



**CP Aviation, Inc.
Private Pilot Syllabus**

CP Aviation Inc. Private Pilot Syllabus:

Based on William Kershner's Private Certificate Syllabus from the Student Pilot's Flight Manual

UNIT 1

Introduction of Effects of Controls and the Four Fundamentals

Effects of Controls (The Student Pilots Flight Manual Chapter 8)

_____ Elevators

- _____ Pitch Control
- _____ Control Angle of Attack and airspeed
- _____ Use of elevator trim. Stress the importance of trimming to relieve pressure on the control. Use yoke to position pitch and then trim
- _____ Change of elevator effectiveness with airspeed
- _____ Main turn control

_____ Ailerons

- _____ Roll Control
- _____ Why & how an airplane turns: horizontal lift vector
- _____ Adverse yaw, why rudder is used with ailerons in starting and completing turns

_____ Rudder

- _____ Yaw Control
- _____ Use in turns
- _____ Use in slips
- _____ Correction for the left turning forces in a climb or slow flight
- _____ Primary use for steering on the ground
- _____ Adverse yaw
- _____ Rudder trim or tab

_____ Throttle

- _____ Power Control
- _____ How it works (Move forward (open) for more power)
- _____ The climb and descent & rate of climb or descent

_____ Flaps

- _____ Why they are used
- _____ lift and drag effects

- _____ stalls speed effects
- _____ Approach angle changes with flaps

Four Fundamentals: Turns, Climbs, Straight & Level, and Glides

_____ Turns

- _____ Entering the turn: application of aileron & rudder
- _____ Why is back pressure required in the turn?
- _____ Three aspects of the turn (ailerons, rudder, and elevator)
- _____ Load factors in the turn.
- _____ Rolling out of the turn: need for rudder, relaxing elevator

_____ Climbs, To enter, Use 3 Steps

- _____ Ease nose up
- _____ Increase power
- _____ Correct for “torque”
- _____ Ensure that climb attitude is for V_y . Check instruments. Trim. The rate of climb is the result of *excess* thrust.

_____ Straight & Level (from a climb)

- _____ Lead the selected altitude by about 50 feet (10% rule)
- _____ Ease nose over to level flight, maintain climb power
- _____ Allow airspeed to build up, ease off right rudder
- _____ Adjust power to cruise setting as cruise speed is reached
- _____ Maintain S&L attitude, check altitude and heading and relieve pressure with trim.

This is for leveling off at cruise speed and altitude. In the pattern we don't want speed to build up so we decrease power as we level off. Emphasize the relation between power, speed, and attitude. (Pitch, power, trim).

_____ Glides (Descents)

- _____ Carburetor Heat ON
- _____ Close throttle smoothly
- _____ Pitch for glide speed. May need to hold nose level depending on speed from which glide starts
- _____ Check airspeed

_____ Trim

_____ **Straight & Level (from a glide)**

- _____ Lead the selected altitude by about 50 feet (10% rule)
- _____ Add cruise power
- _____ Stop the nose from rising with forward pressure
- _____ Carb heat off
- _____ Trim. Will need to adjust as speed changes
- _____ Maintain level flight and check instruments
- _____ Adjust power and trim as needed

_____ **Climbing Turns**

- _____ Differences in left & right turns (torque)
- _____ Why banks are kept shallow

_____ **Descending (gliding) turns**

- _____ The airspeed is close to that of climb, but rudder is comparatively weak because of the lack of slip stream and less P factor
- _____ Banks should be kept shallow at this point of training

_____ **Collision avoidance and in flight vision**

- _____ FAR 91.113
- _____ AIM 8-1-8
- _____ AIM 8-1-6

FLIGHT INSTRUCTION

(Including preflight check and cockpit checkout and cockpit checkout). The following should be discussed in the airplane on the ground or in flight, as applicable.

- _____ Preflight check. Use the checklist. Instructors should discuss the flight controls (which controls yaw, pitch, and roll) and why each item is checked on the airplane
- _____ Cockpit familiarization. Confirm that the student is comfortable and check seat security and adjustment to assure the ability to see out and move all controls. The sight picture should be discussed
- _____ Instruments and controls including trim tabs. Briefly review the four fundamentals, with the student moving and watching the flight controls to simulate entry and recovery from each
- _____ Start the engine using the checklist. Explain the procedure. The instructor handles the communications

- _____ Taxi technique and brake system. Demonstrate and explain
- _____ Pre-takeoff check using the checklist. Explain *why* for each item but not in too much detail
- _____ The take off. The students hand should be on the throttle during takeoff and climb out
- _____ Climb at the V_y
- _____ Level off procedure. Demonstrate the use of trim and leaning mixtures, noting that full explanation will come later
- _____ Effects of controls. Trim for hands off flying. Hands in your lap
- _____ Student uses roll, pitch, and yaw controls (ailerons, elevator, and rudder), and also notes the effects of power changes
- _____ Climb entry using power only. Demonstrate and identify sight picture attitude. Note: change in rudder required because of torque and P factor. Note: trim does not change
- _____ Straight and level from climb using power only. Identify the sight picture attitude. Note that trim changes only with change in airspeed
- _____ Turns. Student does medium 30° bank and shallow turns. Emphasize clearing the area. Student should say clear right, clear left
- _____ Demonstrate hands-off flying even in the turn. If trimmed properly, no control inputs are necessary
- _____ Normal glide. Identify the sight attitude picture. Student practices glide and level off using power only. Hands-off flying again
- _____ Return to the airport. Instructor operates the radio. Go through the checklist. Let the student fly as much of the pattern as possible. Instructor does the landing with student following

POSTFLIGHT INSTRUCTION

- _____ Evaluation
- _____ Critique
- _____ Review

Assigned reading: Airplane Flying Handbook: chapters 1 - 3
 Student Pilot's Flight Manual: chapters 2 – 9

