COURSE OUTLINE

AVI 214  
Flight IV  
3
Course Number  
Course Title  
Credits

Hours: 1 / 4  
Pre-requisite: AVI 213  
Implementation
Lecture / Laboratory  
Co-requisite: none  
Fall 2011

Catalog description:

Students develop a high degree of proficiency in single-engine commercial maneuvers and instrument flying. All flight requirements for the single-engine commercial certificate and instrument rating are completed and performance meets or exceeds the current FAA Instrument and Commercial Practical Test Standards. Consists of 34 hours or the time needed to meet completion standards and proficiency. Fee required.

Required texts/other materials:

2. Instrument Flying Handbook, Federal Aviation Administration
3. Airplane Flying Handbook, Federal Aviation Administration
4. Aeronautical Information Manual (AIM/FAR - Latest Ed.), Federal Aviation Administration
5. Practical Test Standards: Commercial and Instrument for Airplane Single-Engine Land

Last revised: Spring 2014

Course coordinator: Joan Jones

Information Resources:

Text books: Guided Flight Discovery Instrument/Commercial by Jeppesen Sanderson  
The Instrument Flight Manual by William K. Kershner  
The Advanced Flight Manual by William K. Kershner

*DENOTES ADDITIONAL TIME MAY BE NEEDED TO MEET COMPLETION STANDARDS AND PROFICIENCY.
Other Learning Resources:

The Learning Center and Tutoring in the Campus Library
Student's Flight Instructor at Trenton-Mercer Airport
Stick and Rudder by Wolfgang Langewiesche (ISBN 0-07036-242-4)
AOPA Pilot Magazine / Aircraft Owners and Pilots Association (www.aopa.com)
EAA / Experimental Aircraft Association (www.eaa.org)
FAA / Federal Aviation Administration (www.faa.gov)
Gleim Software (www.gleim.com)
King Schools Software (www.kingschools.com)

Lesson Progress Checks:

_____ 118  Complex Aircraft Check (including instrument maneuvers)
_____ 129  Commercial (maneuvers and IFR Operations)
_____ 131  Final Phase Check for the Commercial Certificate and Instrument Rating
            Commercial Certification CE152 and CE172RG, Instrument Rating CE172

50 hours of flight or the time needed to meet Practical Test Standards

Length of course

Course Goals:

The course goals are outlined in detail in the Commercial and Instrument Practical Test Standards. Please refer to these documents as it relates to the successful completion of this course.

This Block and the course are complete when:

• The student can demonstrate a complete understanding of all VFR and IFR knowledge, procedures, and maneuvers required of a commercial and instrument pilot.
• The student’s performance exceeds the minimum requirements outlined in the current FAA Instrument and Commercial Pilot Practical Test Standards.

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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<tbody>
<tr>
<td></td>
<td>1. Communication -- English Language: Students will communicate effectively in both speech and writing.</td>
<td>Students will comprehend, evaluate their performance, describe in writing stage check requirements and outcomes. By practicing Commercial and Instrument Procedures the student will refine his/her kinesthetic sense for these maneuvers. Communication with ATC, Flight Service Station Personnel will formulate ideas necessary for completion of flight.</td>
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<tr>
<td>✓</td>
<td>1.1. Students will comprehend and evaluate what they read, hear and see.</td>
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<td>✓</td>
<td>1.2. Students will state and evaluate the views and findings of others.</td>
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<td>✓</td>
<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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<td><strong>2. Communication -- Foreign Language: Students will have the opportunity to develop competence in a Foreign Language.</strong></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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<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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<tr>
<td><strong>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.</strong></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>
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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>
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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><strong>4. Ethical dimension: Students will recognize, analyze and assess ethical issues and situations.</strong></td>
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<td>4.1. Students will identify ethical implications of an issue or a situation.</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><strong>5. Quantitative skills: Students will apply appropriate mathematical and statistical concepts and operations to interpret data and to solve problems.</strong></td>
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<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>5.2. Students will construct graphs and charts, interpret them, and draw appropriate conclusions.</td>
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<td><strong>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.</strong></td>
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<tr>
<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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Students will be able to assess and analyze their abilities to complete a flight based upon weather, aircraft, mechanical condition, fuel requirements and their health condition.

