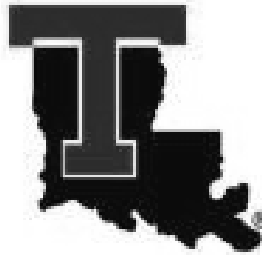


**LOUISIANA TECH UNIVERSITY  
DEPARTMENT OF PROFESSIONAL AVIATION  
PART 141 FLIGHT SCHOOL**



**COMMERCIAL PILOT AIRPLANE SINGLE-ENGINE LAND  
CERTIFICATION COURSE  
GROUND AND FLIGHT TRAINING MANUAL**

**October 15, 2008**



10/15/2008

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# **FLIGHT INSTRUCTOR QUALIFICATIONS**

## **QUALIFICATIONS OF INSTRUCTORS, EVALUATORS, AND OTHER PERSONNEL**

### **CHIEF INSTRUCTOR – Minimum Qualifications (Part 141.35)**

1. The Chief Instructor will be responsible for all instructor and student training.
2. Will maintain the qualifications identified in Part 141.35 (a) through (e).
3. Will supervise all Assistant Chief Instructors; Check Instructors; Flight Instructors; and, be a member of the MOI Team.

### **ASSISTANT CHIEF INSTRUCTOR(S) – Minimum Qualifications (Part 141.36)**

1. The Assistant Chief Instructors will conduct all final stage checks for student training.
2. Will maintain the qualifications identified in Part 141.36 as appropriate to the level of qualification identified by the Chief Instructor and Flight Director.
3. Will be Check Instructors and a member of the MOI Team.

### **CHECK INSTRUCTORS – Minimum Qualifications (Part 141.37)**

1. The Check Instructors will conduct course tests except for the final stage check.
2. Will maintain the qualifications identified in Part 141.36 as appropriate to the level of qualification identified by the Chief Instructor and Flight Director.

### **FLIGHT INSTRUCTORS – Minimum Qualifications (Part 141.33)**

1. The Flight Instructors will conduct student flight training as authorized.
2. Will maintain the qualifications identified in Part 141.33 as appropriate to the level of qualification identified by the Chief Instructor and Flight Director.

### **GROUND INSTRUCTORS – Minimum Qualifications (Part 141.33)**

1. Will maintain the qualifications identified in Part 141.33 as appropriate to the level of qualification identified by the Chief Instructor and Flight Director.

# TRAINING FACILITIES

## Training, facilities, locations

1. Description of size: Refer to the drawing page
2. Maximum number of students: Refer to the drawing page
3. Type training aids: Refer to the drawing page
4. Flight Training Device (FTD): FRASCA level 6 located in Davison Hall, room 110 (statement of qualification- renewed annually)
5. Airports at which training flights originate: Ruston Regional Airport
  - a. Description of facilities: Located at Ruston Regional Airport, building contains numerous training rooms.
  - b. Pilot briefing areas: Located in Louisiana Tech Operations building and consist of open bays, private rooms, and large class rooms.
6. Minimum qualifications and ratings fro each instructor assigned:
  - \* Instrument Ground Instructor Certificate
7. Airports: Ruston Regional Airport
8. Aircraft: Cessna 172R/172S/172RG airplanes will be used for all flight training in this course. These aircraft will meet the requirements of FAR Part 141.39. Radio equipment will consist of at least one 360 channel transceiver and at least one VOR and NDB navigational receiver and a 4096 code transponder with mode C capability. Each airplane is equipped for day and night VFR and IFR flying as specified in FAR Part 91.205.

Chief Instructor for 340, 341, 342, 343, and 344: Dr, Charles R. Heck, Jr.

**LOUISIANA TECH UNIVERSITY  
RUSTON, LOUISIANA, U.S.A.  
COMMERCIAL PILOT AIRPLANE SINGLE-ENGINE LAND  
FLIGHT SCHOOL INFORMATION**

TRAINING AIRCRAFT

Cessna 172R  
Cessna 172S  
Cessna 172RG

FLIGHT TRAINING DEVICE

Frasca Cessna 172S Level 6 FTD

COURSEWARE

Commercial Pilot Practical Test Standards  
**AC 00-6** Aviation Weather  
**AC 00-45** Aviation Weather Services  
**AC 61-23/FAA-H-8083-25** Pilot's Handbook of Aeronautical Knowledge  
**AC 61-65** Certification: Pilots and Flight Instructors  
**AC 61-84** Role of Preflight Preparation  
**AC 90-48** Pilots' Role in Collision Avoidance  
**AC 120-51** Crew Resource Management Training  
**FAA-H-8083-3** Airplane Flying Handbook  
**FAA-H-8083-15** Instrument Flying Handbook  
**AC 61-67** Stall and Spin Awareness Training  
**AC 90-66** Recommended Standard Traffic Patterns and Practices for Aeronautical Operations at  
Airports without Operating Control Towers  
**FAA-H-8083-1** Aircraft Weight and Balance Handbook  
Federal Aviation Regulations  
Aeronautical Information Manual  
Airport Facility Directory  
Notices to Airmen  
"Guided Flight Discovery" – Instrument/Commercial. Jeppesen Sanderson, Inc.  
Cessna 172S Checklist  
Cessna 172RG Checklist  
Louisiana Tech University Standard Operating Procedures Manual  
Cessna 172S Pilot's Operating Handbook  
Cessna 172RG Pilot's Operating Handbook  
FAA-Approved Airplane Flight Manual  
Louisiana Tech University Standardization Procedures  
Applicable Navigation Charts

## PREFACE

This Training Course Outline (TCO) is published solely for the use of The Department of Professional Aviation, Louisiana Tech University. The Department of Professional Aviation is owned and operated in the name of:

Louisiana Tech University  
Department of Professional Aviation  
P.O. Box 3181  
Ruston, Louisiana 71272

Standardization within the Louisiana Tech Department of Professional Aviation is achieved by the use of Training Course Outlines (TCO). It is mandatory that students enrolled in Louisiana Tech Professional Aviation flight courses, possess a personal copy of the TCO appropriate for the course. Instructors are required to use the TCO as a guide for their ground and flight instruction. This assures that all required items are covered and that the training program has continuity based upon a building block approach. A primary responsibility of the Department Head and the Chief Instructor is to ensure that the TCOs are relevant, current, and comply with the requirements mandated by the Federal Aviation Administration.

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### INSTRUCTION TIME SUMMARY

<b>TRAINING STAGE</b>	<b>DUAL</b>	<b>SOLO/PIC</b>	<b>XC</b>	<b>FTD</b>	<b>ORAL</b>	<b>GROUND</b>
GROUND STAGE ONE						37.0
GROUND STAGE TWO						25.0
FLIGHT STAGE ONE	10.5	0.0	0.0	11.0	8.7	
FLIGHT STAGE TWO	<u>20.5</u>	<u>66.0</u>	<u>65.0</u>	<u>13.0</u>	<u>11.9</u>	
<b>TOTAL</b>	<b>31.0</b>	<b>66.0</b>	<b>65.0</b>	<b>24.0</b>	<b>20.6</b>	<b>62.0</b>

# **GROUND TRAINING COURSE OUTLINE**

## **COURSE REQUIREMENTS AND OBJECTIVES**

**ENROLLMENT PREREQUISITES:** Students enrolling in the Commercial Pilot Certification ground classes must be enrolled as a regular student at Louisiana Tech University and possess a private pilot certificate with an instrument rating. To qualify for a FAA Commercial Pilot Certificate, the student must be at least 18 years old prior to completion of the course, be able to read, speak, and understand the English language, and meet the physical standards for a second-class medical certificate.

**GROUND TRAINING COURSE OBJECTIVE:** The student will develop the knowledge specified by the Commercial Pilot Practical Test Standards, and Louisiana Tech University graduation requirements.

**GROUND TRAINING CURRICULUM:** Ground school for the Private Pilot student is accomplished by enrollment in the following Professional Aviation courses at Louisiana Tech University. Stage I correlates to PRAV 340 and Stage II correlates to PRAV 341. PRAV 340 requires a minimum of 37.5 classroom hours and PRAV 341 requires a minimum of 25 classroom hours. Completion of these courses will result in 5 college credit hours.

**GROUND TRAINING TEXTBOOKS:** The Commercial Pilot "Guided Flight Discovery", Jeppesen Sanderson, Inc, structures the ground-training course. Ground training lessons generally follow the sequence and content of these textbooks. Other reference materials are listed in the Introduction section of the Commercial Pilot Practical Test Standards.

**GROUND TRAINING COURSE COMPLETION STANDARDS:** The ground-training course will be completed when the student pilot demonstrates aeronautical proficiency standards prescribed in the FAA Practical Test Standards for the Commercial Pilot, and completes the academic requirements specified by Louisiana Tech University.

### **TRAINING RECORDS:**

The Department will establish and maintain current and accurate records of the participation of each student enrolled in the University aviation program. These records will include as a minimum the date the student was enrolled, a chronological log of the student's course attendance, the subjects, and flight operations covered in the student's training, and the names and grades of any tests taken by the student. Additionally, a record will be maintained on the date the student graduated, terminated training, or transferred to another school. Whenever a student graduates, terminates training, or transfers to another school, the student's record will be certified to that effect by the chief instructor. The University will retain each student record for at least 1 year from the date that the student either graduates from the course to which the record pertains, terminates enrollment in the course to which the record pertains, or transfers to another school. The University will make a copy of these records available to the student upon request.

## PROFESSIONAL AVIATION 340 STAGE ONE GROUND TRAINING

**OBJECTIVES:** This stage is the first half of a two-part ground school course leading to a commercial pilot certificate. This stage covers advanced aerodynamics, airplane performance, weight and balance, and high performance and complex systems.

**REFERENCES:**

1. The Department of Professional Aviation Training Course Outline for the Commercial Pilot Certification Course.
2. Guided Flight Discovery – Commercial Pilot. Jeppesen Sanderson, Inc.

**COMPLETION STANDARDS:** The student should complete this stage with knowledge of advanced aerodynamics, airplane performance and limitations, and high performance and complex systems. The student's understanding will be determined by intermediate and final written examinations given during this training. This stage is complete when the student passes the final (FAA Computer Knowledge) exam with a minimum score of 70% reconciled to 100%.