UNIT 2

Review and repeat Unit 1

GROUND INSTRUCTION

- _____ Review of the four fundamentals
- _____ Airplane stability. The airplane wants to maintain equilibrium when trimmed. Briefly discuss in nontechnical terms longitudinal, lateral and directional stability
- _____ Local traffic patterns and traffic patterns in general. Introduction of wind indicators, Wind sock, tetrahedron, Wind T. Instructor may allow student to do part of the communications as determined by the instructor
- _____ Taxi. Check brakes as taxi begins. Open discussion about crosswind taxi as judged appropriate
 - _____ brake system
- _____ Pretakeoff checklist
 - _____ Magneto check. Expected RPM drop, the ignition system
 - _____ Carburetor heat check. Expected RPM drop; source of warm air
 - _____ Ammeter and suction gauge
 - _____ Idle RPM check
- _____ Use of trim
- _____ Wind drift correction theory. Introduction of crabbing and the rectangular course
- _____ Radio procedures to be used during the flight
- _____ Discuss exit from traffic pattern
- _____ Use shallow climbing turns and change of pitch to check for traffic
- _____ Review Four Fundamentals and effect of controls
- _____ Landing checklist. BGUMP

_____ Descend into pattern altitude at least 2 miles out. Do not descend into traffic pattern itself

_____ Before entering traffic pattern:

_____ Check the brake pedals for pressure. Feet off the brakes

_____ Fuel on fullest tank

_____ Undercarriage

_____ Mixture

_____ Make traffic call

FLIGHT INSTRUCTION

_____ Review: controls and instruments, student seated and cockpit and ensure the student's seat is adjusted properly for height and for and control inputs

_____ Preflight. Use checklist

_____ Student should use pre-start checklist and start airplane, check brakes as airplane starts to move

_____ Pretakeoff checklist. Use checklist

_____ Check traffic. Student may use radio

_____ Takeoff. Assume climb attitude: check airspeed indicator: trim. Climb at 70 knots.

_____ Explain exiting the pattern while checking for traffic, use definite climbing turns to clear, don't just wander around

_____ Climb to practice area. Consider introducing Dutch rolls

_____ Level off using three steps

_____ Student practices level turns of 30° both ways
Roll in & roll out, stress use of rudder

_____ Glides. Student practices. These are power off glides

_____ Level off from glide. Emphasize the pitch effect with change in power.

_____ Exercise in Four Fundamentals

_____ Climb: 1,000 feet

_____ Straight and level for 2 min.

_____ Descend 1,000 feet.

_____ Straight and level for 2 min.

_____ Repeat.

_____ Demonstrate approach attitude with and without flaps. Learn to pitch for 60 knots by visual picture. Cover airspeed indicator

_____ Return to airport. Student handles entering pattern and setting up for normal landing

POSTFLIGHT INSTRUCTION

_____ Evaluation

_____ Critique

_____ Review

Assigned reading: The Student Pilots Flight Manual: chapters 10, 12, 13 and 21
Airplane Flying Handbook: chapter 4

UNIT 3

Introduction of Steep Turns, Slow Flight, Rectangular Courses, S-Turns Across a Road and Turns Around a Point

GROUND INSTRUCTION

_____ Review units one and two. Review radio communications at controlled and uncontrolled airports

_____ Resolve questions related to units one and two and reading material

_____ Introduce 45° bank power turns

_____ Forces acting on airplane

_____ Elevator, aileron, rudder, and power requirements

_____ Pick a good reference on the horizon

_____ Roll into a 45° bank turn; then neutralize ailerons and rudder

_____ Add power and back pressure as bank increases

_____ Continually check pitch and bank attitudes and check with altimeter

_____ Roll out on the original reference on the horizon after one or two complete turns. As bank decreases ease off back pressure and reduce power to cruise

_____ Be aware of tendency to increase altitude when rolling out of turn

_____ Note the correction for torque in both left and right turns

_____ The airplane may encounter its own wake turbulence

_____ Introduced the power required/ Drag Curve in Simplified Terms. This Is the Power Curve

_____ Induced drag

_____ Parasitic drag

_____ **Slow Flight.** Flight at a minimum controllable speed. Slow flight is flight at such an airspeed that any further increase of angle of attack, decreasing airspeed, G forces, or a reduction of power would result in indications of a stall.

_____ Decay of the effectiveness of ailerons, elevator, and rudder control at low airspeed

_____ The relationship of stalls speed to angle of bank. With airspeed close to stall at straight and level flight attitude, make all shallow turns because stall speed increases with bank, and back pressure is held

- _____ Control airspeed with pitch: altitude control with power
- _____ Note pitch changes necessary with addition or retraction of flaps during slow flight
- _____ Use realistic distractions during slow flight. Scanning for other airplanes, etc.
- _____ Straight and level altitude +/-100 feet, heading +/-10°

_____ **Ground Reference Maneuvers**

- _____ Review the concept of wind correction
- _____ Procedures for flying over and parallel to a road
- _____ Rectangular course
- _____ S-turns across the road
- _____ Review radio and transponder procedures

Standard Procedure for CP Aviation for Slow Flight

- At a specified altitude and heading
- Carburetor heat on
- Reduce power to 1,500 RPM
- Airspeed in the white arc
- Lower flaps to 30° incrementally 10° at a time
- Increase power 200 RPM at a time after each extension of flaps. Maintain altitude and heading throughout this process
- Maintain altitude and airspeed with pitch and power
- Maintain direction with ailerons and rudder
- Add power for turns. Remove power for descents (100 RPMs per 100 feet)
- Full power climbs
- If not completing a power off approach, recover by applying full power, retracting flaps gradually
- Carburetor heat off
- Maintain heading and altitude
- Perform cruise flow and checklist