Weather analysis will be facilitated by the use of on line weather for a go; no go decision.

Based upon the code of Federal Regulations for Aviation, the student will be able to evaluate and formulate protocols that determine whether a flight can be started and completed.

Students will be able to interpret and analyze performance characteristics to determine whether it would be safe to fly.

Students will be able to determine various airspeeds, weight and balance solutions, density altitude calculations in their applications to flight.
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<tr>
<th>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.</th>
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<tr>
<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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<td>✓ 6.4. Students will demonstrate a working knowledge of a major domain of technological application.</td>
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### FLIGHT TRAINING COURSE OBJECTIVES

The objectives of this flight training course are to provide the student with the aeronautical skills and experience necessary to meet the requirements for a commercial instrument pilot certificate with an airplane category rating and single-engine land class rating.

### COURSE COMPLETION STANDARDS

The course completion standards are based upon the Commercial and Instrument Practical Test Standards as outlined by the Federal Aviation Administration. To meet the flight training course completion standards, the student must demonstrate, through flight tests and school records, that he/she meets the requirements for a commercial instrument pilot certificate with airplane category and single-engine land class rating. Periodic progress checks may include material covered in any previous lesson.

### FLIGHT BLOCK 16 - LESSONS 110 TO 118

#### OBJECTIVES

During this Block, the student learns to operate the complex aircraft with the skill of a commercial pilot.

#### CONTENT:

- Block 16 Complex Aircraft Procedures
- Instructional Ground Lesson
- Flight Lessons 110 – 118

#### COMPLETION STANDARDS

This Block and the course is complete when the student can demonstrate a complete understanding of complex aircraft requirements as outlined in the current FAA Commercial and Instrument Pilot Practical Test Standards.

### BRIEFING LESSON

### GROUND INSTRUCTION

2.0 Ground*
This briefing lesson will be used to introduce the student to the systems and performance of the complex aircraft. Prior to this lesson, the student should be familiar with the owner’s manual of the complex aircraft.

PREREQUISITES:
1. Owner’s Manual
2. Weight and Balance Forms

CONTENT:
1. Systems
   A. Fuel Systems
   B. Electrical Systems
   C. Lighting Equipment
   D. Electro-Hydraulic Gear System
   E. Heating and Ventilation System
   F. CHT, EGT and Cowl Flap Systems
   G. Constant Speed Propeller System
   H. Avionics System
2. Operational Checklist
   A. Each unfamiliar item on the checklist should be covered in depth, relating these items back to the system involved
3. Aircraft Limitations
   A. Weight and Balance (Compute Weight and Balance including adding, removing and shifting weight)
   B. Structural Limitations
   C. Required Equipment
4. Aircraft Performance
   A. Airspeed Correction Table
   B. Stall Speed Chart
   C. Takeoff and Climb Charts
   D. Cruise Performance Chart
   E. Landing Distance and Glide Charts
5. Emergency Operations
   A. Electrical Systems
   B. Engine Emergencies
   C. Landing Gear Emergencies
   D. Forced Landings
   E. Aircraft Fires
   F. Emergency Equipment and Survival Gear

COMPLETION STANDARDS
The student will show a demonstrated understanding of the aircraft systems and performance by correctly answering related questions from the flight instructor. This lesson will be documented in the comments section on the back of the student’s commercial/instrument training folder.
Learning Objectives:
During initial introduction to the complex airplane, the student will learn to make a complete pre-flight inspection. Additionally, he/she will learn the flight characteristics of the airplane and the operation of the airplane systems. This will prepare him for the introduction of the advanced maneuvers in the complex airplane during Flight Lesson 111.

