



# BROWARD COMMUNITY COLLEGE COURSE OUTLINE

**LAST REVIEW:** 2008-09  
*2007-2008*

**NEXT REVIEW:** 2013-14  
*2012-2013*

**STATUS:** A  
*A*

**COURSE TITLE:** Flight Instructor Training

**COMMON COURSE NUMBER:** ATF 2500

**CREDIT HOURS:**

**CONTACT HOUR BREAKDOWN**

*(per 16 week term)*

**CLOCK HOURS:**  
*(Voc. Course ONLY)*

Lecture:

Lab:

Clinic:

Other:

**PREREQUISITE(S):** Commercial pilot certificate with Instrument Rating.

**COREQUISITE(S):** None

**PRE/COREQUISITE(S):**

## **COURSE DESCRIPTION :**

This course provides the flight and ground instruction to train a commercial pilot to be a flight instructor. Course consists of the number of dual and solo flying hours and oral instruction required in each case to qualify the individual for an FAA flight instructor certificate. In order to receive credit for this course, the student must have earned a FAA flight instructor certificate. Training fees are paid directly to the college in advance. Student must have commercial pilot certificate with instrument rating.

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

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

General Education Requirements – Associate in Applied Science Degree (AAS), meets Area(s): Area

## **UNIT TITLES**

### **FUNDAMENTALS OF INSTRUCTION**

1. The Learning Process
2. The Teaching Process
3. Teaching Methods
4. Evaluation
5. Flight Instructor Characteristics and Responsibilities
6. Human Factors
7. Planning Instructional Activity



# BROWARD COMMUNITY COLLEGE

## COURSE OUTLINE

Common Course Number: ATF 2500

### **TECHNICAL SUBJECT AREAS**

8. Aero medical Factors
9. Visual Scanning and Collision Avoidance
10. Principles of Flight
11. Elevators, Ailerons, and Rudder
12. Trim Devices
13. Wing Flaps
14. Airplane Weight and Balance
15. Navigation and Flight Planning
16. Night Flight Operations
17. Federal Aviation Regulations
18. Publications
19. Logbook Entries and Student Pilot Certificate Endorsements

### **PREFLIGHT PREPARATION**

20. Certificates and Documents
21. Obtaining Weather Information
22. Operation of Systems
23. Determining Performance and Limitations

### **PREFLIGHT LESSON ON A MANEUVER TO BE PERFORMED IN FLIGHT**

24. Maneuver Lesson

### **GROUND AND WATER OPERATIONS**

25. Visual Inspection
26. Cockpit Management
27. Engine Starting
28. Taxiing--Landplane
29. Pre-Takeoff Check

### **AIRPORT AND TRAFFIC PATTERN OPERATIONS**

30. Radio Communications and ATC Light Signals
31. Traffic Pattern Operations
32. Airport and Runway Marking and Lighting



Common Course Number: ATF 2500

**TAKEOFFS AND CLIMBS**

33. Normal and Crosswind Takeoffs and Climbs
34. Maximum Performance Takeoff and Climb (Landplane)
35. Soft-Field Takeoff and Climb

**FUNDAMENTALS OF FLIGHT**

36. Straight-and-Level Flight
37. Level Turns
38. Straight Climbs and Climbing Turns
39. Straight Descents and Descending Turns

**FLIGHT AT CRITICALLY SLOW AIRSPEEDS**

40. Full Stalls, Power On and Power Off
41. Imminent Stalls, Power On and Power Off
42. Spins
43. Maneuvering at Critically Slow Airspeed

**FLIGHT BY REFERENCE TO INSTRUMENTS**

44. Straight-and-Level Flight
45. Straight, Constant Airspeed Climbs
46. Straight, Constant Airspeed Descents
47. Turns to Headings
48. Critical Flight Attitudes
49. Radio Aids and Radar Services

**MAXIMUM PERFORMANCE MANEUVERS**

50. Steep Power Turn
51. Chandelle
52. Lazy Eight
53. Steep Spiral



Common Course Number: ATF 2500

**FLIGHT BY REFERENCE TO GROUND OBJECTS**

- 54. Rectangular Course
- 55. S-Turns across a Road
- 56. Turns around a Point
- 57. Eights around Pylons
- 58. Eights on Pylons

**EMERGENCY OPERATIONS**

- 59. Emergency Approach and Landing (Simulated)
- 60. Systems and Equipment Malfunctions
- 61. Emergency Equipment and Survival Gear

**APPROACHES AND LANDINGS**

- 62. Normal and Crosswind Approaches and Landings
- 63. Forward Slip to a Landing
- 64. Go-Around
- 65. Maximum Performance Approach and Landing (Landplane)
- 66. Soft-Field Approach and Landing

**AFTER LANDING PROCEDURES**

- 67. Post-Flight Procedures



# BROWARD COMMUNITY COLLEGE

## COURSE OUTLINE

### **EVALUATION:**

Student will be assessed through demonstration of the FAA Practical Test Standards for Flight Instructor (Airplane) earning student a flight instructor certificate. Student must earn the certificate in order to complete the course and receive a grade.



Common Course Number: ATF 2500

## **UNITS**

### **Unit 1: The Learning Process**

#### **General Outcome:**

**1.0 The student shall:** Be able to qualify for the FAA Flight Instructors Certificate under FAR Part 141.

The students should exhibit instructional knowledge of the elements of the learning process

#### **Specific Measurable Learning Outcomes:**

- 1.1** The definition of learning.
- 1.2** Characteristics of learning.
- 1.3** The practical application of the laws of learning.
- 1.4** Factors involved in how people learn.
- 1.5** Recognition and proper use of the various levels of learning.
- 1.6** Principles that are applied in learning a skill.
- 1.7** Factors related to forgetting and retention.
- 1.8** How transfer of learning affects the learning process.
- 1.9** How the formation of habit patterns affects the learning process.



**Common Course Number: ATF 2500**

**Unit 2: The Teaching Process**

**General Outcome:**

- 2.0 The student shall:** Exhibit instructional knowledge of the elements of the teaching process.

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 2.1** Preparation for a lesson or an instructional period.
- 2.2** Presentation of knowledge and skills, including the methods which are suitable in particular situations.
- 2.3** Application, by the student, of the knowledge and skills presented by the instructor.
- 2.4** Review of the material presented and the evaluation of student performances and accomplishment.



**Common Course Number: ATF 2500**

**Unit 3: Teaching Methods**

**General Outcome:**

**3.0 The student shall:** The students should exhibit instructional knowledge of the elements of teaching methods.

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 3.1** The organization of a lesson--introduction, development, and conclusion.
- 3.2** The lecture method.
- 3.3** The guided discussion method.
- 3.4** The demonstration-performance method.
- 3.5** Programmed instruction.
- 3.6** Audio-visual instruction.



**Common Course Number: ATF 2500**

**Unit 4: Evaluation**

**General Outcome:**

**4.0 The student shall:** Exhibit instructional knowledge of the elements of evaluation.

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 4.1** The purpose of evaluation.
- 4.2** The characteristics of effective oral questions.
- 4.3** Types of oral questions to avoid.
- 4.4** Responses to student questions.
- 4.5** Characteristics and development of effective written tests.
- 4.6** Characteristics and uses of performance tests, specifically, the FAA practical test standards.



**Common Course Number: ATF 2500**

**Unit 5: Flight Instructor Characteristics and Responsibilities**

**General Outcome:**

- 5.0 The student shall:** The students should exhibit instructional knowledge of the elements of flight instructor characteristics and responsibilities.

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 5.1** Major considerations and qualifications, which must be included in flight instructor professionalism.
- 5.2** Role of the flight instructor as a practical psychologist, including the understanding of anxiety, stress, and psychological abnormalities.
- 5.3** Flight instructor's responsibility with regard to student pilot supervision and surveillance.
- 5.4** Flight instructor's authority and responsibility for endorsements and recommendations.
- 5.5** Flight instructor's responsibility in the conduct of the biennial flight review.



**Common Course Number: ATF 2500**

**Unit 6: Human Factors**

**General Outcome:**

**6.0 The student shall:** Exhibit instructional knowledge of the elements related to human factors.

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 6.1** Control of human behavior.
- 6.2** Development of student potential.
- 6.3** Relationship of human needs to behavior and learning.
- 6.4** Relationship of defense mechanisms to student learning.
- 6.5** Relationship of defense mechanisms to pilot decision making.
- 6.6** General rules which a flight instructor should follow during student training to ensure good human relations.



**Common Course Number: ATF 2500**

**Unit 7: Planning Instructional Activity**

**General Outcome:**

- 7.0 The student shall:** Exhibit instructional knowledge of the elements related to the planning of instructional activity.

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 7.1** Development of a course of training.
- 7.2** Content and use of a training syllabus.
- 7.3** Purpose, characteristics, proper use, and items of a lesson plan.
- 7.4** Flexibility features of a course of training, syllabus, and lesson plan required to accommodate students with varying backgrounds, levels of experience, and ability.



**Common Course Number: ATF 2500**

**Unit 8: Aero medical Factors**

**General Outcome:**

- 8.0 The student shall:** Exhibit instructional knowledge of the elements related to aero medical factors.

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 8.1** How to obtain an appropriate medical certificate.
- 8.2** How to obtain a medical certificate in the event of a possible medical deficiency.
- 8.3** Hypoxia, its symptoms, effects, and corrective action.
- 8.4** Hyperventilation, its symptoms, effects, and corrective action.
- 8.5** Middle ear and sinus problems, their causes, effects, and corrective action.
- 8.6** Spatial disorientation, its causes, effects, and corrective action.
- 8.7** Motion sickness, its causes, effects, and corrective action.
- 8.8** The effects of alcohol and drugs, and their relationship to safety.
- 8.9** Carbon monoxide poisoning, its symptoms, effects, and corrective action.
- 8.10** The effect of nitrogen excesses during scuba dives and how this affects a pilot during flight.



**Common Course Number: ATF 2500**

**Unit 9: Visual Scanning and Collision Avoidance**

**General Outcome:**

**9.0 The student shall:** Exhibit instructional knowledge of the elements of scanning and collision avoidance

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 9.1** Relationship between a pilot's physical or mental condition and vision.
- 9.2** Various environmental conditions that degrade vision.
- 9.3** Various optical illusions.
- 9.4** "See and avoid" concept.
- 9.5** Practice of "time sharing" of attention inside and outside the cockpit.
- 9.6** Proper visual scanning technique.
- 9.7** Relationship between poor visual scanning habits and increased collision risk.
- 9.8** Proper clearing procedures.
- 9.9** Importance of knowing aircraft blind spots.
- 9.10** Relationship between aircraft speed differential and collision risk.
- 9.11** Situations which involve the greatest collision risk.



