



# BROWARD COMMUNITY COLLEGE COURSE OUTLINE

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

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

**STATUS:** A

*A,*

**COURSE TITLE:** Primary Flight

**COMMON COURSE NUMBER:** ATF 1100

**CREDIT HOURS:** 3

**CONTACT HOUR BREAKDOWN**

*(per 16 week term)*

**CLOCK HOURS:**

Lecture: 2      Lab: 50  
Clinic:              Other:

**PREREQUISITE(S):** College Placement Testing (CPT) scores must place student into college-level courses for English, Reading and Math, or have instructor's permission.

**COREQUISITE(S):** ATT 1100 and ASC 1100

**PRE/COREQUISITE(S):**

## **COURSE DESCRIPTION :**

This course provides the flight training and experience required by the Federal Aviation Regulations (FAA) for a Private Pilot Certificate. Student must obtain FAA Private Pilot Certificate in order to receive credit for the course. Flight training fees are paid directly to the College in advance

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**

1. Preflight Preparation
2. Ground Operations
3. Airport and Traffic Pattern Operations
4. Takeoffs and Climbs
5. Cross-Country Flying
6. Flight by Reference to Instruments
7. Flight at Critically Slow Airspeeds
8. Flight Maneuvering by Reference to Ground Objects
9. Night Flight Operations
10. Emergency Operations
11. Approaches and Landings



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## **EVALUATION:**

Upon successful completion of this course, the students should be able to meet the practical test standards of the Federal Aviation Administration for private pilot for airplane (single-engine land).



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## **UNITS**

### **Unit 1 Preflight Preparation**

#### **General Outcome:**

#### **1.0 The student shall:**

The students should be able to perform tasks relative to preflight preparation in the following areas: certificates and documents, weather information, performance and limitation, determination, cross-country flight planning, airplane systems, and aeromedical factors.

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

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

#### **1.1 Exhibit knowledge by explaining the appropriate:**

- A. Pilot certificate, privileges and limitations.
- B. Medical certificate, class and duration.
- C. Personal pilot logbook or flight record.
- D. FCC station license and operator's permit, as required.

#### **1.2 Exhibit knowledge by locating and explaining the significance and importance of the:**

- A. Airworthiness and registration certificates.
- B. Operating limitations, handbooks, or manuals.
- C. Equipment list.
- D. Weight and balance data.
- E. Maintenance requirements and appropriate records.



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- 1.3 Exhibit knowledge of aviation weather information by obtaining, reading, and analyzing:
  - A. Weather reports and forecasts.
  - B. Weather charts.
  - C. Pilot weather reports.
  - D. SIGMET's and AIRMET's.
  - E. Notices to Airmen.
  - F. Wind-shear report.
  
- 1.4 Make a competent go/no-go decision based on the available weather information.
- 1.5 Exhibit knowledge by explaining airplane weight and balance, performance, and limitations, including adverse aerodynamic effects of exceeding the limits.
- 1.6 Use available and appropriate performance charts, tables, and data.
- 1.7 Compute weight and balance, and determines that weight and center of gravity will be within limits during all phases of the flight.
- 1.8 Calculate airplane performance, considering density altitude, wind, terrain, and other pertinent conditions.
- 1.9 Describe the effects of atmospheric conditions on airplane performance.
- 1.10 Make a competent decision on whether the required performance is within the operating limitations of the airplane.
- 1.11 Exhibit knowledge by planning, within 30 minutes, a VFR cross-country flight of a duration near the range of the airplane, considering fuel and loading.
- 1.12 Select and use current and appropriate aeronautical charts.
- 1.13 Plot a course for the intended route of flight with fuel stops, if necessary.
- 1.14 Select prominent en route check points.
- 1.15 Compute the flight time, headings, and fuel requirements.
- 1.16 Select appropriate radio navigation aids.
- 1.17 Identify airspace, obstructions and alternate airports.
- 1.18 Extract pertinent information from the Airport/Facility Directory and other flight publications, including NOTAM's.
- 1.19 Complete a navigation log.



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**1.20** Complete and file a VFR flight plan.

