry within 5°. During level flight, altitude will be maintained within 100 feet, and heading within 5°. During descents, the rate of descent will be within 100 feet, per minute 10 knots of the selected airspeed. During turns, the roll-out heading must be within 10° of the desired heading. The student will be expected to adjust for the wind so as to maintain the inbound leg for one minute.

INSTRUMENT FLIGHT – Instrument Aircraft

FLIGHT LESSON 37

OBJECTIVES:

During this lesson, the student will learn the procedures necessary to follow a published VOR instrument approach procedure down to the minimum descent altitude (MDA), for the specified airport in use. Upon completion of the timed approach, the student will learn to execute a missed approach, as outlined on the approach chart.

CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW
   A. VOR Orientation
   B. Standard-Rate Turns
   C. Holding Patterns
   D. Power Settings
3. INTRODUCTION
   A. VOR Approaches
   B. Missed Approaches
4. POSTFLIGHT DISCUSSION

COMPLETION STANDARDS:

Altitude will be held within 100 feet of the prescribed altitudes during the initial and intermediate approach segments and no more than 50 feet above specified minimum altitudes, and never below MDA after passing the
final approach fix on a nonprecision approach. The student will display, though performance and discussion, complete understanding of all of the approach segments and minimums, as shown on the approach charts.

INSTRUMENT FLIGHT – Instrument Aircraft

FLIGHT LESSON 38

OBJECTIVES:

This lesson will consist of a review of the VOR approach procedures. The student will learn the associated similarities of the VOR, localizer, and ILS approaches. The student will learn to execute localizer and ILS approaches down to the lowest MDA or DDH that the radio navigation equipment allows.

CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW
   A. Straight-and-Level Flight
   B. Standard-Rate Turns
   C. VOR Orientation
   D. VOR Approaches
3. INTRODUCTION
   A. ILS and Localizer Approaches
4. POSTFLIGHT DISCUSSION;

COMPLETION STANDARDS:

The student will display a continued increase in proficiency in approach procedures. The altitude maintained on the final approach segment of a non-precision approach will be no more than 50 feet above specified minimum altitude and never below MDA. On a precision approach, the altitude will be maintained within plus or minus two dots on the glide slope and no variance below the glide slope after the middle marker. The localizer tracking will be held within plus or minus two degrees of the localizer course.

INSTRUMENT FLIGHT – Instrument Aircraft

FLIGHT LESSON 39

OBJECTIVES:

During the lesson, the student will improve his proficiency and understanding of the procedures necessary to follow a published instrument approach procedure down to the minimum descent altitude (MDA) or decision height (DH) for the airports used. The student will learn to perform the transition from instrument to visual references and complete a circling or straight-in landing appropriate to the active runway in use. Additionally, radar approaches are introduced to familiarize the student with this procedure.
CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW
   A. Standard-Rate Turns
   B. VOR Orientation
   C. Holding Patterns
   D. VOR and ILS Approaches
3. INTRODUCTION
   A. Radar Approaches
   B. IFR Flight Planning
      (1) Enroute cruise and descent
      (2) Approach cruise and descent
      (3) Missed approach climb
   C. ADF Approach
4. POSTFLIGHT DISCUSSION

COMPLETION STANDARDS:

The student will be expected to arrive at the minimum authorized altitude within the visibility minimum distance of the runway’s threshold or airport boundary for circling approaches during the execution of VOR approaches. While executing ILS approaches, the student will be expected to arrive at authorized minimums in position for a straight-in landing. The altitude will be held within 100 feet of the prescribed altitude during the initial and intermediate approach segments, no more than 50 feet above specified minimum altitudes after passing the final approach fix, and never below MDA on the nonprecision approach. On a precision approach, the altitude should be maintained within plus or minus one dot on the glide slope after the middle marker. The student also will demonstrate the ability to comply with altitude restrictions and controller instructions during radar approaches.