**Common Course Number: ATF 2500**

**Unit 10: Principles of Flight**

**General Outcome:**

**10.0 The student shall:** Exhibit instructional knowledge of the elements of principles of flight.

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 10.1** Airplane and airfoil design characteristics.
- 10.2** The forces acting on an airplane in various flight maneuvers.
- 10.3** Airplane stability and controllability.
- 10.4** Torque effect and correction.
- 10.5** Load factors and  $V_G$  diagram.
- 10.6** Wingtip vortices and precautions to be taken.
- 10.7** Stall and spin awareness



**Common Course Number: ATF 2500**

**Unit 11: Elevators, Ailerons, and Rudder**

**General Outcome:**

**11.0 The student shall:** Exhibit instructional knowledge of the elements related to the elevators, ailerons, and rudder.

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 11.1** Purpose of each primary control.
- 11.2** Location, attachments, and system of control.
- 11.3** Direction of movement relative to airflow.
- 11.4** Effect on airplane control.
- 11.5** Proper technique for use.



**Common Course Number: ATF 2500**

**Unit 12: Trim Devices**

**General Outcome:**

**12.0 The student shall:** Exhibit instructional knowledge of the elements related to trim devices

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 12.1** Purpose.
- 12.2** Location, attachments, and system of control.
- 12.3** Direction of movement relative to airflow and the primary control surface.
- 12.4** Effect on airplane control.
- 12.5** Proper technique for use.



**Common Course Number: ATF 2500**

**Unit 13: Wing Flaps**

**General Outcome:**

**13.0 The student shall:** Exhibit instructional knowledge of the elements related to wing flaps.

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 13.1** Purpose.
- 13.2** Various types.
- 13.3** Location, attachments, and system of control.
- 13.4** Effect on airplane control.
- 13.5** Proper technique for use.



**Common Course Number: ATF 2500**

**Unit 14: Airplane Weight and Balance**

**General Outcome:**

**14.0 The student shall:** Exhibit instructional knowledge of the elements of airplane weight and balance

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 14.1** Weight and balance terms.
- 14.2** The effect of weight and balance on performance.
- 14.3** Methods of weight and balance control.
- 14.4** The determination of total weight and center of gravity and the changes that occur when adding, removing, or shifting weight.



**Common Course Number: ATF 2500**

**Unit 15:**

**General Outcome:**

- 14.0 The student shall:** Exhibit instructional knowledge of the elements of navigation and flight planning.

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 15.1** Terms used in navigation.
- 15.2** Features of aeronautical charts.
- 15.3** Importance of using the proper and current aeronautical charts.
- 15.4** Identification of various types of airspace.
- 15.5** Method of plotting a course, the selection of fuel stops and alternates, and appropriate actions in the event of unforeseen situations.
- 15.6** Fundamentals of pilotage and dead reckoning.
- 15.7** Fundamentals of radio navigation.
- 15.8** Diversion to an alternate.
- 15.9** Lost procedures.
- 15.10** Computation of fuel consumption.
- 15.11** Importance of preparing and properly using a flight log.
- 15.12** Importance of a weather check and the use of good judgment in making a "go/no-go" decision.
- 15.13** Purpose of, and procedure used in, filing a flight plan.



**Common Course Number: ATF 2500**

**Unit 16: Night Flight Operations**

**General Outcome:**

- 16.0 The student shall:** Exhibit instructional knowledge of the elements of night flight operations.

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 16.1** Factors related to night vision.
- 16.2** Disorientation and night optical illusions.
- 16.3** The importance of assuring that the airplane's windshield and windows are clean.
- 16.4** The proper adjustment of interior lights.
- 16.5** The importance of having a flashlight with a red lens.
- 16.6** The night preflight inspection.
- 16.7** Engine starting procedures, including the use of position and anti-collision lights prior to start.
- 16.8** Taxiing and orientation on an airport.
- 16.9** Takeoff and climb-out.
- 16.10** In-flight orientation.
- 16.11** The importance of verifying the airplane's attitude by reference to flight instruments.
- 16.12** Recovery from critical flight attitudes.
- 16.13** Emergencies such as electrical failure, engine malfunction, and emergency landings.
- 16.14** Traffic patterns.
- 16.15** Approaches and landings, with and without landing lights.
- 16.16** Go-around.



**Common Course Number: ATF 2500**

**Unit 17: Federal Aviation Regulations**

**General Outcome:**

**17.0 The student shall:**

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

**17.1** Availability and method of revision.

**17.2** FAR Part 61, including:

A. purpose.

B. general content.

**17.3** FAR Part 91, including:

A. purpose.

B. general content.

**17.4** NTSB Part 830, including:

A. purpose.

B. general content.



**Common Course Number: ATF 2500**

**Unit 18: Publications**

**General Outcome:**

**18.0 The student shall:**

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

**18.1** Availability.

**18.2** Purpose.

**18.3** General content.



**Common Course Number: ATF 2500**

**Unit 19: Logbook Entries and Student Pilot Certificate Endorsements**

**General Outcome:**

- 19.0 The student shall:** Exhibit instructional knowledge of the elements related to logbook entries and certificate endorsements.

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 19.1** Required logbook entries for instruction given.
- 19.2** Required student pilot certificate endorsements, including the appropriate logbook entries.
- 19.3** Preparation of a recommendation for a pilot practical test, including the appropriate logbook entry.
- 19.4** Required endorsement of a pilot logbook for the satisfactory completion of a biennial flight review.
- 19.5** Required flight instructor records.



**Common Course Number: ATF 2500**

**Unit 20: Certificates and Documents**

**General Outcome:**

- 20.0 The student shall:** Exhibit instructional knowledge of the elements related to certificates and documents

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 20.1** Requirements for the issuance of pilot and flight instructor certificates and ratings, and the privileges and limitations of those certificates and ratings.
- 20.2** Class and duration of medical certificates.
- 20.3** Airworthiness and registration certificates.
- 20.4** Airplane handbooks and manuals.
- 20.5** Airplane maintenance requirements and records .



**Common Course Number: ATF 2500**

**Unit 21: Obtaining Weather Information**

**General Outcome:**

- 21.0 The student shall:** Exhibit instructional knowledge of the elements related to obtaining weather information

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 21.1** Importance of a thorough weather check.
- 21.2** Various means of obtaining weather information.
- 21.3** Use of weather reports, forecasts, and charts.
- 21.4** Use of PIREPs, SIGMETs, AIRMETs, and Notices to Airmen.
- 21.5** Recognition of aviation weather hazards.
- 21.6** Factors to be considered in making a "go/no-go" decision.



**Common Course Number: ATF 2500**

**Unit 22: Operation of Systems**

**General Outcome:**

- 22.0 The student shall:** Exhibit instructional knowledge of the elements related to the operation of systems, as applicable to the airplane used for the practical test.

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 22.1** Landing gear.
- 22.2** Wing flaps, leading edge devices, and spoilers.
- 22.3** Power plant, including controls, indicators, cooling, and fire detection.
- 22.4** Propellers, including controls and indicators.
- 22.5** Fuel, oil, and hydraulic systems.
- 22.6** Electrical system.
- 22.7** Environmental system.
- 22.8** De-icing and anti-icing systems.
- 22.9** Any system unique to the airplane flown.



**Common Course Number: ATF 2500**

**Unit 23: Determining Performance and Limitations**

**General Outcome:**

- 23.0 The student shall:** Exhibit instructional knowledge of the elements related to determining performance and limitations.

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 23.1** Use of performance charts, tables, and other data in determining performance in various phases of flight.
- 23.2** Effects of exceeding limitations.
- 23.3** Effects of atmospheric conditions on performance.
- 23.4** Factors to be considered in determining that the required performance is within the airplane's capabilities.



**Common Course Number: ATF 2500**

**Unit 24: Maneuver Lesson**

**General Outcome:**

- 24.0 The student shall:** Exhibit instructional knowledge of the selected maneuver .

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 24.1** State the purpose.
- 24.2** Give an accurate, comprehensive oral description, including the elements and common errors.
- 24.3** Use instructional aids, as appropriate.
- 24.4** Describe the recognition, analysis, and correction of common errors.



**Common Course Number: ATF 2500**

**Unit 25: Visual Inspection**

**General Outcome:**

- 25.0 The student shall:** Exhibit instructional knowledge of the elements of a visual inspection, as applicable to the airplane used, exhibit instructional knowledge of common errors related to a visual inspection, and demonstrate and simultaneously explain a visual inspection from an instructional standpoint.

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 25.1** Exhibit instructional knowledge of the elements of a visual inspection, as applicable to the airplane used by describing:
- A. Reasons for the visual inspection, items that should be inspected, and how defects are detected.
  - B. Importance of following the appropriate checklist.
  - C. How to determine fuel and oil quantity.
  - D. Fuel contamination.
  - E. Detection of fuel, oil, and hydraulic leaks.
  - F. Inspection of the oxygen system, including supply and proper operation.
  - G. Inspection of the flight controls and water rudder.
  - H. Detection of visible structural damage.
  - I. Removal of tie-downs, control locks, and wheel chocks.
  - J. Removal of ice and frost.
  - K. Importance of the proper loading and securing of baggage, cargo, and equipment.
  - L. Use of sound judgment in determining whether the airplane is in condition for safe flight.



# BROWARD COMMUNITY COLLEGE

## COURSE OUTLINE

**Common Course Number: ATF 2500**

- 25.2** Exhibit instructional knowledge of common errors related to a visual inspection by describing:
- A. Failure to use or the improper use of the checklist.
  - B. Hazards which may result from allowing distractions to interrupt a visual inspection.
  - C. Inability to recognize discrepancies.
  - D. Failure to assure servicing with the proper fuel and oil.
- 25.3** Demonstrate and simultaneously explain a visual inspection from an instructional standpoint.



**Common Course Number: ATF 2500**

**Unit 26: Cockpit Management**

**General Outcome:**

- 26.0 The student shall:** Exhibit instructional knowledge of the elements of cockpit management, exhibit instructional knowledge of common errors related to a cockpit management, and demonstrate and simultaneously explain cockpit management from an instructional standpoint.