FLIGHT INSTRUCTION

- _____ Student performs preflight, taxi, runup, and take off, and handles communications if able. Discuss flight control positions for various wind conditions.
- _____ After takeoff, student puts the airplane in the V_y attitude, with attitude indicator covered; and checks the airspeed indicator.
- _____ Climb to practice area and altitude. Consider Dutch roll practice
- _____ Demonstrate 45° bank power turn for 720°
- _____ Student practices both left and right turns
- _____ Demonstrate slow flight, with shallow turns left and right.
- _____ Student practices
- _____ Introduce stall recovery by turning off the Stall alarm horn
- _____ Student establishes glide. Student levels off at approximately 600 – 1,000 feet above the ground
- _____ Student flies over and also parallel to a road
- _____ Demonstrate rectangular course
- _____ Student practices
- _____ If time permits, demonstrate S-turns across the road
- _____ Return to airport. Student enters pattern and establishes plane for landing

POSTFLIGHT INSTRUCTION

- _____ Evaluation
- _____ Critique
- _____ Review

Assigned reading: The Student Pilots Flight Manual: chapters 4-7, 10-12.
Airplane Flying Handbook: chapter 3,4,6,7.

UNIT 4

Introduction to Stalls

GROUND INSTRUCTION

(May take 2 lessons)

- _____ Review earlier flights as necessary
- _____ Resolve questions relating to assigned reading material, etc.
- _____ Review use of mixture control
- _____ Review Carburetion, carb ice and carb heat
- _____ Discuss the following items relative to aerodynamics:
 - _____ Four forces
 - _____ Airfoils (wings and propellers)
 - _____ Chord
 - _____ Angle of incidence
 - _____ Relative wind
 - _____ Angle of attack
 - _____ Lift as it relates to angle of attack and airspeed
 - _____ Critical angle of attack
 - _____ More about flaps and why they are used
 - _____ Stalls as a function of angle of attack, not airspeed
 - _____ The stall warning leads the stall by a few knots
 - _____ Elevators as they relate to stall entry and recovery. To recover from a stall, point the airplane in the direction it's going
 - _____ Power is used during a stall recovery to minimize altitude loss
 - _____ To recover from stall, push the yoke forward to break the stall (lower the angle of attack) and add full power to minimize altitude loss
- _____ Pre-solo stalls
 - _____ Takeoff and departure stalls
 - _____ Approach to landing stalls
 - _____ Stalls as an aid to landings
 - _____ Approach to, or partial (imminent) stalls
 - _____ Recovery at first indication of a buffet

_____ Review concept of wind correction

_____ Review rectangular courses and S-turns as necessary, citing common errors

_____ Another look at the traffic pattern with added emphasis on pattern departure and entries

FLIGHT INSTRUCTION

Flight: Practice Stalls

- _____ The student performs preflight, taxi, run-up, takeoff, imposed takeoff checklist. Student makes climb out at V_y , and handles communications as appropriate
- _____ Climb to the practice and altitude. Use clearing turns
- _____ Student practices 45° bank power turns 360° left and right
- _____ Practice slow flight. May be done without flaps if the student is overwhelmed by a using flaps
- _____ While in slow flight, practice simple stall recovery without the addition of power. Turn off the Stall warning horn
- _____ Student practices
- _____ Student establishes approach attitude with landing flaps and at appropriate speed. Cover airspeed indicator to show student that he or she can judge the speed by the visual picture of pitch
- _____ Demonstrate or have student perform an approach to landing stall with full recovery
- _____ Regain altitude and have student practice another stall
- _____ Regain altitude
- _____ Demonstrate and have student practice departure stalls if time allows
- _____ Return to airport. Student will do the return flight and make the appropriate radio communications as he or she is able
- _____ Set up for pattern entry and landing

POSTFLIGHT INSTRUCTION

- _____ Evaluation
- _____ Critique
- _____ Review

Standard Procedure for CP Aviation for Power Off Stall

- At specific heading and altitude
- Carburetor heat on
- Reduce power to 1,500 RPM
- Airspeed in the white arc
- Lower flaps to 30° incrementally 10° at a time
- Reduce power to idle
- Pitch for 60-65 knot descent
- Gradually pitch nose to a stalling attitude
- At stall, recovered by relaxing back pressure to an attitude that is just below critical angle immediately followed by:
 - Full power, carburetor heat off, flaps to 20°
 - Accelerate to V_x
 - Climb reducing remaining flaps slowly
 - Accelerate to V_y
- Return to original assigned altitude and heading
- Perform cruise flow and checklist

Standard Procedure for CP Aviation for Power On Stall

- Aircraft in takeoff configuration
- Carburetor heat on
- Reduce power to 1,500 RPM
- Maintain altitude and heading.
- As aircraft slows to 65 knots, add full power, carburetor heat off, and slowly pitching for a stalling attitude.
- Maintain coordination with rudder.
- At stall immediately recover by relaxing back pressure to an angle of attack that is just below critical, and leveling wings with rudder.
- Pitch for climb attitude at V_x , then accelerate to V_y .
- Perform cruise flow and checklist.

Assigned reading: The Student Pilots Flight Manual: chapters 11-13, & 18
Airplane Flying Handbook: chapter 8 & 16

UNIT 5

Emergency Procedures

GROUND INSTRUCTION

- _____ Review previous flights as necessary
- _____ Resolve questions related to reading assignments
- _____ Wake turbulence and windshear avoidance procedures
- _____ Collision avoidance procedures
- _____ Review stall series
- _____ Introduction of Emergency Procedures. Use checklist: **A B C**
 - _____ Simulated engine failure at cruise altitude. Close throttle, do not use mixture control
 - _____ Carb heat on as best glide is being set up
 - _____ Established best glide attitude and check with airspeed indicator. Trim to maintain best glide speed
 - _____ Pick a landing area and turned towards it
 - _____ Mixture rich
 - _____ Confirm surface wind direction
 - _____ Use checklist
 - _____ Confirm carburetor heat on
 - _____ Check fuel gauges.
 - _____ Fuel shutoff valve on
 - _____ Primer in and locked
 - _____ Magnetos
 - _____ Ignition switch on both
 - _____ Declare an emergency on frequency 121.5, or if in contact with approach control stay on that frequency
 - _____ Set transponder 7700
 - _____ Set mixture idle to cut off
 - _____ Fuel selector off.
 - _____ Use flaps, as necessary, to land on chosen spot. It is best to use flaps in increments, but the first requirement is to make the field.
 - _____ After flaps have been set, turn off master and ignition switches.