**1.21** Exhibit knowledge by explaining the airplane systems and operation including, as appropriate:

- A. Primary flight controls and trims.
- B. Wing flaps leading edge devices and spoilers.
- C. Flight instruments.
- D. Landing gear.
- E. Engine.
- F. Propeller.
- G. Fuel system.
- H. Hydraulic system.
- I. Electrical system.
- J. Environmental system.
- K. Oil System.
- L. Deice and anti-ice systems.
- M. Avionics.
- N. Vacuum system.

**1.22** Exhibit knowledge of the elements related to aero medical factors, including the symptoms, effects and corrective action of:

- A. Hypoxia
- B. Hyperventilation.
- C. Middle ear and sinus problems.
- D. Spatial disorientation.
- E. Motion sickness.
- F. Carbon monoxide poisoning.

**1.23** Exhibit knowledge of the effects of alcohol and drugs and the relationship to flight safety.

**1.24** Exhibit knowledge of nitrogen excesses during scuba dives, and how this affects a pilot or passenger during flight.



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**Unit 2      Ground Operations**

**General Outcome:**

**2.0** The student shall be able to perform tasks relative to ground operations in the following areas: visual inspection, cockpit management, engine ignition, taxiing, pretakeoff check, and post flight procedures.

**Specific Measurable Learning Outcomes:**

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

- 2.1** Exhibit knowledge of airplane visual inspection by explaining the reasons for checking all items.
- 2.2** Inspect the airplane by following a checklist.
- 2.3** Determine that the airplane is in condition for safe flight emphasizing:
  - A. Fuel quantity, grade and type.
  - B. Fuel contamination safeguards.
  - C. Fuel venting.
  - D. Oil quantity, grade and type.
  - E. Fuel, oil and hydraulic leaks.
  - F. Flight controls.
  - G. Structural damage.
  - H. Exhaust system.
  - I. Tie down, control lock and wheel chock removal.
  - J. Ice and frost removal.
  - K. Security of baggage, cargo and equipment.
- 2.4** Exhibit knowledge of cockpit management by explaining related safety and efficiency factors.
- 2.5** Organize and arrange the material and equipment in an efficient manner.
- 2.6** Ensure that the safety belts and shoulder harnesses are fastened.
- 2.7** Adjust and lock the rudder pedals and pilot's seat to a safe position and ensure full control movement.
- 2.8** Brief occupant on the use of safety belts and emergency procedures.



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- 2.9 Exhibit adequate crew coordination.
- 2.10 Exhibit knowledge by explaining engine starting procedures, including starting under various atmospheric conditions.
- 2.11 Perform all the items on the checklist.
- 2.12 Accomplish correct starting procedures with emphasis on:
  - A. Positioning the airplane to avoid creating hazards.
  - B. Determining that the area is clear.
  - C. Adjusting the engine controls.
  - D. Setting the brakes.
  - E. Preventing airplane movement after engine start.
  - F. Avoiding excessive engine RPM and temperatures.
  - G. Checking the engine instruments after engine start.
- 2.13 Exhibit knowledge by explaining safe taxi procedures.
- 2.14 Adhere to signals and clearances, and follows the proper taxi route.
- 2.15 Perform a brake check immediately after the airplane begins moving.
- 2.16 Control taxi speed without excessive use of brakes.
- 2.17 Recognize and avoid hazards.
- 2.18 Position the controls for the existing wind conditions.
- 2.19 Avoid careless and reckless operations.
- 2.20 Exhibit knowledge of the pre-takeoff check by explaining the reasons for checking all items.
- 2.21 Position the airplane to avoid creating hazards.
- 2.22 Divide attention inside and outside of the cockpit.
- 2.23 Accomplish the checklist items.
- 2.24 Ensure that the airplane is in safe operating condition.
- 2.25 Review the critical takeoff performance airspeeds and distances.
- 2.26 Describe takeoff emergency procedures.
- 2.27 Obtain and interpret takeoff and departure clearances.