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 26.1** Exhibit instructional knowledge of the elements of cockpit management by describing the:
- A. Proper arranging and securing of essential materials and equipment in the cockpit.
  - B. Proper use of materials and equipment.
  - C. Proper and orderly maintenance of records that reflect the progress of the flight.
  - D. Proper use and/or adjustment of such cockpit items as safety belts, shoulder harnesses, rudder pedals, and seats.
- 26.2** Exhibit instructional knowledge of common errors related to cockpit management by describing:
- A. Failure to place and secure essential materials and equipment for easy access during flight.
  - B. Failure to maintain accurate records essential to the progress of the flight.
  - C. Improper adjustment of equipment and controls.
- 26.3** Demonstrate and simultaneously explain cockpit management from an instructional standpoint.



**Common Course Number: ATF 2500**

**Unit 27: Engine Starting**

**General Outcome:**

**27.0 The student shall:** Exhibit instructional knowledge of the elements of engine starting, as appropriate to the airplane used for the practical test, exhibit instructional knowledge of common errors related to engine starting, and demonstrate and simultaneously explain engine starting from an instructional standpoint.

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 27.1** Exhibit instructional knowledge of the elements of engine starting, as appropriate to the airplane used for the practical test, by describing:
- A. Safety precautions related to engine starting.
  - B. The use of external power.
  - C. The effect of atmospheric conditions on engine starting.
  - D. The importance of following the appropriate checklist.
  - E. The adjustment of engine controls during engine start.
  - F. The prevention of airplane movement during and after the engine start.
- 27.2** Exhibit instructional knowledge of common errors related to engine starting by describing:
- A. Failure to use or the improper use of the checklist.
  - B. Excessively high RPM after starting.
  - C. Improper preheat of the engine during severe cold weather conditions.
  - D. Failure to assure proper clearance of the propeller.
- 27.3** Demonstrate and simultaneously explain engine starting from an instructional standpoint.



**Common Course Number: ATF 2500**

**Unit 28: Taxiing--Landplane**

**General Outcome:**

**28.0 The student shall:** Exhibit instructional knowledge of the elements of landplane taxiing, exhibit instructional knowledge of common errors related to landplane taxiing, demonstrate and simultaneously explain taxiing from an instructional standpoint, and analyze and correct common errors related to landplane taxiing.

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 28.1** Exhibit instructional knowledge of the elements of landplane taxiing by describing:
- A. Proper brake check and correct use of brakes.
  - B. The compliance with airport surface marking, signals, and clearances.
  - C. How to control direction and speed.
  - D. Control positioning for various wind conditions.
  - E. techniques used to avoid other aircraft and hazards.
  - F. The application of right-of-way rules.
- 28.2** Exhibit instructional knowledge of common errors related to landplane taxiing by describing:
- A. Improper use of brakes.
  - B. Improper positioning of the flight controls for various wind conditions.
  - C. The hazards of taxiing too fast.
  - D. Failure to comply with markings, signals, or clearances.
  - E. Improper positioning for run-up.
- 28.3** Demonstrate and simultaneously explain landplane taxiing from an instructional standpoint.
- 28.4** Analyze and correct common errors related to landplane taxiing.



**Common Course Number: ATF 2500**

**Unit 29: Pre-Takeoff Check**

**General Outcome:**

- 29.0** The students shall: Exhibit instructional knowledge of the elements of the pre-take-off check, exhibit instructional knowledge of common errors related to the pre-take-off check, demonstrate and simultaneously explain a pre-take-off check from an instructional standpoint, and analyze and correct common errors related to a pre-take-off check.

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 29.1** Exhibit instructional knowledge of the elements of the pre-takeoff check by describing:
- A. Airplane positioning to avoid creating hazards.
  - B. Division of attention inside and outside the cockpit.
  - C. The importance of following the checklist and responding to each checklist item.
  - D. The reasons for ensuring proper engine temperatures and pressures for run-up and takeoff.
  - E. The method used to determine that the airplane is in a safe operating condition.
  - F. The importance of reviewing takeoff performance airspeeds, expected takeoff distances, and emergency procedures.
  - G. The method used for assuring that the takeoff area or path is free of hazards.
  - H. The method used for assuring adequate clearance from other traffic.
- 29.2** Exhibit instructional knowledge of common errors related to the pre-takeoff check by describing:
- A. Failure to use or the improper use of the checklist.
  - B. Improper positioning of the airplane.
  - C. Acceptance of marginal engine performance.
  - D. An improper check of flight controls.



## BROWARD COMMUNITY COLLEGE COURSE OUTLINE

E. The hazards of failure to review takeoff and emergency procedures.

F. Failure to check for hazards and other traffic.

**29.3** Demonstrate and simultaneously explain a pre-takeoff check from an instructional standpoint.

**29.4** Analyze and correct common errors related to a pre-takeoff check.



**Common Course Number: ATF 2500**

**AIRPORT AND TRAFFIC PATTERN OPERATIONS**

**Unit 30: Radio Communications and ATC Light Signals**

**General Outcome:**

**30.0 The students shall:** Exhibit instructional knowledge of the elements of radio communications and ATC light signals, and exhibit instructional knowledge of common errors related to radio communications and ATC light signals .

**Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 30.1** Exhibit instructional knowledge of the elements of radio communications and ATC light signals by describing the:
- A. Selection and use of appropriate radiofrequencies.
  - B. Recommended procedure and phraseology for radio voice communications.
  - C. Receipt, acknowledgement of, and compliance with, ATC clearances and other instructions.
  - D. Prescribed procedure for radio communications failure.
  - E. Interpretation of, and compliance with, ATC light signals.
- 30.2** Exhibit instructional knowledge of common errors related to radio communications and ATC light signals by describing:
- A. The use of improper frequencies.
  - B. Improper techniques and phraseologies when transmitting radio voice communications.
  - C. Failure to acknowledge, or properly comply with, ATC clearances and other instructions.
  - D. The use of improper procedures for radio communications failure.
  - E. Failure to understand, or to properly comply with ATC light signals.



**Common Course Number: ATF 2500**

**Unit 31: Traffic Pattern Operations**

**General Outcome:**

**31.0** The students shall: Exhibit instructional knowledge of the elements of traffic pattern operations, exhibit instructional knowledge of common errors related to traffic pattern operations, demonstrate and simultaneously explain traffic pattern operations from an instructional standpoint, and analyze and correct common errors related to traffic pattern operations.

**Specific Learning Outcomes:**

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

**31.1** Exhibit instructional knowledge of the elements of traffic pattern operations by describing:

- A. Operations at controlled and uncontrolled airports and seaplane bases.
- B. Adherence to traffic pattern procedures, instructions, and rules.
- C. How to maintain the desired ground track.
- D. How to maintain proper spacing from other traffic.
- E. Orientation with the runway or landing area in use.
- F. How to establish a final approach at an appropriate distance from the approach end of the runway or landing area.
- G. The use of the checklist.

**31.2** Exhibit instructional knowledge of common errors related to traffic pattern operations by describing:

- A. Failure to comply with traffic pattern instructions, procedures, and rules.
- B. Improper correction for wind drift.
- C. Inadequate spacing from other traffic.
- D. Poor altitude or airspeed control.



# BROWARD COMMUNITY COLLEGE COURSE OUTLINE

**Common Course Number: ATF 2500**

- 31.3** Demonstrate and simultaneously explain traffic pattern operations from an instructional standpoint.
- 31.4** Analyze and correct common errors related to traffic pattern operations.



**Common Course Number: ATF 2500**

**Unit 32: Airport and Runway Marking and Lighting**

**General Outcome:**

**32.0** The students shall: Exhibit instructional knowledge of the elements of airport and runway marking and lighting.

**Specific Learning Outcomes:**

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

- 32.1** Identification and proper interpretation of airport, runway, and taxiway markings.
- 32.2** Identification and proper interpretation of airport, runway, and taxiway lighting.



**Common Course Number: ATF 2500**

**TAKEOFFS AND CLIMBS**

**Unit 33: Normal and Crosswind Takeoffs and Climbs**

**General Outcome:**

**33.0 The students shall:** Exhibit instructional knowledge of the elements of normal and crosswind takeoffs and climbs, exhibit instructional knowledge of common errors related to normal and crosswind takeoffs and climbs, demonstrate and simultaneously explain a normal or a crosswind takeoff and climb from an instructional standpoint, and analyze and correct common errors related to a normal or a crosswind takeoff and climb.

**Specific Learning Outcomes:**

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

- 33.1** Exhibit instructional knowledge of the elements of normal and crosswind takeoffs and climbs by describing:
- A. How to determine or estimate wind speed and direction.
  - B. How to determine takeoff and climb performance.
  - C. Use of wing flaps.
  - D. Alignment with takeoff path.
  - E. Initial positioning of flight controls.
  - F. Power application.
  - G. Directional control during acceleration on the surface.
  - H. Control technique in crosswind, during acceleration on the surface.
  - I. Lift-off attitude and airspeed.
  - J. Climb attitude, power setting, and airspeed.



# BROWARD COMMUNITY COLLEGE

## COURSE OUTLINE

**Common Course Number: ATF 2500**

- K. Crosswind correction and track during climb.
  - L. Use of the checklist.
  - M. The difference between a normal and a glassy-water takeoff (seaplane).
- 3.2** Exhibit instructional knowledge of common errors related to normal and crosswind takeoffs and climbs by describing:
- A. Improper use of takeoff and climb performance data.
  - B. Improper initial positioning of flight controls or wing flaps.
  - C. Improper power application.
  - D. Inappropriate removal of the hand from the throttle.
  - E. Poor directional control.
  - F. Improper use of aileron.
  - G. Improper pitch attitude during lift-off.
  - H. Failure to establish and maintain proper climb configuration and airspeed.
  - I. drift during climb.
- 3.3** Demonstrate and simultaneously explain a normal or a crosswind takeoff and climb from an instructional standpoint.
- 3.4** Analyze and correct common errors related to a normal or a crosswind takeoff and climb.



**Common Course Number: ATF 2500**

**Unit 34: Maximum Performance Takeoff and Climb (Landplane)**

**General Outcome:**

**34.0 The students shall:** Exhibit instructional knowledge of a maximum performance takeoff and climb, exhibit instructional knowledge of common errors related to maximum performance takeoffs and climbs, demonstrate and simultaneously explain a maximum performance takeoff and climb from an instructional standpoint, and analyze and correct common errors related to maximum performance takeoffs and climbs .