INSTRUMENT FLIGHT – Instrument Aircraft

INSTRUCTION

FLIGHT LESSON 40

OBJECTIVES:

This flight lesson is a progress check conducted by the Chief Instructor or his Assistant to determine if the student has reached the proficiency level necessary to begin IFR cross-country instruction in the following block. Additionally, VOR/DME and ADF approaches are introduced.

CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW
   A. VOR Orientation
   B. ADF Orientation
   C. Holding Patterns
3. INTRODUCTION
   A. ADF Approaches
4. POSTFLIGHT DISCUSSION

COMPLETION STANDARDS:

The student will display a complete understanding and increase in proficiency in all of the VOR and ILS approach procedures. Additionally, he will demonstrate an understanding of VOR/DME and ADF approach procedures. The altitude maintained on the final approach segment of the nonprecision approach will be no more than 50 feet above specific minimum altitude and never below MDA. The ADF final approach course will be held within 5° of the centerline, but never to exceed the airport boundaries.

INSTRUMENT FLIGHT – Instrument Aircraft

FLIGHT LESSON 41

OBJECTIVES:

During this lesson, the student will be introduced to basic IFR cross-country procedures, including departure, enroute, and arrival. This introduction will aid the student in obtaining the maximum benefit from the extended cross-country which follows in Flight Lesson 42.

CONTENT:

1. PREFLIGHT ORIENTATION
2. INTRODUCTION AND REVIEW
   A. IFR Cross-Country Planning
   B. Filling an IFR Flight Plan
   C. Obtaining an IFR Clearance
   D. IFR Departure
      (1) Use of SIDs
      (2) Use of radar
   E. VOR Navigation
   F. Holding
   G. Enroute Radio Communication Procedures
   H. Time and Distance Computations
   I. Emergency Procedures
   J. IFR Arrival
3. POSTFLIGHT DISCUSSION

COMPLETION STANDARDS:

The student will demonstrate an understanding of all procedures and maneuvers required on this IFR cross-country flight. He will possess a working knowledge of the appropriate FARs and other sources of necessary data, including NWS reports and forecasts, the AIM, enroute charts, and approach charts.
OBJECTIVES:

During this cross-country flight, the student will apply all prior learning experiences in the instrument training program. The student will learn the proper procedures for planning and flying extended IFR flights. The trips will be at least 250 nautical miles on Federal airways, including VOR, ADF, and ILS approaches at different airports. The route will be TTN-IPT-CXY-TTN or TTN-CXY-MIV-TTN or a similar approved route. This flight will satisfy the dual cross-country requirement in FAR 141 (Appendix C, Section 3D). Partial panel operations will be continuous part of this flight.

CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW
   A. IFR Flight Planning
   B. Enroute Cruise and Descent, Approach Cruise and Descent, and Power Settings
   C. Level-Off Procedures
   D. Emergency Procedures
   E. Enroute Radio Communications Procedures
   F. VOR and ADF Orientation
   G. VOR Tracking and Bracketing
   H. Time and Distance Computations
   I. Final Preparation
      (1) Weather analysis
      (2) Notices to airmen
      (3) Completion of flight log
   J. Route and Airports
      (1) Flight log must include:
         (a) Two compulsory reporting points
         (b) VOR, ADF, and ILS instrument approaches
         (c) One limited facility airport
         (d) One airport with FSS or UNICOM only
         (e) One airport with approach control tower
   K. Aircraft Performance
      (1) Weight and balance computations
      (2) Takeoff and landing distances
   L. FAA Flight Plan
      (1) Filing
      (2) Canceling
3. INTRODUCTION
   A. Departure
      (1) Taxi clearance
      (2) Enroute clearance
      (3) ATIS or airport advisory
      (4) ATC communication
   B. Enroute
COMPLETION STANDARDS:

The student will demonstrate the ability to safely conduct IFR cross-country flight operations as pilot in command of the airplane. The student will display complete familiarity with the proper preflight action, flight planning, weather analysis, and publications available. The student will conduct all duties of pilot in command with smoothness, understanding, accuracy, and competence. At the conclusion of this flight, the student will demonstrate complete understanding of IFR radio communications and navigation procedures and the use of altitudes and navaids in emergency situations, as stated in FAR 91.185.