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- 2.28 Exhibit knowledge by explaining the post flight procedures, including taxiing, parking, shutdown, securing, and post flight inspection.
- 2.29 Select and taxies to the designated or suitable parking area, considering wind conditions and obstructions.
- 2.30 Park the airplane properly.
- 2.31 Follows the recommended procedure for engine shutdown, cockpit securing and deplaning passengers.
- 2.32 Secure the airplane properly.
- 2.33 Perform a satisfactory post flight inspection.



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**Unit 3 Radio Communications and ATC Light Signals**

**General Outcome:**

- 3.0** The student shall be able to perform tasks relative to airport and traffic pattern operations in the following areas: radio communications and ATC light signals, traffic pattern operations and airport and runway marking and lighting.

**Specific Measurable Learning Outcomes:**

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

- 3.1** Exhibit knowledge by explaining radio communication, ATC light signals, procedures at controlled and uncontrolled airports, and prescribed procedures for radio failure.
- 3.2** Select the appropriate frequencies for the facilities to be used.
- 3.3** Transmit requests and reports using the recommended standard phraseology.
- 3.4** Receive, acknowledge, and comply with radio communications.
- 3.5** Exhibit knowledge by explaining traffic pattern procedures at controlled and uncontrolled airports, including collision, wind shear, and wake turbulence avoidance.
- 3.6** Follow the established traffic pattern procedures according to instructions or rules.
- 3.7** Correct for wind drift to follow the appropriate ground track.
- 3.8** Maintain proper spacing from other traffic.
- 3.9** Maintain the traffic pattern altitude,  $\pm 100$  feet.
- 3.10** Maintain the desired airspeed,  $\pm 10$  knots.
- 3.11** Complete the prelanding cockpit checklist.
- 3.12** Maintain orientation with the runway in use.
- 3.13** Exhibit knowledge by explaining airport and runway markings and lighting aids.
- 3.14** Identify and interpret airport, runway, taxiway marking and lighting aids.



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**Unit 4      Takeoffs and Climbs**

**General Outcome:**

**4.0**      The student shall be able to perform tasks relative to takeoffs and climbs in the following areas: normal and crosswind takeoffs and climbs, short-field takeoffs and climbs and soft-field takeoffs and climbs.

**Specific Measurable Learning Outcomes:**

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

- 4.1**      Exhibit knowledge by explaining the elements of normal and crosswind takeoffs and climbs, including airspeeds, configurations, and emergency procedures.
- 4.2**      Select the recommended wing-flay setting.
- 4.3**      Align the airplane on the runway centerline.
- 4.4**      Apply aileron deflection properly.
- 4.5**      Advance the throttle smoothly to maximum allowable power.
- 4.6**      Check engine instruments.
- 4.7**      Maintain directional control on runway centerline.
- 4.8**      Adjust aileron deflection during acceleration.
- 4.9**      Rotate at the recommended airspeed and accelerates to  $V_Y$  and maintain  $V_Y \pm 5$  knots.
- 4.10**    Establish the pitch attitude for  $V_Y$  and maintain  $V_Y \pm 5$  knots.
- 4.11**    Retract the wing flaps, as recommended, or at a safe altitude.
- 4.12**    Retract the landing gear, if retractable, after a positive rate of climb has been established and a safe landing can no longer be accomplished on the remaining runway.
- 4.13**    Maintain takeoff power to a safe maneuvering altitude.
- 4.14**    Maintain a straight track over the extended runway centerline until a turn is required.
- 4.15**    Complete after-takeoff checklist.
- 4.16**    Exhibit knowledge by explaining the elements of a short-field takeoff and climb, including the significance of appropriate airspeeds and configurations, emergency procedures and expected performance for existing operating conditions.
- 4.17**    Select the recommended wing-flay setting.