_____ Unlatch doors just prior to touchdown.

_____ **THE FIRST RESPONSIBILITY IS TO CONTROL AND FLY THE AIRPLANE TO A SAFE LANDING.** Note that with low altitude emergencies, time limits may preclude use of transponder or transmitters, checklist & turns.

_____ Review other emergencies such as partial power loss, engine running rough, fire, electrical failure.

Engine Fire in the Air and Emergency Descent

_____ Mixture – idle cut off

_____ Fuel Selector Valve – Off

_____ Throttle to idle to simulate engine stopping

_____ Cabin Heat and Air – Off

_____ Airspeed 100 KIAS in C172, 85 KIAS in C150

_____ Emergency descent, consider left turning descent and/or slip

_____ Forced landing

_____ Review the normal landing process and return to the airport

FLIGHT INSTRUCTION

- _____ Student performs all pre-takeoff functions and executes takeoff
- _____ Student climbs at 70 knots, establishes pitch attitude, then maintains that attitude with airspeed indicator covered
- _____ Student levels all that practice altitudes
- _____ Perform turns and then slow flight. Instructor & student agree on time needed
- _____ Student does series of stalls, power on and power off, in both straight and turning flight
- _____ Simulate power failure at altitude by closing throttle
 - _____ Pitch for best glide speed
 - _____ Carb heat on.
 - _____ Pick a landing area and check wind direction
- _____ Student glides towards landing spot and sets up landin.
- _____ If possible, set up rectangular course and have student practic.
- _____ Perform go around procedure and return to the airpor.
- _____ Student sets up the plane for landing sequence and perform as much as possibl.
- _____ If time permits, instructor may elect to perform another loop in the patter.

POSTFLIGHT INSTRUCTION

- _____ Evaluation
- _____ Critique
- _____ Review

Assigned reading : The Student Pilots Flight Manual: chapters 12-13
 Airplane Flying Handbook: chapter 8 & 16

UNIT 6

Pattern Work: Normal Takeoff and Landings

GROUND INSTRUCTION

- _____ Review earlier units as necessary
- _____ Resolve questions relative to assigned reading
- _____ Normal takeoff
 - _____ Check for traffic. Discuss differences between towered and nontowered fields and the use of radios.
 - _____ Importance of lining up with centerline of runway. Discuss parallel runways. Where other planes expect you to be
 - _____ Emphasize right rudder needed to maintain runway alignment on takeoff roll
 - _____ Keep pressure on the nose gear light
 - _____ Let the airplane fly itself off the runway; and use right rudder as necessary
 - _____ Climb at 70 knots
 - _____ Look over right shoulder to confirm runway alignment
 - _____ Review check traffic patterns
 - _____ Review landing process and standard landing procedure
 - _____ Discuss landing in terms of rollout and flare
 - _____ Discuss the use of power in the landing process
 - _____ Review the go around procedure
 - _____ Full power
 - _____ Carb heat off
 - _____ Flaps to 20°
 - _____ Trim. Discuss trim stall
 - _____ Establish positive rate of climb. Retract flaps incrementally
- _____ Discuss recoveries from bad situations during approach and landing
 - _____ Too high on final. Take it around.
 - _____ Too low on final. Do not drag the airplane up to the runway using minimal power
 - _____ Flying into the ground. Add power as the airplane descends. If the bounce is too high, go around
 - _____ Dropping it in. Add power to lessen the impact as the airplane descends

_____ Normal Approach and Landing:

- _____ Flap use.
- _____ A stabilized approach is established by gradually reducing power, with elevator pressures trimmed off.
- _____ Discuss use of throttle when runway is made.
- _____ On final, at the height of approximately 20 feet, the round out is started. Gradually ease the yoke back. The transition must be gradual.
- _____ The first 15 feet of this round out brings the plane to level or parallel with the runway; the airplane is slowing up during this time.
- _____ As the plane approaches level, look down the runway and sense when the plane is settling, and then begin to flare or raise the nose to the landing attitude. Discuss visual picture. Objects up & down the windscreen
- _____ Once in the landing attitude at about 1 foot above the ground:
- _____ Attitude should be held. Don't push! As the airplane approaches the stall, back pressure on the wheel is increased and should be in your belly as the plane touches down. Don't let it land. Hold it off.
- _____ Eyes should be focused about 10° left of the nose and far enough ahead so the ground is not blurred. Don't stare at one spot. Scan the surface.
- _____ The airplane should be lined up with the runway; that is, the longitudinal axis of the airplane is parallel to the longitudinal axis of the runway and the wings should be level.
- _____ During the ground roll, back pressure should be held. The nose wheel should come down by itself.
- _____ Brake as necessary. If the runway is long enough, the pilot may want to save brakes and turn off at a taxiway further down the runway.

