COMMERCIAL PILOT CERTIFICATION

STAGE TWO Training Course Outline

COMMERCIAL MANEUVERS FLIGHT TRAINING
Lessons 8-17
40 hours (approx) of Dual Flight Training which includes
3 hours of training in preparation for the practical test and
must be within 2 calendar months of the date of the test.

Stage Two Objectives
Students will be instructed in flying the maneuvers required
of commercial pilot applicants.

Stage Two Completion Standards
This stage will be complete when the student has completed
all Stage Two Lessons, and when they have
satisfactorily completed the Commercial Pilot Certification
Training Course Outline.
Must meet FAR Pt. 61.129(c)

Hours		

STAGE 2—Lesson 8 *(DUAL) Approach Manuevers*
OBJECTIVE: The student will apply previously learned skills to approach and landing maneuvers.
TIME: As required.

PREFLIGHT BRIEFING/SPECIAL EMPHASIS AREAS

____ ____ ____ ADM and risk management
____ ____ ____ Weight and balance
____ ____ ____ Chair Fly—autorotation
____ ____ ____ Chair Fly—go-arounds
____ ____ ____ Positive aircraft control
____ ____ ____ RUNWAY INCURSION avoidance
____ ____ ____ CFIT/wire strike avoidance

EMERGENCY PROCEDURES √ (Oral review)

____ ____ ____ Forced landings
____ ____ ____ Fire—startup, engine or electrical in-flight, cabin
____ ____ ____ Icing—structural inflight, static port blockage, carb ice
____ ____ ____ Electrical— ammeter discharge

PREFLIGHT

____ ____ ____ Cockpit √
____ ____ ____ Certificates & documents - A*RROW*
____ ____ ____ Preflight inspection √
____ ____ ____ Aircraft servicing

STARTUP

____ ____ ____ Engine start √
____ ____ ____ Comm radio setup—freq, vol, xmit-ter
____ ____ ____ Rotor engagement
____ ____ ____ Runup √
____ ____ ____ Pre-Takeoff √

TAXI (If required)

____ ____ ____ Taxi clearance
____ ____ ____ Positive exchange of controls
____ ____ ____ Taxiing—x-wind, speed, hazards, air taxi
____ ____ ____ Traffic awareness / Call HOLD SHORT if applicable

TAKEOFF / CLIMB / CRUISE

____ ____ ____ Takeoff √
____ ____ ____ Takeoff clearance
____ ____ ____ Takeoff—*normal, crosswind*
____ ____ ____ Climbs √ - turn, Cs, VR-IR
____ ____ ____ Traffic pattern departure, FW traffic avoidance
____ ____ ____ Level-off from climb—*VR-IR*
____ ____ ____ Cruise √

BASIC MANEUVERS

____ ____ ____ Normal approach
____ ____ ____ Steep approach
____ ____ ____ Straight-in auto-rotations
____ ____ ____ Go-arounds
____ ____ ____ Traffic watch / instrument check
____ ____ ____ Instructor directed practice - See comment

_____
_____
_____
_____

EMERGENCY PROCEDURES √ (Practical review)

____ ____ ____ Engine failure—takeoff, after takeoff, inflight
____ ____ ____ Forced landings—*power, no power*

STAGE 2--Lesson 8 *(DUAL) Approach Manuevers*
(CONTINUED)

LANDING

____	____	____	Approach—*location, communication*
____	____	____	Pattern entry / traffic pattern
____	____	____	Landing √
____	____	____	Landing clearance
____	____	____	Stabilized approach
____	____	____	Landings—*normal, crosswind*
____	____	____	Set-down—drift, no aft movement
____	____	____	Taxi clearance
____	____	____	Runway incursion avoidance
____	____	____	Taxi √ - wind, speed, hazards
____	____	____	Air taxi
____	____	____	Shutdown √

POSTFLIGHT

____	____	____	Postflight inspection of aircraft
____	____	____	Debrief / update syllabus and log-book

COMPLETION STANDARDS

The lesson will be complete when all areas have a grade of 2 or better. Standards are as follows:
1. Altitude ±250 feet
2. Headings ±15°
3. Airspeed ±15 knots
4. Hover –1/+5 feet
5. Maintains position within 10 ft with no aft movement

Instructor	Student	Date	Acft Type	N#
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

	Dual Pre/Post	Dual Day	Dual Night	Dual X-Ctry	Dual Inst	Dual Test Prep	Solo Day	Solo X-Ctry	Total Acft	Inst
Previous										
This Lesson										
Total										

Hours		

STAGE 2—Lesson 9 ***(DUAL) Advanced flight maneuvers***
OBJECTIVE: The student will apply previously learned skills to Advanced Flight Maneuvers.
TIME: As required.

PREFLIGHT BRIEFING/SPECIAL EMPHASIS AREAS

____ ____ ____ Positive aircraft control
____ ____ ____ Power management
____ ____ ____ ADM and risk management
____ ____ ____ Weight and balance
____ ____ ____ In ground effect
____ ____ ____ Out of ground effect
____ ____ ____ Initiate run-on
____ ____ ____ Collision avoidance
____ ____ ____ RUNWAY INCURSION avoidance

EMERGENCY PROCEDURES √ (Oral review)

____ ____ ____ Forced landings
____ ____ ____ Fire—startup, engine or electrical inflight
____ ____ ____ Icing—structural inflight, carb ice
____ ____ ____ Electrical— ammeter discharge
____ ____ ____ Emergency—land Immediately, land as soon as practical

PREFLIGHT

____ ____ ____ Cockpit √
____ ____ ____ Certificates & documents—*ARROW*
____ ____ ____ Preflight inspection √
____ ____ ____ Aircraft servicing

STARTUP

____ ____ ____ Engine start √
____ ____ ____ Comm radio setup—freq, vol, xmit-ter
____ ____ ____ Nav radio setup—*freq, ID*
____ ____ ____ Rotor engagement
____ ____ ____ Runup √
____ ____ ____ Pre-takeoff √

Taxi (If required)

____ ____ ____ Taxi √ / taxi brief, if necessary
____ ____ ____ Taxi clearance
____ ____ ____ Taxiing—wind, speed, hover stability check
____ ____ ____ Traffic watch

TAKEOFF / CLIMB / CRUISE

____ ____ ____ Takeoff √
____ ____ ____ Takeoff clearance
____ ____ ____ Takeoff—*normal, crosswind*
____ ____ ____ Climbs √ - turn, Cs, VR-IR
____ ____ ____ Traffic pattern / departure
____ ____ ____ Level-off from climb—*VR-IR*

ADVANCED MANEUVERS

____ ____ ____ Normal to set down
____ ____ ____ Pick up to hover
____ ____ ____ Maximum performance takeoff and climb from hover
____ ____ ____ Shallow approach
____ ____ ____ Run-on landing
____ ____ ____ Forced landing identification
____ ____ ____ Effects of low-G maneuvers and recovery

EMERGENCY PROCEDURES √ (Practical review)

____ ____ ____ Engine failure—takeoff, after takeoff, inflight
____ ____ ____ Forced landings—*power, no power*

LANDING

____	____	____	Approach—*location, communication*
____	____	____	Pattern entry / traffic pattern
____	____	____	Landing √
____	____	____	Landing clearance
____	____	____	Stabilized approach
____	____	____	Landings—*normal, crosswind*
____	____	____	Touchdown—*drift*
____	____	____	Go around √
____	____	____	Taxi clearance—if required comply
____	____	____	Taxi √ - wind, speed,
____	____	____	Taxi—hover or air, as appropriate
____	____	____	Shutdown √

POSTFLIGHT

____	____	____	Postflight inspection of aircraft
____	____	____	Debrief / update syllabus and log-book

COMPLETION STANDARDS

The lesson will be complete when all areas have a grade of 2 or better. Standards are as follows:

1. Altitude ±250 feet
2. Headings ±15°
3. Airspeed ±15 knots
4. Traffic pattern altitude ±150 ft
5. Hover –1/+5 feet
6. Maintains position within 10 ft with no aft movement, as appropriate

Instructor	Student	Date	Acft Type	N#
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

	Dual Pre/Post	Dual Day	Dual Night	Dual X-Ctry	Dual Inst	Dual Test Prep	Solo Day	Solo X-Ctry	Total Acft	Inst
Previous										
This Lesson										
Total										

Hours		

STAGE 2—Lesson 10 *(DUAL) Enhanced Autorotation*
OBJECTIVE: Student will practice the previously learned piloting skills.
TIME: As required.