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- 4.18 Position the airplane at the beginning of the takeoff runway aligned on the runway centerline.
- 4.19 Advance the throttle smoothly to maximum allowable power.
- 4.20 Maintain directional control on the runway centerline.
- 4.21 Rotate at the recommended airspeed and accelerate to  $V_Y$ .
- 4.22 Climb at  $V_X$  or recommended airspeed, +5, -0 knots until obstacle is cleared, or until at least 50 feet above the surface, then accelerate to  $V_Y$  and maintain  $V_Y$ , +5 knots.
- 4.23 Retract the landing gear, if retractable, after a positive rate of climb has been established and a safe landing can no longer be accomplished on the remaining runway.
- 4.24 Retract the landing gear, if retractable, after a positive rate of climb has been established and a safe landing can no longer be accomplished on the remaining runway.
- 4.25 Maintain takeoff power to a safe maneuvering altitude.
- 4.26 Maintain a straight track over the extended runway centerline until a turn is required.
- 4.27 Complete after-takeoff checklist.
- 4.28 Exhibit knowledge by explaining the elements of a soft-field takeoff and climb, including the significance of appropriate airspeeds and configurations, emergency procedures, and hazards associated with climbing at airspeed less than  $V_X$ .
- 4.29 Select the recommended wing-flap setting.
- 4.30 Taxies onto the takeoff surface at a speed consistent with safety.
- 4.31 Align the airplane on takeoff path, without stopping, and advances the throttle smoothly to maximum allowable power.
- 4.32 Adjust and maintain a pitch attitude which transfers the weight from the wheels to the wings as rapidly as possible.
- 4.33 Maintain directional control on the center of the takeoff path.
- 4.34 Lift off at the lowest possible airspeed and remain in ground effect while accelerating.
- 4.35 Accelerate to and maintain  $V_X$ , +5, -0 knots, if obstructions must be cleared, otherwise to  $V_Y$ ,  $\pm$  5 knots.
- 4.36 Retract the wing flaps, as recommended, and at a safe altitude.
- 4.37 Retract the landing gear, if retractable, after a positive rate of climb has been established and a landing can no longer be accomplished on the remaining runway.
- 4.38 Maintain takeoff power to a safe maneuvering altitude.



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- 4.39 Maintain a straight track over the center of the extended takeoff path until a turn is required.
- 4.40 Complete after-takeoff checklist.



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**Unit 5 Cross-Country Flying**

**General Outcome:**

- 5.0** The student shall be able to perform tasks relative to cross-country flying in the following areas: Pilotage and dead reckoning, radio navigation, diversion, and lost procedures.

**Specific Measurable Learning Outcomes:**

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

- 5.1** Exhibit knowledge by explaining Pilotage and dead reckoning techniques and procedures.
- 5.2** Follow the preplanned course solely by visual reference to landmarks.
- 5.3** Identify landmarks by relating the surface features to chart symbols.
- 5.4** Navigate by means of pre-computed headings, groundspeed, and elapsed time.
- 5.5** Combine Pilotage and dead reckoning.
- 5.6** Verify the airplane position within 3 nautical miles of the flight planned route at all times.
- 5.7** Arrive at the en route checkpoints and destination  $\pm$  5 minutes of the initial or revised ETA.
- 5.8** Correct for, and record, the differences between preflight fuel, groundspeed, and heading calculations and those determined en route.
- 5.9** Maintain the selected altitudes, within  $\pm$  200 feet.
- 5.10** Maintain the desired heading,  $\pm$  10 $^{\circ}$ .
- 5.11** Follow the climb, cruise, and descent checklists.
- 5.12** Exhibit knowledge by explaining radio navigation, equipment, procedures, and limitations.
- 5.13** Select and identify the desired radio facility.
- 5.14** Locate position relative to the radio navigation facility.
- 5.15** Intercept and track a given radial or bearing.
- 5.16** Locate position using cross radials or bearings.
- 5.17** Recognize or describe the indication of station passage.



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- 5.18** Recognize signal loss and take appropriate action.
- 5.19** Maintain the appropriate altitude,  $\pm$  200 feet. Exhibit knowledge by explaining the procedures for diverting, including the recognition of adverse weather conditions



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**Unit 6 Flight by Reference Instruments**

**General Outcome:**

**6.0** The student shall: be able to perform tasks relative to flight by reference to instruments in the following areas: straight-and-level flight; straight, constant airspeed climbs; straight, constant airspeed descents; turns to headings; unusual flight attitudes; and radio aids and radar services .