FLIGHT INSTRUCTION

- _____ Preflight
- _____ Taxi
- _____ Normal takeoff
- _____ Fly to Oxnard Airport
 - _____ Practice straight and level. Trim
 - _____ Before entering traffic pattern at Oxnard, practice maneuvers
 - _____ Turns
 - _____ Slow flight

_____ Approach to landing configuration. Establish 60 knot glide.
Confirm visual

_____ Obtain ATIS. Discuss Pattern entry at Oxnard

_____ Landing practice at Oxnard

_____ Return to Santa Paula

_____ Student sets up for landing at Santa Paula.

_____ Student lands at Santa Paula.

POSTFLIGHT INSTRUCTION

_____ Evaluation

_____ Critique

_____ Review

_____ **Post Flight Instruction.**

Standard Procedure for CP Aviation: Normal Landing Procedure

- Perform checklist
- Enter downwind. Place the runway halfway up the wing strut.
- Carburetor heat on
- Set down wind power setting at 2,000 RPM, 2,200 RPM for C150 and maintain pattern altitude until abeam of the approach end of the runway
- Airspeed in the white arc
- 1,500 RPM, 10° flaps, 70 knots,
- Begin base turn
- 20° flaps
- Turn final. Maintain stabilized approach flaps 30°, speed 60 knots
- Maintain runway alignment. Adjust rate of descent with power
- Begin round out at 10 to 15 feet from the runway and shift sight picture down the runway
- Airplane is held 1 to 2 feet off the surface in ground effect as long as possible.
Don't let it land
- Touchdown at slowest possible speed or at near stalls speed

- Exit runway at first opportunity consistent with safety.
- Stop, perform after landing check list.
- Contact ground control or report clear off runway.

UNIT 7

Practice: Normal Takeoff and Landings

GROUND INSTRUCTION

- _____ Review earlier units as necessary
- _____ Resolve questions relative to assigned reading
- _____ Normal takeoff
 - _____ Check for traffic. Discuss differences between towered and nontowered fields and the use of radios
 - _____ Importance of lining up with centerline of runway. Discuss parallel runways. Where other planes expect you to be
 - _____ Emphasized right rudder needed to maintain runway alignment on takeoff roll
 - _____ Keep pressure on the nose gear light
 - _____ Let the airplane fly itself off the runway; and use right rudder as necessary
 - _____ Climb at 70 knots
 - _____ Look over right shoulder to confirm runway alignment
- _____ Review check traffic patterns
- _____ Review landing process and standard landing procedure
 - _____ Discuss landing in terms of rollout and flare
- _____ Discuss the use of power in the landing process
- _____ Review the go around procedure
 - _____ Full power
 - _____ Carb heat off
 - _____ Flaps to 20°
 - _____ Trim. Discuss trim stall
 - _____ Establish positive rate of climb. Retract flaps incrementally

- _____ Discuss recoveries from bad situations during approach and landing.
- _____ Too high on final. Take it around.
- _____ Too low on final. Do not drag the airplane up to the runway using minimal power
- _____ Flying into the ground. Add power as the airplane descends. If the bounce is too high, go around.
- _____ Dropping it in. At power to lessen the impact as the airplane descends

FLIGHT INSTRUCTION

- _____ Preflight.
- _____ Taxi.
- _____ Normal takeoff.
- _____ Fly to Oxnard Airport.
- _____ Obtain ATIS. Discuss Pattern entry at Oxnard.
- _____ Landing practice at Oxnard.
- _____ Return to Santa Paula.
- _____ Student sets up for landing at Santa Paula.
- _____ Student lands at Santa Paula.

POSTFLIGHT INSTRUCTION

- _____ Evaluation
- _____ Critique
- _____ Review

UNIT 8

Practice: Normal Takeoff and Landings

GROUND INSTRUCTION

- _____ Review earlier units as necessary
- _____ Resolve questions relative to assigned reading
- _____ Santa Paula Pattern discussion
- _____ Review landing process and standard landing procedure
- _____ Discuss landing in terms of rollout and flare
- _____ Discuss the use of power in the landing process
- _____ Review the go around procedure:
 - _____ Full power
 - _____ Carb heat off
 - _____ Flaps to 20°
 - _____ Trim. Discuss trim stall
 - _____ Establish positive rate of climb. Retract flaps incrementally

FLIGHT INSTRUCTION

- _____ Preflight
- _____ Taxi
- _____ Normal takeoff
- _____ Stay in pattern at Santa Paula
- _____ Landing practice at Santa Paula

POSTFLIGHT INSTRUCTION

- _____ Evaluation
- _____ Critique
- _____ Review

UNIT 9

Takeoffs and Landings: Review of Recoveries from Bad Situations and Slips to Landings

GROUND INSTRUCTION

- _____ Review earlier flights as necessary
- _____ Resolve any questions relative to assigned reading
- _____ Traffic pattern, approach, and normal landing procedures
- _____ Discuss attitude flying in the pattern with loss of airspeed indicator
- _____ Communication requirements. Student takes an increasing role
- _____ Review recoveries from bad situations
 - _____ Flying into the ground (bounce)
 - _____ Dropping it in
 - _____ Too low in the approach
 - _____ Too high in the approach
- _____ Discuss emergencies on takeoff
 - _____ Power failure while on the runway
 - _____ Power failure on climb out. Discuss hazards of turning back
 - _____ Power failure after liftoff
 - _____ Door opening during takeoff roll or after liftoff
 - _____ Seat belt hanging outside. Describe sound. Fly the airplane!
 - _____ Review aborted takeoff
- _____ Briefly review force landing procedures in cruise, descent and in pattern.
- _____ Introduce crosswind takeoff
 - _____ Flight control positions for relative crosswinds during taxi and takeoff
- _____ Introduce crosswind landings
 - _____ Crabbing as a drift correction maneuver in the pattern.
 - _____ Sideslip as a drift correction maneuver on final and throughout touchdown.