PREFLIGHT BRIEFING /SPECIAL EMPHASIS AREAS

____ ____ ____ Discussion of lesson
____ ____ ____ SRM, ADM and risk management
____ ____ ____ Weight and balance
____ ____ ____ Wake turbulence / wind shear
____ ____ ____ CFIT/wire strike avoidance
____ ____ ____ Collision avoidance
____ ____ ____ Checklist usage
____ ____ ____ Positive aircraft control
____ ____ ____ RUNWAY INCURSION avoidance

EMERGENCY PROCEDURES √ *(Oral review)*

____ ____ ____ Fire—*startup, engine or electrical in-flight, cabin*
____ ____ ____ Icing—*structural inflight, static port blockage, carb ice*
____ ____ ____ Electrical malfunctions
____ ____ ____ Engine failure—take off run, pattern
____ ____ ____ Emergency descent

PREFLIGHT

____ ____ ____ Cockpit √
____ ____ ____ Certificates and documents—ARROW
____ ____ ____ Preflight inspection √
____ ____ ____ Aircraft servicing
____ ____ ____ Runup √

STARTUP

____ ____ ____ Engine start √
____ ____ ____ Comm radio setup
____ ____ ____ Nav radio setup

TAXI (If required)

____ ____ ____ Taxi √ / taxi brief
____ ____ ____ Taxi clearance
____ ____ ____ Taxiing—*wind, speed, hazards, air or hover*
____ ____ ____ Traffic awareness

TAKEOFF / CLIMB / CRUISE

____ ____ ____ Pre-takeoff √
____ ____ ____ Takeoff clearance
____ ____ ____ Takeoff—*normal, crosswind, steep*
____ ____ ____ Climbs √
____ ____ ____ Level-off from climb
____ ____ ____ Engine checks, traffic checks

NAVIGATION

____ ____ ____ Pilotage / dead reckoning / GPS / tracking
____ ____ ____ TFRs and SUAs

ADVANCED MANEUVERS

____ ____ ____ 180° autorotation
____ ____ ____ Running takeoff
____ ____ ____ Hovering auto
____ ____ ____ Rapid deceleration

LANDING

____ ____ ____ Approach—*location, communication*
____ ____ ____ Landing √
____ ____ ____ Traffic pattern, if required
____ ____ ____ Landing clearance
____ ____ ____ Stabilized approach
____ ____ ____ Go around √
____ ____ ____ Landings—*normal, crosswind, steep*
____ ____ ____ Roundout—*height, crosswind control*
____ ____ ____ Hover
____ ____ ____ Taxi clearance
____ ____ ____ Taxi √—*wind, speed, hazards, air or hover*
____ ____ ____ Shutdown √

POSTFLIGHT

____ ____ ____ Postflight inspection of aircraft

____ ____ ____ Dual debrief / Update TCO and log-book

COMPLETION STANDARDS

The lesson will be complete when the student has:
1. Practiced 180° autorotations, terminates at hover within 300 feet of safety point
2. Completed a basic understanding of enhanced autorotation procedures
3. Safely perform running takeoff

Instructor	Student	Date	Acft Type	N#

	Dual Pre/Post	Dual Day	Dual Night	Dual X-Ctry	Dual Inst	Dual Test Prep	Solo Day	Solo X-Ctry	Total Acft	Inst
Previous										
This Lesson										
Total										

Hours		

STAGE 2—Lesson 11 ***(DUAL) Hover Auto and Aircraft Control***
OBJECTIVE: The student will apply previously learned skills to Advanced Flight Maneuvers
TIME: As required.

PREFLIGHT BRIEFING/SPECIAL EMPHASIS AREAS

____ ____ ____ SRM and ADM
____ ____ ____ Weight and balance
____ ____ ____ Wake turbulence / wind shear
____ ____ ____ Collision avoidance
____ ____ ____ Positive aircraft control
____ ____ ____ RUNWAY INCURSION avoidance

EMERGENCY PROCEDURES √ (Oral review)

____ ____ ____ Forced landings
____ ____ ____ Fire—startup, engine or electrical inflight, cabin
____ ____ ____ Icing—structural inflight, carb ice
____ ____ ____ Electrical malfunctions
____ ____ ____ Emergency descent

PREFLIGHT

____ ____ ____ Cockpit √
____ ____ ____ Certificates & documents—*ARROW*
____ ____ ____ Preflight inspection √
____ ____ ____ Aircraft servicing

STARTUP

____ ____ ____ Engine start √
____ ____ ____ Comm radio setup—freq, vol, xmitter
____ ____ ____ Nav radio setup—freq, ID, set course
____ ____ ____ Rotor engagement
____ ____ ____ Runup √

Taxi (if required)

____ ____ ____ Taxi √ / taxi brief
____ ____ ____ Taxi clearance
____ ____ ____ Aircraft stability check
____ ____ ____ Positive exchange of controls
____ ____ ____ Taxiing—wind, speed

TAKEOFF / CLIMB / CRUISE

____ ____ ____ Takeoff √
____ ____ ____ Takeoff clearance
____ ____ ____ Takeoff—*normal, crosswind, steep*
____ ____ ____ Climbs √ - turn, Cs (Vx, Vy, cruise), VR-IR
____ ____ ____ Level-off from climb—*VR-IR*
____ ____ ____ Cruise √

ADVANCED MANEUVERS

____ ____ ____ Hovering Autorotation's
____ ____ ____ Engine rotor RPM—without use of governor
____ ____ ____ Systems and equipment malfunctions
____ ____ ____ Instructor directed maneuver practice
____ ____ ____ Zero Speed Rollout
____ ____ ____ Power Limited Takeoff
____ ____ ____ Power Limited Landing
____ ____ ____ Zero Speed Auto

EMERGENCY PROCEDURES √ (Practical review)

____ ____ ____ Engine failure—takeoff, after takeoff, inflight
____ ____ ____ Forced landings—*power, no power*
____ ____ ____ Emergency descent

LANDING

____ ____ ____ Go around √

____ ____ ____ Landings—*normal, crosswind, steep*

____ ____ ____ Touchdown—*drift*

____ ____ ____ Runway incursion avoidance

____ ____ ____ Taxi √ - wind, speed, hover or air taxi

____ ____ ____ Shutdown √

POSTFLIGHT

____ ____ ____ Postflight inspection of aircraft

____ ____ ____ Debrief / update syllabus and log-book

COMPLETION STANDARDS

The lesson will be complete when all areas have a grade of 2 or better. Standards are as follows:
1. Altitude ±200 feet/traffic pattern ±150 feet
2. Headings ±15°
3. Airspeed ±15 knots
4. Normal hover –1/+5 feet
5. Maintains position within 8 ft with no aft movement, as appropriate

Instructor	Student	Date	Acft Type	N#

	Dual Pre/Post	Dual Day	Dual Night	Dual X-Ctry	Dual Inst	Dual Test Prep	Solo Day	Solo X-Ctry	Total Acft	Inst
Previous										
This Lesson										
Total										

Hours		

STAGE 2—Lesson 12 ***(DUAL) Confined area & Pinnacle operations***
OBJECTIVE: The student will practice previously learned piloting skills and be introduced approach selection based on confinement. Approach and Departure power requirements.
TIME: As required.