**Specific Measurable Learning Outcomes:**

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

- 6.1** Exhibit knowledge by explaining flight solely by reference to instruments as related to straight-and-level flight.
- 6.2** Make smooth and coordinated control applications.
- 6.3** Maintain straight-and-level flight for at least 3 minutes.
- 6.4** Maintain the desired heading,  $\pm 10^{\circ}$ .
- 6.5** Maintain the desired altitude,  $\pm 100$  feet.
- 6.6** Maintain the desired airspeed,  $\pm 10$  knots.
- 6.7** Exhibit knowledge by explaining flight solely by reference to instruments as related to straight, constant airspeed climbs.
- 6.8** Establish the climb pitch attitude and power setting on an assigned heading.
- 6.9** Make smooth and coordinated control applications.
- 6.10** Maintain the desired heading,  $\pm 10^{\circ}$ .
- 6.11** Maintain the desired airspeed,  $\pm 10$  knots.
- 6.12** Level off at the desired altitude,  $\pm 100$  feet.
- 6.13** Exhibit knowledge by explaining flight solely by reference to instruments as related to straight, constant airspeed descents.
- 6.14** Determine the minimum safe altitude at which the descent should be terminated.
- 6.15** Establish the descent configuration, pitch, and power setting on the assigned heading.
- 6.16** Make smooth and coordinate control applications.
- 6.17** Maintain the desired heading,  $\pm 10^{\circ}$ .



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- 6.18 Maintain the desired airspeed,  $\pm$  10 knots.
- 6.19 Level off at the desired altitude,  $\pm$  100 feet.
- 6.20 Exhibit knowledge by explaining flight solely by reference to instruments as related to turns to headings.
- 6.21 Enter and maintain approximately a standard-rate turn with smooth and coordinated control applications.
- 6.22 Maintain the desired altitude,  $\pm$  100 feet.
- 6.23 Maintain the desired airspeed,  $\pm$  10 knots.
- 6.24 Maintain the desired bank angle.
- 6.25 Roll out at the desired heading,  $\pm$  10<sup>o</sup>.
- 6.26 Exhibit knowledge by explaining flight solely by reference to instruments as related to unusual flight attitudes.
- 6.27 Recognize unusual flight attitudes promptly.
- 6.28 Properly interpret the instruments.
- 6.29 Recover to a stabilized level flight attitude by prompt, smooth, coordinated control, applied in the proper sequence.
- 6.30 Avoid excessive load factor, airspeed, and stall.
- 6.31 Exhibit knowledge by explaining radio aids and radar services available for use during flight solely by reference to instruments.
- 6.32 Select, tune, and identify the appropriate facility.
- 6.33 Follow verbal instructions or radio navigation aids for guidance.
- 6.34 Determine the minimum safe altitude.
- 6.35 Maintain the desired altitude,  $\pm$  100 feet.
- 6.36 Maintain the desired heading,  $\pm$  10<sup>o</sup>.



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**Unit 7 Flight at Critically Slow Airspeeds**

**General Outcome:**

**7.0** The student shall be able to perform tasks relative to flight at critically slow airspeeds in the following areas: full stalls -- power off, full stalls -- power on, imminent stalls -- power on and power off, maneuvering at critically slow airspeed, and constant altitude turns.

**Specific Measurable Learning Outcomes:**

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

- 7.1** Exhibit knowledge by explaining the aerodynamic factors and flight situations that may result in full stalls--power off, including proper recovery procedures, and hazards of stalling during uncoordinated flight.
- 7.2** Select an entry altitude that will allow the recoveries to be completed no lower than 1,500 feet AGL.
- 7.3** Establish the normal approach or landing configuration and airspeed with the throttle closed or at a reduced power setting.
- 7.4** Establish a straight glide or a gliding turn with a bank angle of  $30^{\circ}$ ,  $\pm 10^{\circ}$ , in coordinated flight.
- 7.5** Establish and maintain a landing pitch attitude that will induce a full stall.
- 7.6** Recognize the indications of a full stall and promptly recover by decreasing the angle of attack, leveling the wings, and adjusting the power, as necessary, to regain normal flight attitude.
- 7.7** Retract the wing flaps and landing gear (if retractable) and establish straight-and-level flight or climb.
- 7.8** Avoid secondary stalls, excessive airspeed, excessive altitude loss, spins, and flight below 1,500 feet AGL.
- 7.9** Exhibit knowledge by explaining the aerodynamic factors and flight situations that may result in full stalls--power on, including proper recovery procedures, and hazards of stalling during uncoordinated flight.
- 7.10** Select an entry altitude that will allow recoveries to be completed no lower than 1,500 feet AGL.
- 7.11** Establish takeoff or normal climb configuration.
- 7.12** Establish takeoff or climb airspeed before applying takeoff or climb power. (Reduced power may be used to avoid excessive pitch-up during entry only.)
- 7.13** Establish and maintain a pitch attitude straight ahead or in a turn with a bank angle of  $20^{\circ}$ ,  $\pm 10^{\circ}$ , that will induce a full stall.