- _____ Crab approach and sideslip correction during the landing process.
- _____ Introduce the effects of gusty air and wind gradients.
- _____ Discuss loss of directional controls; casual factors and recovery techniques.
- _____ Review go around procedure
 - _____ During turns to base or final
 - _____ From final approach
 - _____ During the landing flare
 - _____ Cleanup procedure
- _____ Cover wake turbulence avoidance procedures as necessary
- _____ Review scanning and collision avoidance procedures

FLIGHT INSTRUCTION

- _____ Takeoff and Landing practice
 - _____ May be done at Santa Paula or Oxnard
 - _____ If at Oxnard, will usually be preceded by review of some maneuvers
 - _____ If at Santa Paula, may go to practice area for review of some maneuvers

POSTFLIGHT INSTRUCTION

- _____ Evaluation
- _____ Critique
- _____ Review

UNIT 10
Pre-Solo Knowledge Test

GROUND INSTRUCTION

- _____ Review the Pre-solo Test
- _____ Review 61.87 checklist
- _____ Ground school as appropriate

FLIGHT INSTRUCTION

- _____ Review take off and landings
- _____ Review Emergencies
- _____ Review stalls and turns

PHASE CHECK

You will review the knowledge test material with the chief pilot. The chief pilot will also review your instructor's paper work. Understand what he is looking for as you are responsible to have the correct endorsements when you fly. You will also fly a short lesson with the chief plot to review what you have learned.

Stage Two

Post Solo and Supervised Solo

1. After your solo you will complete two more supervised solos with your instructor checking each flight.
2. A flight may be done at Oxnard or Camarillo.
3. Prior to each supervised solo you will review your progress
4. Your instructor will probably fly dual with you and then release you for solo
5. After completing your third supervised solo, your instructor will make sure your endorsements are complete and you are checked out in the Schedulepointe so you may solo without your instructor present.
6. During your posts supervised solo time you will practice maneuvers as assigned by your instructor.
7. Your instructor will most likely alternate solo flights with dual flights to make sure you are staying on track.
8. You will then progress to Stage III which is preparation for cross-country flight.

Items that you can practice on your solo flights:

Ground Review:

A review and briefings for solo practice of steep turns, stalls, slow flight, wind drift correction maneuvers, and takeoffs and landings

- _____ Steep Turns. Maintain the specified altitude +/- 100 feet, specified heading 10°, and specified airspeed +/-10KT
- _____ Stalls: power-on and power off
- _____ Rectangular course
- _____ Turns around point
- _____ S-turns. Altitude +/-100 feet, airspeed +/-10 knots
- _____ Normal or crosswind takeoffs and landings
- _____ Normal or crosswind takeoffs and landings at another airport if you receive an endorsement

Stage III

Topics for cross-country planning and flying are as follows:

1. Short and Soft field takeoff and landings: page 33
2. Instrument flying: page 36
3. Night flying: page 38
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UNIT 11

Short and Soft Field Takeoffs and Landings

These techniques are used to demonstrate more precise control in your take off and landing procedures. You may work on these during several lessons as well as on most of your cross country trips.

- _____ Short-field takeoffs
- _____ Max angle and obstacle-clearance climbs
- _____ Soft-field take off techniques
- _____ Soft-field post lift off procedures
- _____ Comparison of short- and soft-field takeoff configurations and procedures
- _____ Short-field approach and landings; airspeed control, use of power, 1.3 V_{so} approach speed
- _____ Braking techniques
- _____ Soft-field approach and landing techniques
- _____ Comparison of short- and soft-field landing configurations and procedures
- _____ Crosswind takeoff and landing review
- _____ High density-altitude takeoffs (restricted RPM to simulate conditions)

Special takeoff and landing procedures

- _____ Short field takeoffs and landings
- _____ Soft field takeoffs and landings
- _____ Crosswind takeoffs and landings
- _____ Slips to landing, if approved

Standard Procedure for CP Aviation: Short-Field Landing for Cessna 172 and Cessna152

- Perform before landing checklist (GUMPS)
- Enter pattern on 45° to downwind at TPA, place runway halfway up strut (or recommended traffic pattern entry)
- Set downwind power setting 2,000 rpm (2,200 rpm C150) and maintain TPA
- Carburetor heat on
- At approach end of runway reduce power to 1,500 rpm (1,700 rpm for Cessna 150)
- Airspeed in the white arc
- Lower flaps 10° (pitch for 70kts)
- Begin base turn at 45 degree point, or as required to correct for wind. Lower flaps to 20°.
- Turn final, flaps 30°, or 40° if appropriate
- Maintain a stabilized approach at Vref airspeed + 10-5 knots (pitch for 60kts). No wind C150 = 52 or C172 = 55 kts)
- Power to idle and pitch to maintain Vref when clear of obstacle
- Choose aiming point 100 feet before desired touchdown point
- Begin round out 10 to 15 feet from runway
- Touchdown with power off, at or near stalling airspeed at/or within 200 feet of desired spot
- Gently lower the nose, raise flaps and bring aircraft to a complete stop with heavy braking, elevator back (may just simulate braking)
- Exit runway at first opportunity consistent with safety
- Perform after landing flow and checklist
- Contact ground control after crossing the hold short line (dash across the dash)

This is an example of CP standard procedure. You should get a copy of all Standard Procedures from you instructor

POSTFLIGHT INSTRUCTION

_____ Evaluation
 _____ Critique
 _____ Review

Assigned Reading: SPFM chapter 17
Aircraft Flying Handbook Chapter 5

UNIT 12

Introduction to Emergency Instrument Flying

GROUND INSTRUCTION

- _____ Aviate, navigate, communicate.
- _____ The pitot-static instruments
- _____ The gyro instruments
- _____ Instrument scan
- _____ Bank instruments
- _____ Pitch instruments
- _____ Control and Performance instruments
- _____ Attitude plus power equal performance
- _____ Primary and supporting instruments

_____ **Four Fundamentals and the Instruments' Indications**

- _____ Straight and level
- _____ Climbs
- _____ Descents
- _____ Turns

FLIGHT INSTRUCTION

- _____ Flight Maneuvers Under the Hood
 - _____ Straight and level
 - _____ Climbs
 - _____ Descents

- _____ Turns
- _____ Turns to headings
- _____ Climbs and Descents to assigned altitudes
- _____ Track VOR heading
- _____ Intercept VOR radial
- _____ Unusual Attitudes
- _____ Nose up = power up, pitch, roll
- _____ Nose down = power down, roll, pitch

Instrument training will occur over several lessons and maybe combined with a cross country trip. The unusual attitudes will be part of the later lessons in instrument flying.