PREFLIGHT BRIEFING/SPECIAL EMPHASIS AREAS

____ ____ ____ Positive aircraft control
____ ____ ____ Weight and balance
____ ____ ____ Wake turbulence / wind shear
____ ____ ____ Collision avoidance
____ ____ ____ Checklist usage
____ ____ ____ RUNWAY INCURSION avoidance
____ ____ ____ CFIT/Wire strike avoidance

EMERGENCY PROCEDURES √ ***(Oral review)***

____ ____ ____ Fire—*startup, engine or electrical in-flight, cabin*
____ ____ ____ Icing—*structural inflight, static port blockage, carb ice*
____ ____ ____ Electrical malfunctions
____ ____ ____ Forced landing—*power, no power*

PREFLIGHT

____ ____ ____ Cockpit √
____ ____ ____ Certificates and documents—ARROW
____ ____ ____ Preflight inspection checklist √
____ ____ ____ Aircraft servicing

STARTUP

____ ____ ____ Engine start √
____ ____ ____ Comm radio setup—*freq, vol, transmitter*
____ ____ ____ Runup √

TAXI (if required)

____ ____ ____ Taxi clearance
____ ____ ____ Positive exchange of controls
____ ____ ____ Taxiing—*wind, speed, hazards, air or hover*
____ ____ ____ Traffic watch / Call HOLD SHORT lines

TAKEOFF / CLIMB / CRUISE

____ ____ ____ Takeoff √
____ ____ ____ Takeoff clearance
____ ____ ____ Takeoff—*normal, crosswind*
____ ____ ____ Cruise √—*VR-IR*

NAVIGATION

____ ____ ____ Pilotage / Dead reckoning
____ ____ ____ GPS navigation / Tracking
____ ____ ____ SUAs

ADVANCED MANEUVERS

____ ____ ____ Clearing Turn
____ ____ ____ High and low reconnaissance—altitude maintained
____ ____ ____ Hazard recognition
____ ____ ____ Power management
____ ____ ____ Approach selection
____ ____ ____ Go-around
____ ____ ____ Approach to hover—rate of closure, rate of descent
____ ____ ____ Ground reconnaissance
____ ____ ____ Take-off—max, required, normal
____ ____ ____ Aeronautical Decision Making

EMERGENCY PROCEDURES √ ***(Practical review)***

____ ____ ____ Engine failure—*takeoff, altitude, and pattern*
____ ____ ____ Emergency descent

LANDING

____ ____ ____ Approach—*location, communication*
____ ____ ____ Pattern entry, if required
____ ____ ____ Traffic pattern, if required
____ ____ ____ Landing clearance
____ ____ ____ Stabilized approach
____ ____ ____ Go around √
____ ____ ____ Landings—*normal, crosswind, steep*
____ ____ ____ Runway incursion avoidance
____ ____ ____ Shutdown √

POSTFLIGHT

____ ____ ____ Postflight inspection of aircraft

____ ____ ____ Debrief / Update TCO and logbook

COMPLETION STANDARDS

The lesson will be complete when all areas have a grade of 2 or better. The standards are as follows:
1. Basic understanding of confined operations
2. Perform operation safely
3. Performs all clearing and recon turns

Instructor	Student	Date	Acft Type	N#

	Dual Pre/Post	Dual Day	Dual Night	Dual X-Ctry	Dual Inst	Dual Test Prep	Solo Day	Solo X-Ctry	Total Acft	Inst
Previous										
This Lesson										
Total										

Hours		

STAGE 2—Lesson 13 (*DUAL) Slope Operation / Torque Failure*
OBJECTIVE: The student will apply previously learned skills to Advanced Flight Maneuvers
TIME: As required.

PREFLIGHT BRIEFING/SPECIAL EMPHASIS AREAS

____ ____ ____ SRM and ADM
____ ____ ____ Weight and balance
____ ____ ____ Wake turbulence / wind shear
____ ____ ____ Collision avoidance
____ ____ ____ Positive aircraft control
____ ____ ____ RUNWAY INCURSION avoidance

EMERGENCY PROCEDURES √ (Oral review)

____ ____ ____ Forced landings
____ ____ ____ Fire—startup, engine or electrical inflight, cabin
____ ____ ____ Icing—structural inflight, carb ice
____ ____ ____ Electrical malfunctions
____ ____ ____ Emergency descent

PREFLIGHT

____ ____ ____ Cockpit √
____ ____ ____ Certificates & documents—*ARROW*
____ ____ ____ Preflight inspection √
____ ____ ____ Aircraft servicing

STARTUP

____ ____ ____ Engine start √
____ ____ ____ Comm radio setup—freq, vol, xmitter
____ ____ ____ Nav radio setup—freq, ID, set course
____ ____ ____ Rotor engagement
____ ____ ____ Runup √

TAXI (If required)

____ ____ ____ Taxi √ / taxi brief
____ ____ ____ Taxi clearance
____ ____ ____ Aircraft stability check
____ ____ ____ Positive exchange of controls
____ ____ ____ Taxiing—wind, speed, hover, air

TAKEOFF / CLIMB / CRUISE

____ ____ ____ Takeoff √
____ ____ ____ Takeoff clearance
____ ____ ____ Takeoff—*normal, crosswind, steep*
____ ____ ____ Climbs √ - turn, Cs, VR-IR
____ ____ ____ Level-off from climb—*VR-IR*
____ ____ ____ Cruise √

ADVANCED MANEUVERS

____ ____ ____ Slope Operations
____ ____ ____ Anti-torque system failures
____ ____ ____ Low rotor RPM recognition and recovery
____ ____ ____ Settling with power/vortex ring state
____ ____ ____ Instructor directed maneuver practice

_____
_____
_____
_____
_____

EMERGENCY PROCEDURES √ (Practical review)

____ ____ ____ Engine failure—takeoff, after takeoff, inflight
____ ____ ____ Forced landings—*power, no power*
____ ____ ____ Emergency descent

STAGE 2—Lesson 13 *(DUAL) Slope Operation / Torque Failure*
(CONTINUED)

LANDING

____ ____ ____ Go around √

____ ____ ____ Landings—*normal, crosswind steep, shallow*

____ ____ ____ Touchdown—*drift*

____ ____ ____ Taxi clearance—*hover or air*

____ ____ ____ Runway incursion avoidance

____ ____ ____ Shutdown √

POSTFLIGHT

____ ____ ____ Postflight inspection of aircraft

____ ____ ____ Debrief / update syllabus and log-book

COMPLETION STANDARDS

The lesson will be complete when all areas have a grade of 2 or better. Standards are as follows:
1. Altitude ±200 feet/±150 ft traffic pattern
2. Headings ±15°
3. Airspeed ±15 knots
4. Hover –1/+5 ft
5. Maintain position within 8 ft with no aft movement, as appropriate

Instructor	Student	Date	Acft Type	N#

	Dual Pre/Post	Dual Day	Dual Night	Dual X-Ctry	Dual Inst	Dual Test Prep	Solo Day	Solo X-Ctry	Total Acft	Inst
Previous										
This Lesson										
Total										

Hours		

STAGE 2—Lesson 14 *(DUAL) Review of maneuvers*
OBJECTIVE: Instructor and student will review all areas of flight training listed below.
TIME: As required.