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<b>TOTAL HOURS PA340 - STAGE ONE</b>	<b>37</b>	

## **LESSON 1: (1 HOURS) COMMERCIAL RULES**

**OBJECTIVES:** To introduce the student to the aviation industry and to explain the requirements to become a certificated Commercial Pilot.

### **CONTENTS:**

1. Aviation Opportunities
  - A. Refresher Training
  - B. Airplane Transitions
  - C. Additional Pilot Ratings
  - D. Aviation Careers
2. Introduction to Human Factors
  - A. Aeronautical Decision Making
  - B. Aviation Physiology
3. Federal Regulations
  - A. Commercial Pilot
    - Privileges
    - Limitations
    - Flight Operations
4. National Transportation Safety Board (NTSB)

**COMPLETION STANDARDS:** This lesson will be successfully completed when, by oral or written examination, the student displays a fundamental understanding of the aviation industry, and the requirements necessary to become a safe and responsible certificated Commercial Pilot.

## **LESSON 2: (3 HOURS) FLYING CROSS-COUNTRY**

**OBJECTIVES:** The objective is to show the student how to plan a cross-country flight from start to finish.

### **CONTENTS:**

1. The Flight Planning Process
  - A. Flight Overview
  - B. Developing the Route
  - C. Preflight Weather Briefing
  - D. Completing the Navigation Log
  - E. Flight Plan
  - F. Preflight Inspection
2. Aeronautical Charts
3. Navigation Facilities
4. Night and High Altitude Operations
5. National Airspace System

**COMPLETION STANDARDS:** The student will have successfully completed this lesson when, by oral or written examination, he or she demonstrates an appropriate understanding of how to plan a cross-country flight from start to finish.

### **LESSON 3: (3hr) HIGH PERFORMANCE POWERPLANTS/SAFETY**

**OBJECTIVES:** The objective of this lesson is to provide the student with knowledge of high performance powerplants.

#### **CONTENT:**

1. Fuel Injection Systems
2. Operating Procedures
3. Engine Monitoring
4. Turbocharging Systems
5. Constant Speed Propellers
6. Safe and Efficient Operation of Aircraft

**COMPLETION STANDARDS:** This lesson will be completed when the student has an understanding of high performance powerplants.

## **LESSON 4: (3hr) ENVIRONMENTAL AND ICE CONTROL SYSTEMS**

**OBJECTIVES:** The objective of this lesson is to brief the student on environmental and ice control systems.

### **CONTENT:**

1. Oxygen Systems
2. Cabin Pressurization
3. Ice Control Systems
4. Aircraft Systems

**COMPLETION STANDARDS:** This lesson will be completed when the student has an understanding of environmental and ice control systems.

## **LESSON 5: (3hr) RETRACTABLE LANDING GEAR**

**OBJECTIVES:** The objective of this lesson is to brief the student on retractable landing gear.

### **CONTENT:**

1. Landing Gear Systems
2. Gear System Safety
3. Operating Procedures

**COMPLETION STANDARDS:** This lesson will be completed when the student has an understanding of retractable landing gear.

**LESSON 6: (1hr) MID-TERM REVIEW**

**OBJECTIVES:** The objective of this lesson is to review all of the material up to this point and prepare the student for the Mid-Term Exam.

**CONTENT:** Lessons One through Five

**COMPLETION STANDARDS:** This lesson will be completed when the student possesses knowledge of the entire material covered in lessons one through three and is prepared for the Mid-Term Exam.

## **LESSON 7: (2hr) MID-TERM TEST AND EVALUATION**

**OBJECTIVES:** This test provides an incentive as well as an opportunity for the student to summarize and absorb the information learned during the previous lessons.

**CONTENT:** The examination shall, as a minimum, consist of at least 50 FAA type multiple-choice questions. The period after the exam will include time for a review and evaluation of the student's performance on this examination.

**COMPLETION STANDARDS:** Grading is based on the traditional scale where 90% to 100% equals an "A", 80% to 89% equals a "B", 70% to 79% equals a "C", 60% to 69% equals a "D", and below 60% is a failure.

## **LESSON 8: (3hr) BASIC AERODYNAMICS**

**OBJECTIVES:** This lesson is an introduction to aerodynamics structured for students commencing the commercial level of training. The objective is to provide a pragmatic approach to aerodynamics that will help the student transition from the novice to a professional level.

### **CONTENT:**

1. Lift
2. Drag
3. Thrust
4. Weight and Load Factor

**COMPLETION STANDARDS:** Students completing this lesson will have a functional knowledge of basic aerodynamics.

## **LESSON 9: (3hr) ADVANCED AERODYNAMICS**

**OBJECTIVES:** This lesson is a continuation of lesson six in which aerodynamics is structured for students commencing the commercial level of training. The objective is to provide a pragmatic approach to aerodynamics that will help the student transition from the novice to a professional level.

### **CONTENT:**

1. Aircraft Stability
2. Aerodynamics and Flight Maneuvers
3. Stall and Spin Awareness

**COMPLETION STANDARDS:** Students completing this lesson will have a functional knowledge of basic aerodynamics.

## **LESSON 10: (3hr) PREDICTING PERFORMANCE**

**OBJECTIVES:** This lesson is intended to build upon previous lessons by introducing the airplane performance factors of aerodynamics. It is intended to be a comprehensive discussion of airplane performance characteristics and limitations at the level appropriate for a commercial pilot.

### **CONTENT:**

1. Factors Affecting Performance
2. The Pilot's Operating Handbook
  - A. Performance Charts

**COMPLETION STANDARDS:** Students completing this lesson will have a functional knowledge of airplane performance characteristics. They will understand how to calculate airplane performance using the operator handbook information.

## **LESSON 11: (3hr) PREDICTING PERFORMANCE**

**OBJECTIVES:** This lesson is intended to build upon previous lessons by introducing the airplane performance factors of aerodynamics. It is intended to be a comprehensive discussion of airplane performance characteristics and limitations at the level appropriate for a commercial pilot.

### **CONTENT:**

1. The Pilot's Operating Handbook
  - A. Takeoff Charts
  - B. Climb Performance Charts
  - C. Cruise Performance Charts
  - D. Descent Charts
  - E. Landing Distance Charts
  - F. Glide Distance
  - G. Stall Speeds

**COMPLETION STANDARDS:** Students completing this lesson will have a functional knowledge of airplane performance characteristics. They will understand how to calculate airplane performance using the operator handbook information

## **LESSON 12: (3hr) CONTROLLING WEIGHT AND BALANCE**

**OBJECTIVES:** This lesson introduces the airplane weight and balance principles and limitations.

### **CONTENT:**

1. Weight and Balance Limitations
2. Weight and Balance Documents

**COMPLETION STANDARDS:** Students completing this lesson will have a functional knowledge of airplane weight and balance principles.

## **LESSON 13: (3hr) CONTROLLING WEIGHT AND BALANCE**

**OBJECTIVES:** This lesson introduces the airplane weight and balance principles, limitations and calculations. The objective is to teach the student how to compute weight and balance problems, including weight changes and weight shifts.

### **CONTENT:**

1. Weight and Balance Computations
2. Weight and Balance Condition Checks
3. Weight Shift Computation

**COMPLETION STANDARDS:** Students completing this lesson will have a functional knowledge of airplane weight and balance principles and how to calculate the correct weight and balance of an airplane using the airplane operator handbook charts and graphs.

## **LESSON 14: (3hr) FINAL STAGE REVIEW**

**OBJECTIVES:** Because of the complexity of the course, it is considered appropriate to provide the student with a structured review prior to the final stage exam. The objective is to allow time for a recap and comprehensive review of the material covered during the course.

**CONTENT:** This is a comprehensive review of the course material. The instructor will walk the student through the highlights of the course and provide the student the opportunity to review and correct their notes.

**COMPLETION STANDARDS:** The student's understanding will be determined by the final written examination.

## **LESSON 15: (2hr) STAGE ONE FINAL TEST AND EVALUATION**

**OBJECTIVES:** The objective is to provide an incentive and allow the opportunity for the student to summarize and absorb the information learned during the course. The student's performance on this test will be used as a basis for determining eligibility to take the FAA computer knowledge examination for the Commercial Pilot Certificate.

**CONTENT:** The examination shall, as a minimum, consist of at least 50 FAA type multiple-choice questions.

**COMPLETION STANDARDS:** Grading is based on the traditional scale where 90% to 100% equals an "A", 80% to 89% equals a "B", 70% to 79% equals a "C", 60% to 69% equals a "D", and below 60% is a failure. Professional Aviation Majors must receive a minimum grade of "C" for this course.

## **PROFESSIONAL AVIATION 341 STAGE TWO GROUND TRAINING**

**OBJECTIVES:** The objective is to instruct the student on advanced commercial pilot maneuvers, flight physiology, aeronautical decision making, human factors in aviation and crew resource management. The lesson includes a comprehensive review of the commercial pilot phase in preparation for the FAA written examination.

**REFERENCES:**

1. The Department of Professional Aviation Training Course Outline for the Commercial Pilot Certification Course.
2. Guided Flight Discovery – Commercial Pilot. Jeppesen Sanderson, Inc.

**COMPLETION STANDARDS:** The student should complete this stage with a working knowledge of advanced navigation to include all of the elements covered in Stage One. The student must be aware of the physiological aspects of flight to include the symptoms and avoidance procedures. He/she should be knowledgeable of the basic principles regarding decision-making and crew leadership. The student's understanding will be determined by intermediate and final written examinations given during the course, by the performance on flight and simulator lessons, and by the performance on the FAA Commercial Pilot Certification Written Examination. This stage is complete when the student passes the final (FAA computer knowledge) exam with a minimum score of 70% reconciled to 100%.

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<b>TOTAL HOURS PA 341 - STAGE TWO</b>	<b>25</b>	

## **LESSON 1: (4hr) EMERGENCY PROCEDURES**

**OBJECTIVES:** The objective of this lesson is to brief the student on emergency procedures.

### **CONTENT:**

1. Emergency Descent
2. Emergency Approach and Landing
3. Systems and Equipment Malfunctions
4. Emergency Equipment and Survival Gear
5. Aeronautical decision making and judgement

**COMPLETION STANDARDS:** This lesson will be completed when the student has an understanding of the emergency procedures covered in this lesson.

## **LESSON 2: (4hr) COMMERCIAL DECISION MAKING**

**OBJECTIVES:** This lesson advances the student to a higher awareness of the basic concepts of aeronautical decision-making. The objective is to enforce the student's understanding of the decision-making processes, crew resource management, and crew communication.

