



Broward Community College

Course Outline

STATUS: A

COMMON COURSE NUMBER: ATT 2110

COURSE TITLE: Commercial Flight

CREDIT HOURS: 3

CONTACT HOURS BREAKDOWN:

Lecture/Discussion 48

Lab 0

Other 0

Contact Hours/Week 3

CATALOG COURSE DESCRIPTION:

Prerequisite: ASC1100 and ATT1100

Corequisite: None

Provides the aeronautical information needed to satisfactorily complete the FAA commercial pilot knowledge exam. Subject matter aerodynamics, airplane performance and systems, navigation, physiological factors, Federal Aviation Regulations and weather; It is recommended to complete the instrument rating before taking this course. Prerequisites: FAA Private Pilot Certificate, or instructor's permission.

General Education Requirements - Associate of Arts Degree, meets Area(s):

General Education Requirements - Associate in Science Degree, meets Area(s):

UNIT TITLES:

1. Aerodynamics
2. Airplane Performance
3. Weight and Balance
4. Advanced VFR Navigation
5. Flight Physiology
6. Federal Aviation Regulations
7. Weather
8. Airplane Instruments, Engines and Systems
9. Flight Operations

LAST REVIEW Academic Year 2003-2004 NEXT REVIEW Academic Year 2008-2009
Interim Revision Dates:

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I. Course Overview:

Upon successful completion of this course, the students should be able to satisfactorily complete the FAA commercial pilot knowledge.

II. Units:

Unit 1. Aerodynamics

General Outcome:

- 1.0 The students should be able to describe the factors affecting airplane flight characteristics.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 1.1 Discuss the effect of using flaps and high lift devices.
- 1.2 Identify the causes and prevention of stalls and spins.
- 1.3 Discuss the relationship between lift and drag.
- 1.4 Display an understanding of factors affecting airplane stability.
- 1.5 Determine load factors, including forces in a turn.

Unit 2. Airplane Performance

General Outcome:

2.0 The students should be able to predict airplane performance using formulas, charts and graphs.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 2.1 Compute density altitude.
- 2.2 Determine airplane takeoff distance.
- 2.3 Calculate time, fuel and distance to climb under variable conditions.
- 2.4 Determine maximum rate of climb, using appropriate table and interpolating when necessary.
- 2.5 Select appropriate charts in order to determine airplane cruise and range performance.
- 2.6 Identify crosswind and headwind components in various situations and determine airplane's crosswind capability.
- 2.7 Determine airplane landing distance under variable conditions.

Unit 3. Weight and Balance

General Outcome:

3.0 The students should be able to demonstrate the ability to determine the safe loading of airplanes by preflight calculations.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

3.1 Compute weight, moment and center of gravity for various airplanes under different conditions.

3.2 Calculate changes in center of gravity location when weight in airplane is changed or shifted.

Unit 4. Advanced VFF Navigation

General Outcome:

4.0 The students should be able to accurately determine headings, time and fuel required for cross-country flights and use radio navigation equipment.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 4.1 Analyze VFR charts for use in flight.
- 4.2 Calculate time, distance and fuel required for specific flights.
- 4.3 Estimate wind direction and speed in flight using manual flight computer.
- 4.4 Determine time, compass heading, distance and fuel consumed during a climb, enroute and on descent.
- 4.5 Demonstrate how to home to a nondirectional beacon (NDB), how to track to or from the station using an automatic direction finder (ADF) and how to intercept magnetic bearings at specified angles.
- 4.6 Discuss the theory of VOR operation and determine receiver accuracy.
- 4.7 Demonstrate an understanding of radio magnetic indicator (RMI) operation.
- 4.8 Demonstrate how a horizontal situation indicator (HSI) is used in flight.

Unit 5. Flight Physiology

General Outcome:

5.0 The students should be able to discuss the physiological factors associated with flight and the consequences of the detrimental factors. The student also will gain insight into the psychological factors affecting pilot decision making.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 5.1 Describe how decreased atmospheric pressure affects the human body and pilot performance.
- 5.2 Discuss visual requirements and limitations in flight.
- 5.3 Recognize the causes and symptoms of and remedies for hypertension.
- 5.4 Discuss how to avoid and overcome spatial disorientation.
- 5.5 Discuss the effects of drugs and alcohol on pilot performance.
- 5.6 Discuss the relationship between hazardous attitudes, risk taking and accidents.

Unit 6. Aviation Regulations

General Outcome:

6.0 The students should be able to demonstrate an understanding of the Federal Aviation Regulations and National Transportation Safety Board rules that relate to commercial pilot operations.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 6.1 Explain pertinent definitions and abbreviations in FAR Part 2.
- 6.2 Discuss Part 43 maintenance regulations of which commercial pilots must be cognizant.
- 6.3 Discuss the certification of pilots and flight instructors as set forth in part 61.
- 6.4 List equipment, instrument and certificate requirements outlined in part 91.
- 6.5 Discuss the operating rules of Part 91.
- 6.6 Discuss the privileges, limitations and operations of a commercial pilot.
- 6.7 Describe the operations for which an air taxi/commercial operator, agricultural aircraft operator and external operator certificate, waiver or exemption is required.
- 6.8 List pertinent National Transportation Safety Board part 830 rules.

Unit 7. Weather

General Outcome:

7.0 The students should be able to analyze all available weather information and apply the understanding to critical go/no-go flight decisions.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

7.1 Interpret aviation weather reports and forecasts.

7.2 Demonstrate an understanding of high altitude conditions.

7.3 Demonstrate an awareness of weather hazards and how to avoid them.

7.4 Demonstrate an ability to make pilot reports and use in-flight weather services.

Unit 8. Airplane Instruments, Engines and Systems

General Outcome:

8.0 The students should be able to demonstrate an understanding of the principles and operation of airplane instruments, engines and systems.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 8.1 Identify errors inherent in the magnetic compass and discuss their effect on navigation.
- 8.2 Explain airspeed indicator markings and the significance of airspeed limitations.
- 8.3 Discuss the parameters of the V-G diagram.
- 8.4 Compare and contrast operations of the turn coordinator and the turn and slip indicator.
- 8.5 Compare and contrast operation of carbureted engines with fuel-injected engines.
- 8.6 Discuss the control of fuel/air mixture and its effects on engine performance and condition.
- 8.7 Describe the function and operation of constant-speed propellers.
- 8.8 Discuss the operation, use and limitation of advanced systems such as turbochargers, retractable landing gears, oxygen and ice control systems.

Unit 9. Flight Operations

General Outcome:

9.0 The students should be able to describe safe and precise airplane operations required of commercial pilots.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

9.1 Describe proper techniques for taxiing, takeoff and landing in crosswind conditions.

9.2 Discuss procedures to avoid collisions with other aircraft and the hazards of wake turbulence.

9.3 Describe procedures to safely handle in-flight emergencies.

9.4 Describe procedures for maximum performance takeoffs and landings.

9.5 Discuss the proper execution of advanced commercial pilot maneuvers.