PREFLIGHT BRIEFING /SPECIAL EMPHASIS AREAS

____ ____ ____ Discussion of lesson
____ ____ ____ SRM, ADM and risk management
____ ____ ____ Weight and balance
____ ____ ____ Wake turbulence / wind shear
____ ____ ____ CFIT/wire strike avoidance
____ ____ ____ Collision avoidance
____ ____ ____ Positive aircraft control
____ ____ ____ RUNWAY INCURSION avoidance
____ ____ ____ LAHSO

EMERGENCY PROCEDURES √ *(Oral review)*

____ ____ ____ Checklist usage
____ ____ ____ Fire—*startup, engine or electrical inflight, cabin*
____ ____ ____ Icing—*structural inflight, static port blockage, carb ice*
____ ____ ____ Electrical malfunctions
____ ____ ____ Emergency landing

PREFLIGHT

____ ____ ____ Cockpit √
____ ____ ____ Certificates and documents—ARROW
____ ____ ____ Preflight inspection √
____ ____ ____ Aircraft servicing

STARTUP

____ ____ ____ Engine start √
____ ____ ____ Comm radio setup—*freq, vol, trans*
____ ____ ____ Nav radio setup—*freq, ID, set course*
____ ____ ____ Rotor engagement

TAXI (If required)

____ ____ ____ Taxi √ / taxi brief
____ ____ ____ Taxi clearance
____ ____ ____ Positive exchange of controls
____ ____ ____ Taxi—*wind, speed, hazards, hover, air*
____ ____ ____ Traffic awareness
____ ____ ____ Runup √

TAKEOFF / CLIMB / CRUISE

____ ____ ____ Takeoff √
____ ____ ____ Takeoff clearance
____ ____ ____ Takeoff—*normal, crosswind, steep*
____ ____ ____ Climbs √ - *with turns, Cs, VR-IR*
____ ____ ____ Traffic pattern departure
____ ____ ____ Level-off from climb—*VR-IR*
____ ____ ____ Cruise √—*VR-IR*
____ ____ ____ *Engine checks, traffic checks*

NAVIGATION

____ ____ ____ Opening flight plan
____ ____ ____ VOR intercepting, tracking
____ ____ ____ GPS intercepting, tracking
____ ____ ____ Pilotage, dead reckoning
____ ____ ____ Diversion / use of compass

ADVANCED MANEUVERS

____ ____ ____ PMC, emerg landing area, clearing turns
____ ____ ____ Straight-in auto's
____ ____ ____ Hover auto
____ ____ ____ 180° auto
____ ____ ____ Rapid deceleration

EMERGENCY PROCEDURES √ *(Practical review)*

____ ____ ____ Engine failure—*hover*, *takeoff, after takeoff, inflight*
____ ____ ____ Forced landings—*power, no power*
____ ____ ____ Emergency landing

GROUND REFERENCE

____ ____ ____ Clearing turns, emerg landing area, PMC
____ ____ ____ Rectangular patterns
____ ____ ____ Turns around a point
____ ____ ____ S-Turns

STAGE 2—Lesson 14 *(DUAL) Review of Maneuvers*
(CONTINUED)

LANDING

____ ____ ____ Approach—*location, communication*
____ ____ ____ Pattern entry
____ ____ ____ Landing √
____ ____ ____ Landing clearance
____ ____ ____ Traffic pattern, as required
____ ____ ____ Stabilized approach—*steep, normal*
____ ____ ____ Go around √
____ ____ ____ Landings—*normal, crosswind*
____ ____ ____ Taxi √
____ ____ ____ Shutdown √

POSTFLIGHT

____ ____ ____ Postflight inspection of aircraft
____ ____ ____ Debrief / Update syllabus and logbook

COMPLETION STANDARDS

This lesson will be complete when all areas have a grade of 2 or better. Standards are as follows:
1. Altitude ±200 feet/traffic pattern ±100 feet
2. Headings ±10°
3. Airspeed within ±10 knots
4. Remain within 4 feet of selected point, hover
5. Hover altitude ±1/2 POH

Instructor _____ Student _____ Date _____ Acft Type _____ N# _____

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

	Dual Pre/Post	Dual Day	Dual Night	Dual X-Ctry	Dual Inst	Dual Test Prep	Solo Day	Solo X-Ctry	Total Acft	Inst
Previous										
This Lesson										
Total										

Hours		

STAGE 2—Lesson 15 ***(DUAL) Student Review of Maneuvers***
OBJECTIVE: The student will practice piloting skills for tasks assigned by the instructor.
TIME: As required.

PREFLIGHT BRIEFING - DUAL

____ ____ ____ Review of all emergency checklists
____ ____ ____ Endorsements
____ ____ ____ SPECIAL EMPHASIS AREAS

PREFLIGHT

____ ____ ____ Cockpit √
____ ____ ____ Certificates and documents—ARROW
____ ____ ____ Preflight inspection √
____ ____ ____ Airplane servicing

STARTUP

____ ____ ____ Engine start √
____ ____ ____ Comm radio setup—*freq, vol, transmitter*
____ ____ ____ Nav radio setup—*freq, ID, set course*
____ ____ ____ Rotor engagement

TAXI (if required)

____ ____ ____ Taxi √
____ ____ ____ Taxi clearance
____ ____ ____ Taxiing—*wind, speed, hazards, hover, air*
____ ____ ____ Traffic awareness

TAKEOFF

____ ____ ____ Takeoff √
____ ____ ____ Takeoff clearance
____ ____ ____ Takeoff—*normal, crosswind, steep*
____ ____ ____ Climbs √
____ ____ ____ Pattern departure

BASIC MANEUVERS

____ ____ ____ Level-off from climb
____ ____ ____ Cruise √
____ ____ ____ Straight and level
____ ____ ____ Level turns to headings
____ ____ ____ Tracking a straight line
____ ____ ____ Engine check / traffic check
____ ____ ____ Descents √—with turns, Cs, best glide
____ ____ ____ Normal Approach
____ ____ ____ Steep Approach
____ ____ ____ Go-around

LANDING

____ ____ ____ Approach—*location, communication*
____ ____ ____ Pattern entry
____ ____ ____ Landing √
____ ____ ____ Landing clearance
____ ____ ____ Traffic pattern, as appropriate
____ ____ ____ Stabilized approach
____ ____ ____ Landings—*normal, crosswind, steep*
____ ____ ____ Taxi clearance
____ ____ ____ Runway incursion avoidance
____ ____ ____ Taxi √—*wind, speed, hazards, hover, air*
____ ____ ____ Shutdown √

POSTFLIGHT

____ ____ ____ Postflight inspection of aircraft

____ ____ ____ Dual debrief / Update syllabus and log-book

RELEASED FOR SOLO

Date _____ Instructor _____

Date _____ Instructor _____

Date _____ Instructor _____

COMPLETION STANDARDS

This lesson will be complete when the student has practiced all the noted maneuvers.

Instructor	Student	Date	Acft Type	N#

	Dual Pre/Post	Dual Day	Dual Night	Dual X-Ctry	Dual Inst	Dual Test Prep	Solo Day	Solo X-Ctry	Total Acft	Inst
Previous										
This Lesson										
Total										

Hours		

STAGE 2—Lesson 16 ***(BRIEFING) Pre-evaluation Oral***
OBJECTIVE: The student will demonstrate the knowledge necessary to act as Commercial Pilot.
TIME: As required.

CERTIFICATES—STUDENT

____ ____ ____ Syllabus correct
____ ____ ____ Verification of student certificate
____ ____ ____ Verification of medical certificate
____ ____ ____ Completing 8710 Form/ IACRA
____ ____ ____ Endorsements

PILOT QUALIFICATIONS

____ ____ ____ Currency, privileges, limitations
____ ____ ____ Documents & ID requirements
____ ____ ____ Logbook/Record keeping
____ ____ ____ Compensation
____ ____ ____ Medical certificates
____ ____ ____ Drugs and alcohol/IMSAFE
____ ____ ____ Risk elements

AIRWORTHINESS REQUIREMENTS

____ ____ ____ Certificates
____ ____ ____ Inspections
____ ____ ____ Preventative maintenance
____ ____ ____ Required equipment
____ ____ ____ Inoperative equipment
____ ____ ____ Special flight permit
____ ____ ____ Risk elements

WEATHER INFORMATION

Adverse Conditions:

____ ____ ____ TFRs
____ ____ ____ Closed/Unsafe NOTAMs
____ ____ ____ WST/WS/WA/UUA/CWA

Current Weather:

____ ____ ____ METARs/UAs
____ ____ ____ Wx depiction/Surf. analysis chart
____ ____ ____ Radar & radar summary chart

Forecasts:

____ ____ ____ TAF/FD
____ ____ ____ Surface/SIGWX prog. charts

Forecasts: (continued)

____ ____ ____ Convective outlook

General:

____ ____ ____ En route weather/Wx sources
____ ____ ____ NOTAMs (D and FDC)
____ ____ ____ Meteorology (i.e. Wx Theory)
____ ____ ____ Risk elements