### **CONTENT:**

1. Applying the Decision-Making Process
2. Crew Resource Management
3. Pilot-In-Command Responsibility
4. Crew Relationships
5. Communication
6. Barriers to Effective Communication

**COMPLETION STANDARDS:** This lesson will be complete when the student demonstrates an awareness of the basic concepts of Aeronautical Decision Making covered in this lesson.

### **LESSON 3: (3hr) COMMERCIAL DECISION MAKING**

**OBJECTIVES:** This lesson advances the student to a higher awareness of the basic concepts of aeronautical decision-making. The objective is to enforce the student's understanding of the use of resources, managing workload, situational awareness, and applying Aeronautical Decision Making.

#### **CONTENT:**

1. Resource Use
2. Workload Management
3. Situational Awareness
4. Application of Aeronautical Decision Making

**COMPLETION STANDARDS:** This lesson will be complete when the student demonstrates an awareness of the basic concepts of Aeronautical Decision Making covered in this lesson

#### **LESSON 4: (2hr) MID-TERM TEST AND EVALUATION**

**OBJECTIVES:** This test provides an incentive as well as an opportunity for the student to summarize and absorb the information learned during the previous lessons.

**CONTENT:** The examination shall, as a minimum, consist of at least 50 FAA type multiple-choice questions. The period after the exam will include time for a review and evaluation of the student's performance on this examination.

**COMPLETION STANDARDS:** Grading is based on the traditional scale where 90% to 100% equals an "A", 80% to 89% equals a "B", 70% to 79% equals a "C", 60% to 69% equals a "D", and below 60% is a failure.

## **LESSON 5: (4hr) COMMERCIAL MANEUVERS**

**OBJECTIVES:** The objective of this lesson is to brief the student on commercial maneuvers.

### **CONTENT:**

1. Maximum Performance Takeoffs and Landings
2. Steep Turns
3. Chandelles

**COMPLETION STANDARDS:** This lesson will be completed when the student has an understanding of the commercial maneuvers covered in this lesson.

## **LESSON 6: (2hr) COMMERCIAL MANEUVERS**

**OBJECTIVES:** The objective of this lesson is to brief the student on commercial maneuvers.

### **CONTENT:**

1. Lazy Eights
2. Eights on Pylons
3. Steep Spirals
4. Power Off 180-Degree Accuracy Approaches and Landings

**COMPLETION STANDARDS:** This lesson will be completed when the student has an understanding of the commercial maneuvers covered in this lesson.

## **LESSON 7: (.5 HOURS) METEOROLOGY PART 1**

**OBJECTIVES:** The objective is to acquaint the student with the general characteristics of the atmosphere and the specifics of aviation weather relevant to the private pilot.

### **CONTENTS:**

1. Basic Weather Theory
  - A. The Atmosphere
  - B. Atmospheric Circulation
2. Weather Patterns
  - A. Atmospheric Stability
  - B. Moisture
  - C. Clouds
  - D. Precipitation
  - E. Airmasses
  - F. Fronts

**COMPLETION STANDARDS:** This lesson will be successfully completed when, by oral or written examination; the student demonstrates an appropriate understanding of the atmosphere and basic meteorology.

## **LESSON 8: (.5 HOURS) METEROLOGY PART 2**

**OBJECTIVES:** The objective is to acquaint the student with different weather hazards. The student will be able to evaluate the weather conditions and hazards necessary for planning a safe flight.

### **CONTENTS:**

1. Weather Hazards
  - A. Thunderstorms
  - B. Turbulence
  - C. Wind Shear
  - D. Icing
  - E. Restrictions to Visibility
  - F. Volcanic Ash

**COMPLETION STANDARDS:** The student will have successfully completed this lesson when, by oral or written examination, he or she demonstrates an appropriate understanding of the weather hazards in flight and their impact on flying decisions.

## **LESSON 9: (3hr) COMPREHENSIVE REVIEW**

**OBJECTIVES:** This lesson is an opportunity for the student to recap and assimilate the information covered during the commercial ground-training phase. The objective is to accomplish a comprehensive review of all of the material covered in the Commercial Pilot Ground Training Course in preparation for the final stage exam and FAA Commercial Pilot Written Exam.

**CONTENT:** The instructor will walk the student through the Commercial Pilot Training Course Outline by covering the high points and answering student questions.

**COMPLETION STANDARDS:** The student should complete this lesson with an understanding of the knowledge requirements of the course and be prepared to study for the final exam in an organized and efficient manner.

## **LESSON 10: (2hr) FINAL COMMERCIAL PILOT EXAMINATION**

**OBJECTIVES:** This stage is completed when the student has passed the FAA Commercial Pilot Written Knowledge Examination with the minimum score of 70%.

**CONTENT:** The examination consists of 100 multiple-choice type questions with three choices.

**COMPLETION STANDARDS:** Grading is based on the traditional scale where 90% to 100% equals an "A", 80% to 89% equals a "B", 70% to 79% equals a "C", 60% to 69% equals a "D", and below 60% is a failure. Professional Aviation Majors must receive a minimum grade of "C" for this course.

# FLIGHT COURSE CURRICULUM

## REQUIREMENTS AND OBJECTIVES

**ENROLLMENT PREREQUISITES:** Students enrolling in the Commercial Pilot Certification flight classes need to have at least a First Class Medical Certificate, possess a Private Pilot Certificate with an instrument rating, completion or concurrent enrollment in the Commercial Pilot ground classes, and meet the requirements to enroll as a regular student at Louisiana Tech University.

**FLIGHT TRAINING COURSE OBJECTIVE:** The student will obtain the knowledge, skill, and aeronautical experience necessary to meet the requirements for a Commercial Pilot certificate with an airplane category and a single-engine land class.

**FLIGHT TRAINING CURRICULUM:** Flight school for the Commercial Pilot Certificate is accomplished by enrollment in the following Professional Aviation courses at Louisiana Tech University. Stage I correlates to PRAV 342, Stage II correlates to PRAV 343, and Stage III correlates to PRAV 344. Completion of these courses will result in 3 college semester hours of credit.

**FLIGHT TRAINING COURSE COMPLETION STANDARDS:** The student must demonstrate through written tests, flight tests, and show through appropriate records that he meets the knowledge, skill, and experience requirements necessary to obtain a Commercial Pilot certificate with an airplane category and a single-engine land class.

**GRADES:** After each lesson, the instructor will assign grades using the following scale. When any grade below an “A” is assigned, the instructor must include amplifying comments on the grade form.

A. Exceeds Standards	The student usually (50 percent of the time) exceeds FAA Practical Test Standards (PTS)
B. Meets Standards	The student meets FAA Practical Test Standards (PTS).
C. Below Standards	The student usually (50 percent of the time) meets FAA Practical Test Standards (PTS).
F. Failure	The safety of the flight is in question, and the instructor must take control of the aircraft. Also, the maneuver is incomplete or not completed correctly.

**Note:** Grades of A or B delineate satisfactory performance in accordance with FAA Practical Test Standards. Grades C and F delineate unsatisfactory performance in accordance with FAA Practical Test Standards.

## PROFESSIONAL AVIATION 342 FLIGHT TRAINING STAGE ONE

### COMMERCIAL MANEUVERS

**OBJECTIVES:** This stage includes a review of the basic maneuvers, procedures, and skills acquired in the private pilot phase and introduces the advanced commercial pilot maneuvers.

**REFERENCES:**

1. The Louisiana Tech Commercial Pilot Course Curriculum
2. The FAR/AIM

**COMPLETION STANDARDS:** This stage is completed with the Stage One Check Flight. The student will be required to perform the maneuvers as prescribed in the FAA Commercial Pilot Practical Test Standards. At the completion of this stage, the student will be expected to execute all commercial maneuvers with the smoothness, planning, correctness, coordination, and expertise of a commercial pilot. Completion standards are as prescribed in the FAA Commercial Pilot Practical Test Standards.

### FLIGHT TRAINING SUMMARY

LESSON	DUAL	SOLO	FTD	ORAL	PAGE
1. ORIENTATION				1.0	36
2. BASIC AIRCRAFT MANEUVERS				1.0	37
3. BASIC AIRCRAFT MANEUVERS			1.0	0.5	38
4. BASIC AIRCRAFT MANEUVERS	1.0			0.2	39
5. ADVANCED COMMERCIAL MANEUVERS				1.0	40
6. ADVANCED COMMERCIAL MANEUVERS			1.0	0.5	41
7. ADVANCED COMMERCIAL MANEUVERS			1.0	0.5	42
8. ADVANCED COMMERCIAL MANEUVERS	1.0			0.2	43
9. ADVANCED COMMERCIAL MANEUVERS			1.0	0.2	44
10. ADVANCED COMMERCIAL MANEUVERS	1.0			0.2	45
11. DIVERSION PROC. AND BASIC NAVIGATION			1.0	0.5	46
12. DIVERSION PROC. AND BASIC NAVIGATION	1.0			0.5	47
13. FLIGHT SAFETY REVIEW				1.0	48
14. FLIGHT SAFETY REVIEW	2.0		6.0	0.0	49
15. COMMERCIAL MANEUVERS REVIEW	1.0			0.2	50
16. COMMERCIAL MANEUVERS REVIEW	2.0			0.2	51
17. COMMERCIAL MANEUVERS STAGE CHECK	<u>1.5</u>			<u>1.0</u>	52
<b>TOTAL PRAV 342 - STAGE ONE</b>	<b>10.5</b>		<b>11.0</b>	<b>8.7</b>	

### **LESSON 1: (1 hr ORAL) ORIENTATION**

**OBJECTIVES:** The objective is to introduce the student to the commercial pilot flight-training course.

**CONTENT:**

1. Create student records
2. Review aircraft flight release procedures/form (if necessary)
3. Orient student to the flight operations building (if necessary)
4. Review course completion requirements
5. Review appropriate policies and procedures

**COMPLETION STANDARDS:** The student should be familiar with the flight operations policies and procedures, have a flight record created, and be familiar with course completion requirements.

**LESSON 2: (1 hr ORAL) BASIC AIRCRAFT MANEUVERS**

**OBJECTIVES:** The objective is to review the basic aircraft maneuvers in preparation for the subsequent practice flights.