**Specific Learning Outcomes:**

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

- 34.1 Exhibit instructional knowledge of the elements of a maximum performance takeoff and climb by describing:
- A. How to determine or estimate wind speed and direction.
  - B. How to determine expected maximum performance.
  - C. Takeoff and climb hazards, particularly those related to obstacles.
  - D. Use of wing flaps.
  - E. How to position and align the airplane for maximum utilization of available takeoff area.
  - F. Initial positioning of flight controls.
  - G. Power application.
  - H. Directional control during acceleration on the surface.
  - I. Lift-off attitude and airspeed.
  - J. Initial climb attitude and airspeed until obstacle is cleared (or 50 feet above the surface).
  - K. Track during climb.
  - L. Use of the checklist.



**Common Course Number: ATF 2500**

- 34.2** Exhibit instructional knowledge of common errors related to maximum performance takeoffs and climbs by describing:
- A. Improper use of takeoff and climb performance data.
  - B. Failure to position the airplane for maximum utilization of the available takeoff area.
  - C. Improper initial positioning of flight controls or wing flaps.
  - D. Improper power application.
  - E. Inappropriate removal of the hand from the throttle.
  - F. Poor directional control.
  - G. Improper use of brakes.
  - H. Improper pitch attitude during lift-off.
  - I. Failure to establish and maintain proper climb configuration and airspeed.
  - J. Drift during climb.
- 34.3** Demonstrate and simultaneously explain a maximum performance takeoff and climb from an instructional standpoint.
- 34.4** Analyze and correct common errors related to maximum performance takeoffs and climbs.



**Common Course Number: ATF 2500**

**Unit 35: Soft-Field Takeoff and Climb**

**General Outcome:**

**35.0 The students shall:** exhibit instructional knowledge of a soft-field takeoff and climb, exhibit instructional knowledge of common errors related to soft-field takeoffs and climbs, demonstrate and simultaneously explain a soft-field takeoff and climb from an instructional standpoint, and analyze and correct common errors related to soft-field takeoffs and climbs.

**Specific Learning Outcomes:**

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

- 35.1** Exhibit instructional knowledge of the elements of a soft-field takeoff and climb by describing:
- A. Factors related to the transfer of airplane weight from the landing gear to the wings as rapidly as possible.
  - B. Effect of wind and takeoff surface.
  - C. Use of wing flaps.
  - D. How to align the airplane with the takeoff path without stopping.
  - E. Initial positioning of the flight controls.
  - F. Power application.
  - G. Directional control during acceleration on the surface.
  - H. Lift-off attitude and airspeed.
  - I. Acceleration in ground effect to climb airspeed.
  - J. Climb attitude, power setting, and airspeed.
  - K. Track during climb.
  - L. Use of the checklist.



# BROWARD COMMUNITY COLLEGE

## COURSE OUTLINE

**Common Course Number: ATF 2500**

- 35.2** Exhibit instructional knowledge of common errors related to soft-field takeoffs and climbs by describing:
- A. Improper initial positioning of the flight controls or wing flaps.
  - B. The hazards of allowing the airplane to stop on the takeoff surface prior to initiating takeoff.
  - C. Improper power application.
  - D. Inappropriate removal of the hand from the throttle.
  - E. Poor directional control.
  - F. Improper use of brakes.
  - G. Improper pitch attitude during lift-off.
  - H. The hazards of settling back to takeoff surface after becoming airborne.
  - I. Failure to establish and maintain proper climb configuration and airspeed.
  - J. Drift during climb.
- 35.3** Demonstrate and simultaneously explain a soft-field takeoff and climb from an instructional standpoint.
- 35.4** Analyze and correct common errors related to soft-field takeoffs and climbs.



**Common Course Number: ATF 2500**

**FUNDAMENTALS OF FLIGHT**

**Unit 36: Straight-and-Level Flight**

**General Outcome:**

**36.0 The students shall:** Exhibit instructional knowledge of the elements of straight and-level flight, exhibit instructional knowledge of common errors related to straight-and-level flight, demonstrate and simultaneously explain straight-and-level flight from an instructional standpoint, and analyze and correct common errors related to straight-and-level flight.

**Specific Learning Outcomes:**

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

- 36.1** Exhibit instructional knowledge of the elements of straight-and-level flight by describing:
- A. The effect and use of flight controls.
  - B. The Integrated Flight Instruction method.
  - C. The outside and instrument references used for pitch, bank, and power control; the cross-check and interpretation of those references; and the control technique used.
  - D. Trim technique.
  - E. Methods that can be used to overcome tenseness and over-controlling.
- 36.2** Exhibit instructional knowledge of common errors related to straight-and-level flight by describing:
- A. Failure to cross-check and correctly interpret outside and instrument references.
  - B. The application of control movements rather than pressures.
  - C. Poor coordination of flight controls.
  - D. Improper use of trim.
- 36.3** Demonstrate and simultaneously explain straight-and-level flight from an instructional standpoint.



**36.4** Analyze and correct common errors related to straight-and-level flight.

**Common Course Number: ATF 2500**

**Unit 37: Level Turns**

**General Outcome:**

**37.0 The students shall:** Exhibit instructional knowledge of the elements of level turns, exhibit instructional knowledge of common errors related to level turns, demonstrate and simultaneously explain level turns from an instructional standpoint, and analyze and correct common errors related to level turns.

**Specific Learning Outcomes:**

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

**37.1** Exhibit instructional knowledge of the elements of level turns by describing:

- A. The effect and use of flight controls.
- B. The Integrated Flight Instruction method.
- C. The outside and instrument references used for pitch, bank, and power control; the cross-check and interpretation of those references; and the control technique used.
- D. Trim technique.
- E. Methods that can be used to overcome tenseness and over-controlling.

**37.2** Exhibit instructional knowledge of common errors related to level turns by describing:

- A. Failure to cross-check and correctly interpret outside and instrument references.
- B. The application of control movements rather than pressures.
- C. Poor coordination of flight controls.
- D. Faulty altitude and bank control.

**37.3** Demonstrate and simultaneously explain level turns from an instructional standpoint.

**37.4** Analyze and correct common errors related to level turns.



**Common Course Number: ATF 2500**

### **Unit 38: Straight Climbs and Climbing Turns**

#### **General Outcome:**

- 38.0 The students shall:** Exhibit instructional knowledge of the elements of straight climbs and climbing turns, exhibit instructional knowledge of common errors related to straight climbs and climbing turns, demonstrate and simultaneously explain straight climbs and climbing turns from an instructional standpoint, and analyze and correct common errors related to straight climbs and climbing turns.

#### **Specific Learning Outcomes:**

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

- 38.1** Exhibit instructional knowledge of the elements of straight climbs and climbing turns by describing:
- A. The effect and use of flight controls.
  - B. The Integrated Flight Instruction method.
  - C. The outside and instrument references used for pitch, bank, and power control; the cross-check and interpretation of those references; and the control technique used.
  - D. Trim technique.
  - E. Methods that can be used to overcome tenseness and over-controlling.
- 38.2** Exhibit instructional knowledge of common errors related to straight climbs and climbing turns by describing:
- A. Failure to cross-check and correctly interpret outside and instrument references.
  - B. The application of control movements rather than pressures.
  - C. Poor correction for torque effect.
  - D. Improper use of trim.



# BROWARD COMMUNITY COLLEGE COURSE OUTLINE

Common Course Number: ATF 2500

- 8.3 Demonstrate and simultaneously explain straight climbs and climbing turns from an instructional standpoint.
- 8.4 Analyze and correct common errors related to straight climbs and climbing turns.



**Unit 39: Straight Descents and Descending Turns**

**General Outcome:**

**39.0 The students shall:** Exhibit instructional knowledge of the elements of straight descents and descending turns, exhibit instructional knowledge of common errors related to straight descents and descending turns, demonstrate and simultaneously explain straight descents and descending turns from an instructional standpoint, and analyze and correct common errors related to straight descents and descending turns .

**Specific Learning Outcomes:**

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

- 39.1** Exhibit instructional knowledge of the elements of straight descents and descending turns by describing:
- A. The effect and use of flight controls.
  - B. The purposes and advantages of the Integrated Flight Instruction method.
  - C. The outside and instrument references used for pitch, bank, and power control; the cross-check and interpretation of those references; and the control technique used.
  - D. Trim technique.
  - E. Methods that can be used to overcome tenseness and over-controlling.
- 39.2** Exhibit instructional knowledge of common errors related to straight descents and descending turns by describing:
- A. Failure to cross-check and correctly interpret outside and instrument references.
  - B. The application of control movements rather than pressures.
  - C. Poor coordination of flight controls.
  - D. Improper use of trim.
  - E. Failure to clear engine and use carburetor heat, as appropriate.
- 39.3** Demonstrate and simultaneously explain straight descents and descending turns from an instructional standpoint.
- 39.4** Analyze and correct common errors related to straight descents and descending turns.



**Common Course Number: ATF 2500**

**FLIGHT AT CRITICALLY SLOW AIRSPEEDS**

**Unit 40: Full Stalls, Power On and Power Off**

**General Outcome:**

- 40.0 The students shall:** Exhibit instructional knowledge of the elements of full stalls, power on and power off; exhibit instructional knowledge of common errors related to full stalls, power on and power off; demonstrate and simultaneously explain full stalls, power on and power off, from an instructional standpoint; and analyze and correct common errors related to full stalls, power on and power off.

**Specific Learning Outcomes:**

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

- 40.1** Exhibit instructional knowledge of full stalls, power on and power off, by describing:
- A. The aerodynamics of stalls.
  - B. How to recognize full stalls.
  - C. The relationship of landing gear and flap configuration, weight, center of gravity, load factor, and bank angle to stall speed.
  - D. Flight situations where unintentional full stalls may occur.
  - E. The performance of intentional full stalls--straight and turning, in various landing gear and flap configurations.
  - F. The entry technique and minimum entry altitude for intentional full stalls.
  - G. Coordination of flight controls.
  - H. Recovery technique and minimum recovery altitude for full stalls.