CROSS-COUNTRY FLIGHT PLANNING

____ ____ ____ Route planning & checkpoints
____ ____ ____ Applying UTC and time zones
____ ____ ____ Pilotage and dead reckoning
____ ____ ____ Time, speed, and distance
____ ____ ____ True airspeed & density altitude
____ ____ ____ Planned vs. Actual Calculations
____ ____ ____ Magnetic compass errors
____ ____ ____ Power setting selection
____ ____ ____ Terms: MC, TC, TH, MH, CH
____ ____ ____ Fuel planning
____ ____ ____ Altitudes and obstacles
____ ____ ____ Sectional and symbology
____ ____ ____ Activating/Closing flight plans
____ ____ ____ Ground-based navigation
____ ____ ____ GPS, RAIM, WAAS
____ ____ ____ Radar services/assistance
____ ____ ____ Diversion and lost procedures
____ ____ ____ Risk elements

NATIONAL AIRSPACE SYSTEM

____ ____ ____ Types of airspace and classes
____ ____ ____ Requirements and restrictions
____ ____ ____ SUA, SFRA, and other airspace
____ ____ ____ Risk elements

STAGE 2—Lesson 16 *(BREIFING) Pre-evaluation Oral*
(CONTINUED)

PERFORMANCE AND LIMITATIONS

____	____	____	Charts, tables, and data
____	____	____	Factors affecting performance
____	____	____	Loading on performance
____	____	____	Weight and balance
____	____	____	Aerodynamics
____	____	____	Risk elements

OPERATION OF SYSTEMS

____	____	____	Primary flight controls
____	____	____	Powerplant and rotors
____	____	____	Fuel, oil
____	____	____	Electrical
____	____	____	Avionics
____	____	____	Pitot-static, vacuum/pressure & associated flight instruments
____	____	____	Environmental
____	____	____	Deicing and anti-Icing
____	____	____	Normal operation
____	____	____	Common errors
____	____	____	Abnormal operation
____	____	____	Risk elements

HUMAN FACTORS

____	____	____	Hypoxia
____	____	____	Hyperventilation
____	____	____	Middle ear and sinus problems
____	____	____	Spatial disorientation
____	____	____	Motion sickness
____	____	____	Carbon monoxide poisoning
____	____	____	Stress and fatigue
____	____	____	Dehydration and nutrition

HUMAN FACTORS (continued)

____	____	____	Hypothermia
____	____	____	Optical illusions
____	____	____	Alcohol, drugs, OTC meds
____	____	____	ADM & hazardous attitudes
____	____	____	Collision avoidance
____	____	____	Risk elements

COMMUNICATIONS AND LIGHT GUN SIGNALS

____	____	____	Obtaining frequencies
____	____	____	Communication procedures and phraseology
____	____	____	Transponders
____	____	____	Radar assistance
____	____	____	Lost communication procedures
____	____	____	Automated WX and airport info
____	____	____	Risk elements

TRAFFIC PATTERNS

____	____	____	Towered/Non-towered operations
____	____	____	Runway selection
____	____	____	Right-of-way rules
____	____	____	Wake turbulence
____	____	____	Runway incursion avoidance
____	____	____	Risk elements

NIGHT PREPARATION

____	____	____	Physiology, equipment
____	____	____	Airport lighting systems
____	____	____	Aircraft lighting systems
____	____	____	Orientation, nav, & chart reading
____	____	____	Somatogravic/Black hole approach illusion
____	____	____	Visual scanning
____	____	____	Inadvertent IMC
____	____	____	Risk elements

STAGE 2—Lesson 16 *(BREIFING) Pre-evaluation Oral*
(Continued)

EMERGENCY OPERATIONS

____	____	____	Emergency landing
____	____	____	Glide speed vs. distance
____	____	____	Energy management
____	____	____	Wind and effects
____	____	____	Emergency procedures
____	____	____	Communications
____	____	____	ELTs: Operation/Limitations/Tests
____	____	____	Radar assistance/Transponders
____	____	____	Minimum fuel
____	____	____	Emergency equipment
____	____	____	Climate extremes (Hot/Cold)

System and Equipment Malfunction:

____	____	____	Partial or complete power loss
____	____	____	Engine roughness or overheat
____	____	____	Carburetor or induction icing
____	____	____	Loss of oil pressure
____	____	____	Fuel starvation
____	____	____	Electrical malfunction
____	____	____	Pitot/Static system malfunction
____	____	____	Structural icing
____	____	____	Smoke/Fire/Engine compartment fire
____	____	____	Any other emergency appropriate to the aircraft
____	____	____	Risk elements for all emergency operations

COMPLETION STANDARDS

The student must demonstrate sufficient knowledge in the lesson areas to rate at least a 3 on each item.

Instructor	Student	Date
_____	_____	_____
_____	_____	_____
_____	_____	_____

Hours		

STAGE 2—Lesson 17 *(DUAL) Final Review Lesson*
OBJECTIVE: Instructor and student will review the areas of flight training noted below.
TIME: As required.

PREFLIGHT BRIEFING

Aircraft lighting systems
Airport lighting systems
Night navigation
Wake turbulence / wind shear
Collision avoidance
Weather planning
Flight planning/filing

EMERGENCY PROCEDURES √ *(Oral review)*

Fire—*startup, engine or electrical in-flight, cabin*
Icing—*structural inflight, static port blockage, carb ice*
Systems and equipment malfunctions

PREFLIGHT

Cockpit √
Certificates and documents—ARROW
Preflight inspection checklist √
Aircraft servicing
Risk elements

STARTUP

Engine start √
Comm radio setup—*freq, vol, trans-mitter*
Nav radio setup—*freq, ID, set course*
Rotor engagement
Risk elements

TAXI

Taxi √ / taxi brief
Taxi clearance
Positive exchange of controls
Taxi—*wind, hazards, hover, air*
Traffic awareness
Runup √
Risk elements

TAKEOFF / CLIMB / CRUISE

Takeoff √
Takeoff clearance
Climbs √—*with turns, Cs*
Traffic pattern departure
Level-off from climb
Cruise √
Risk elements

NAVIGATION

GPS intercepting, tracking
Pilotage, dead reckoning
Risk elements

Helicopter MANEUVERS

Vertical take-off and landing
Slope operations
Hover taxi
Air taxi
Normal Take-off
Maximum performance T/O
Steep approach
Confined area operations
Pinnacle/Platform
Shallow approach and run on landing
Go-around
Rapid deceleration
Straight-in autorotation
180° autorotation
Hover auto
Low rotor RPM recovery
Settling with power

EMERGENCY PROCEDURES √ *(Practical review)*

____	____	____	Emergency landing
____	____	____	Engine failure—*hover*, *takeoff, after takeoff, inflight*
____	____	____	Forced landings—*power, no power*
____	____	____	Systems and equipment malfunctions
____	____	____	
____	____	____	Risk elements

POSTFLIGHT

____	____	____	Postflight inspection / close flight plan—if opened
____	____	____	Debrief / update syllabus and logbook
____	____	____	
____	____	____	Risk elements

LANDING

____	____	____	Approach—*location, communication*
____	____	____	Pattern entry
____	____	____	Landing √
____	____	____	Landing clearance
____	____	____	Taxi clearance
____	____	____	Runway incursion avoidance
____	____	____	Shutdown √
____	____	____	Risk elements

COMPLETION STANDARDS

This lesson will be complete when all areas have met the Practical Test √ Standards and have a grade of 3.

Instructor	Student	Date	Acft Type	N#
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

	Dual Pre/Post	Dual Day	Dual Night	Dual X-Ctry	Dual Inst	Dual Test Prep	Solo Day	Solo X-Ctry	Total Acft	Inst
Previous										
This Lesson										
Total										
		(+30)	**(3.0)**	**(5.0)**	**(1.0)**		**(5.0)**	**(3.0)**	**(35)**	

COMMERCIAL HELICOPTER PILOT END-OF-COURSE EVALUATION
OBJECTIVE: The applicant will display the knowledge, skills and risk management elements to become a Commercial Pilot.
TIME: As required for thorough evaluation.