**CONTENT:**

1. Training course requirements and expectations
2. Flight line procedures
3. Airplane preflight, documents, certificates, minimum equipment
4. Commercial Pilot privileges and limitations
5. Medical certificate requirements
6. Pilot logbook and/or flight records
7. Procurement of weather information
8. Weight and balance calculation
9. Use of checklist
10. Airplane documentation
11. Normal takeoff and landings using full flaps
12. Short field takeoff and maximum climb
13. Soft field takeoffs
14. Wake turbulence avoidance
15. Crosswind takeoffs and landings
16. Steep turns
17. Slow flight
18. Approach to stalls
19. Full stalls
20. Spin Awareness
21. Forced landings
22. Short field landings
23. Soft field landings
24. Emergencies and equipment malfunctions
25. Post-flight procedures

**COMPLETION STANDARDS:** The student should have sufficient knowledge of the items discussed to be able to perform each maneuver during subsequent flights with only minimum coaching by the instructor.

**LESSON 3: (1 hr FTD) BASIC AIRCRAFT MANEUVERS**

## **PRE/POSTFLIGHT BRIEFING (0.5 HOURS)**

**OBJECTIVES:** The objective is to provide time for the instructor to evaluate the student's proficiency for basic airplane maneuvers and to identify those areas that require practice during subsequent solo practice flights. This flight is an opportunity for the student to obtain the instructor's assistance and, if necessary, a demonstration of those maneuvers that he/she has difficulty accomplishing.

### **CONTENT:**

1. Flight line procedures
2. Airplane preflight, documents, certificates, minimum equipment
3. Use of checklists
4. Taxiing
5. Normal takeoff
6. Short field takeoff and maximum climb
7. Soft field takeoffs
8. Wake turbulence avoidance
9. Crosswind takeoffs and landings
10. Use of trim
11. Clearing turns
12. Steep turns
13. Slow flight
14. Stalls - full and imminent
  - A. Approach to landing
  - B. Takeoff and departure
  - C. Accelerated maneuver
15. Spin Awareness
16. Forced landings
17. Landings using full flaps
18. Short field landings
19. Soft field landings
20. Emergencies and equipment malfunctions
21. Post-flight procedures

**COMPLETION STANDARDS:** At the completion of this lesson, the student should have sufficient knowledge to be able to perform the maneuvers with only minor errors and without instructor assistance. At this point, the student should be perfecting his/her skills.

## **LESSON 4: (1 hr DUAL) BASIC AIRCRAFT MANEUVERS**

## **PRE/POSTFLIGHT BRIEFING (0.2 HOURS)**

**OBJECTIVES:** The objective is to provide time for the instructor to evaluate the student's proficiency for basic airplane maneuvers and to identify those areas that require practice during subsequent solo practice flights. This flight is an opportunity for the student to obtain the instructor's assistance and, if necessary, a demonstration of those maneuvers that he/she has difficulty accomplishing.

### **CONTENT:**

1. Flight line procedures
2. Airplane preflight, documents, certificates, minimum equipment
3. Use of checklists
4. Taxiing
5. Normal takeoff
6. Short field takeoff and maximum climb
7. Soft field takeoffs
8. Wake turbulence avoidance
9. Crosswind takeoffs and landings
10. Use of trim
11. Clearing turns
12. Steep turns
13. Slow flight
14. Stalls - full and imminent
  - A. Approach to landing
  - B. Takeoff and departure
  - C. Accelerated maneuver
15. Spin Awareness
16. Forced landings
17. Landings using full flaps
18. Short field landings
19. Soft field landings
20. Emergencies and equipment malfunctions
21. Post-flight procedures

**COMPLETION STANDARDS:** At the completion of this lesson, the student should have sufficient knowledge to be able to perform the maneuvers with only minor errors and without instructor assistance. At this point, the student should be perfecting his/her skills.

## **LESSON 5: (1 hr ORAL) ADVANCED COMMERCIAL MANEUVERS**

**OBJECTIVES:** The objective is to introduce the student to chandelles, lazy eights, eights on pylons, and steep spirals.

**CONTENT:**

1. Crosswind takeoffs
2. Review short field takeoff and maximum climb
3. Review soft field takeoffs
4. Chandelles
5. Lazy eights
6. Eights on pylons
7. 180-degree descent and climbing turns
8. Steep spirals
9. Slip to landing
10. Crosswind landings
11. Review short field landing
12. Review spin recovery
13. Review short field landings
14. Review soft field landings
15. Emergencies and equipment malfunctions

**COMPLETION STANDARDS:** The student should have sufficient knowledge of the items discussed to be able to perform each maneuver with only minimum coaching by the instructor.

**LESSON 6: (1 hr FTD) ADVANCED COMMERCIAL MANEUVERS**

## **PRE/POSTFLIGHT BRIEFING (0.5 HOURS)**

**OBJECTIVES:** The objective is to provide time for the instructor to evaluate the student's proficiency for basic airplane maneuvers and to identify those areas that require practice during subsequent solo practice flights. The objective is also to introduce the student to chandelles, lazy eights, steep spirals, and eights on pylons.

### **CONTENT:**

1. Preflight
2. Crosswind takeoffs and landings
3. Short field takeoff and maximum climb
4. Maneuvering during slow flight
5. Chandelles
6. Lazy eights
7. Eights on pylons
8. 180-degree descent and climbing turns
9. Steep spirals
10. Slip to landing
11. Crosswind landings
12. Review short field landing
13. Review spin recovery
14. Slip to landing
15. Soft field landings
16. Emergencies and equipment malfunctions
17. VOR navigation

**COMPLETION STANDARDS:** At the completion of this lesson, the student should have sufficient knowledge to be able to perform the maneuvers with only minor errors and without instructor assistance. At this point, the student's concentration should be on perfecting aircraft control skills.

## **LESSON 7: (1 hr FTD) ADVANCED COMMERCIAL MANEUVERS**

## **PRE/POSTFLIGHT BRIEFING (0.5 HOURS)**

**OBJECTIVES:** The objective is to provide time for the instructor to evaluate the student's proficiency for basic airplane maneuvers and to identify those areas that require practice during subsequent solo practice flights. The objective is also to introduce the student to chandelles, lazy eights, steep spirals, and eights on pylons.

### **CONTENT:**

1. Preflight
2. Crosswind takeoffs and landings
3. Short field takeoff and maximum climb
4. Maneuvering during slow flight
5. Chandelles
6. Lazy eights
7. Eights on pylons
8. 180-degree descent and climbing turns
9. Steep spirals
10. Slip to landing
11. Crosswind landings
12. Review short field landing
13. Review spin recovery
14. Slip to landing
15. Soft field landings
16. Emergencies and equipment malfunctions
17. VOR navigation

**COMPLETION STANDARDS:** At the completion of this lesson, the student should have sufficient knowledge to be able to perform the maneuvers with only minor errors and without instructor assistance. At this point, the student's concentration should be on perfecting aircraft control skills.

## **LESSON 8: (1 hr DUAL) ADVANCED COMMERCIAL MANEUVERS**

## **PRE/POSTFLIGHT BRIEFING (0.2 HOURS)**

**OBJECTIVES:** The objective is to provide time for the instructor to evaluate the student's proficiency for basic airplane maneuvers and to identify those areas that require practice during subsequent solo practice flights. The objective is also to introduce the student to chandelles, lazy eights, steep spirals, and eights on pylons.

### **CONTENT:**

1. Preflight
2. Crosswind takeoffs and landings
3. Short field takeoff and maximum climb
4. Maneuvering during slow flight
5. Chandelles
6. Lazy eights
7. Eights on pylons
8. 180-degree descent and climbing turns
9. Steep spirals
10. Slip to landing
11. Crosswind landings
12. Review short field landing
13. Review spin recovery
14. Slip to landing
15. Soft field landings
16. Emergencies and equipment malfunctions
17. VOR navigation

**COMPLETION STANDARDS:** At the completion of this lesson, the student should have sufficient knowledge to be able to perform the maneuvers with only minor errors and without instructor assistance. At this point, the student's concentration should be on perfecting aircraft control skills.

## **LESSON 9: (1 hr FTD) ADVANCED COMMERCIAL MANEUVERS**

## **PRE/POSTFLIGHT BRIEFING (0.2 HOURS)**

**OBJECTIVES:** The objective is to provide time for the instructor to evaluate the student's proficiency for basic airplane maneuvers and to identify those areas that require practice during subsequent solo practice flights. The objective is also to introduce the student to chandelles, lazy eights, steep spirals, and eights on pylons.

### **CONTENT:**

1. Preflight
2. Crosswind takeoffs and landings
3. Short field takeoff and maximum climb
4. Maneuvering during slow flight
5. Chandelles
6. Lazy eights
7. Eights on pylons
8. 180-degree descent and climbing turns
9. Steep spirals
10. Slip to landing
11. Crosswind landings
12. Review short field landing
13. Review spin recovery
14. Slip to landing
15. Soft field landings
16. Emergencies and equipment malfunctions

**COMPLETION STANDARDS:** At the completion of this lesson, the student should have sufficient knowledge to be able to perform the maneuvers with only minor errors and without instructor assistance. At this point, the student's concentration should be on perfecting aircraft control skills.

## **LESSON 10: (1 hr DUAL) ADVANCED COMMERCIAL MANEUVERS**

## **PRE/POSTFLIGHT BRIEFING (0.2 HOURS)**

**OBJECTIVES:** The objective is to provide time for the instructor to evaluate the student's proficiency for basic airplane maneuvers and to identify those areas that require practice during subsequent solo practice flights. The objective is also to introduce the student to turns chandelles, lazy eights, steep spirals, and eights on pylons.

### **CONTENT:**

1. Preflight
2. Crosswind takeoffs and landings
3. Short field takeoff and maximum climb
4. Maneuvering during slow flight
5. Chandelles
6. Lazy eights
7. Eights on pylons
8. 180-degree descent and climbing turns
9. Steep spirals
10. Slip to landing
11. Crosswind landings
12. Review short field landing
13. Review spin recovery
14. Slip to landing
15. Soft field landings
16. Emergencies and equipment malfunctions

**COMPLETION STANDARDS:** At the completion of this lesson, the student should have sufficient knowledge to be able to perform the maneuvers with only minor errors and without instructor assistance. At this point, the student's concentration should be on perfecting aircraft control skills.