# BROWARD COMMUNITY COLLEGE

## COURSE OUTLINE

**Common Course Number: ATF 2500**

- 40.2** Exhibit instructional knowledge of common errors related to full stalls, power on and power off, by describing:
- A. failure to establish proper configuration prior to entry.
  - B. Improper pitch, heading, or bank control during straight ahead stalls.
  - C. Improper pitch or bank control during turning stalls.
  - D. Rough or uncoordinated control technique.
  - E. Failure to achieve a full stall.
  - F. Poor stall recognition and delayed recovery.
  - G. Poor correction for torque effect in full stalls, power on.
  - H. Excessive altitude loss or excessive speed during recovery.
  - I. Secondary stall during recovery
- 40.3** Demonstrate and simultaneously explain full stalls, power on and power off, from an instructional standpoint.
- 40.4** Analyze and correct common errors related to full stalls, power on and power off



**Common Course Number: ATF 2500**

**Unit 41: Imminent Stalls, Power On and Power Off**

**General Outcome:**

- 41.0 The students shall:** Exhibit instructional knowledge of the elements of imminent stalls, power on and power off; exhibit instructional knowledge of common errors related to imminent stalls, power on and power off; demonstrate and simultaneously explain imminent stalls from an instructional standpoint; and analyze and correct common errors related to imminent stalls, power on and power off.

**Specific Learning Outcomes:**

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

- 41.1** Exhibit instructional knowledge of the elements of imminent stalls, power on and power off, by describing:
- A. The aerodynamics of stalls.
  - B. The recognition of imminent stalls.
  - C. The relationship of landing gear and flap configuration, weight, center of gravity, load factor, and bank angle to stall speed.
  - D. Flight situations where unintentional imminent stalls may occur.
  - E. The performance of intentional imminent stalls--straight and turning, in various landing gear and flap configurations.
  - F. The entry technique and minimum entry altitude for intentional imminent stalls.
  - G. Coordination of flight controls.
  - H. Recovery technique and minimum recovery altitude for imminent stalls.
- 41.2** Exhibit instructional knowledge of common errors related to imminent stalls, power on and power off, by describing:
- A. Failure to establish proper configuration prior to entry.



# BROWARD COMMUNITY COLLEGE

## COURSE OUTLINE

**Common Course Number: ATF 2500**

- B. Improper pitch, heading, or bank control during straight ahead stalls.
  - C. Improper pitch or bank control during turning stalls.
  - D. Rough or uncoordinated control technique.
  - E. Poor imminent stall recognition and delayed recovery, resulting in full stall.
  - F. Improper correction for torque effect in imminent stalls, power on.
  - G. Excessive altitude loss or excessive speed during recovery.
- 41.3 Demonstrate and simultaneously explain imminent stalls from an instructional standpoint.
- 41.4 Analyze and correct common errors related to imminent stalls, power on and power off.



**Common Course Number: ATF 2500**

**Unit 42: Spins**

**General Outcome:**

**42.0 The students shall:** Exhibit instructional knowledge of the elements of spins, exhibit instructional knowledge of common errors related to spins, demonstrate and simultaneously explain a spin from an instructional standpoint, and analyze and correct common errors related to spins.

**Specific Learning Outcomes:**

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

- 42.1** Exhibit instructional knowledge of the elements of spins by describing:
- A. The aerodynamics of spins.
  - B. The relationship of various factors such as configuration, weight, center of gravity, and control coordination to spins.
  - C. Flight situations where unintentional spins may occur.
  - D. How to recognize, and recover from, imminent, unintentional spins.
  - E. Entry technique and minimum entry altitude for intentional spins.
  - F. Control technique to maintain a stabilized spin.
  - G. Orientation during a spin.
  - H. The recovery technique and minimum recovery altitude for intentional spins.
  - I. Anxiety factors associated with spin instruction.
- 42.2** Exhibit instructional knowledge of common errors related to spins by describing:
- A. Failure to establish proper configuration prior to spin entry.
  - B. Failure to achieve and maintain a full stall during spin entry.
  - C. Failure to close throttle when a spin entry is achieved.
  - D. Failure to recognize the indications of an imminent, unintentional spin.



# BROWARD COMMUNITY COLLEGE

## COURSE OUTLINE

**Common Course Number: ATF 2500**

- E. Improper use of flight controls during spin entry, rotation, or recovery.
  - F. Disorientation during a spin.
  - G. Failure to distinguish between a high-speed spiral and a spin.
  - H. Excessive speed or accelerated stall during recovery.
  - I. Failure to recover with minimum loss of altitude.
  - J. Hazards of attempting to spin an airplane not approved for spins.
- 42.3** Demonstrate and simultaneously explain a spin from an instructional standpoint.
- 42.4** Analyze and correct common errors related to spins.



**Common Course Number: ATF 2500**

**Unit 43: Maneuvering at Critically Slow Airspeed**

**General Outcome:**

- 43.0 The students shall:** Exhibit instructional knowledge of the elements of maneuvering at critically slow airspeed, exhibit instructional knowledge of common errors related to maneuvering at critically slow airspeed, demonstrate and simultaneously explain maneuvering at critically slow airspeed from an instructional standpoint, and analyze and correct common errors related to maneuvering at critically slow airspeed.

**Specific Learning Outcomes:**

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

- 43.1** Exhibit instructional knowledge of the elements of maneuvering at critically slow airspeed by describing:
- A. The relationship of configuration, weight, center of gravity, maneuvering loads, angle of bank, and power to controllability.
  - B. The relationship of the maneuver to critical flight situations such as go-arounds.
  - C. The performance of the maneuver in various landing gear and flap configurations during straight-and-level flight, turns, climbs, and descents.
  - D. Coordination of flight controls.
  - E. Trim technique.
  - F. The reestablishment of cruising flight.
- 43.2** Exhibit instructional knowledge of common errors related to maneuvering at critically slow airspeed by describing:
- A. Failure to establish specified configuration.
  - B. Improper entry technique.
  - C. Failure to establish and maintain critically slow airspeed.
  - D. Excessive variations of altitude and heading when a constant altitude and heading are specified.



# BROWARD COMMUNITY COLLEGE

## COURSE OUTLINE

**Common Course Number: ATF 2500**

- E. Rough or uncoordinated control technique.
  - F. Improper correction for torque effect.
  - G. Improper trim technique.
  - H. Unintentional stalls.
  - I. Inappropriate removal of the hand from the throttle.
- 43.3** Demonstrate and simultaneously explain maneuvering at critically slow airspeed from an instructional standpoint.
- 43.4** Analyze and correct common errors related to maneuvering at critically slow airspeed.



**FLIGHT BY REFERENCE TO INSTRUMENTS**

**Unit 44: Straight-and-Level Flight**

**General Outcome:**

- 44.0 The students shall:** Exhibit instructional knowledge of the elements of straight-and-level flight, solely by reference to instruments; exhibit instructional knowledge of common errors related to straight-and-level flight, solely by reference to instruments; demonstrate and simultaneously explain straight-and-level flight, solely by reference to instruments, from an instructional standpoint; and analyze and correct common errors related to straight-and-level flight, solely by reference to instruments.

**Specific Learning Outcomes:**

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

- 44.1** Exhibit instructional knowledge of the elements of straight-and-level flight, solely by reference to instruments, by describing:
- A. Instrument cross-check, instrument interpretation, and aircraft control.
  - B. The instruments used for pitch, bank, and power control, and how those instruments are used to maintain altitude, heading, and airspeed.
  - C. Trim technique.
- 44.2** Exhibit instructional knowledge of common errors related to straight-and-level flight, solely by reference to instruments, by describing:
- A. "Fixation," "omission," and "emphasis" errors during instrument cross-check.
  - B. Improper instrument interpretation.
  - C. Improper control applications.
  - D. Failure to establish proper pitch, bank, or power adjustments during altitude, heading, or airspeed corrections.
  - E. Improper trim technique.
- 44.3** Demonstrate and simultaneously explain straight-and-level flight, solely by reference to instruments, from an instructional standpoint.
- 44.4** Analyze and correct common errors, related to straight-and-level flight, solely by reference to instruments.



**Unit 45: Straight, Constant Airspeed Climbs**

**General Outcome:**

**45.0 The students shall:** Exhibit instructional knowledge of the elements of straight, constant airspeed climbs, solely by reference to instruments; exhibit instructional knowledge of common errors related to straight, constant airspeed climbs, solely by reference to instruments; demonstrate and simultaneously explain a straight, constant airspeed climb, solely by reference to instruments, from an instructional standpoint; and analyze and correct common errors related to straight, constant airspeed climbs, solely by reference to instruments.

**Specific Learning Outcomes:**

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

- 45.1** Exhibit instructional knowledge of the elements of straight, constant airspeed climbs, solely by reference to instruments, by describing:
- A. Instrument cross-check, instrument interpretation, and aircraft control.
  - B. The instruments used for pitch, bank, and power control during entry, during the climb, and during level-off, and how those instruments are used to maintain climb heading and airspeed.
  - C. Trim technique.
- 45.2** Exhibit instructional knowledge of common errors related to straight, constant airspeed climbs, solely by reference to instruments, by describing:
- A. "Fixation," "omission," and "emphasis" errors during instrument cross-check.
  - B. Improper instrument interpretation.
  - C. Improper control applications.
  - D. Failure to establish proper pitch bank, or power adjustments during heading and airspeed corrections.
  - E. Improper entry or level-off technique.
  - F. Improper trim technique.
- 45.3** Demonstrate and simultaneously explain a straight, constant airspeed climb, solely by reference to instruments, from an instructional standpoint.
- 45.4** Analyze and correct common errors related to straight, constant airspeed climbs, solely by reference to instruments.



**Unit 46: Straight, Constant Airspeed Descents**

**General Outcome:**

- 46.0 The students shall:** Exhibit instructional knowledge of the elements of straight, constant airspeed descents, solely by reference to instruments; exhibit instructional knowledge of common error related to straight, constant airspeed descents, solely by reference to instruments; demonstrate and simultaneously explain a straight, constant airspeed descent, solely by reference to instruments, from an instructional standpoint; and analyze and correct common errors related to straight, constant airspeed descents, solely by reference to instruments.

**Specific Learning Outcomes:**

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

- 46.1** Exhibit instructional knowledge of the elements of straight, constant airspeed descents, solely by reference to instruments, by describing:
- A. Instrument cross-check, instrument interpretation, and aircraft control.
  - B. The instruments used for pitch, bank, and power control during entry, during the descent,
  - C. Trim technique.
- 46.2** Exhibit instructional knowledge of common errors related to straight, constant airspeed descents, solely by reference to instruments, by describing:
- A. "Fixation," "omission," and "emphasis" errors during instrument cross-check.
  - B. Improper instrument interpretation.
  - C. Improper control applications.
  - D. Failure to establish proper pitch bank, or power adjustments during heading and airspeed corrections.
  - E. Improper entry or level-off technique.
  - F. Improper trim technique.
- 46.3** Demonstrate and simultaneously explain a straight, constant airspeed descent, solely by reference to instruments, from an instructional standpoint.
- 46.4** Analyze and correct common errors related to straight, constant airspeed descents, solely by reference to instruments.