Student _____ Examiner _____ Date _____

Note:

The evaluator must assess the applicant on all skill elements for each task included in each area of operation of the PTS unless otherwise noted. The evaluator must also assess at least one knowledge element and one risk management element in each task, focusing on any task element(s) the applicant missed on the knowledge exam.

EVALUATION PRELIMINARIES

____	____	____	Drivers license—*picture ID*
____	____	____	Student certificate—*current*
____	____	____	Medical certificate—*current*
____	____	____	8710 Form—*correct, dated, signed*
____	____	____	Knowledge test report—*current*
____	____	____	Certificate of Enrollment—*current*
____	____	____	Training Course Outline—*completed*
____	____	____	Ground school completion—*verified*

I. PREFLIGHT PREPARATION

____	____	____	Pilot qualifications
____	____	____	Airworthiness requirements
____	____	____	Weather information
____	____	____	Weight and balance
____	____	____	Cross-Country flight planning
____	____	____	National Airspace System
____	____	____	Performance and limitations
____	____	____	Operation of systems
____	____	____	Human factors

II. PREFLIGHT PROCEDURES

____	____	____	Preflight assessment
____	____	____	Cockpit management
____	____	____	Engine starting
____	____	____	Rotor engagement
____	____	____	Taxiing
____	____	____	Before takeoff check

III. AIRPORT OPERATIONS

____	____	____	Com and Light Gun Signals
____	____	____	Traffic patterns

IV. TAKEOFFS, LANDINGS, GO-AROUNDS

____	____	____	Normal, steep, crosswind takeoff and climb
____	____	____	Normal, steep and crosswind approach and landing
____	____	____	Shallow approach
____	____	____	Maximum performance T/O
____	____	____	Running T/O
____	____	____	Slope landing
____	____	____	Go-around/Rejected landing
____	____	____	Confined Area Operations

V. PERFORMANCE MANEUVERS

____	____	____	Rapid deceleration
____	____	____	Straight in autorotation
____	____	____	180° autorotation

VI. NAVIGATION

____	____	____	Pilotage and dead reckoning
____	____	____	Navigation systems and radar
____	____	____	Diversion
____	____	____	Lost procedures

VII. EMERGENCY PROCEDURES

____	____	____	Power failure at hover/altitude
____	____	____	Settling with power
____	____	____	Anti-torque failure
____	____	____	Ground resonance

COMMERCIAL HELICOPTER PILOT END-OF-COURSE EVALUATION (CONTINUED)

VIII. BASIC MANEUVERS

____ ____ ____ Straight and level
____ ____ ____ Constant airspeed climbs
____ ____ ____ Constant airspeed descents
____ ____ ____ Turns to headings
____ ____ ____ Radio communications

IX. EMERGENCY OPERATIONS

____ ____ ____ Emergency approach and landing
____ ____ ____ Emergency equip and survival gear
____ ____ ____ Systems and equipment malfunctions

Systems and Equipment Malfunction: Select 3 Skills

____ ____ ____ Partial or complete power loss
____ ____ ____ Engine roughness or overheat
____ ____ ____ Carburetor or induction icing
____ ____ ____ Loss of oil pressure
____ ____ ____ Fuel starvation
____ ____ ____ Electrical malfunction
____ ____ ____ Pitot/Static system malfunction
____ ____ ____ Structural icing
____ ____ ____ Smoke/Fire/Engine compartment fire

____ ____ ____ Any other emergency appropriate to the aircraft

X. NIGHT OPERATIONS

____ ____ ____ Night preparation

XI. POSTFLIGHT PROCEDURES

____ ____ ____ Parking and securing

COMPLETION STANDARDS

A student pilot must meet the FAA Commercial Pilot Practical Test Standards on this evaluation before being awarded a Commercial Pilot Certificate.

ATTEMPT 1

Examiner _____
Student _____
Date _____
Oral Time _____
Flight Time _____

ATTEMPT 2

Examiner _____
Student _____
Date _____
Oral Time _____
Flight Time _____

ATTEMPT 3

Examiner _____
Student _____
Date _____
Oral Time _____
Flight Time _____

TOTAL ORAL TEST TIME ____

TOTAL FLIGHT TEST TIME ____

AIRCRAFT N # ____

COMMERCIAL HELICOPTER PILOT END-OF-COURSE EVALUATION CRITIQUE

COMMENTS

1 ❑ This end-of-course evaluation performance indicates that additional review is necessary.

A. Do Review Lessons on all items marked “1” until your Instructor indicates a satisfactory “3”.

B. Insert the Review Lesson sheets following this page.

C. Return to a check instructor.

Chief / Asst Chief Instructor _____ **Student** _____ **Date** _____

2 ❑ This End-of-Course evaluation was performed in a satisfactory manner.

Chief / Asst Chief Instructor _____ **Student** _____ **Date** _____

COMMERCIAL PILOT CERTIFICATION
Ground Training Course

Hours

Stage 1—approx 12 hours of ground training
Stage 2—approx 12 hours of ground training
Stage 3—approx 12 hours of ground training
Students will receive a minimum of 36 hours of ground training.

Objective

The objective of the ground training course is to provide students with the necessary aeronautical knowledge required to meet the prerequisites specified in 14 CFR 61 and 141 for the FAA Commercial Pilot Knowledge Examination.

Completion Standards

Students will meet the ground training course completion standards by demonstrating through a combination of oral tests, written tests, and school records, that they meet the prerequisites specified in 14 CFR 61 and 141, and have the knowledge necessary to pass the FAA Commercial Pilot Knowledge Examination. A passing grade of 80% on all stage examinations and an end-of-course examination will be required for completion.

COMMERCIAL PILOT CERTIFICATION

STAGE 1

12 hours approx of **Ground Training Course** ground training

Lessons 1-6

Objectives

The student will be introduced to pilot training, human factors in aviation, aerodynamic principles, and the flight environment. The student will also obtain an advanced knowledge of safety of flight, airports, aeronautical charts, airspace, radio communications, and air traffic control services, including the use of radar. The student will learn radio procedures and the common sources of flight information.

Stage Completion Standards

This stage is complete when the student has completed the stage written examination with a minimum score of 80%. The instructor will review each incorrect response with the student to ensure understanding before the student progresses to the next stage.

LESSON 1

TIME 2 Hours

OBJECTIVES

⇒ Become familiar with pilot training and human factors in aviation.
⇒ Understand the school's pilot training program.

PILOT TRAINING

— Role of the FAA
— Fixed-Base Operators
— Eligibility Requirements
— Types of Training Available
— Phases of Training
— Private Pilot Privileges & Limitations

HUMAN FACTORS

— Aeronautical Decision Making
— Crew Resource Management / SRM Training
— Pilot-In-Command Responsibility
— Communication
— Resource Use
— Workload Management
— Situational Aviation
— Aviation Physiology
— Alcohol, Drugs, and Performance
— Fitness For Fight

LESSON COMPLETION STANDARDS

The student will demonstrate understanding during oral or written quizzing by the instructor at the completion of the lesson. A pass rate of 80% corrected to 100% is required.

ASSIGNED READING

Reading for the next lesson will be assigned as required.

LESSON 2

TIME 2 Hours

OBJECTIVES

⇒ Understand aircraft components and systems.
⇒ Understand instrument functions and operating characteristics, including errors and common malfunctions.
⇒ Understand powerplant and related systems.

HELICOPTER

— Fuselage
— Rotors
— Empennage
— Landing Gear
— Engine / Transmission
— Pilot's Operating Handbook (POH)

POWERPLANT AND RELATED SYSTEMS

— Reciprocating Engine
— Induction Systems
— Supercharging and Turbocharging
— Ignition Systems
— Fuel Systems
— Refueling
— Oil Systems
— Cooling Systems
— Exhaust Systems
— Main and Tail Rotor
— Rotor Hazards
— Electrical Systems

FLIGHT INSTRUMENTS

— Piot-Static Instruments
— Gyroscopic Instruments
— Magnetic Compass
— Electronic Instruments

LESSON COMPLETION STANDARDS

The student will demonstrate understanding during oral or written quizzing by the instructor at the completion of the lesson. A pass rate of 80% corrected to 100% is required.