## **LESSON 11: (1.0 HOUR FTD) DIVERSION PROCEDURES AND BASIC NAVIGATION**

**PRE/POSTFLIGHT BRIEFING: (0.5 HOURS)**

**OBJECTIVES:** The instructor will brief the student on the diversion procedures and basic navigations and review the navigation systems, radar service, diversion procedures, and lost procedures.

**CONTENTS:**

1. Alternate airport selection
2. Determine distance, time , fuel, and ETA
3. Pilotage and dead reckoning
4. Radio aids navigation
5. Select appropriate frequencies from the AFD
6. Radar services, requesting assistance
7. Lost procedures
8. VOR/ADF/GPS Operations

**COMPLETION STANDARDS:** This lesson will be completed when the student shows the proper diversion procedures, lost procedures, and navigation usage for his/her flight. All flight tasks will be evaluated against the tolerances prescribed in the Commercial Pilot Practical Test Standards.

**LESSON 12: (1.0 HOUR DUAL) DIVERSION PROCEDURES AND BASIC NAVIGATION**  
**PRE/POSTFLIGHT BRIEFING: (0.5 HOURS)**

**OBJECTIVES:** The instructor will brief the student on the diversion procedures and basic navigations and review the navigation systems, radar service, diversion procedures, and lost procedures.

**CONTENTS:**

4. Alternate airport selection
5. Determine distance, time , fuel, and ETA
6. Pilotage and dead reckoning
4. Radio aids navigation
5. Select appropriate frequencies from the AFD
6. Radar services, requesting assistance
7. Lost procedures
8. VOR/ADF/GPS Operations

**COMPLETION STANDARDS:** This lesson will be completed when the student shows the proper diversion procedures, lost procedures, and navigation usage for his/her flight. All flight tasks will be evaluated against the tolerances prescribed in the Commercial Pilot Practical Test Standards.

## **LESSON 13: (1 hr ORAL) FLIGHT SAFETY REVIEW**

**OBJECTIVES:** The objective is to provide time for the instructor to discuss safety of flight considerations with the student. The instructor will also discuss airplane servicing and cold weather operations considerations. This lesson is intended to meet the objectives of The Commercial Pilot Practical Test Standards Area I, Task F.

### **CONTENT:**

1. Operating procedures and limitations
  - A. Primary flight controls and trim
  - B. Flaps, leading edge and spoilers
  - C. Power plant
  - D. Propeller
  - E. Landing Gear
  - F. Fuel, oil, and hydraulic systems
  - G. Electrical system
  - H. Pitot static system, vacuum system, and flight instruments
  - I. Environmental system
  - J. Deicing and anti-icing systems
  - K. Avionics systems
2. Emergencies
  - A. Engine fire
  - B. Electrical fire
  - C. Engine failure after takeoff
  - D. Engine failure at altitude
  - E. Partial power loss
  - F. Smoke and fume elimination
  - G. Low oil pressure
3. Airplane servicing
  - A. Fuel
  - B. Oil
  - C. Battery
  - D. Tires
  - E. Landing gear
  - F. Emergency locator
4. Cold weather operations

**COMPLETION STANDARDS:** The student should know the correct servicing procedures that would be required to be performed, supervised, or checked by the pilot in command. The student must be able to recite the immediate action actions for the lesson emergency procedures.

## **LESSON 14: (6 hr FTD) (2 hr DUAL) FLIGHT SAFETY REVIEW**

**OBJECTIVES:** The objective is to provide time for the instructor to concentrate instruction on safety of flight considerations. Emphasis during the lesson is on emergency procedures.

### **CONTENT:**

1. Simulated engine failure on takeoff roll
2. Simulated engine failure immediately after takeoff
3. Simulated engine failure during flight with forced landing [discontinue at 1000' AGL if in aircraft]
4. Simulated engine fire during starting
5. Partial power loss
6. Simulated oil loss
7. Power-off 180-degree accuracy approach and landing
8. Simulated engine fire during flight
9. Simulated electrical fire during flight
10. Simulated wing fire during flight
11. Simulated cabin fire during flight
12. Simulated flight into icing conditions
13. Simulated alternator failure
14. Simulated excessive charge on ammeter
15. Simulated flat main tire
16. Simulated flat nose tire
17. Other emergency procedures selected by the instructor

**COMPLETION STANDARDS:** The student should know the correct servicing procedures that would be required to be performed, supervised, or checked by the pilot in command. The student must be able to recite the immediate action procedures for the specified emergency procedures.

**LESSON 15: (1 hr DUAL) COMMERCIAL MANEUVERS REVIEW  
PRE/POSTFLIGHT BRIEFING (0.2 HOURS)**

**OBJECTIVES:** The objective is to provide time for the instructor to evaluate the student's proficiency for basic airplane maneuvers and to identify those areas that require practice during subsequent solo practice flights. The objective is also to introduce the student to chandelles, lazy eights, steep spirals, and eights on pylons.

**CONTENT:**

1. Preflight
2. Crosswind takeoffs and landings
3. Short field takeoff and maximum climb
4. Maneuvering during slow flight
5. Chandelles
6. Lazy eights
7. Eights on pylons
8. 180-degree descent and climbing turns
9. Steep spirals
10. Slip to landing
11. Crosswind landings
12. Review short field landing
13. Slip to landing
14. Soft field landings
15. Emergencies and equipment malfunctions

**COMPLETION STANDARDS:** At the completion of this lesson, the student should have sufficient knowledge to be able to perform the maneuvers with only minor errors and without instructor assistance. At this point, the student's concentration should be on perfecting aircraft control skills.

**LESSON 16: (2 hr DUAL) COMMERCIAL MANEUVERS STAGE CHECK REVIEW  
PRE/POSTFLIGHT BRIEFING (0.2 HOURS)**

**OBJECTIVES:** The objective is to provide time for the instructor to evaluate the student's proficiency for basic airplane maneuvers to determine that the student is prepared for the commercial maneuvers stage check.

**CONTENT:**

1. Preflight
2. Crosswind takeoffs and landings
3. Short field takeoff and maximum climb
4. Maneuvering during slow flight
5. Chandelles
6. Lazy eights
7. Eights on pylons
8. 180-degree descent and climbing turns
9. Steep spirals
10. Slip to landing
11. Crosswind landings
12. Review short field landing
13. Slip to landing
14. Soft field landings
15. Emergencies and equipment malfunctions

**COMPLETION STANDARDS:** This lesson will be completed when the student demonstrates to the satisfaction of the instructor the knowledge/skill level required for the commercial maneuvers stage check.

## **LESSON 17: (1.0 hr ORAL/1.5 DUAL) COMMERCIAL MANEUVERS STAGE CHECK**

**OBJECTIVES:** The objective is to determine by an oral examination if the student is prepared and has achieved the skill and knowledge requirements of the final stage flight examination and if the student is qualified to progress to the next level of training.

### **CONTENT:**

1. Normal takeoff
2. Slow flight
3. Chandelles
4. Lazy eights
5. Steep turns
6. Stall series
7. Spin Awareness
8. Steep spirals
9. Eights on pylons
10. Power-off 180 degree accuracy approach and landing
11. Short field landing
12. Short field takeoff
13. Soft field landing

**COMPLETION STANDARDS:** The student must demonstrate the skills and knowledge required to progress to the next level of training. Those elements where deficiencies exist will require additional instruction and a reexamination by a designated flight evaluator. The FAA Commercial Pilot Certificate Practical Test Standards will be used as the basis for this evaluation.

**PROFESSIONAL AVIATION 343 and 344  
FLIGHT TRAINING STAGE TWO  
COMPLEX AIRPLANE CHECKOUT, INSTRUMENT REVIEW, AND  
FINAL STAGE CHECK**

**OBJECTIVES:** This stage completes all of the requirements for a Commercial Pilot Certificate. The major concentration is preparing the student for the final check flight. This stage is also an opportunity for the student to complete the requirements for complex airplane instruction, complex airplane checkout, and solo cross-country requirements.

**REFERENCES:**

1. The Louisiana Tech Commercial Pilot Course Curriculum
2. The FAR/AIM

**COMPLETION STANDARDS:** This stage is complete when the student has completed all requirements for the Commercial Pilot Certificate and has passed the complex airplane and final stage checks.

**FLIGHT TRAINING SUMMARY**

LESSON	SOLO/		FTD	ORAL	PAGE
	DUAL	PIC			
1. CROSS-COUNTRY OPS/NIGHT REVIEW				1.0	55
2. EMERGENCY PROCEDURES			1.5	0.2	56
3. NIGHT OPERATIONS	1.0			0.2	57
4. NIGHT OPERATIONS (TOWERED AIRPORT)		1.5			58
5. DAY CROSS-COUNTRY OPERATIONS	2.0			0.2	59
6. NIGHT CROSS-COUNTRY OPERATIONS	2.0			0.2	60
7. NIGHT OPERATIONS		3.5			61
8. CROSS-COUNTRY OPERATIONS		61.0			62
9. COMMERCIAL MANEUVERS REVIEW				1.0	63
10. COMMERCIAL MANEUVERS REVIEW	1.0			0.2	64
11. COMMERCIAL MANEUVERS REVIEW	1.0			0.2	65
12. COMMERCIAL MANEUVERS REVIEW	1.0			0.2	66
13. COMPLEX AIRPLANE INTRODUCTION				1.0	67
14. COMPLEX AIRPLANE INTRODUCTION	1.0			0.2	68
15. COMPLEX AIRPLANE INTRODUCTION	1.0			0.2	69
16. COMPLEX AIRPLANE CHECKOUT	1.0			0.2	70
17. ADVANCED COMMERCIAL MANEUVERS				1.0	71
18. ADVANCED COMMERCIAL MANEUVERS	1.0			0.2	72
19. ADVANCED COMMERCIAL MANEUVERS	1.0			0.2	73
20. ADVANCED COMMERCIAL MANEUVERS	1.0			0.2	74
21. COMPLEX AIRPLANE REVIEW	1.0			0.2	75
22. COMPLEX AIRPLANE REVIEW	1.0			0.2	76
23. COMPLEX A/P STAGE CHECK (PRAV 343)	1.5			1.0	77
24. ATTITUDE INSTRUMENT FLYING REVIEW			1.5	0.2	78
25. INSTRUMENT NAVIGATION REVIEW			1.5	0.2	79

26. INSTRUMENT HOLDING REVIEW			2.0	0.2	80
27. INSTRUMENT APPROACHES REVIEW			2.0	0.2	81
28. INSTRUMENT APPROACHES REVIEW			2.0	0.2	82
29. INSTRUMENT CROSS-COUNTRY REVIEW			2.5	0.2	83
30. FINAL COMMERCIAL REVIEW				1.0	84
31. FINAL COMMERCIAL REVIEW	1.5			0.2	86
32. FINAL COMMERCIAL STAGE CHECK	<u>1.5</u>			<u>1.5</u>	88
<b>TOTAL PRAV 344 - STAGE THREE</b>	<b>20.5</b>	<b>66.0</b>	<b>13.0</b>	<b>11.9</b>	

## **LESSON 1: (1 hr ORAL) CROSS-COUNTRY OPERATIONS / NIGHT REVIEW**

**OBJECTIVES:** The objective of this lesson is to review the procedures for planning a cross-country flight and the procedures for flying at night.