CONTENT:
1. Pre-Flight Orientation
2. Introduction
   A. Pre-flight Operation
   B. Engine Start Checklist
   C. Pre-takeoff Checklist
   D. Climbs at $V_x$ and $V_y$
   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. Post-Flight 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 attitudes associated with each of the maneuvers demonstrated.

FLIGHT LESSON 111 - COMPLEX AIRCRAFT

INSTRUCTION
Dual Flight
1.0 Flight*

Learning 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. Pre-Flight 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 System Operations
   B. Go Around Procedures
   C. Short Field and Soft Field Takeoffs and Landings
   D. Slips to a Landing
   E. Chandelles
   F. Steep Spirals
4. Post-Flight Discussion
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 thorough 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 112 THRU 115 - COMPLEX AIRCRAFT INSTRUCTION
Dual Flight 1.2 Flight* Each

**Learning 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/her proficiency and preparation for the final flight test.

**CONTENT:**
1. Review
   A. Steep Spirals
   B. Chandelles
   C. Minimum Controllable Airspeed
   D. Approach and Departure Stalls
   E. Short Field and Soft Field Takeoffs and Landings
   F. Normal and Crosswind Landings
2. Introduction
   A. Lazy Eights
   B. Power On Accuracy Landings
   C. Eights on Pylons
   D. 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 designated point on the runway. If satisfied, the flight instructor may sign the student off for PIC.

FLIGHT LESSON 116 - COMPLEX AIRCRAFT INSTRUCTION
Dual Flight 1.0 Flight*

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

**CONTENT:**
1. Pre-Flight Orientation
2. Introduction
   A. Approach and Cruise Power Settings
   B. Complex IFR Procedures
   C. Basic Instrument Attitude Flying
   D. Recovery from Unusual Attitudes
3. Post-Flight 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 117 - COMPLEX AIRCRAFT
Dual Flight

Learning 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 118.

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 his ability to perform each maneuver smoothly and with proper coordination.

FLIGHT LESSON 118 - COMPLEX AIRCRAFT
Progress Check

Learning 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 his competency in the airplane. Proper procedures in the complex aircraft will be emphasized.

CONTENT:
1. Pre-Flight Orientation
2. Review
   A. Pre-flight Inspection
   B. Normal Takeoffs
   C. Emergency System Operations
   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) Unusual attitude recovery

3. Post-Flight 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 BLOCK 17 - LESSONS 119 TO 128

OBJECTIVES

During this Block, the student will practice the commercial and instrument maneuvers needed to comply with Practical Test Standards in preparation for the final phase checks.

CONTENT:

♦ Block 17 Commercial Instrument Maneuver Review
♦ Flight Lessons 119 – 128

COMPLETION STANDARDS

This Block and the course is complete when the student can demonstrate a complete understanding of all skills and maneuvers necessary to satisfy the required commercial and instrument Practical Test Standards and prove readiness for the final phase checks.

FLIGHT LESSONS 119 THRU 120 - PRIMARY AIRCRAFT

Solo Flight

Learning Objectives:
The student will perform the night solo flights needed to meet the required five (5) hours and ten (10) landings to a full stop required for the commercial pilot certificate. The student will complete the ten (10) takeoffs and landings (with each involving a flight in a traffic pattern) to be made at an airport with an operating control tower. The only approved airports are Trenton Mercer County Airport (TTN), Northeast Philadelphia Airport (PNE), and Trenton Robbinsville airport (N87) at night. One may also utilize the practice area for night flight.