ASSIGNED READING

Reading for the next lesson will be assigned as required.

LESSON 3

TIME 2 Hours

OBJECTIVES

⇒ Understand the four forces of flight, aerodynamics, principles of stability, maneuvering flight, and load factor.
⇒ Understand aerodynamic characteristics as they relate to helicopters.
⇒ Understand the importance of prompt aircraft control.

FOUR FORCES OF FLIGHT

— Lift
— Weight
— Thrust
— Drag
— Ground Effect IN/OUT
— Airfoils
— Control of Lift
— Gyroscopic Procession
— Coriolis Effect

STABILITY

— Three Axes of Flight
— Longitudinal Stability
— Center of Gravity Position
— Lateral Stability
— Directional Stability

AERODYNAMICS OF MANEUVERING FLIGHT

— Climbing Flight
— Turning Tendencies
— Descending Flight
— Turning Flight
— Load Factor
— Transition into Forward Flight
— Retreating Blade Stall
— Dissymmetry of Lift

LESSON COMPLETION STANDARDS

The student will demonstrate understanding during oral or written quizzing by the instructor at the completion of the lesson. A pass rate of 80% corrected to 100% is required.

ASSIGNED READING

Reading for the next lesson will be assigned as required.

LESSON 4

TIME 2 Hours

OBJECTIVES

⇒ Understand important safety considerations, including collision avoidance precautions, right-of-way rules, and minimum safety altitudes.
⇒ Understand airport markings and lightings, aeronautical charts, and types of airspace.
⇒ Understand collision avoidance procedures and runway incursion avoidance.

SAFTEY OF FLIGHT

— Collision Avoidance / Visual Scanning
— Airport Operations
— Right-of-Way Rules
— Minimum Safety Altitudes
— Taxiing in Wind
— Positive Exchange of Flight Controls

AIRPORT

— Controlled and Uncontrolled
— Runway Layout
— Traffic Pattern
— Airport Visual Aids
— Taxiway Markings
— Ramp Area Hand Signals
— Runway Incursion Avoidance
— Airport Lighting
— Visual Glideslope Indicators
— Approach Light Systems
— Pilot-Controlled Lighting

AERONAUTICAL CHARTS

— Latitude and Longitude - Projections
— Sectional Charts - World Aeronautical Charts
— Chart Symbology

AIRSPACE

— Classifications - Uncontrolled Airspace—Class G
— Controlled Airspace - Class A, B, C, D, E
— Special VFR - Special Use Airspace
— Other Airspace - Emergency Air Traffic Rules
— Air Defense Identification Zones
— Temporary Flight Restrictions

LESSON COMPLETION STANDARDS

The student will demonstrate understanding during oral or written quizzing by the instructor at the completion of the lesson. A pass rate of 80% corrected to 100% is required.

LESSON 5

TIME 2 Hours

OBJECTIVES

⇒ Understand radar, transponder operations, and FAA radar and services for VFR aircraft.
⇒ Understand the services provided by a FSS.
⇒ Understand the use of radio for communications.
⇒ Understand the sources of flight information, i.e., the AIM, and FAA advisory publications.

RADAR AND ATC SERVICES

— Radar
— Transponder Operations
— ADS-B
— Automatic Terminal Information Services
— Flight Service Stations

RADIO PROCEDURES

— VHF Communications Equipment
— Phonetic Alphabet
— Coordinated Universal Time
— Common Traffic Advisory Frequency (CTAF)
— ATC Facilities and Controlled Airports
— Lost Communications Procedures
— Emergency Procedures
— Emergency Locator Transmitters (ELT)

SOURCES OF FLIGHT INFORMATION

— Airport Facility Directory
— Federal Aviation Regulations
— Aeronautical Information Manual
— Notices To Airmen
— Advisory Circulars

LESSON COMPLETION STANDARDS

The student will demonstrate understanding during oral or written quizzing by the instructor at the completion of the lesson. A pass rate of 80% corrected to 100% is required.

ASSIGNED READING

Reading for the next lesson will be assigned as required.

LESSON 6 - STAGE EXAMINATION

TIME 2 Hours

OBJECTIVES

⇒ Demonstrate comprehension of the materials presented in Lessons 1 through 5.

EXAMINATION

— Aircraft Systems
— Aerodynamic Principles
— The Flight Environment
— Communication and Fight Information

LESSON COMPLETION STANDARDS

This lesson and stage are complete when the student has completed the stage examination with a minimum grade of 80%. The instructor will review each incorrect response with the student to ensure understanding before the student progresses to the next stage.

ASSIGNED READING

Reading for the next lesson will be assigned as required.

COMMERCIAL PILOT CERTIFICATION
Ground Training Course

STAGE 2
12 hours approx of ground training

Lessons 7-10

Objectives

Students will become familiar with weather theory, typical weather patterns, and various weather hazards. In addition, the student will learn how to obtain and interpret various weather reports and forecasts. Students will become familiar with the FARs as they apply to private pilot operations.

Stage Completion Standards

This stage is complete when the student has completed the stage written examination with a minimum score of 80%. The instructor will review each incorrect response with the student to ensure understanding before the student progresses to the next stage.

LESSON 7

TIME 3 Hours

OBJECTIVES

⇒ Understand various weather conditions, frontal systems and hazardous weather phenomena.
⇒ Understand how to recognize critical weather situations from the ground and during flight, including hazards associated with thunderstorms and wind shear.

BASIC WEATHER THEORY

— Atmosphere
— Atmospheric Circulation
— Atmospheric Pressure
— Coriolis Force
— Global Wind Patterns
— Local Wind Patterns

WEATHER PATTERNS

— Atmospheric Stability
— Temperature Inversions
— Moisture
— Humidity
— Dewpoint
— Clouds and Fog
— Precipitation
— Air Masses
— Fronts

WEATHER HAZARDS

— Thunderstorms
— Turbulence
— Wake Turbulence Recognition & Avoidance
— Wind Shear Recognition & Avoidance
— Microbursts
— Icing
— Restrictions to Visibility
— Volcanic Ash

LESSON COMPLETION STANDARDS

The student will demonstrate understanding during oral or written quizzing by the instructor at the completion of the lesson. A pass rate of 80% corrected to 100% is required.

ASSIGNED READING

Reading for the next lesson will be assigned as required.

LESSON 8

TIME 3 Hours

OBJECTIVES

⇒ Understand the appropriate Federal Aviation Regulations applicable to Private Pilot certification.
⇒ Understand FARs that govern student solo flight operations, required pre-flight actions, private pilot privileges and limitations, and National Transportation Safety Board (NTSB) accident reporting requirements.

14 CFR PART 1

14 CFR PART 61

14 CFR PART 91

NTSB 830

LESSON COMPLETION STANDARDS

The student will demonstrate understanding during oral or written quizzing by the instructor at the completion of the lesson. A pass rate of 80% corrected to 100% is required.

ASSIGNED READING

Reading for the next lesson will be assigned as required.

LESSON 9

TIME 3 Hours

OBJECTIVES

⇒ Understand how to obtain and interpret weather reports, forecasts, and charts.
⇒ Understand the sources of weather during preflight planning and while in flight.
⇒ Recognize critical weather situations described by weather reports and forecasts.