### **CONTENT:**

1. Cross-country flight planning
2. Diversion
3. Weight and balance
4. Airspace
5. Navigational charts and publications
6. Emergency procedures
7. Night flight operations

**COMPLETION STANDARDS:** This lesson will be completed when the student demonstrates knowledge of cross-country and night operations.

**LESSON 2: (1.5 hrs FTD) EMERGENCY PROCEDURES  
PRE/POSTFLIGHT BRIEFING (0.2 HOURS)**

**OBJECTIVES:** The objective is to practice emergency procedures.

**CONTENT:**

1. Emergency procedures selected by the instructor

**COMPLETION STANDARDS:** The student should complete this lesson with an increased knowledge and proficiency in emergency procedures.

**LESSON 3: (1.0 hr DUAL) NIGHT OPERATIONS**  
**PRE/POSTFLIGHT BRIEFING (0.2 HOURS)**

**OBJECTIVES:** The objective is to let the student gain more night flying experience and to fulfill the requirement of ten takeoffs and landings at a towered airport at night.

**CONTENT:**

1. Weather briefing and line check
2. Taxi precautions and use of airplane lighting
3. Normal and crosswind landings
4. Post-flight procedures

**COMPLETION STANDARDS:** The lesson is complete when the flight instructor is confident that the student can fly the airplane solo safely at night. The student must demonstrate a thorough knowledge of night emergency procedures as well as normal night operations.

## **LESSON 4: (1.5 hr SOLO) NIGHT OPERATIONS AT A TOWERED AIRPORT**

**OBJECTIVES:** The objective is to let the student gain more night flying experience and to fulfill the requirement of ten takeoffs and landings at a towered airport at night.

### **CONTENT:**

1. Weather briefing and line check
2. Taxi precautions and use of airplane lighting
3. Normal and crosswind landings
4. Post-flight procedures

**COMPLETION STANDARDS:** The lesson is complete when the flight instructor is confident that the student can fly the airplane solo safely at night. The student must demonstrate a thorough knowledge of night emergency procedures as well as normal night operations.

**LESSON 5: (2 hrs DUAL) DAY CROSS-COUNTRY OPERATIONS  
PRE/POSTFLIGHT BRIEFING (0.2 HOURS)**

**OBJECTIVES:** This lesson requires a cross-country flight of at least 2 hours duration, a total straight-line distance of more than 100 NM from the original point of departure, and occurring in day VFR conditions.

**CONTENT:**

1. Cross-country flight planning
2. Diversion
3. Weight and balance
4. Airspace
5. Towered airport operations
6. Navigational charts and publications
7. Emergency procedures
8. Over-water operations
9. Pilotage
10. Landing

**COMPLETION STANDARDS:** The student should complete this lesson with an increased knowledge and proficiency in planning and flying a VFR day cross-country flight.

**LESSON 6: (2 hrs DUAL) NIGHT CROSS-COUNTRY OPERATIONS  
PRE/POSTFLIGHT BRIEFING (0.2 HOURS)**

**OBJECTIVES:** This lesson requires a cross-country flight of at least 2 hours duration, a total straight-line distance of more than 100 NM from the original point of departure, and occurring in night VFR conditions.

**CONTENT:**

1. Cross-country flight planning
2. Diversion
3. Weight and balance
4. Airspace
5. Towered airport operations
6. Navigational charts and publications
7. Emergency procedures
8. Night operations
9. Pilotage

**COMPLETION STANDARDS:** The student should complete this lesson with an increased knowledge and proficiency in planning and flying a VFR night cross-country flight.

## **LESSON 7: (3.5 hr SOLO) NIGHT OPERATIONS**

**OBJECTIVES:** This lesson provides time for the student to practice night flight and gain experience, proficiency and confidence for night operations.

### **CONTENT:**

1. Takeoffs and landings
2. Practice as directed by the instructor

**COMPLETION STANDARDS:** At the completion of this lesson, the student should have improved confidence and proficiency in night operations. He/she must be able to accomplish smooth and coordinated night landings using different flap configurations.

## **LESSON 8: (5 hr SOLO) (56 hr PIC) CROSS-COUNTRY OPERATIONS**

**OBJECTIVES:** This lesson meets the requirement of a long cross country with landings at a minimum of three points, with on leg at least 250 miles long, as well as the total cross-country time.

### **CONTENT:**

1. Solo Cross-Country:
  - A. Land at a minimum of 3 points
  - B. One leg of at least 250 nm straight-line distance
2. PIC Cross-Countries:
  - A. **Must be conducted in VMC**

**COMPLETION STANDARDS:** This lesson is complete when the student has accomplished the required long solo cross-country as well as 56 hours of additional cross-country time.

## **LESSON 9: (1 hr ORAL) COMMERCIAL MANEUVERS REVIEW**

**OBJECTIVES:** This lesson is intended to be a review of the commercial maneuvers.

### **CONTENT:**

1. Takeoffs, landings and go-arounds
  - A. Normal and crosswind takeoff and climb
  - B. Normal and crosswind approach and landing
  - C. Soft field takeoff and climb
  - D. Soft field approach and landing
  - E. Short field takeoff and climb
  - F. Short field approach and landing
  - G. Go-around
  - H. Power-off 180 degree accuracy approach and landing
2. Performance maneuvers
  - A. Steep turns
  - B. Chandelles
  - C. Lazy eights
3. Eights on pylons
4. Slow flight and stalls
  - A. Slow flight
  - B. Power on stalls
  - C. Power off stalls
5. Post-flight procedures

**COMPLETION STANDARDS:** The student should demonstrate adequate knowledge of the commercial maneuvers in a complex airplane.

**LESSON 10: (1 hr DUAL) COMMERCIAL MANEUVERS REVIEW  
PRE/POSTFLIGHT BRIEFING (0.2 HOURS)**

**OBJECTIVES:** This lesson is intended to be a review of the commercial maneuvers in a complex airplane.

**CONTENT:**

1. Takeoffs, landings and go-arounds
  - A. Normal and crosswind takeoff and climb
  - B. Normal and crosswind approach and landing
  - C. Soft field takeoff and climb
  - D. Soft field approach and landing
  - E. Short field takeoff and climb
  - F. Short field approach and landing
  - G. Go-around
  - H. Power-off 180 degree accuracy approach and landing
2. Performance maneuvers
  - A. Steep turns
  - B. Chandelles
  - C. Lazy eights
3. Eights on pylons
4. Slow flight and stalls
  - A. Slow flight
  - B. Power on stalls
  - C. Power off stalls
5. Post-flight procedures

**COMPLETION STANDARDS:** The student is expected to perform all of the commercial maneuvers within the Commercial Practical Test Standards.

**LESSON 11: (1 hr DUAL) COMMERCIAL MANEUVERS REVIEW  
PRE/POSTFLIGHT BRIEFING (0.2 HOURS)**

**OBJECTIVES:** This lesson is intended to be a review of the commercial maneuvers in a complex airplane.

**CONTENT:**

1. Takeoffs, landings and go-arounds
  - A. Normal and crosswind takeoff and climb
  - B. Normal and crosswind approach and landing
  - C. Soft field takeoff and climb
  - D. Soft field approach and landing
  - E. Short field takeoff and climb
  - F. Short field approach and landing
  - G. Go-around
  - H. Power-off 180 degree accuracy approach and landing
2. Performance maneuvers
  - A. Steep turns
  - B. Chandelles
  - C. Lazy eights
3. Eights on pylons
4. Slow flight and stalls
  - A. Slow flight
  - B. Power on stalls
  - C. Power off stalls
5. Post-flight procedures

**COMPLETION STANDARDS:** The student is expected to perform all of the commercial maneuvers within the Commercial Practical Test Standards.

**LESSON 12: (1 hr DUAL) COMMERCIAL MANEUVERS REVIEW  
PRE/POSTFLIGHT BRIEFING (0.2 HOURS)**

**OBJECTIVES:** This lesson is intended to be a review of the commercial maneuvers in a complex airplane.

**CONTENT:**

1. Takeoffs, landings and go-arounds
  - A. Normal and crosswind takeoff and climb
  - B. Normal and crosswind approach and landing
  - C. Soft field takeoff and climb
  - D. Soft field approach and landing
  - E. Short field takeoff and climb
  - F. Short field approach and landing
  - G. Go-around
  - H. Power-off 180 degree accuracy approach and landing
2. Performance maneuvers
  - A. Steep turns
  - B. Chandelles
  - C. Lazy eights
3. Eights on pylons
4. Slow flight and stalls
  - A. Slow flight
  - B. Power on stalls
  - C. Power off stalls
5. Post-flight procedures

**COMPLETION STANDARDS:** The student is expected to perform all of the commercial maneuvers within the Commercial Practical Test Standards.

## **LESSON 13: (1.0 hr ORAL) COMPLEX AIRPLANE INTRODUCTION**

**OBJECTIVES:** The objective is to instruct the student in the operation of a complex airplane. The complex airplane is defined as an airplane with retractable gear, flaps, a controllable propeller, and powered by at least 180 horsepower. This oral lesson is intended to allow more productive utilization of the airplane time during the flight lesson.