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- 7.14 Apply proper control to maintain coordinated flight.
- 7.15 Recognize the indications of a full stall and promptly recovers by decreasing the angle of attack, leveling the wings, and adjusting the power, as necessary, to regain normal flight attitude.
- 7.16 Retract the wing flaps and landing gear (if retractable) and establish straight-and-level flight or climb.
- 7.17 Avoid secondary stall, excessive airspeed, excessive altitude loss, spin, and flight below 1,500 feet AGL.
- 7.18 Exhibit knowledge by explaining the aerodynamic factors associated with imminent stalls (power on and power off), an awareness of speed loss in different configurations, and the procedure for resuming normal flight attitude.
- 7.19 Select an entry altitude that will allow recoveries to be completed no lower than 1,500 feet AGL.
- 7.20 Establish either a takeoff, a climb, or an approach configuration with the appropriate power setting.
- 7.21 Establish either a pitch attitude on a constant heading,  $\pm 10^\circ$ , or  $20^\circ$  bank turns,  $\pm 10^\circ$ , that will induce an imminent stall.
- 7.22 Apply proper control to maintain coordinated flight.
- 7.23 Recognize and recover from imminent stalls at the first indication of buffeting or decay of control effectiveness by reducing angle of attack and adjusting power, as necessary, to regain normal flight attitude.
- 7.24 Avoid full stall, secondary stall, excessive airspeed, excessive altitude change, spin, and flight below 1,500 feet AGL.
- 7.25 Exhibit knowledge by explaining the flight characteristics and controllability associated with maneuvering at critically slow airspeeds.
- 7.26 Select an entry altitude that will allow the maneuver to be performed no lower than 1,500 feet AGL.
- 7.27 Establish and maintain a critically slow airspeed while:
  - A. In coordinated straight and turning flight in various configurations and bank angles.
  - B. In coordinated departure climbs and landing approach descents in various configurations.
- 7.28 Maintain the desired altitude,  $\pm 100$  feet, when a constant altitude is specified, and levels off from climbs and descents,  $\pm 100$  feet.
- 7.29 Maintain the desired heading during straight flight,  $\pm 10^\circ$ .
- 7.30 Maintain the specified bank angle,  $\pm 10^\circ$ , in coordinated flight.



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- 7.31 Maintain a critically slow airspeed, + 5, -0 knots.
- 7.32 Exhibit knowledge by explaining the performance factors associated with constant altitude turns, including increased load factors, power required, and over banking tendency.
- 7.33 Select an altitude that will allow the maneuver to be performed no lower than 1,500 feet AGL.
- 7.34 Establish an airspeed which does not exceed the airplane design maneuvering airspeed.
- 7.35 Enter a 360° turn maintaining a bank angle of 40° to 50° in coordinated flight.
- 7.36 Divide attention between airplane control and orientation.
- 7.37 Roll out at the desired heading,  $\pm 10^\circ$ .
- 7.38 Maintain the desired altitude,  $\pm 100$  feet.



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**Unit 8 Flight Maneuvering by Reference to Ground Objects**

**General Outcome:**

**8.0** The student shall: be able to perform tasks relative to flight maneuvering by reference to ground objects in the following areas: rectangular course, s-turns across a road, and turns around a point.