INSTRUMENT FLIGHT – Instrument Aircraft

OBJECTIVES:

The lesson will review all areas of flight training which pertain to the instrument pilot.

CONTENT:

1. PREFLIGHT ORIENTATION

   The student and flight instrument will discuss the operations aspects of IFR flight to determine the student’s knowledge level.

2. FLIGHT

   This flight will consist of a thorough review of all areas of training to insure the student meets the instrument proficiency requirements.

3. POSTFLIGHT DISCUSSION

COMPLETION STANDARDS:
The student will display above average proficiency in all areas of flight operations that are required of an instrument pilot. The student will have a full understanding of what will be required in performance, proficiency, and understanding during the progress check which follows in Flight Lesson 44.

INSTRUMENT FLYING – Instrument Aircraft
INSTRUCTION
FLIGHT LESSON 44

OBJECTIVES:

This lesson will be conducted as a progress check by the Chief Instructor or his Assistant to determine the student’s proficiency and understanding of all maneuvers and procedures necessary to conduct flight operations as an instrument pilot. The emphasis on this lesson will also include partial panel operations.

CONTENT:

1. PREPARATION

The student will be required to prepare an IFR cross-country flight including weather analysis and flight planning, weight and balance data for aircraft, fuel consumption, and included on the flight plan all the other information for actual IFR cross-country flight. The IRF flight plan may be cancelled by the Instructor when the student has demonstrated the ability to communicate and comply with ATC clearances.

2. PROGRESS CHECK

The flight will be conducted according to the Instrument Pilot Practical Test Standards, with evaluation to be made by the Chief Instructor or his Assistant as to the student’s ability to perform successfully the duties of an instrument pilot.

3. POSTFLIGHT DISCUSSION

COMPLETATION STANDARDS:

This lesson is complete when the student displays the ability to perform each IFR maneuver and procedure with the proficiency and safety of a competent instrument pilot. At all times during progress check, the student must demonstrate good judgment and a thorough understanding of IFR operations in the national airspace system. The student’s performance during each maneuver and procedure must meet or exceed the minimum acceptable performance standards outlined in the current Instrument Pilot Practical Test Standards.

FLIGHT LESSON 45 – Complex Aircraft
INSTRUCTION

OBJECTIVES:
During initial introduction to the complex airplane, the student will learn to make a complete airplane and the operation of the airplane systems. This will prepare him for the introduction of the advance maneuvers in the complex airplane during Flight Lesson 46.

CONTENT:

1. PREFLIGHT ORIENTATION

2. INTRODUCTION
   A. Preflight Operation
   B. Engine Start Checklist
   C. Pretakeoff Checklist
   D. Climbs at Vx and Vy
   E. Straight-and-Level Flight
   F. Turns
   G. Minimum Controllable Airspeed
   H. Approach and Departure Stalls
   I. Gear and Flap Operations
   J. Propeller Operations
   K. Systems Operations
   L. Normal and Crosswind Takeoffs and Landings

3. POSTFLIGHT DISCUSSION

COMPLETION STANDARDS:

The student will demonstrate an understanding of the basic operational aspects and systems of the aircraft, including a rapid reorientation to the visual references and airplane attitude associated with each of the maneuvers demonstrated.

FLIGHT LESSON 46 – Primary Aircraft

INSTRUCTION

OBJECTIVES:

During this portion of the complex aircraft introduction, the student will learn the various takeoffs, landings, maneuvers, and emergency operations in the complex airplane.

CONTENT:

1. PREFLIGHT ORIENTATION

2. REVIEW
   A. Flight at Minimum Controllable Airspeed
   B. Approach and Departure Stalls
   C. Normal and Crosswind Takeoffs and Landings

3. INTRODUCTION
   A. Emergency Systems Operations
4. POSTFLIGHT DISCUSSIONS

COMPLETION STANDARDS:

At the end of this instructional period, the student will be making unassisted takeoffs and landings of various types and will display a through understanding of the normal and emergency operations of the airplane systems. His overall performance must show that he is competent for solo flights in the complex airplane.