### **CONTENT:**

1. Landing gear operation and safe operating procedures
2. Constant speed propeller fundamentals and operating procedures
3. Higher performance engine operations
4. Aircraft systems
  - A. Hydraulic
  - B. Fuel
  - C. Ventilation
  - D. Fuel injection
5. Weight and balance
6. Aircraft handbook including performance charts
7. Aircraft documents
8. Airplane flight characteristics
  - A. Takeoff
  - B. Cruise
  - C. Landing
  - D. Stalls
  - E. Slow flight
  - F. Glide
9. Com/Nav equipment operation
10. Emergency procedures
  - A. Gear extension
  - B. Runaway propeller
  - C. Forced landing (gear up or down)

**COMPLETION STANDARDS:** The student should be competent to fly the airplane with minimum coaching by the instructor. He/she will be expected to accomplish, on the first training flight, all check list items without instruction.

**LESSON 14: (1.0 hr DUAL) COMPLEX AIRPLANE INTRODUCTION  
PRE/POSTFLIGHT BRIEFING (0.2 HOURS)**

**OBJECTIVES:** The lesson provides the student an opportunity to learn the airplane procedures in a complex airplane. Emphasis will be on accomplishing competent takeoffs and landings as well as coping with emergency situations.

**CONTENT:**

1. Review of airplane checklist
2. Airplane preflight
3. Checklist and cockpit management
4. Taxiing
5. Takeoff
  - A. Short field
  - B. Soft field
  - C. At maximum gross weight
  - D. Flap configurations for takeoff
6. Level off from climb
7. Com/nav equipment operation
8. Transition to climb from level flight
9. Slow flight
10. Stalls
  - A. Power-on
  - B. Power-off
11. Steep turns
12. Transition from level flight to a descent (emphasis of manifold pressure)
13. Practice increasing and decreasing airspeed
14. Emergency gear extension
15. Engine failure with runway as a landing site
16. Normal landings (full flap)
17. Go-arounds

**COMPLETION STANDARDS:** At the completion of this flight, the student should have sufficient knowledge to be able to perform the maneuvers with only minor errors and with minimal instructor assistance.

**LESSON 15: (1.0 hr DUAL) COMPLEX AIRPLANE INTRODUCTION  
PRE/POSTFLIGHT BRIEFING (0.2 HOURS)**

**OBJECTIVES:** The lesson provides the student an opportunity to learn the airplane procedures in a complex airplane. Emphasis will be on accomplishing competent takeoffs and landings as well as coping with emergency situations.

**CONTENT:**

1. Review of airplane checklist
2. Airplane preflight
3. Checklist and cockpit management
4. Taxiing
5. Takeoff
  - A. Short field
  - B. Soft field
  - C. At maximum gross weight
  - D. Flap configurations for takeoff
6. Level off from climb
7. Com/nav equipment operation
8. Transition to climb from level flight
9. Slow flight
10. Stalls
  - A. Power-on
  - B. Power-off
11. Steep turns
12. Transition from level flight to a descent (emphasis of manifold pressure)
13. Practice increasing and decreasing airspeed
14. Emergency gear extension
15. Engine failure with runway as a landing site
16. Normal landings (full flap)
17. Go-arounds

**COMPLETION STANDARDS:** At the completion of this flight, the student should have sufficient knowledge to be able to perform the maneuvers with only minor errors and with minimal instructor assistance.

**LESSON 16: (1.0 hr DUAL) COMPLEX AIRPLANE CHECKOUT  
PRE/POSTFLIGHT BRIEFING (0.2 HOURS)**

**OBJECTIVES:** The lesson provides the student an opportunity to learn the airplane procedures and proficiency to fly the airplane solo. Emphasis will be on accomplishing competent takeoffs and landings as well as coping with emergency situations.

**CONTENT:**

1. Review of airplane checklist
2. Airplane preflight
3. Checklist and cockpit management
4. Taxiing
5. Takeoff
  - A. Short field
  - B. Soft field
  - C. At maximum gross weight
  - D. Flap configurations for takeoff
6. Level off from climb
7. Com/nav equipment operation
8. Transition to climb from level flight
9. Slow flight
10. Stalls
  - A. Power-on
  - B. Power-off
11. Steep turns
12. Transition from level flight to a descent (emphasis of manifold pressure)
13. Practice increasing and decreasing airspeed
14. Emergency gear extension
15. Engine failure with runway as a landing site
16. Normal landings (full flap)
17. Go-arounds

**COMPLETION STANDARDS:** At the completion of this flight, the student should have sufficient knowledge to be able to perform the maneuvers with only minor errors and with minimal instructor assistance.

## **LESSON 17: (1.0 hr ORAL) ADVANCED COMMERCIAL MANEUVERS**

**OBJECTIVES:** The lesson allows the student to increase their proficiency in the advanced commercial maneuvers in a complex airplane.

### **CONTENT:**

1. Takeoff
  - A. Short field
  - B. Soft field
2. Slow flight
3. Stalls
  - A. Power-on
  - B. Power-off
4. Steep turns
5. Landings
  - A. Short field
  - B. Soft field
6. Go-arounds
7. Chandelles
8. Lazy Eights
9. Eights on Pylons
10. Steep Spirals
11. Emergency Procedures

**COMPLETION STANDARDS:** This lesson will be completed when the student has knowledge of performing advanced commercial maneuvers in a complex airplane and can perform the advanced commercial maneuvers safely.

**LESSON 18: (1.0 hr DUAL) ADVANCED COMMERCIAL MANEUVERS  
PRE/POSTFLIGHT BRIEFING (0.2 HOURS)**

**OBJECTIVES:** The lesson allows the student to increase their proficiency in the advanced commercial maneuvers in a complex airplane.

**CONTENT:**

1. Takeoff
  - A. Short field
  - B. Soft field
2. Slow flight
3. Stalls
  - A. Power-on
  - B. Power-off
4. Steep turns
5. Landings
  - A. Short field
  - B. Soft field
6. Go-arounds
7. Chandelles
8. Lazy Eights
9. Eights on Pylons
10. Steep Spirals
11. Emergency Procedures

**COMPLETION STANDARDS:** This lesson will be completed when the student has knowledge of performing advanced commercial maneuvers in a complex airplane and can perform the advanced commercial maneuvers safely.

**LESSON 19: (1.0 hr DUAL) ADVANCED COMMERCIAL MANEUVERS  
PRE/POSTFLIGHT BRIEFING (0.2 HOURS)**

**OBJECTIVES:** The lesson allows the student to increase their proficiency in performing the advanced commercial maneuvers in a complex airplane.

**CONTENT:**

1. Takeoff
  - A. Short field
  - B. Soft field
2. Slow flight
3. Stalls
  - A. Power-on
  - B. Power-off
4. Steep turns
5. Landings
  - A. Short field
  - B. Soft field
6. Go-arounds
7. Chandelles
8. Lazy Eights
9. Eights on Pylons
10. Steep Spirals
11. Emergency Procedures

**COMPLETION STANDARDS:** This lesson will be completed when the student has knowledge of performing advanced commercial maneuvers in a complex airplane and can perform the advanced commercial maneuvers with only minor errors and without instructor assistance.

**LESSON 20: (1.0 hr DUAL) ADVANCED COMMERCIAL MANEUVERS  
PRE/POSTFLIGHT BRIEFING (0.2 HOURS)**

**OBJECTIVES:** The lesson allows the student to increase their proficiency in performing the advanced commercial maneuvers in a complex airplane.

**CONTENT:**

1. Takeoff
  - A. Short field
  - B. Soft field
2. Slow flight
3. Stalls
  - A. Power-on
  - B. Power-off
4. Steep turns
5. Landings
  - A. Short field
  - B. Soft field
6. Go-arounds
7. Chandelles
8. Lazy Eights
9. Eights on Pylons
10. Steep Spirals
11. Emergency Procedures

**COMPLETION STANDARDS:** This lesson will be completed when the student has knowledge of performing advanced commercial maneuvers in a complex airplane and can perform the advanced commercial maneuvers with only minor errors and without instructor assistance.

**LESSON 21: (1.0 hrs DUAL) COMPLEX AIRPLANE REVIEW  
PRE/POSTFLIGHT BRIEFING (0.2 HOURS)**

**OBJECTIVES:** This lesson provides the instructor an opportunity to evaluate the student's progress and make a determination of whether he/she has gained the competency to complete the final stage check. The objective is to evaluate the student's ability to perform the commercial pilot standards as a basis for recommending the student for the stage two check flight.

**CONTENT:**

The instructor will evaluate the student's proficiency in performing the following maneuvers:

1. Soft field takeoff
2. Chandelles
3. Lazy eights
4. Steep spirals about a point
5. Eights on pylons
6. Forced landing (engine failure)
7. 180-degree accuracy landings
8. Soft field landings
9. Soft field landings

**COMPLETION STANDARDS:** The instructor must be confident that the student is competent to complete the final stage check.

**LESSON 22: (1.0 hrs DUAL) COMPLEX AIRPLANE STAGE CHECK REVIEW  
PRE/POSTFLIGHT BRIEFING (0.2 HOURS)**

**OBJECTIVES:** This lesson provides the instructor an opportunity to determine that the student is prepared for the complex airplane stage check.

**CONTENT:**

The instructor will evaluate the student's proficiency in performing the following maneuvers:

1. Soft field takeoff and landing
2. Chandelles
3. Lazy eights
4. Slow flight
5. Stall series
6. Steep spirals
7. Eights on pylons
8. Simulated engine failure
9. Power-off 180-degree accuracy approach and landing
10. Short field takeoff and landing

**COMPLETION STANDARDS:** The instructor must be confident that the student is competent to complete the complex airplane stage check.

## **LESSON 23: (1.0 hr ORAL/1.5 hr DUAL) COMPLEX AIRPLANE STAGE CHECK**

**OBJECTIVES:** To evaluate the student's competency to perform the required commercial maneuvers at the FAA Commercial Pilot Certificate Practical Test Standards.

### **CONTENT:**

1. Review of student records and logs
2. Soft field and short field takeoffs and landings
3. Crosswind takeoffs and landings
4. Chandelles
5. Lazy eights
6. Steep turns
7. Steep spirals
8. Eights on pylons
9. Simulated engine failure
10. Stalls
11. Slow Flight
12. Steep Turns
13. Power-off 180-degree accuracy approach and landing

**COMPLETION STANDARDS:** This lesson is completed when the stage check pilot is satisfied that the student possesses the knowledge, skills, and judgment to complete PRAV 343 and progress to the final phase of training for the Commercial Pilot Certificate.