**Unit 47: Turns to Headings**

**General Outcome:**

- 47.0 The students shall:** Exhibit instructional knowledge of the elements of turns to headings, solely by reference to instruments; exhibit instructional knowledge of common errors related to turns to headings, solely by reference to instruments; demonstrate and simultaneously explain a turn to a heading, solely by reference to instruments, from an instructional standpoint; and analyze and correct common errors related to turns to headings, solely by reference to instruments.

**Specific Learning Outcomes:**

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

- 47.1** Exhibit instructional knowledge of the elements of turns to headings, solely by reference to instruments, by describing:
- A. Instrument cross-check, instrument interpretation, and aircraft control.
  - B. The instruments used for pitch, bank, and power control during turn entry, during the turn, and during the turn roll-out, and how those instruments are used.
  - C. Trim technique.
- 47.2** Exhibit instructional knowledge of common errors related to turns to headings, solely by reference to instruments, by describing:
- A. "Fixation," "omission," and "emphasis" errors during instrument cross-check.
  - B. Improper instrument interpretation.
  - C. Improper control applications.
  - D. Failure to establish proper pitch bank, and power adjustments during altitude, bank, and airspeed corrections.
  - E. Improper entry or roll-out technique.
  - F. Improper trim technique.
- 47.3** Demonstrate and simultaneously explain a turn to a heading, solely by reference to instruments, from an instructional standpoint.
- 47.4** Analyze and correct common errors related to turns to headings, solely by reference to instruments.



**Common Course Number: ATF 2500**

**Unit 48: Critical Flight Attitudes**

**General Outcome:**

- 48.0 The students shall:** Exhibit instructional knowledge of the elements of critical flight attitudes, exhibit instructional knowledge of common errors related to critical flight attitudes, demonstrate and simultaneously explain a nose-high and a nose-low critical flight attitude from an instructional standpoint, and analyze and correct common errors related to critical flight attitudes.

**Specific Learning Outcomes:**

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

- 48.1** Exhibit instructional knowledge of the elements of critical flight attitudes by describing:
- A. Conditions and situations that may result in critical flight attitudes.
  - B. The two basic critical flight attitudes--nose-high (climbing turn) and nose-low (diving spiral).
  - C. How critical flight attitudes are recognized.
  - D. The control sequence for recovery from a nose-high attitude and the reasons for that sequence.
  - E. The control sequence for recovery from a nose-low attitude and the reasons for that sequence.
  - F. The reasons why the controls should be coordinated during critical flight attitude recoveries.
- 48.2** Exhibit instructional knowledge of common errors related to critical flight attitudes by describing:
- A. The failure to recognize a critical flight attitude.
  - B. The consequences of attempting to recover from a critical flight attitude by "feel" rather than by instrument indications.
  - C. Inappropriate control applications during recovery.



# BROWARD COMMUNITY COLLEGE

## COURSE OUTLINE

**Common Course Number: ATF 2500**

- D. The failure to recognize from instrument indications when the airplane is passing through a level flight attitude.
  
- 48.3** Demonstrate and simultaneously explain a nose-high and a nose-low critical flight attitude from an instructional standpoint.
  
- 48.4** Analyze and correct common errors related to critical flight attitudes.



**Common Course Number: ATF 2500**

**Unit 49: Radio Aids and Radar Services**

**General Outcome:**

**49.0 The students shall:** Exhibit instructional knowledge of the elements related to the emergency use of radio aids and radar services, exhibit instructional knowledge of common errors related to the emergency use of radio aids and radar services, demonstrate and simultaneously explain the use of a radio aid or radar services from an instructional standpoint, and analyze and correct common errors related to the emergency use of radio aids and radar services.

**Specific Learning Outcomes:**

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

- 49.1** Exhibit instructional knowledge of the elements related to the emergency use of radio aids and radar services by describing:
- A. Situations that would require the use of radio aids or radar assistance.
  - B. Available radio aids and radar services.
  - C. How to determine minimum safe altitude.
  - D. Procedures to be followed when using a radio aid or radar services.
- 49.2** Exhibit instructional knowledge of common errors related to the emergency use of radio aids and radar service, by describing:
- A. The hazards of delay in using a radio aid or in obtaining radar services.
  - B. Failure to properly control the airplane.
  - C. Failure to properly select, tune, or identify a radio facility.
  - D. Failure to maintain minimum safe altitude.
- 49.3** Demonstrate and simultaneously explain the emergency use of a radio aid or radar services from an instructional standpoint.
- 49.4** Analyze and correct common errors related to the emergency use of radio aids and radar services.



**Common Course Number: ATF 2500**

**Unit 50: Steep Power Turn**

**General Outcome:**

**50.0 The students shall:** exhibit instructional knowledge of the elements of a steep power turn, exhibit instructional knowledge of common errors related to steep power turns, demonstrate and simultaneously explain a steep power turn from an instructional standpoint, and analyze and correct common errors related to steep power turns.

**Specific Learning Outcomes:**

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

- 50.1** Exhibit instructional knowledge of the elements of a steep power turn by describing:
- A. The relationship of bank angle, load factor, and stalling speed.
  - B. Over-banking tendency.
  - C. Torque effect in right and left turns.
  - D. The selection of a suitable altitude.
  - E. Orientation, division of attention, and planning.
  - F. Appropriate power setting and airspeed prior to entry.
  - G. Entry and roll-out technique.
  - H. Coordination of flight controls.
  - I. Differential wing drag.
  - J. Altitude, bank, and power control during the turn.
- 50.2** Exhibit instructional knowledge of common errors related to steep power turns by describing:
- A. Improper pitch, bank, and power coordination during roll-in and roll-out.
  - B. Uncoordinated use of flight controls.



# BROWARD COMMUNITY COLLEGE

## COURSE OUTLINE

**Common Course Number: ATF 2500**

- C. Inappropriate control applications.
  - D. Improper technique in correcting altitude deviations.
  - E. Loss of orientation.
  - F. Excessive deviation from desired heading during roll-out.
- 50.3** Demonstrate and simultaneously explain a steep power turn from an instructional standpoint.
- 50.4** Analyze and correct common errors related to steep power turns.



**Common Course Number: ATF 2500**

**Unit 51: Chandelle**

**General Outcome:**

- 51.0 The students shall:** exhibit instructional knowledge of the elements of a chandelle, exhibit instructional knowledge of common errors related to chandelles, demonstrate and simultaneously explain a chandelle from an instructional standpoint, and analyze and correct common errors related to chandelles.

**Specific Learning Outcomes:**

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

- 51.1** Exhibit instructional knowledge of the elements a chandelle by describing:
- A. The selection of a suitable entry altitude.
  - B. Entry airspeed and power setting.
  - C. Entry technique, including power application.
  - D. Division of attention and planning.
  - E. Coordination of flight controls.
  - F. Pitch-and-bank attitudes at various points during the maneuver.
  - G. The proper correction for torque effect in right and left turns.
  - H. The achievement of maximum performance.
  - I. Completion technique.
- 51.2** Exhibit instructional knowledge of common errors related to chandelles by describing:
- A. Improper pitch, bank, and power coordination during entry or completion.
  - B. Uncoordinated use of flight controls.
  - C. Improper planning and timing of pitch-and-bank attitude changes.
  - D. Factors related to failure in achieving maximum performance.



# BROWARD COMMUNITY COLLEGE COURSE OUTLINE

Common Course Number: ATF 2500

- E. A stall during the maneuver.
- F. Excessive deviation from desired heading during completion.

**51.3** Demonstrate and simultaneously explain a chandelle from an instructional standpoint.

**51.4** Analyze and correct common errors related to chandelles.



**Common Course Number: ATF 2500**

**Unit 52: Lazy Eight**

**General Outcome:**

**52.0 The students shall:** Exhibit instructional knowledge of the elements of a lazy eight, exhibit instructional knowledge of common errors related to lazy eights, demonstrate and simultaneously explain a lazy eight from an instructional standpoint, and analyze and correct common errors related to lazy eights.

**Specific Learning Outcomes:**

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

- 52.1** Exhibit instructional knowledge of the elements of a lazy eight by describing:
- A. The selection of a suitable entry altitude.
  - B. The selection of suitable reference points.
  - C. Entry airspeed and power setting.
  - D. Entry technique.
  - E. Orientation, division of attention, and planning.
  - F. Coordination of flight controls.
  - G. Pitch-and-bank attitudes at key points during the maneuver.
  - H. Consistent airspeed and altitude control at key points during the maneuver.
  - I. The proper correction for torque effect in right and left turns.
  - J. Loop symmetry.
  - K. The importance of constant rate pitch-and-bank attitude changes throughout the maneuver.



**Common Course Number: ATF 2500**

**52.2** Exhibit instructional knowledge of common errors related to lazy eights by describing:

- A. the poor selection of reference points.
- B. Uncoordinated use of flight controls.
- C. Unsymmetrical loops resulting from poorly planned pitch-and-bank attitude changes.
- D. Inconsistent airspeed and altitude at key points.
- E. Loss of orientation.
- F. Excessive deviation from the reference points.

**52.3** Demonstrate and simultaneously explain a lazy eight from an instructional standpoint.

**52.4** Analyze and correct common errors related to lazy eights.



**Common Course Number: ATF 2500**

**Unit 54: Rectangular Course**

**General Outcome:**

**54.0 The students shall:** Exhibit instructional knowledge of the elements of a steep spiral, exhibit instructional knowledge of common errors related to steep spirals, demonstrate and simultaneously explain a steep spiral from an instructional standpoint, and analyze and correct common errors related to steep spirals.

**Specific Learning Outcomes:**

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

- 54.1** Exhibit instructional knowledge of the elements of a rectangular course by describing:
- A. How to select a suitable altitude.
  - B. How to select a suitable ground reference with consideration given to emergency landing areas.
  - C. Orientation, division of attention, and planning.
  - D. Configuration and airspeed prior to entry.
  - E. The relationship of a rectangular course to an airport traffic pattern.
  - F. Wind drift correction.
  - G. How to maintain desired altitude, airspeed, and distance from the ground reference boundaries.
  - H. Timing of turn entries and roll-outs.
  - I. coordination of flight controls.
- 54.2** Exhibit instructional knowledge of common errors related to a rectangular course by describing:
- A. poor planning, orientation, or division of attention.
  - B. uncoordinated flight control application.