FLIGHT LESSONS – Complex Aircraft
Flight Lessons 47, 48, 49, & 50

OBJECTIVES:

During these solo lessons, the student will practice basic and advanced maneuvers in the complex aircraft with major emphasis on landing operations. This will increase his proficiency and preparation for the final flight test.

CONTENT:

1. REVIEW
   A. Steep Spirals
   B. Chandelles
   C. Lazy Eights
   D. Minimum Controllable Airspeed
   E. Approach and Departure Stalls
   F. Short fields and Soft-field takeoffs
   G. Power-on Accuracy Landings
   H. Normal and Crosswind Landings
   I. Eights on Pylons
   J. Steep Power Turns

COMPLETION STANDARDS:

The four lessons are complete when the student has conducted the assigned flights. During these lessons, the student should attempt to gain increased proficiency by performing each maneuver using smooth, coordinated control inputs. Additionally, he should attempt to make all landings on or within 200 feet beyond a designed point on the runway. If satisfied, the flight instructor may sign the student off for PIC.

FLIGHT LESSON 51 – Complex Aircraft

OBJECTIVES:

During this lesson in the complex aircraft, IFR procedures will be introduced and performed.
CONTENT:

1. PREFLIGHT ORIENTATION
2. INTRODUCTION
   A. Approach and Cruise Power Settings
   B. Complex IFR Procedures
3. POSTFLIGHT DISCUSSION

COMPLETION STANDARDS:

At the end of this lesson, the student will understand the flight characteristics and power settings necessary to perform IFR procedures in the complex airplane.

FLIGHT LESSON 52 – Complex Aircraft

INSTRUCTION

OBJECTIVES:

During this lesson, the student will practice listed maneuvers in the complex airplane to gain proficiency and to prepare for the progress check in Flight Lesson 53.

CONTENT:

1. REVIEW
   A. Steep Power Turns
   B. Lazy Eights
   C. Chandelles
   D. Minimum Controllable Airspeed
   E. Approach and Departure Stalls
   F. Short field and Soft-Field Takeoffs and Landings
   G. Power-on Accuracy Landings
   H. Normal and Crosswind Landings

COMPLETION STANDARDS:

This lesson is complete when the student has conducted the assigned flight. During the lesson, he should attempt to increase his proficiency which will be evident by this ability to perform each maneuver smoothly and with proper coordination.

FLIGHT LESSON 53 – Complex Aircraft

INSTRUCTION

OBJECTIVES:
During the lesson in the complex airplane, the student will practice attitude instrument flight and complete a progress check with the Chief Instructor or his Assistant to determine this competency in the airplane. Proper procedures in the complex aircraft will be emphasized.

CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW
   A. Preflight Inspection
   B. Normal Takeoffs
   C. Emergency Systems Operation
   D. Approach and Departure Stalls
   E. Go Around Procedures
   F. Normal Landings
   G. Attitude Instrument Flying
      (1) Straight and Level
      (2) Standard-rate turns
      (3) Constant airspeed climbs
      (4) Constant airspeed descents
      (5) Critical attitude recovery
3. POSTFLIGHT DISCUSSION

COMPLETION STANDARDS:

The student will display commercial pilot proficiency in performing normal and emergency operations in the complex airplane. The student will also display an understanding of the power settings and attitudes necessary to perform each of the instrument maneuvers.

FLIGHT LESSON 54- Primary Aircraft

INSTRUCTION

OBJECTIVES:

During this dual flight, the student will demonstrate his proficiency in commercial maneuvers in preparation for the final progress checks.

CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW
   A. Steep Power Turns
   B. Steep Spirals
   C. Chandelles
   D. Lazy Eights
   E. Approach and Departure Stalls
   F. Accelerated Maneuver Stalls
   G. Primary Ground Reference Maneuvers
   H. Forced Landings
   I. Slips to landings
J. Short-field and Soft-field Takeoffs and Landings
K. Accuracy Landings (Power on-Power off)
L. Eights on Pylons

3. POSTFLIGHT STANDARDS:

The student should meet commercial pilot proficiency in the performance of each maneuver.