**LESSON 24: (1.5 HOUR FTD) ATTITUDE INSTRUMENT FLYING REVIEW  
PRE/POSTFLIGHT BRIEFING (0.2 HOURS)**

**OBJECTIVES:** This lesson is designed to review the fundamental skills required for attitude instrument flying.

**CONTENT:**

1. Constant Airspeed Climbs / Descents
2. Constant Rate Climbs / Descents
3. Timed Turns
4. Magnetic Compass Turns
5. Partial Panel
6. Unusual Attitudes

**COMPLETION STANDARDS:** The student should be able to complete all of the contents within the Instrument Practical Test Standards.

**LESSON 25: (1.5 HOUR FTD) INSTRUMENT NAVIGATION REVIEW  
PRE/POSTFLIGHT BRIEFING (0.2 HOURS)**

**OBJECTIVES:** This lesson is designed to review the skills required in navigating under IFR.

**CONTENT:**

1. Intercepting and Tracking VOR Radials
2. Intercepting and Tracking NDB Bearings
3. Using the GPS to Intercept and Track to Fixes
4. Partial Panel
5. Emergency Procedures

**COMPLETION STANDARDS:** The student should be able to complete all of the contents within the Instrument Practical Test Standards.

**LESSON 26: (1.5 HOUR FTD) INSTRUMENT HOLDING REVIEW  
PRE/POSTFLIGHT BRIEFING (0.2 HOURS)**

**OBJECTIVES:** This lesson is designed to review the skills required for holding.

**CONTENT:**

1. VOR Hold
2. NDB Hold
3. GPS Hold
4. Non-Standard Holding
5. Partial Panel
6. Emergency Procedures

**COMPLETION STANDARDS:** The student should be able to complete all of the contents within the Instrument Practical Test Standards.

**LESSON 27: (2.0 HOUR FTD) INSTRUMENT APPROACHES REVIEW  
PRE/POSTFLIGHT BRIEFING (0.2 HOURS)**

**OBJECTIVES:** This lesson is designed to review the skills required for flying instrument approaches.

**CONTENT:**

1. VOR and VOR/DME Approaches
2. NDB Approach
3. VOR/DME with the Arc
4. Partial Panel
5. Emergency Procedures

**COMPLETION STANDARDS:** The student should be able to complete all of the contents within the Instrument Practical Test Standards.

**LESSON 28: (2.0 HOUR FTD) INSTRUMENT APPROACHES REVIEW  
PRE/POSTFLIGHT BRIEFING (0.2 HOURS)**

**OBJECTIVES:** This lesson is designed to review the skills required for flying instrument approaches.

**CONTENT:**

1. ILS Approach
2. GPS Approach
3. Partial Panel
4. Emergency Procedures

**COMPLETION STANDARDS:** The student should be able to complete all of the contents within the Instrument Practical Test Standards.

**LESSON 29: (2.5 HOUR FTD) INSTRUMENT CROSS-COUNTRY REVIEW  
PRE/POSTFLIGHT BRIEFING (0.2 HOURS)**

**OBJECTIVES:** This lesson is designed to review the skills required for flying a cross-country flight under IFR.

**CONTENT:**

1. Cross-Country Procedures
2. Partial Panel
3. Emergency Procedures

**COMPLETION STANDARDS:** The student should be able to complete all of the contents within the Instrument Practical Test Standards

## **LESSON 30: (1 hr ORAL) FINAL COMMERCIAL REVIEW**

**OBJECTIVES:** This lesson provides the opportunity for the instructor to make a final evaluation of the student's competence for completing the commercial flight-training course and is able to pass the final oral and flight stage checks. The student will demonstrate all of the maneuvers that can be expected to be required on the final stage check flight.

### **CONTENT:**

1. Review of student records required for final check flight
2. Preflight preparation
  - A. Certificates and documents
  - B. Weather information
  - C. Cross-country flight planning
  - D. National Airspace System
  - E. Performance and limitations
  - F. Operation of systems
  - G. Minimum Equipment List
  - H. Aeromedical factors
  - I. Physiological aspects of night flying
  - J. Lighting and equipment for night flying
3. Preflight procedures
  - A. Preflight inspection
  - B. Cockpit management
  - C. Engine starting
  - D. Taxiing
  - E. Before takeoff check
4. Airport operations
  - A. Radio communications and ATC light signals
  - B. Traffic patterns
  - C. Airport and runway markings and lighting
5. Takeoffs, landings and go-arounds
  - A. Normal and crosswind takeoff and climb
  - B. Normal and crosswind approach and landing
  - C. Soft field takeoff and climb
  - D. Soft field approach and landing
  - E. Short field takeoff and climb
  - F. Short field approach and landing
  - G. Go-around
6. Performance maneuvers
  - A. Steep turns
  - B. Chandelles
  - C. Lazy eights
  - D. Eights on pylons
7. Navigation
  - A. Pilotage, dead reckoning, and radio
  - B. Diversion

- C. Lost procedures
- 8. Slow flight and stalls
  - A. Slow flight
  - B. Power on stalls
  - C. Power off stalls
  - D. Spin awareness
- 9. Emergency operations
  - A. Emergency descent
  - B. Emergency approach and landing
  - C. Systems and equipment malfunctions
  - D. Emergency equipment and survival gear
- 10. High altitude operations
  - A. Supplemental oxygen
  - B. Pressurization
- 11. Post-flight procedures

**COMPLETION STANDARDS:** The designated flight instructor must be confident that the student has the maturity, skills, judgment, and knowledge required of a commercial pilot. The student's performance will be evaluated by the standards prescribed by the Commercial Pilot Practical Test Standards. This flight will be used as the basis for the instructor pilot recommending the student for the final Commercial Pilot Certificate examination.

**LESSON 31: (1.5 hr DUAL) FINAL COMMERCIAL REVIEW**  
**PRE/POSTFLIGHT BRIEFING (0.2 HOURS)**

**OBJECTIVES:** This lesson provides the opportunity for the instructor to make a final evaluation of the student's competence for completing the commercial flight-training course and is able to pass the final oral and flight stage checks. The student will demonstrate all of the maneuvers that can be expected to be required on the final stage check flight.

**CONTENT:**

1. Review of student records required for final check flight
2. Preflight preparation
  - A. Certificates and documents
  - B. Weather information
  - C. Cross-country flight planning
  - D. National Airspace System
  - E. Performance and limitations
  - F. Operation of systems
  - G. Minimum Equipment List
  - H. Aeromedical factors
  - I. Physiological aspects of night flying
  - J. Lighting and equipment for night flying
3. Preflight procedures
  - A. Preflight inspection
  - B. Cockpit management
  - C. Engine starting
  - D. Taxiing
  - E. Before takeoff check
4. Airport operations
  - A. Radio communications and ATC light signals
  - B. Traffic patterns
  - C. Airport and runway markings and lighting
5. Takeoffs, landings and go-arounds
  - A. Normal and crosswind takeoff and climb
  - B. Normal and crosswind approach and landing
  - C. Soft field takeoff and climb
  - D. Soft field approach and landing
  - E. Short field takeoff and climb
  - F. Short field approach and landing
  - G. Go-around
6. Performance maneuvers
  - A. Steep turns
  - B. Chandelles
  - C. Lazy eights
  - D. Eights on pylons
7. Navigation
  - A. Pilotage, dead reckoning, and radio

- B. Diversion
- C. Lost procedures
- 8. Slow flight and stalls
  - A. Slow flight
  - B. Power on stalls
  - C. Power off stalls
  - D. Spin awareness
- 9. Emergency operations
  - A. Emergency descent
  - B. Emergency approach and landing
  - C. Systems and equipment malfunctions
  - D. Emergency equipment and survival gear
- 10. High altitude operations
  - A. Supplemental oxygen
  - B. Pressurization
- 11. Post-flight procedures

**COMPLETION STANDARDS:** The designated flight instructor must be confident that the student has the maturity, skills, judgment, and knowledge required of a commercial pilot. The student's performance will be evaluated by the standards prescribed by the Commercial Pilot Practical Test Standards. This flight will be used as the basis for the instructor pilot recommending the student for the final Commercial Pilot Certificate examination.

## **LESSON 32: (1.5 ORAL / 1.5 hrs DUAL) FINAL COMMERCIAL STAGE CHECK**

**OBJECTIVES:** This is the final check for the Commercial Pilot Certificate Training Course. A student who successfully completes this stage check will be awarded of the graduation certificate for the commercial pilot training course.

### **CONTENT:**

1. Preflight briefing by examiner
  - A. Required maneuvers for the flight
  - B. Commercial Pilot Test Standards
  - C. Sequence of maneuvers
2. Preflight preparation
  - A. Certificates and documents
  - B. Weather information
  - C. Cross-country flight planning
  - D. National Airspace System
  - E. Performance and limitations
  - F. Operation of systems
  - G. Minimum Equipment List
  - H. Aeromedical factors
  - I. Physiological aspects of night flying
  - J. Lighting and equipment for night flying
3. Preflight procedures
  - A. Preflight inspection
  - B. Cockpit management
  - C. Engine starting
  - D. Taxiing
  - E. Before takeoff check
4. Airport operations
  - A. Radio communications and ATC light signals
  - B. Traffic patterns
  - C. Airport and runway markings and lighting
5. Takeoffs, landings and go-'arounds
  - A. Normal and crosswind takeoff and climb
  - B. Normal and crosswind approach and landing
  - C. Soft field takeoff and climb
  - D. Soft field approach and landing
  - E. Short field takeoff and climb
  - F. Short field approach and landing
  - G. Go-around
6. Performance maneuvers
  - A. Steep turns
  - B. Chandelles
  - C. Lazy eights
  - D. Eights on pylons
7. Navigation

- A. Pilotage, dead reckoning, and radio navigation
- B. Diversion
- C. Lost Procedures
- 8. Slow flight and stalls
  - A. Slow flight
  - B. Power on stalls
  - C. Power off stalls
  - D. Spin awareness
- 9. Emergency operations
  - A. Emergency descent
  - B. Emergency approach and landing
  - C. Systems and equipment malfunctions
  - D. Emergency equipment and survival gear
- 10. High altitude operations
  - A. Supplemental oxygen
  - B. Pressurization
- 11. Post-flight procedures

**COMPLETION STANDARDS:** The stage check instructor must be confident that the student has the maturity, skills, judgment, and knowledge required of a commercial pilot. The student's performance will be evaluated by the standards prescribed by the Commercial Pilot practical test standards. The student successfully completing this examination will be awarded a graduation certificate and will be recommended for the commercial pilot practical test.