THE FORECASTING PROCESS

— Forecasting Methods
— Types of Forecasts
— Compiling and Processing Weather Data
— Forecasting Accuracy and Limitations

PRINTED REPORTS AND FORECASTS

— Routine Aviation Weather Reports (METARs)
— Radar Weather Reports
— Pilot Weather Reports
— Terminal Airport Forecasts (TAFs)
— Aviation Area Forecasts (FAs)
— Severe Weather Reports and Forecasts
— AIRMET, SIGMET, Convective SIGMET

WEATHER CHARTS

— Surface Analysis Charts
— Weather Depiction Charts
— Radar Summary Chart
— Satellite Weather Charts
— Low-Level Significant Weather Prog Chart
— Severe Weather Outlook Chart
— Forecast Winds and Temperatures Aloft Chart
— Volcanic Ash Forecast and Dispersion Chart

SOURCES OF WEATHER INFORMATION

— Cockpit displays of digital weather and aeronautical information
— Preflight Weather Sources
— In-Flight Weather Sources
— Weather Radar Services
— Automated Weather Reporting Services

LESSON COMPLETION STANDARDS

The student will demonstrate understanding during oral or written quizzing by the instructor at the completion of the lesson. A pass rate of 80% corrected to 100% is required.

ASSIGNED READING

Reading for the next lesson will be assigned as required.

LESSON 10

TIME 3 Hours

OBJECTIVES

⇒ Demonstrate comprehension of the materials presented in Lessons 7 through 9.

EXAMINATION

— Meteorology for Pilots
— Federal Aviation Regulations
— Interpreting Weather Data

LESSON COMPLETION STANDARDS

The student will demonstrate understanding during oral or written quizzing by the instructor at the completion of the lesson. A pass rate of 80% corrected to 100% is required.

ASSIGNED READING

Reading for the next lesson will be assigned as required.

COMMERCIAL PILOT CERTIFICATION
Ground Training Course

STAGE 3
12 hours approx of ground training

Lessons 11-15

Objectives

The student will be introduced to aircraft performance, weight and balance information, and cross-country flight planning. The student will also obtain a basic knowledge of aviation physiology and decision-making.

Stage Completion Standards

This stage is complete when the student has completed the stage written examination with a minimum score of 80%. The instructor will review each incorrect response with the student to ensure understanding before the student progresses to the next stage. Additionally, the student must successfully pass the end-of-course examination with a minimum grade of 80% to earn the instructor's endorsement for the FAA Commercial Pilot Airman Knowledge Test.

LESSON 11

TIME 2 Hours

OBJECTIVES

⇒ Understand use of data supplied by the manufacturer to predict aircraft performance, including takeoff and landing , and fuel requirements.
⇒ Understand how to compute and control the weight and balance condition of a helicopter.
⇒ Understand how to perform basic flight planning calculations.
⇒ Understand the effects of atmospheric conditions on aircraft performance.

PREDICTING PERFORMANCE

— Aircraft Performance and Design
— Chart Presentations
— Factors Affecting Performance
— Effects of Density Altitude and Take-off and Climb Performance
— Takeoff and Landing Performance
— Climb Performance
— Cruise Performance
— Using Performance Charts

WEIGHT AND BALANCE

— Importance of Weight
— Importance of Balance
— Terminology
— Principles of Weight and Balance
— Computation Method
— Table Method
— Graphical Method
— Weight-Shift Formula
— Effects of Operating at High Total Weights
— Flight at Various CG Positions

FLIGHT COMPUTERS

— Mechanical Flight Computers
— Time, Speed, and Distance
— Airspeed and Density Altitude Computations
— Wind Problems - Conversions
— Multi-Part Problems
— Electronic Flight Computers
— Modes and Basic Operations

LESSON COMPLETION STANDARDS

The student will demonstrate understanding during oral or written quizzing by the instructor at the completion of the lesson. A pass rate of 80% corrected to 100% is required.

ASSIGNED READING

Reading for the next lesson will be assigned as required.

LESSON 12

TIME 2 Hours

OBJECTIVES

⇒ Understand navigation by pilotage and dead reckoning.
⇒ Understand basic VOR theory and use.
⇒ Understand basic GPS theory and use.
⇒ Understand the basics of other navigation systems.

PILOTAGE AND DEAD RECKONING

— Pilotage - Dead Reckoning
— Flight Planning - VFR Cruising Altitudes
— Flight Plan - Lost Procedures

VOR NAVIGATION

— VOR Operations
— Ground and Airborne Equipment
— Basic Procedures
— Orientation and Navigation
— Checkpoints and Test Signals
— Precautions
— Horizontal Situation Indicator
— Distance Measuring Equipment

SATELITE BASED NAVIGATION

— Equipment
— Regulations
— Authorized use and databases
— Receiver Autonomous Integrity Monitoring (RAIM)

LESSON COMPLETION STANDARDS

The student will demonstrate understanding during oral or written quizzing by the instructor at the completion of the lesson. A pass rate of 80% corrected to 100% is required.

ASSIGNED READING

Reading for the next lesson will be assigned as required.

LESSON 13

TIME 2 Hours

OBJECTIVES

⇒ Understand the importance of physiological factors related to private pilot operations.
⇒ Understand aeronautical decision making and judgement, and risk management.
⇒ Understand accepted procedures and concepts pertaining to cockpit resource management, and human factors training.

AVIATION PHYSIOLOGY

— Vision in Flight
— Night Vision
— Optical Illusions
— Spatial Disorientation
— Respiration
— Hypoxia
— Hyperventilation
— Dehydration and Nutrition
— Middle Ear and Sinus Blockage
— Motion Sickness
— Stress and Fatigue
— Hypothermia
— Effects of alcohol, drugs, and over-the-counter medications and associated regulations
— Effects of dissolved nitrogen in the bloodstream of a pilot or passenger in flight following scuba diving

AERONAUTICAL DECISION MAKING

— Applying the Decision making Process
— Pilot-in-Command Responsibility
— Effects of hazardous attitudes on Aeronautical Decision Making
— Communication
— Workload Management
— Situational Awareness
— Resource Use
— Applying Human Factor Training
— Establishing Personal Minimums
— Pilot /Aircraft Interface: pilot monitoring duties and interaction with charts and avionics equipment

LESSON COMPLETION STANDARDS

The student will demonstrate understanding during oral or written quizzing by the instructor at the completion of the lesson. A pass rate of 80% corrected to 100% is required.

ASSIGNED READING

Reading for the next lesson will be assigned as required.

LESSON 14

TIME 2 Hours

OBJECTIVES

⇒ Understand the cross-country planning process.
⇒ Understand the details of flying a cross-country flight, including the evaluation in-flight weather and making decisions on alternative actions, such as diversions and precautionary landings.
⇒ Understand how to plan for an alternative.

FLIGHT PLANNING

— Developing the Route
— Preflight Weather Briefing
— Preflight actions to include take-off and landing distances, weather reports and forecasts, fuel requirements
— Completing the Navigation Log
— Flight Plan
— Plan for alternates and delays
— Preflight Inspection

THE FLIGHT

— Departure
— Enroute
— Diversion
— Arrival

LESSON COMPLETION STANDARDS

The student will demonstrate understanding during oral or written quizzing by the instructor at the completion of the lesson. A pass rate of 80% corrected to 100% is required.

ASSIGNED READING

Reading for the next lesson will be assigned as required.

LESSON 15

TIME 2 Hours

OBJECTIVES

⇒ Demonstrate comprehension of the materials presented in Lessons 11 through 14.

EXAMINATION

— Aircraft Performance
— Navigation
— Human Factors Principles
— Aeronautical Decision Making
— Cross-Country Flight Planning

LESSON COMPLETION STANDARDS

This lesson and stage are complete when the student has completed the stage examination with a minimum score of 80%. The instructor will review each incorrect response with the student to ensure complete understanding before the student progresses to the end-of-course examination.

UNIVERSITY OF DUBUQUE
COMMERCIAL PILOT GROUND SCHOOL
END-OF-COURSE EXAMINATION

TIME 2 Hours

OBJECTIVES

⇒ Demonstrate comprehension of the material presented in this course and the student's readiness to complete the FAA Commercial Pilot Rotorcraft Helicopter Knowledge Test.

EXAMINATION

— Private Pilot Ground School Final Examination

LESSON COMPLETION STANDARDS

The student must complete the Commercial Pilot end-of-course examination with a minimum score of 80%.