POSTFLIGHT INSTRUCTION

- _____ Evaluation
- _____ Critique
- _____ Review

UNIT 13

Night Flying

GROUND INSTRUCTION

- _____ Airplane equipment
- _____ Required equipment (91.205) and lighting (91.209)
- _____ Personal equipment, flashlight, charts, checklist
- _____ Procedures in the event of loss of electrical power
- _____ Physiology of night flying
 - _____ Rods and Cones
 - _____ Use of oxygen
- _____ Night Scanning for traffic
- _____ Recognize position and course of another aircraft by position lights
- _____ Vertigo
- _____ Indication of flying into fog or mist
- _____ Illusions in flight
 - _____ Rely more on instruments
 - _____ Sparse ground light and disorientation
 - _____ Landing errors and illusions. Use VASI
 - _____ Runway up and down slopes and narrow and wide runways
 - _____ Atmospheric illusions
- _____ Cockpit lighting
- _____ Airport lighting
 - _____ Airport Beacon
 - _____ Runway edge lights
 - _____ VASI
 - _____ Runway end lighting
 - _____ Approach systems

_____ Taxiway and other surface lights

_____ Pilot control of runway lights

_____ Night Emergencies

_____ Where will you land?

FLIGHT INSTRUCTION

Night Flight

The night flight may be done in one or two sessions. You need 3 hours of night with 10 take off and landings and one cross country. Discuss with your instructor:

_____ One or Two night lessons

_____ Cross country plan

_____ Logistics of moving plane to Oxnard or Camarillo for night operations

Assigned Reading: SPFM Chapter 26,
 Airplane Flying Handbook Chapter 10

POSTFLIGHT INSTRUCTION

_____ Evaluation

_____ Critique

_____ Review

UNIT 14

Navigation Ground School Preparation for Dual and Solo Cross-country Flying

These are topics that will need to be covered. It is a lot of material. You will probably do it in 3 or more sessions. Breaks are suggested. You may do flights in between these sessions.

GROUND INSTRUCTION

First Session on Navigation:

_____ Types of navigation

_____ Pilotage

_____ Dead reckoning

_____ Radio navigation

_____ Meridians and parallels.

_____ Meridians run north and south and converge at the True North and South Poles

_____ The prime meridian runs through Greenwich England

_____ Lines of longitude run north and south, longitude is measured from the Prime Meridian East and West

_____ Parallels run East and west

_____ Prime parallel runs through the equator

_____ Latitudes are measured North and South of the equator

_____ Degrees of latitude

_____ 60 minutes equals 1°

_____ One minute equals one nautical mile

_____ True North. Courses are measured clockwise from true North

_____ The magnetic North Pole is in Canada

_____ Magnetic variation equals the difference between magnetic North and true North

_____ Isogonic lines equal lines of equal magnetic variation

- _____ Agonic line. No difference
- _____ East is least and West is best. Magnetic heading equals true course minus easterly variation and plus westerly variation.
- _____ Compass deviation
 - _____ Swinging or correcting a compass
- _____ Course Plotter: How to use it
- _____ Wind triangle
 - _____ Important concept. Learn how to construct one

(Break)

Second Session on Navigation

- _____ Using the E6B
- _____ Using electronic calculators
- _____ Using computers and the Internet
- _____ Be able to Find:
 - _____ True airspeed
 - _____ Check fuel consumption
 - _____ Density altitude
 - _____ Groundspeed and estimated time of arrival
 - _____ Fuel required
 - _____ Correct indicated or pressure altitude for temperature
 - _____ Convert true course to true heading to compass heading and back
 - _____ Cross wind component
 - _____ Head wind or tailwind component

(Break)

Third Session on Navigation

- _____ Review sectional charts
- _____ Review airspace
- _____ Review aeronautical information manual
- _____ Review Airport Facility Directory (AFD)
- _____ Notice to airman (NOTAMS)
- _____ Review online and Ipad flight planning

(Break)

Review of the airplane. "A" in "PAVE"

- _____ Is the airplane safe? Is it airworthy?
- _____ Performance factors for take off and landings
- _____ Systems
- _____ Weight and Balance
 - _____ Seesaw principle
 - _____ Datum moment and CG positions
 - _____ Empty weight CG and moments
 - _____ Basic empty weight
 - _____ Useful load
 - _____ Fuel oil weights
 - _____ Effects of adding subtracting or moving weights and CG.
 - _____ Effects of CG out of limits
- _____ Use of PAVE
 - _____ Other Acronyms
- _____ Filing flight plans
 - _____ Filing on the ground and filing in the air
 - _____ Using the Internet to file

- _____ Using transponder in emergency situations
- _____ Review Cockpit Resource Management (CRM) and Aeronautical Decision Making (ADM) as applied to a student and low time private pilots.
- _____ Emergency procedures
- _____ Weather information sources
 - _____ Hourly reports
 - _____ Forecast
 - _____ Weather charts
 - _____ Winds aloft
 - _____ In-flight advisories

National Transportation Safety Board Part 830

- _____ Review what needs to be reported and when

UNIT 15

Use of NAVAIDs and Communication Procedures

GROUND INSTRUCTION

_____ VOR

- _____ Major components: OBS, CDI, TO/FROM
- _____ Theory. How it works
- _____ Select frequency & identify
- _____ Track TO or FROM
- _____ Zone of ambiguity
- _____ Tracking, homing and intercept
- _____ Principles of locating by cross-bearings
- _____ Station crossing

_____ GPS. If available in the plane, you will be responsible to know how to use it.

_____ Transponder

- _____ Theory of operation
- _____ 4096 codes available
- _____ VFR code 1200
- _____ Emergency codes 7700, 7500, 7600

