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 BRIEF	ING/SPECIAL EMPHASIS AREAS	TAKEOFF / CLIMB /	CRUISE
	_ ADM and risk management		Takeoff √
	Weight and balance		Takeoff clearance
	_ Chair Fly—autorotation		Takeoff—normal, crosswind
	_ Chair Fly—go-arounds		
	Positive aircraft control		Climbs √ - turn, Cs, VR-IR
	_ RUNWAY INCURSION avoidance		Traffic pattern departure, FW traffic avoidance
	CFIT/wire strike avoidance		
EMERGENCY PRO	CEDURES √ (Oral review)		Level-off from climb—VR-IR
	Forced landings		Cruise √
	_ Fire—startup, engine or electrical in-flight, cabin	BASIC MANEUVERS	_
	lcing—structural inflight, static port		Normal approach
	blockage, carb ice		Steep approach
	_ Electrical— ammeter discharge		Straight-in auto-rotations
PREFLIGHT			Go-arounds
	_ Cockpit √		Traffic watch / instrument check
	Certificates & documents - ARROW		Instructor directed practice - See
	_ Preflight inspection √		comment
	Aircraft servicing		
<u>STARTUP</u>			
	_ Engine start √		
	Comm radio setup—freq, vol, xmitter	EMERGENCY PROC	EDURES √ (Practical review)
	Rotor engagement		Engine failure—takeoff, after takeoff,
	_ Runup √		inflight
	_ Pre-Takeoff √		Forced landings—power, no power
TAXI (If required)			
	Taxi clearance		
	_ Positive exchange of controls		
	_ Taxiing—x-wind, speed, hazards, air taxi		
	Traffic awareness / Call HOLD SHORT if applicable		

STAGE 2--Lesson 8 (<u>DUAL</u>) <u>Approach Manuevers</u> (CONTINUED)

LANDING				COMPLE	TION ST	ANDARD	<u>)S</u>		
LANDING	Pattern entry / Landing √ Landing clears Stabilized app Landings—no Set-down—dr Taxi clearance Runway incurs Taxi √ - wind, Air taxi Shutdown √ Postflight insp	ance roach rmal, crosswind ft, no aft movem sion avoidance speed, hazards	ent	The lesson	nave a grade	e a grade of 2 o			
Instructor	Debrief / upda book <u>S</u>	log-	<u>Date</u> <u>Acft Type</u>						
Dual Pre/l	Post Dual Day Dual	Night Dual X-	Dual Inst	Dual Test	Solo Day	Solo X-	Total Acft	Inst	
Previous This Lesson		Ctry		Prep		Ctry			
Total									

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

Advanced Flight

PREFLIGHT BRI	EFING/SPECIAL EMPHASIS AREAS	Taxi (If required)	
	Positive aircraft control		Taxi √/ taxi brief, if necessary
	Power management		Taxi clearance
	ADM and risk management		Taxiing—wind, speed, hover stability
	Weight and balance		check
	In ground effect		Traffic watch
	Out of ground effect		•
	Initiate run-on	TAKEOFF / CLIMB	/ CRUISE
	Collision avoidance		Takeoff
	RUNWAY INCURSION avoidance		Takeoff clearance
EMERGENCY PR	ROCEDURES √ (Oral review)		Takeoff—normal, crosswind
	Forced landings		Climbs √ - turn, Cs, VR-IR
	Fire—startup, engine or electrical inflight		Traffic pattern / departure
	lcing—structural inflight, carb ice		Level-off from climb—VR-IR
	Electrical— ammeter discharge	ADVANCED MANE	<u>UVERS</u>
	Emergency—land Immediately, land as soon as practical		Normal to set down
PREFLIGHT			Pick up to hover
	Cockpit √		Maximum performance takeoff and
	Certificates & documents—ARROW		climb from hover
	-		Shallow approach
	Preflight inspection √		Run-on landing
STARTUP	Aircraft servicing		Forced landing identification
	Engine start √		Effects of low-G maneuvers and recovery
	Comm radio setup—freq, vol, xmit-		,
	ter	EMERGENCY PRO	CEDURES √ (Practical review)
	Nav radio setup— <i>freq, ID</i>		Engine failure—takeoff, after takeoff,
	Rotor engagement		inflight
	Runup √		Forced landings—power, no power
	Pre-takeoff √		