**Specific Measurable Learning Outcomes:**

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

- 8.1** Exhibit knowledge by explaining wind-drift correction in straight-and-turning flight, and the relationship of the rectangular course to airport traffic patterns.
- 8.2** Select a suitable reference area.
- 8.3** Enter a left or right pattern at a desired distance from the selected reference area and at 600 to 1,000 feet AGL.
- 8.4** Divide attention between airplane control and ground track, and maintain coordinated flight.
- 8.5** Apply the necessary wind-drift corrections during straight-and-turning flight to maintain the desired ground track.
- 8.6** Maintain the desired altitude,  $\pm 100$  feet.
- 8.7** Maintain the desired airspeed,  $\pm 10$  knots.
- 8.8** Avoid bank angles in excess of  $45^\circ$ .
- 8.9** Reverse course, as directed by the examiner.
- 8.10** Exhibit adequate knowledge by explaining the procedures and wind-drift correction associated with S-turns.
- 8.11** Select a suitable ground reference line.
- 8.12** Enter perpendicular to the selected reference line at 600 to 1,000 feet AGL.
- 8.13** Divide attention between airplane control and ground track, and maintain coordinated flight.
- 8.14** Apply the necessary wind-drift correction to track a constant radius turn on each side of the selected reference line.
- 8.15** Reverse the direction of turn directly over the selected reference line.
- 8.16** Maintain the desired altitude,  $\pm 100$  feet.
- 8.17** Maintain the desired airspeed,  $\pm 10$  knots.



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- 8.18 Exhibit knowledge by explaining the procedures and wind-drift correction associated with turns around a point.
- 8.19 Select suitable ground reference points.
- 8.20 Enter a left or right turn at a desired distance from the selected reference point at 600 to 1,000 feet AGL.
- 8.21 Divide attention between airplane control and ground track, and maintain coordinated flight.
- 8.22 Apply the necessary wind-drift corrections to track a constant-radius turn around the selected reference point.
- 8.23 Maintain the desired altitude,  $\pm 100$  feet.
- 8.24 Maintain the desired airspeed,  $\pm 10$  knots.



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**Unit 9 Night Flight Operations**

**General Outcome:**

**9.0** The student shall: be able to perform tasks in night flight operations.

**Specific Measurable Learning Outcomes:**

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

- 9.1** Explain preparation, equipment, and factors essential to night flight.
- 9.2** Determine airplane, airport and navigation lighting.
- 9.3** Exhibit knowledge by explaining night flying procedures, including safety precautions and emergency actions.
- 9.4** Inspect the airplane by following the checklist which includes items essential for night flight operations.
- 9.5** Start, taxi, and perform pre-takeoff check adhering to good operating practices.
- 9.6** Perform takeoffs and climbs with emphasis on visual references.
- 9.7** Navigate and maintain orientation under VFR conditions.
- 9.8** Approach and land adhering to good operating practices for night flight operations.



**Unit 10      Emergency Operations**

**General Outcome:**

**10.0** The student shall: be able to perform tasks in emergency operations in the following areas: emergency approach and landing (simulated) and system and equipment malfunctions.

**Specific Measurable Learning Outcomes:**

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

- 10.1** Exhibit knowledge by explaining approach and landing procedures to be used in various emergencies.
- 10.2** Establish and maintain the recommended best-glide airspeed and configuration during simulated emergencies.
- 10.3** Select a suitable landing area within gliding distance.
- 10.4** Plan and follow a flight pattern to the selected landing area, considering altitude, wind, terrain, obstructions, and other factors.
- 10.5** Follow an appropriate emergency checklist.
- 10.6** Attempt to determine the reason for the simulated malfunction.
- 10.7** Maintain positive control of the airplane.
- 10.8** Exhibit knowledge by explaining causes of, indications of, and pilot actions for, malfunctions of various systems and equipment.
- 10.9** Analyze the situation and take appropriate action for simulated emergencies such as:
  - A. Partial power loss.
  - B. Rough running engine or overheat.
  - C. Carburetor or induction icing.
  - D. Loss of oil pressure.
  - E. Fuel starvation.
  - F. Engine compartment fire.
  - G. Electrical system malfunction.
  - H. Gear or flap malfunction.