INSTRUMENT AIRCRAFT INSTRUCTION
FLIGHT LESSON 55

OBJECTIVES:

The student shall review IFR procedures in preparation for the final instrument phase check.

CONTENT:

1. PREFLIGHT BRIEFING
2. REVIEW
   A. Simulated or actual instrument flight plan
   B. IFR Preflight Procedures and Checklist
   C. IFR Departure
   D. VOR, ILS, NDB Approaches
   E. Partial Panel
   F. IFR Communications
   G. Holds Missed Approach
   H. Circle to Land
3. POSTFLIGHT DISCUSSION

COMPLETION STANDARDS:

The student’s performance will indicate that he is ready to begin the final instrument phase checks.

INSTRUMENT FLIGHT A INSTRUCTION
FLIGHT LESSON 56A – Instrument

OBJECTIVES:

This progress check by the Chief Instrument or his Assistant objective is to determine that the student meets the Commercial and Instrument Practical Test Standards.

CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW
   A. IFR Cross-Country Planning
   B. Filing an IFR Flight Plan
C. IFR Preflight Inspection  
D. IFR Takeoff Preparation  
E. Obtaining an IFR Clearance  
F. IFR Departure Procedures  
G. Voice Communications  
H. Enroute Procedures  
I. VOR  
  (1) Orientation  
  (2) Interception  
  (3) Tracking  
J. ADF  
  (1) Orientation  
  (2) Interception  
  (3) Tracking  
K. VOR Holding  
L. ADF Holding  
M. Arrival Procedures  
  (1) ILS approach  
  (2) VOR and VOR/DME approaches  
  (3) ADF approach  
  (4) Radar approach  
  (5) Missed approach  
N. Simulated Emergency Procedures  
  (1) Loss of Communications  
  (2) Radio failure  
  (3) Engine failure  
  (4) Instrument failure  
  (5) Engine failure  
  (6) Systems failure  

3. POSTFLIGHT DISCUSSION  

COMPLETION STANDARDS:  

At the completion of this flight, the student will display a complete understanding of IFR procedures. He also will demonstrate the necessary knowledge and skill to operate safely as pilot in command during cross-country flights.  

The student’s performance during each maneuver and procedure will meet or exceed the minimum performance requirements, as outlined in the current FAA Instrument and Pilot Flight Test Standards.  

VFR FLIGHT B  

INSTRUCTION  

FLIGHT LESSON 56B – Complex Aircraft & Primary Aircraft  

OBJECTIVES:  

This progress check by the Chief Instructor or his Assistant is to determine whether the student meets and/or exceeds the Commercial Practical Test Standards.
CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW COMMERCIAL PRACTICAL TEST
   A. VFR Maneuvers
      (1) Chandelles
      (2) Lazy Eights
      (3) Steep power turns
      (4) Takeoffs and Landings
      (5) Steep spirals
      (6) Eights on Pylons
      (7) Slips
      (8) Accuracy landings
      (9) Stalls (imminent)
      (10) Maneuvers at Minimum controllable
      (11) Emergency Operations
   B. Complex Aircraft Operations

3. POSTFLIGHT DISCUSSION

COMPLETION STANDARDS:

At the completion of this flight, the student will display a complete understanding of VFR procedures. He also will demonstrate the necessary knowledge and skill to operate safely as pilot in command during cross-country flights.

The student’s performance during each maneuver and procedure will meet or exceed the minimum performance requirements, as outlined in the current FAA Commercial Pilot Flight Test Standards.

EVALUATION OF STUDENT LEARNING

The grade in AVI 214 will be determined by an Oral and Practical Examination as outlined in both the Commercial and Instrument Practical Test Standards.