## BROWARD COMMUNITY COLLEGE COURSE OUTLINE

- C. Improper correction for wind drift.
  - D. Failure to maintain selected altitude or airspeed.
  - E. Selection of a ground reference where there is no suitable emergency landing area within gliding distance.
- 54.3** Demonstrate and simultaneously explain a rectangular course from an instructional standpoint.
- 54.4** Analyze and correct common errors related to a rectangular course.



**Common Course Number: ATF 2500**

**Unit 55: S-Turns Across a Road**

**General Outcome:**

**55.0 The students shall:** Exhibit instructional knowledge of the elements of S-turns across a road, exhibit instructional knowledge of common errors related to S-turns across a road, demonstrate and simultaneously explain S-turns across a road from an instructional standpoint, and analyze and correct common errors related to S-turns across a road.

**Specific Learning Outcomes:**

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

- 55.1 Exhibit instructional knowledge of the elements of S-turns across a road by describing:
- A. How to select a suitable altitude.
  - B. How to select a suitable ground reference line with consideration given to emergency landing areas.
  - C. Orientation, division of attention, and planning.
  - D. Configuration and airspeed prior to entry.
  - E. Entry technique.
  - F. Wind drift correction.
  - G. The tracking of semi-circles of equal radii on either side of the selected ground reference line.
  - H. How to maintain the desired altitude and airspeed.
  - I. Turn reversal over the ground reference line.
  - J. Coordination of flight controls.
- 55.2 Exhibit instructional knowledge of common errors related to S-turns across a road by describing:
- A. Faulty entry technique.
  - B. Poor planning, orientation, or division of attention.



# BROWARD COMMUNITY COLLEGE

## COURSE OUTLINE

**Common Course Number: ATF 2500**

- C. Uncoordinated flight control application.
  - D. Improper correction for wind drift.
  - E. An unsymmetrical ground track.
  - F. Failure to maintain selected altitude or airspeed.
  - G. Selection of a ground reference line where there is no suitable emergency landing area within gliding distance.
- 55.3** Demonstrate and simultaneously explain S-turns across a road from an instructional standpoint.
- 55.4** Analyze and correct common errors related to S-turns across a road.



**Common Course Number: ATF 2500**

**Unit 56: Turns Around a Point**

**General Outcome:**

**56.0 The students shall:** Exhibit instructional knowledge of the elements of turns around a point, exhibit instructional knowledge of common errors related to turns around a point, demonstrate and simultaneously explain turns around a point from an instructional standpoint, and analyze and correct common errors related to turns around a point.

**Specific Learning Outcomes:**

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

- 56.1** Exhibit instructional knowledge of the elements of turns around a point by describing:
- A. How to select a suitable altitude.
  - B. How to select a suitable ground reference point with consideration given to emergency landing areas.
  - C. Orientation, division of attention, and planning.
  - D. Configuration and airspeed prior to entry.
  - E. Entry technique.
  - F. Wind drift correction.
  - G. How to maintain desired altitude, airspeed, and distance from the reference point.
  - H. Coordination of flight controls.
- 56.2** Exhibit instructional knowledge of common errors related to turns around a point by describing:
- A. Faulty entry technique.
  - B. Poor planning, orientation, or division of attention.
  - C. Uncoordinated flight control application.
  - D. Improper correction for wind drift.



# BROWARD COMMUNITY COLLEGE COURSE OUTLINE

**Common Course Number: ATF 2500**

- E. Failure to maintain selected altitude or airspeed.
- F. Selection of a ground reference point where there is no suitable emergency landing area within gliding distance.

**56.3** Demonstrate and simultaneously explain turns around a point from an instructional standpoint.

**56.4** Analyze and correct common errors related to turns around a point.



**Common Course Number: ATF 2500**

**Unit 57: Eights Around Pylons**

**General Outcome:**

**57.0 The students shall:** Exhibit instructional knowledge of the elements of eights around pylons, exhibit instructional knowledge of common errors related to eights around pylons, demonstrate and simultaneously explain eights around pylons from an instructional standpoint, and analyze and correct common errors related to eights around pylons.

**Specific Learning Outcomes:**

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

- 57.1** Exhibit instructional knowledge of the elements of eights around pylons by describing:
- A. How to select a suitable altitude.
  - B. How to select suitable pylons with consideration given to suitable emergency landing areas.
  - C. Orientation, division of attention, and planning.
  - D. Configuration and airspeed prior to entry.
  - E. Entry technique.
  - F. Wind drift correction.
  - G. How to maintain desired altitude, airspeed, and distance from the pylons.
  - H. Timing of turn entries and roll-outs.
- 57.2** Exhibit instructional knowledge of common errors related to eights around pylons by describing:
- A. Faulty entry technique.
  - B. Poor planning, orientation, or division of attention.
  - C. Uncoordinated flight control application.
  - D. Improper correction for wind drift.



# BROWARD COMMUNITY COLLEGE

## COURSE OUTLINE

**Common Course Number: ATF 2500**

- E. An unsymmetrical ground track.
  - F. Failure to maintain selected altitude or airspeed.
  - G. selection of pylons where there is no suitable landing area within gliding distance.
- 57.3** Demonstrate and simultaneously explain eights around pylons from an instructional standpoint.
- 57.4** Analyze and correct common errors related to eights around pylons.



**Common Course Number: ATF 2500**

**Unit 58: Eights on Pylons**

**General Outcome:**

**58.0 The students shall:** Exhibit instructional knowledge of the elements of eights on pylons, exhibit instructional knowledge of common errors related to eights on pylons, demonstrate and simultaneously explain eights on pylons from an instructional standpoint, and analyze and correct common errors related to eights on pylons.

**Specific Learning Outcomes:**

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

- 58.1** Exhibit instructional knowledge of the elements of eights on pylons by describing:
- A. How to determine the approximate pivotal altitude.
  - B. How to select suitable pylons with consideration given to emergency landing areas.
  - C. Orientation, division of attention, and planning.
  - D. Configuration and airspeed prior to entry.
  - E. The relationship of groundspeed change to the performance of the maneuver. pilot's "line-of-sight" reference to the pylon.
  - G. Entry technique.
  - H. The technique for maintaining the "line-of-sight" on the pylon.
  - I. Timing of turn entries and roll-outs.
  - J. How to correct for wind drift between pylons.
  - K. Coordination of flight controls.
- 58.2** Exhibit instructional knowledge of common errors related to eights on pylons by describing:
- A. Faulty entry technique.
  - B. Poor planning, orientation, and division of attention.



- C. Uncoordinated flight control application.
- D. The use of an improper "line-of-sight" reference.
- E. The application of rudder alone to maintain the "line-of-sight" on the pylon.
- F. Improper timing of turn entries and roll-outs.
- G. Improper correction for wind drift between pylons.
- H. The selection of pylons where there is no suitable emergency landing area within gliding distance.

**58.3** Demonstrate and simultaneously explain eights on pylons from an instructional standpoint.

**58.4** Analyze and correct common errors related to eights on pylons.



**Common Course Number: ATF 2500**

**EMERGENCY OPERATIONS**

**Unit 59: Emergency Approach and Landing (Simulated)**

**General Outcome:**

**59.0 The students shall** Exhibit instructional knowledge of the elements related to an emergency approach and landing, exhibit instructional knowledge of common errors related to an emergency approach and landing, demonstrate and simultaneously explain an emergency approach with a simulated engine failure from an instructional standpoint, and analyze and correct common errors related to an emergency approach with a simulated engine failure.

**Specific Learning Outcomes:**

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

- 59.1** Exhibit instructional knowledge of the elements related to an emergency approach and landing by describing:
- A. The prompt establishment of the best-glide airspeed and the recommended configuration.
  - B. How to select a suitable emergency landing area.
  - C. The planning and execution of the approach to the selected landing area.
  - D. The use of the emergency checklist.
  - E. The importance of attempting to determine the reason for the malfunction.
  - F. The importance of dividing attention between flying the approach and accomplishing the emergency checklist.
  - G. Techniques that can be used to compensate for under-shooting or over-shooting the selected emergency landing area.



**Common Course Number: ATF 2500**

- 59.2** Exhibit instructional knowledge of common errors related to an emergency approach and landing by describing:
- A. Improper airspeed control.
  - B. Poor judgment in the selection of an emergency landing area.
  - C. Failure to estimate the approximate wind speed and direction.
  - D. Failure to fly the most suitable pattern for the existing situation.
  - E. Failure to accomplish the emergency checklist.
  - F. Under-shooting or over-shooting the selected emergency landing area.
- 59.3** Demonstrate and simultaneously explain an emergency approach with a simulated engine failure from an instructional standpoint.
- 59.4** Analyze and correct common errors related to an emergency approach with a simulated engine failure.



**Common Course Number: ATF 2500**

**Unit 60: Systems and Equipment Malfunctions**

**General Outcome:**

**60.0 The students shall:** Exhibit instructional knowledge of the elements related to systems and equipment malfunctions, appropriate to the airplane used for the practical test.

**Specific Learning Outcomes:**

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

- 60.1** Smoke or fire, or both, during ground or flight operations.
- 60.2** Rough running engine or partial power loss.
- 60.3** Loss of engine oil pressure.
- 60.4** Fuel starvation.
- 60.5** Engine over-heat.
- 60.6** Hydraulic system malfunction.
- 60.7** Electrical system malfunction.
- 60.8** Carburetor or induction icing.
- 60.9** Door or window opening in flight.
- 60.10** Landing gear or flap malfunction.
- 60.11** Brake failure.
- 60.12** Any other system or equipment malfunction.



**Common Course Number: ATF 2500**

**Unit 61: Emergency Equipment and Survival Gear**

**General Outcome:**

**61.0 The students shall:** Exhibit instructional knowledge of the elements related to emergency equipment and survival gear appropriate to the airplane used for the practical test.

**Specific Learning Outcomes:**

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

- 61.1** Locations in the airplane.
- 61.2** Purpose.
- 61.3** Method of operation or use.
- 61.4** Servicing.
- 61.5** Storage.
- 61.6** Equipment and gear appropriate for operation in various climates, over various types of terrain, and over water.



**Common Course Number: ATF 2500**

**APPROACHES AND LANDINGS**

**Unit 62: Normal and Crosswind Approaches and Landings**

**General Outcome:**

**62.0 The students shall:** Exhibit instructional knowledge of the elements of normal and crosswind approaches and landings, exhibit instructional knowledge of common errors related to normal and crosswind approaches and landings, demonstrate and simultaneously explain a normal or a crosswind approach and landing from an instructional standpoint, and analyze and correct common errors related to normal or crosswind approaches and landings.