# BROWARD COMMUNITY COLLEGE COURSE OUTLINE

- I. Door opening in flight.
- J. Trim inoperative.
- K. Loss of pressurization.
- L. Other malfunctions.



**Common Course Number: ATF 1100**

**Unit 11 Approaches and Landings**

**General Outcome:**

- 11.0** The student shall be able to perform tasks relative to approaches and landing in the following areas: normal and crosswind approaches and landings, forward slips to landing, go-around, short-field approach and landing, and soft-field approach and landing.

**Specific Measurable Learning Outcomes:**

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

- 11.1** Exhibit knowledge by explaining the elements of normal and crosswind approaches and landings, including airspeeds, configurations, crosswind limitations, and related safety factors.
- 11.2** Maintain the proper ground track on final approach.
- 11.3** Establish the approach and landing configuration and power required.
- 11.4** Maintain the recommended approach airspeed,  $\pm 5$  knots.
- 11.5** Make smooth, timely, and correct control application during the final approach and transition from approach to landing round out.
- 11.6** Touch down smoothly at approximate stalling speed, at or within 500 feet beyond a specified point, with no appreciable drift, and the airplane longitudinal axis aligned with the runway centerline.
- 11.7** Maintain directional control, increasing aileron deflection into the wind, as necessary, during the after-landing roll.
- 11.8** Exhibit knowledge by explaining the elements of a forward slip to a landing, including the purpose, technique, limitation, and the effect on airspeed indications.
- 11.9** Establish a forward slip at a point from which a landing can be made in a desired area using the recommended airspeed and configuration.
- 11.10** Maintain a ground track aligned with the runway centerline.
- 11.11** Maintain an airspeed which results in minimum floating during the landing round out.
- 11.12** Recover smoothly from the slip.
- 11.13** Touch down smoothly at approximate stalling speed, at and within 500 feet beyond a specified point, with no appreciable drift, and the airplane longitudinal axis aligned with the runway centerline.
- 11.14** Maintain directional control during the after-landing roll.
- 11.15** Exhibit knowledge by explaining the elements of the go-around procedure, including proper decision, recommended airspeeds, drag effect of wing flaps and landing gear, and coping with undesirable pitch and yaw.
- 11.16** Make a proper decision to go around.
- 11.17** Apply takeoff power and establish the proper pitch attitude to attain the recommended airspeed.
- 11.18** Retract the wing flaps, as recommended, and at a safe altitude.



## BROWARD COMMUNITY COLLEGE COURSE OUTLINE

- 11.19 Retract the landing gear, if retractable, after a positive rate of climb has been established.
- 11.20 Trim the airplane and climb at  $V_y$ ,  $\pm 5$  knots, and track the appropriate traffic pattern.
- 11.21 Exhibit knowledge by explaining the elements of a short-field approach and landing, including airspeed, configuration, and related safety factors.
- 11.22 Consider obstructions, landing surface, and wind conditions.
- 11.23 Select a suitable touchdown point.
- 11.24 Establish the short-field approach and landing configuration, airspeed, and descent angle.
- 11.25 Maintain control of the descent rate and the recommended airspeed  $\pm 5$  knots, along the extended runway centerline.
- 11.26 Touch down at or within 200 feet beyond a specified point, with minimum float, no appreciable drift, and the airplane longitudinal axis aligned with the runway centerline.
- 11.27 Maintain directional control during the after-landing roll.
- 11.28 Apply braking and controls, as necessary, to stop in the shortest distance consistent with safety.
- 11.29 Exhibit knowledge by explaining the elements of a soft-field approach and landing procedure, including airspeeds, configurations, operations on various surfaces, and related safety factors.
- 11.30 Evaluate obstructions, landing surface, and wind conditions.
- 11.31 Establish the recommended soft-field approach and landing configuration and airspeed.
- 11.32 Maintain recommended airspeed,  $\pm 5$  knots, along the extended runway centerline.
- 11.33 Touch down smoothly at minimum descent rate and groundspeed, with no appreciable drift, and the airplane longitudinal axis aligned with runway centerline.
- 11.34 Maintain directional control during the after-landing roll.
- 11.35 Maintain proper position of flight controls and sufficient speed to taxi on soft surface.