CONTENT:

1. Review
   A. Takeoffs and Landings
   B. Traffic Pattern Operations
   C. Radio Communications
   D. Go A-rounds
   E. Proper Utilization of PAPI and VASI Indicators
F. Airport Lighting Identification – Civilian, Military
G. Climbs, Turns, Descents, and Straight and Level
H. Light Gun Signal Procedures
I. Night Adaptation and Scanning Procedures
J. Sectional Chart Reading Techniques
K. Collision Avoidance at Night

FLIGHT LESSONS 121 THRU 123 - PRIMARY AIRCRAFT
Solo Flight

CONTENT:
1. Review
   A. Steep Power Turns
   B. Steep Spirals
   C. Chandelles
   D. Lazy Eights
   E. Short Field and Soft Field Takeoffs and Landings
   F. Slips and Landings
   G. Go Around Procedures
   H. Accuracy Landings (power on / power off)
   I. Eights on Pylons

COMPLETION STANDARDS
These lessons are complete when the student has practiced the assigned maneuvers during each flight lesson. During the lessons, the student should attempt to perform each maneuver smoothly using proper coordination. The recommended entry position, power, and airspeed for the various maneuvers need to be utilized. In addition, each landing should utilize a stabilized approach with a touchdown on or within 200 feet beyond the designated point on the runway.

FLIGHT LESSON 124 - PRIMARY OR COMPLEX AIRCRAFT
Dual Flight

Learning Objectives:
During this dual flight, the student will demonstrate his proficiency so the flight instructor can make recommendations for solo practice in preparation for the progress check.

CONTENT:
1. Pre-Flight 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. Slow Flight
   H. Primary Ground Reference Maneuvers
   I. Forced Landings
J. Slips and Landings  
K. Short Field and Soft Field Takeoffs and Landings  
L. Accuracy Landings (power on / power off)  
M. Go Round  
N. Eights on Pylons  

3. Post-Flight Discussion  

COMPLETION STANDARDS  
The student should meet commercial pilot proficiency in the performance of each maneuver. Those maneuvers which do not meet this standard will be assigned for additional practice.

FLIGHT LESSONS 125 - PRIMARY AIRCRAFT  
Solo Flight

Learning Objectives:  
During this solo flight, the student will practice the advanced flight maneuvers listed. The purpose of practicing these maneuvers is to polish and refine any areas of inadequacy determined by the instructor during lesson 124.

CONTENT:  
1. Review  
   A. Steep Power Turns  
   B. Steep Spirals  
   C. Chandelles  
   D. Lazy Eights

COMPLETION STANDARDS  
These lessons are complete when the student has conducted the assigned solo flights. During each solo flight, the student should attempt to meet basic commercial pilot proficiency in all of the listed maneuvers.

FLIGHT LESSONS 126 - PRIMARY AIRCRAFT  
Solo Flight

Learning Objectives:  
During these solo flight lessons, the student will practice the advanced Takeoff and landing maneuvers listed. The purpose of practicing these maneuvers is to polish and refine any areas of inadequacy determined by the instructor in lesson 124.

CONTENT:  
2. Review  
   A. Short Field Takeoffs and Landings  
   B. Slips and Landings  
   C. Accuracy Landing (Power On and Off)  
   D. Go Arounds

COMPLETION STANDARDS  
These lessons are complete when the student has conducted the assigned solo flights. During each solo flight, the student should attempt to meet basic commercial pilot proficiency in all of the listed maneuvers.
FLIGHT LESSONS 127 - PRIMARY AIRCRAFT
Solo Flight

Learning Objectives:
During these solo flight lessons, the student will practice the advanced flight maneuvers listed. The purpose of practicing these maneuvers is to polish and refine any areas of inadequacy determined by the instructor in lesson 124.

CONTENT:
3. Review
   A. Slow Flight
   B. Approach and Departure Stalls
   C. Accelerated Stall Maneuvers
   D. Accuracy Landing (Power On and Off)
   E. Go Aheads

COMPLETION STANDARDS
These lessons are complete when the student has conducted the assigned solo flights. During each solo flight, the student should attempt to meet basic commercial pilot proficiency in all of the listed maneuvers.

FLIGHT LESSON 128 - INSTRUMENT AIRCRAFT
Dual Flight

Learning Objectives:
The student shall review IFR procedures in preparation for the final instrument phase check utilizing analog and digital instruments.