The final evaluations consist of questions applicable in two separate sessions on Commercial and Instrument flight operations, planning and knowledge. There will be three flights consisting of commercial maneuvers, complex operations and instrument flight. The procedures for these evaluations will be found in the latest issues of the Commercial and Instrument Practical Test Standards.
Specific Grading:

A = Meets 3 areas and exceeds 8 areas of operation - Commercial
   Meets 2 areas and exceeds 6 areas of operation - Instrument
B = Meets 5 areas and exceeds 6 areas of operation - Commercial
   Meets 4 areas and exceeds 4 areas of operation - Instrument
C = Meets 7 areas and exceeds 4 areas of operation - Commercial
   Meets 6 areas and exceeds 2 areas of operation - Instrument
D = Meets 11 areas of operation - Commercial
   Meets 8 areas of operation - Instrument
F = Does not meet Practical Test Standard requirements in any one of the Instrument and Commercial Standards.

ACADEMIC INTEGRITY STATEMENT OMB 210

Mercer County Community College is committed to Academic Integrity -- the honest, fair and continuing pursuit of knowledge, free from fraud or deception. This implies that students are expected to be responsible for their own work and that faculty and academic support services staff members will take reasonable precautions to prevent the opportunity for academic dishonesty. The college recognizes the following general categories of violations of Academic Integrity, with representative examples of each. Academic Integrity is violated whenever a student:

A. Uses or obtains unauthorized assistance in any academic work.
   - copying from another student's exam
   - using notes, books, electronic devices or other aids of any kind during an exam when prohibited
   - stealing an exam or possessing a stolen copy of an exam.

B. Gives fraudulent assistance to another student
   - completing a graded academic activity or taking an exam for someone else.
   - giving answers to or sharing answers with another student before, during or after an exam or other graded academic activity.
   - sharing answers during an exam by using a system of signals.

C. Knowingly represents the work of others as his/her own, or represents previously completed academic work as current.
• submitting a paper or other academic work for credit which includes words, ideas, data or creative work of others without acknowledging the source.
• using another author's words without enclosing them in quotation marks, without paraphrasing them or without citing the source appropriately.
• presenting another individual's work as one's own.
• submitting the same paper or academic assignment to another class without the permission of the instructor.

D. Fabricates data in support of an academic assignment.
• falsifying bibliographic entries.
• submitting any academic assignment which contains falsified or fabricated data or results.

E. Inappropriately or unethically uses technological means to gain academic advantage.
• inappropriately or unethically acquiring material via the Internet or by any other means.
• using any electronic or hidden devices for communication during an exam.

Each instructor and academic support service area is authorized to establish specific guidelines consistent with this policy.

CONSEQUENCES FOR VIOLATIONS OF ACADEMIC INTEGRITY

For a single violation, the faculty member will determine the course of action to be followed. This may include assigning a lower grade on the assignment, assigning a lower final course grade, failing the student in the course, or other penalty appropriate to the violation. In all cases, the instructor shall notify the Chair of the Academic Integrity Committee of the violation and the penalty imposed. When two (or more) violations of academic integrity are reported on a student, the Academic Integrity Committee (AIC) may impose disciplinary penalties beyond those imposed by the course instructors. The student shall have the right to a hearing before the AIC or a designated AIC subcommittee.

APPEALS

The student has a right to appeal the decision of the instructor or the Academic Integrity Committee. Judicial procedures governing violations of Academic Integrity are contained in the Student Handbook.

Approved by the MCCC Board of Trustees March 18, 2004
CLASSROOM CONDUCT STATEMENT

It is the student’s responsibility to attend all of their classes. If they miss a class meeting for any reason, students are responsible for all content that is covered, for announcements made in their absence, and for acquiring any materials that have been distributed in class. If students walk into a class after it has begun, it is expected that they choose a seat close to where they entered the room so that they do not disrupt the class meeting.

Students are expected to follow ordinary rules of courtesy during class sessions. Engaging in private, side conversations during class time is distracting to other students and to the instructor. Leaving class early without having informed the instructor prior to class is not appropriate. Unless there is an emergency, leaving class and returning while the class is in session is not acceptable behavior. Disruptive behavior of any type, including sharpening pencils during class while someone is speaking, is not appropriate.

The college welcomes all students into an environment that creates a sense of community of pride and respect; we are all here to work cooperatively and to learn together.