_____ Communications

- _____ Frequencies to use locally
- _____ Frequencies to use if lost
- _____ ATC light signals
- _____ Review UNICOM vs Multicom
- _____ Review coms with tower at towered airport

_____ Flight Following

- _____ How to establish, what to say or ask for
- _____ Find Frequencies
- _____ What to expect ATC to say

Assigned Reading: SPFM Chapter 21,
 Pilot's Handbook of Aeronautical Knowledge Chapter 15

UNIT 16 AVIATION WEATHER

GROUND INSTRUCTION

Weather Theory

- _____ Basic Meteorology
 - _____ Heat and circulation
 - _____ Coriolus Effect
 - _____ Moisture: temperature and dewpoint
 - _____ Relative Humidity
 - _____ Lapse rate: normal, dry, wet
 - _____ Clouds
 - _____ Fog: advection, radiation, upslope, precipitation, and ice fog
 - _____ Precipitation: rain, hail, sleet, snow.
 - _____ Fronts: Warm, cold, occluded, stationary
 - _____ types of clouds and weather
 - _____ turbulence
 - _____ Area covered
 - _____ Precipitation
 - _____ Cross-section of front
 - _____ Change with passing
 - _____ Speed of front
 - _____ Thunderstorms

Assigned Reading: PHAK CHAP 11

UNIT 17

Weather Services and Reports

GROUND INSTRUCTION

Weather Briefings: 1 800 WXBRIEF 1 800 992-7433

- Standard
- Abbreviated
- Outlook

Reports

- METARS
- ATIS
- PIREPs
- AWOS & ASOS

Forecasts

- FAT
- Area Forecast FA

In flight advisory

- SIGMETS
- AIRMETS
- Convective SIGMETS
- HIWAS
- AWOS & ASOS

Weather Charts

- Surface Analysis
- Radar Analysis
- Winds aloft
- Weather depiction
- Weather prognostic

Assigned reading: PHAK Chap 12

UNIT 17 Airspace

GROUND INSTRUCTION

Controlled Airspace

- Class A
- Class B
- Class C
- Class D
- Class E

Uncontrolled Airspace

- Class G

Airspaces are differentiated by

- Visibility requirements
- Clouds Clearance
- Speed limits
- Equipment required
- Comm. Required
- Pilot certificate required

Special Use airspace

- Restricted areas
- Warning areas
- Military areas
- Alert areas

More airspace

- National security areas
- Military training routes
- Air Defense identification zone
- Parachute jump areas
- Temporary flight restrictions (TFR)
- TRSAs

Assigned Readings: AIM Chap 3,
Airspace for Everyone - Flight Training - **AOPA**,
Judy's online class- cpaviation.com,
PHAK Chap 14

UNIT 17

Dual Cross Country Trip Planning

On sectional chart

- Measure true course and distances for all legs and mark on the chart. Put mile markers every 10 NM
- Plan one leg on a federal airway
- Track on a VOR
- Check for alternate airports
- Set up flight log
- Select enroute check points and mark on chart
- Review operational problems with different terrain features
- Review high density altitude airport
- Estimating visibility in flight
- Check for restricted, prohibited, or special use airspace
- Review chart legends

In Airport/Facility Directory

- Check facilities at destination, Review FBO's, location of wind indicators, UNICOM, or tower frequencies
- Review radio navigational aids available at destination and enroute
- Traffic pattern and TPA
- Fuel available

Weather

- Get briefing
- Current observations
- Forecast
- Winds aloft
- NOTAMS and TFR's
- Check AIRMETS and SIGMETs

File flight plan

Dual Cross Country Flight

- _____ Checklist for personal equipment, charts, logs, computers, plotters, timepiece
- _____ Preflight, full fuel and oil
- _____ Take off – start time
- _____ Checkpoints and times
- _____ Estimate visibility in flight
- _____ Alternate airport procedures
- _____ Track VOR
- _____ Flight under the hood for part of trip
- _____ Locate position by VOR cross bearing
- _____ Traffic pattern entry
- _____ Refuel
- _____ Home by different route or different type of navigation

UNIT 18

Pre-Solo Cross Country Phase Check

GROUND INSTRUCTION

Pre-solo cross country knowledge test

- _____ Review the pre-solo test
- _____ Review 61.93 checklist
- _____ Ground school as appropriate

FLIGHT INSTRUCTION

- _____ Review short and soft field take off and landings
- _____ Review VOR tracking
- _____ Review instrument procedures and unusual attitudes
- _____ Airport diversion
- _____ Review Emergencies
- _____ Review stalls and turns

Phase Check

You will review the knowledge test material with the chief pilot. The chief pilot will also review your instructor's paper work. Understand what he is looking for as you are responsible to have the correct endorsements when you fly. This is more important on cross flights. You will also fly a short lesson with the chief plot to review what you have learned. It will be similar to your check ride, but shorter in length and you will not be held to the same standards as the practical test.

UNIT 19

Solo Cross Country Flight

PLAN

- _____ Complete your flight plan and log as per your dual flight
- _____ Review airplane servicing requirements,
- _____ Fueling, will you refuel?
- _____ Oil
- _____ Proper windshield cleaner

Weather

- _____ Get briefing
- _____ Current observations
- _____ Forecast
- _____ Winds aloft
- _____ NOTAMS and TFR's
- _____ Check AIRMETs and SIGMETs

Flight

- _____ Review paperwork and endorsements
- _____ Activate flight plan
- _____ Have fun
- _____ Be safe
- _____ Close you flight plan

You will need 5 hours of solo cross country. It can be all one trip or several shorter trips. To count as a cross country it must be at least 50NM, so plan carefully. Your 'long' cross country must be at least 150NM with one leg at least 50 NM and you must have 3 stops.

Stage IV

_____ You don't need a syllabus anymore

_____ Read the PTS

_____ Reread the PTS areas of special interest

_____ Review the PAVE document in prep for the oral exam

_____ Practice, both dual and solo

_____ Study