CONTENT:
1. Pre-Flight Briefing
2. Review
   A. Simulated or Actual Instrument Flight Plan
   B. IFR Pre-flight Procedures and Checklist
   C. IFR Departure
   D. VOR, ILS, or GPS Approach
   E. Partial Panel
   F. IFR Communications
   G. Holds Missed Approach
   H. Circle to Land
   I. Recovery From Unusual Attitudes
3. Post-Flight Discussion

COMPLETION STANDARDS
The student’s performance will indicate that he is ready to begin the final instrument phase checks. The approach profiles for each precision and non precision approaches must indicate a stabilized approach profile with a rate of descent and track that will ensure an arrival at the MDA or DA as applicable. The student will utilize proper communication and technique in two way radio communication with ATC as required for the phase of flight or approach segment. Instrument flight planning will be accurate and appropriate for simulated or actual flight. The student should maintain localizer and glideslope within ¾ scale deflection of the indicators. Holding patterns must be entered correctly and the timing executed
with precision. Exhibits the adequate knowledge of the loss of primary flight instruments and demonstrates an appropriate level of single pilot resource management skills.

FLIGHT BLOCK 18 - LESSONS 129 TO 131

OBJECTIVES

During this Block, the student will meet the requirements for the Practical Test Standards of the Commercial and Instrument rating.

CONTENT:

- Block 18 Complex Instrument Review and Final Phase Check
- Flight Lessons 129 – 131

COMPLETION STANDARDS

The student will meet or exceed the criteria as outlined in the Commercial and Instrument Practical Test Standards.

FLIGHT LESSONS 129A/B - PRIMARY AND INSTRUMENT AIRCRAFT INSTRUCTION

**VFR and Instrument Flight Progress Check**

Learning Objectives:
The intention of lesson 129A/B is to review and evaluate the students VFR and IFR performance. This lesson is conducted by the Chief Instructor or his/her assistant in the primary and digital instrument airplanes.

CONTENT:
1. Pre-Flight Orientation
2. Review
   A. Accuracy Landings (Power Off and On)
   B. Steep Power Turns
   C. Steep Spirals
   D. Chandelies
   E. Slow Flight
   F. Stalls
   G. Emergency Approach and Landing
   H. Eights on Pylons
   I. Lazy Eights
   J. IFR Procedures
      1. Radio communication
      2. Instrument Cockpit Checklist
      3. Obtaining IFR Clearance
      4. Holding Procedures
   K. VOR Approach
   L. GPS Approach
M. ILS Approach
N. Missed Approach
O. DME ARC Procedures

3. Post-Flight Discussion

COMPLETION STANDARDS
During each approach, the student will follow the step-by-step procedure published on the approach chart. Additionally, he will descend at the proper rate to the MDA or DA and arrive at a position from which a normal circling or straight in landing approach can be made. Missed approach procedures will follow the published procedure or the controller's instruction. The autopilot will be utilized on a non-precision approach and the student will demonstrate satisfactory automation management skills. All VFR maneuvers will be performed according to the Practical Test Standards.

FLIGHT LESSON 130 - PRIMARY AND/OR COMPLEX AND/OR INSTRUMENT AIRCRAFT
*Dual Flight

3.0 Flight*

Learning Objectives:
During this lesson, the student will review the VFR and IFR flight maneuvers in preparation for the final progress check. Emphasis will be placed on those maneuvers in which the student demonstrated weakness in previous flight lessons.

CONTENT:
1. Review
   A. As Needed VFR Commercial Maneuvers
   B. As Needed IFR Flight Procedures
   C. Chandelles
   D. Lazy Eights
   E. Approach and Departure Stalls
   F. Slips to Landing
   G. Short Field and Soft Field Takeoffs and Landings
   H. Accuracy Landings (power on / power off)
   I. Eights on Pylons

2. Post-Flight Discussion

COMPLETION STANDARDS
This lesson is complete when the student has conducted the assigned flight. During the flight, he should attempt to exceed the performance level necessary for the commercial and instrument flight test.