**Specific Learning Outcomes:**

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

**62.1** Exhibit instructional knowledge of the elements of normal and crosswind approaches and landings by describing:

- A. How to determine landing performance and limitations.
- B. Configuration, power, and trim.
- C. Obstructions and other hazards which should be considered.
- D. A stabilized approach to the selected touchdown area, at the recommended airspeed.
- E. Coordination of flight controls.
- F. A precise ground track.
- G. Wind shear and turbulence.
- H. The most suitable crosswind technique.
- I. Timing, judgment, and control touch during the round-out and touchdown.
- J. Directional control after touchdown.



**Common Course Number: ATF 2500**

- K. Use of brakes (landplane).
- L. Use of the checklist.
- 62.2** Exhibit instructional knowledge of common errors related to normal and crosswind approaches and landings by describing:
  - A. Improper use of landing performance data and limitations.
  - B. Failure to establish approach and landing configuration at the proper time or in proper sequence.
  - C. Failure to establish and maintain a stabilized approach.
  - D. Failure to use the proper technique for wind shear or turbulence.
  - E. Inappropriate removal of the hand from the throttle.
  - F. Faulty technique during round-out and touchdown.
  - G. Poor directional control after touchdown.
  - H. Improper use of brakes (landplane).
- 62.3** Demonstrate and simultaneously explain a normal or a crosswind approach and landing from an instructional standpoint.
- 62.4** Analyze and correct common errors related to normal or crosswind approaches and landings.



**Unit 63: Forward Slip to a Landing**

**General Outcome:**

**63.0 The students shall:** Exhibit instructional knowledge of the elements of a forward slip to a landing, exhibit instructional knowledge of common errors related to forward slips to landings, demonstrate and simultaneously explain a forward slip to a landing from an instructional standpoint, and analyze and correct common errors related to forward slips to landings.

**Specific Learning Outcomes:**

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

**63.1** Exhibit instructional knowledge of the elements of a forward slip to a landing by describing:

- A. How to determine landing performance and limitations.
- B. Configuration, power, and trim.
- C. Obstructions and other hazards which should be considered.
- D. A stabilized slip to the selected touchdown area, at the recommended airspeed.
- E. Possible airspeed indication errors.
- F. Proper application of flight controls.
- G. A precise ground track.
- H. Wind shear and turbulence.
- I. Timing, judgment, and control touch during transition from slip to touchdown.
- J. Directional control after touchdown.
- K. Use of brakes (landplane).
- L. Use of the checklist.

**63.2** Exhibit instructional knowledge of common errors related to forward slips to landings by describing:



# BROWARD COMMUNITY COLLEGE

## COURSE OUTLINE

**Common Course Number: ATF 2500**

- A. Improper use of landing performance data and limitations.
  - B. Failure to establish approach and landing configuration at the proper time or in proper sequence.
  - C. Failure to maintain a stabilized slip.
  - D. Failure to use the proper technique for wind shear or turbulence.
  - E. Inappropriate removal of the hand from the throttle.
  - F. Faulty technique during transition from the slip to the touchdown.
  - G. Poor directional control after touchdown.
  - H. Improper use of brakes (landplane).
- 63.3** Demonstrate and simultaneously explain a forward slip to a landing from an instructional standpoint.
- 63.4** Analyze and correct common errors related to forward slips to landings.



**Common Course Number: ATF 2500**

**Unit 64: Go-Around**

**General Outcome:**

**64.0 The students shall:** Exhibit instructional knowledge of the elements of a go-around, exhibit instructional knowledge of common errors related to go-arounds, demonstrate and simultaneously explain a go-around from an instructional standpoint, and analyze and correct common errors related to go-arounds.

**Specific Learning Outcomes:**

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

**64.1** Exhibit instructional knowledge of the elements of a go-around by describing:

- A. Situations where go-arounds are necessary.
- B. The importance of making a prompt decision.
- C. The importance of applying takeoff power immediately after the go-around decision is made.
- D. How to establish proper pitch attitude.
- E. Wing flaps retraction, as recommended.
- F. Use of trim.
- G. Landing gear retraction, as recommended.
- H. Proper climb speed.
- I. Proper track and obstruction clearance.
- J. Use of the checklist.

**64.2** Exhibit instructional knowledge of common errors related to go-arounds by describing:

- A. Failure to recognize a situation where a go-around is necessary.
- B. Hazards of delaying a decision to go-around.



# BROWARD COMMUNITY COLLEGE

## COURSE OUTLINE

**Common Course Number: ATF 2500**

- C. Improper power application.
  - D. Failure to control pitch attitude.
  - E. Failure to compensate for torque effect.
  - F. Improper trim technique.
  - G. Failure to maintain recommended airspeeds.
  - H. Improper wing flaps or landing gear retraction procedure.
  - I. Failure to maintain proper track during climb-out.
  - J. Failure to remain well clear of obstructions and other traffic.
- 64.3** Demonstrate and simultaneously explain a go-around from an instructional standpoint.
- 64.4** Analyze and correct common errors related to go-arounds.



**Common Course Number: ATF 2500**

**Unit 65: Maximum Performance Approach and Landing (Landplane)**

**General Outcome:**

**65.0 The students shall:** Exhibit instructional knowledge of the elements of a maximum performance approach and landing, exhibit instructional knowledge of common errors related to maximum performance approaches and landings, demonstrate and simultaneously explain a maximum performance approach and landing from an instructional standpoint, and analyze and correct common errors related to maximum performance approaches and landings.

**Specific Learning Outcomes:**

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

- 65.1** Exhibit instructional knowledge of the elements of a maximum performance approach and landing by describing:
- A. How to determine landing performance and limitations.
  - B. Configuration, power, and trim.
  - C. Obstructions and other hazards, which should be considered.
  - D. The effect of wind and landing surface.
  - E. The selection of a touchdown area and go-around point.
  - F. A stabilized approach to the selected touchdown area, at the recommended airspeed.
  - G. Coordination of flight controls.
  - H. A precise ground track.
  - I. Wind shear and turbulence.
  - J. Timing, judgment, and control touch during round out and touchdown.
  - K. Directional control after touchdown.
  - L. Use of brakes.
  - M. Use of the checklist.



**Common Course Number: ATF 2500**

- 65.2** Exhibit instructional knowledge of common errors related to maximum performance approaches and landings by describing:
- A. Improper use of landing performance data and limitations.
  - B. Failure to establish approach and landing configuration at the proper time or in the proper sequence.
  - C. Failure to establish and maintain a stabilized approach.
  - D. Faulty technique in the use of power, wing flaps, and trim.
  - E. Failure to use the proper technique for windshear or turbulence.
  - F. Inappropriate removal of the hand from the throttle.
  - G. Faulty technique during round-out and touchdown.
  - H. Poor directional control after touchdown.
  - I. Improper use of brakes.
- 65.3** Demonstrate and simultaneously explain a maximum performance approach and landing from an instructional standpoint.
- 65.4** Analyze and correct common errors related to maximum performance approaches and landings.



**Common Course Number: ATF 2500**

**Unit 66: Soft-Field Approach and Landing**

**General Outcome:**

**66.0 The students shall:** Exhibit instructional knowledge of the elements of a soft-field approach and landing, exhibit instructional knowledge of common errors related to soft-field approaches and landings, demonstrate and simultaneously explain a soft-field approach and landing from an instructional standpoint, and analyze and correct common errors related to soft-field approaches and landings.

**Specific Learning Outcomes:**

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

- 66.1 Exhibit instructional knowledge of the elements of a soft-field approach and landing by describing:
- A. How to determine landing performance and limitations.
  - B. Configuration, power, and trim.
  - C. Obstructions and other hazards, which should be considered.
  - D. The effect of wind and landing surface.
  - E. The selection of a touchdown area and a go-around point.
  - F. A stabilized approach to the selected touchdown area, at the recommended airspeed.
  - G. Coordination of flight controls.
  - H. A precise ground track.
  - I. Wind shear and turbulence.
  - J. Timing, judgment, and control touch during round-out and touchdown.
  - K. The proper use of power.
  - L. Directional control after touchdown.
  - M. Use of the checklist.



**Common Course Number: ATF 2500**

- 66.2** Exhibit instructional knowledge of common errors related to soft-field approaches and landings by describing:
- A. Improper use of landing performance data and limitations.
  - B. Failure to establish approach and landing configuration at the proper time or in the proper sequence.
  - C. Failure to establish and maintain a stabilized approach.
  - D. Failure to consider the effect of wind and landing surface.
  - E. Faulty technique in the use of power, wing flaps, or trim.
  - F. Failure to use the proper technique for wind shear or turbulence.
  - G. Inappropriate removal of the hand from the throttle.
  - H. Faulty technique during round-out and touchdown.
  - I. Failure to hold back elevator pressure after touchdown.
  - J. Closing the throttle too soon after touchdown.
  - K. Poor directional control after touchdown.
  - L. Improper use of brakes.
- 66.3** Demonstrate and simultaneously explain a soft-field approach and landing from an instructional standpoint.
- 66.4** Analyze and correct common errors related to soft-field approaches and landings.



**Common Course Number: ATF 2500**

**AFTER LANDING PROCEDURES**

**Unit 67: Post-Flight Procedures**

**General Outcome:**

**67.0 The students shall:** Exhibit instructional knowledge of the elements of post-flight procedures, exhibit instructional knowledge of common errors related to post-flight procedures, demonstrate and simultaneously explain post-flight procedures from an instructional standpoint, and analyze and correct common errors related to post-flight procedures.

**Specific Learning Outcomes:**

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

- 67.1** Exhibit instructional knowledge of the elements of post-flight procedures by describing:
- A. Taxi technique and procedure.
  - B. Parking technique and procedure (landplane).
  - C. Engine shutdown and securing the cockpit.
  - D. Deplaning the passengers.
  - E. Securing the airplane.
  - F. Post-flight inspection.
  - G. Refueling.
- 67.2** Exhibit instructional knowledge of common errors related to post-flight procedures by describing:
- A. Hazards resulting from failure to follow recommended procedures.
  - B. Poor planning, improper technique, or faulty judgment in the performance of post-flight procedures.
- 67.3** Demonstrate and simultaneously explain post-flight procedures from an instructional standpoint.
- 67.4** Analyze and correct common errors related to post-flight procedures.