BRIEFING LESSON

GROUND INSTRUCTION

2.0 Ground

Learning Objectives:
During this briefing lesson, the student will review the subject matter which he must know for the Commercial/Instrument oral examination.

PREREQUISITES:
1. Owner’s Manual
2. Weight and Balance Forms
3. IFR Low Altitude Charts and Approach Plates
4. Sectional Charts

CONTENT:
1. Aircraft Performance
   A. Basic Aerodynamics
   B. Weight and Balance
   C. Cruise Performance
   D. Takeoff and Landing Distances
   E. Stall Speed Charts and Airspeed Correction Tables
2. Flight Planning
   A. Aeronautical Charts
   B. Aeronautical Information Manual
   C. Weather Gathering
   D. VFR Weather Minimums
   E. Flight Computer
3. Aircraft Documents
   A. Airworthiness Certificate
   B. Registration
   C. Operating Limitations
   D. Aircraft and Engine Logs
4. Airplane Line Check
   A. Fuel and Oil
   B. Equipment and Systems
5. Differentiate Between 91 and 135 CFRs
6. Instrument Procedures
   A. Departure Procedures
   B. Enroute Procedures
   C. Arrival Procedures
   D. SIDS and STARs
   E. Approach Procedures
   F. Holding Procedures
   G. Missed Approach Procedures
   H. Loss of Radio Communications Procedures
   I. Use of Auto Pilot
   J. PFD/MFD Management

COMPLETION STANDARDS
The student will demonstrate that he has sufficient mastery of the required subject areas to pass the oral examination for the FAA Commercial/Instrument Flight Test.

FLIGHT LESSONS 131A/B - PRIMARY, INSTRUMENT AND COMPLEX AIRCRAFT
INSTRUMENT
VFR and Instrument Flight Progress Checks

| 5.0 Flight* |
| 4.0 Ground* |

Learning Objectives:
All maneuvers listed in the practical test standards for the instrument rating and commercial certificate will be tested. These progress checks by the Chief Instructor or his/her assistant are to determine that the student meets the Commercial and Instrument Practical Test Standards.
CONTENT:
1. Pre-Flight Orientation
2. Review
   A. Taxi Instrument Checklist
   B. Run up Checklist
   C. Recovery from Unusual Attitudes
   D. IFR Cross-Country Planning
   E. Filing an IFR Flight Plan
   F. IFR Pre-flight Inspection
   G. IFR Takeoff Preparation
   H. Obtaining an IFR Clearance
   I. IFR Departure Procedures
   J. Voice Communications
   K. En Route Procedures
   L. VOR
      1) Orientation
      2) Interception
      3) Tracking
   M. VOR Holding
   N. Arrival Procedures
      1) ILS approach
      2) VOR and VOR/DME approaches
      3) GPS approach
      4) Circling approaches
      5) Partial panel approaches
      6) Radar approach
      7) Missed approach
   O. Simulated Emergency Procedures
      1) Loss of communications
      2) Radio failure
      3) Instrument failure
      4) Engine failure
      5) Systems failure
   P. VFR Maneuvers
      1) Before Takeoff Checklist
      2) Taxi
      3) Short Field Takeoffs and Landings
      4) Soft Field Takeoffs and Landings
      5) Normal and/or Crosswind Takeoffs and Landings
      6) Go Arounds
      7) Chandelles
      8) Lazy eights
      9) Steep power turns
      10) Takeoffs and landings
      11) Steep spirals
      12) Eights on pylons
      13) Slips
      14) Accuracy landings
      15) Stalls
      16) Maneuvering at minimum controllable
17) Emergency operations
18) Cross-country flight planning
19) Diversion
Q. Complex Aircraft Operations
3. Post-Flight Discussion

COMPLETION STANDARDS
At the completion of this flight, the student will display a complete understanding of VFR and 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 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
- **D** = 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.