STAGE 2—Lesson 9 (DUAL) Advanced flight maneuvers (CONTINUED)

_ Approach—/c	action communication							
Landing √ Landing clear Stabilized app Landings—no Touchdown— Go around √ Taxi clearanc comply Taxi √ - wind, Taxi—hover of Shutdown √ Postflight insp	/ traffic pattern ance proach prmal, crosswind pdrift e—if required speed, pr air, as appropriate	I h	tter. Sta Altitud Headi Airspe Traffio Hover Mainta	andards ar le ±250 feo ngs ±15° eed ±15 kn pattern a –1/+5 fee ains position	omplete v e as follo et oots lititude ±1 ion within	vhen all areas h ws: 50 ft 10 ft with no af	nave a grade	e of 2 or
<u>s</u>	<u>itudent</u>		<u>D</u>	<u>ate</u>		Acft Type	<u>N#</u> 	
ost Dual Day Dual	Night Dual X- Dua Ctry	ıl inst C	Dual Test Prep	Solo Day	Solo X- Ctry	Total Acft	Inst	
	Pattern entry Landing / Landing clear Stabilized app Landings—no Touchdown— Go around / Taxi clearance comply Taxi / - wind, Taxi—hover of Shutdown / Postflight insp Debrief / upda book	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 inspection of aircraft Debrief / update syllabus and logbook Student	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 inspection of aircraft Debrief / update syllabus and logbook Student	Pattern entry / traffic pattern Landing √ Landing clearance 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 inspection of aircraft Debrief / update syllabus and logbook Student Student Debrief / update syllabus and logbook Debrief / update syllabus and logbook	Pattern entry / traffic pattern 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 inspection of aircraft Debrief / update syllabus and logbook Student Date	The lesson will be complete v better. Standards are as folic 1. Altitude ±250 feet 2. Headings ±15 foots 3. Airspeed ±15 knots 4. Traffic pattern altitude ±1 5. Hover −11+5 feet 6. Maintains position within propriate 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 inspection of aircraft Debrief / update syllabus and logbook Student Date Date	Pattern entry / traffic pattern	Pattern entry / traffic pattern Pattern entry / traffic pattern 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 inspection of aircraft Debrief / update syllabus and logbook Student Date Acft Type N# Date Acft Type N# Date Acft Type N#

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

PREFLIGHT BRIE	FING /SPECIAL EMPHASIS AREAS	TAKEOFF / CLIMB /	/ CRUISE		
	Discussion of lesson		Pre-takeoff √		
	SRM, ADM and risk management		Takeoff clearance		
	Weight and balance		Takeoff—normal, crosswind, steep		
	Wake turbulence / wind shear				
	CFIT/wire strike avoidance		Climbs √		
	Collision avoidance		Level-off from climb		
	Checklist usage		Engine checks, traffic checks		
	Positive aircraft control	NAVIGATION			
	RUNWAY INCURSION avoidance		Pilotage / dead reckoning / GPS /		
EMERGENCY PRO	OCEDURES √ (Oral review)		tracking		
	Fire—startup, engine or electrical in-		TFRs and SUAs		
	flight, cabin	ADVANCED MANE	<u>UVERS</u>		
	lcing—structural inflight, static port blockage, carb ice		180° autorotation		
	Electrical malfunctions		Running takeoff		
	Engine failure—take off run, pattern		Hovering auto		
	Emergency descent		Rapid deceleration		
PREFLIGHT		LANDING	· '		
	Cockpit √				
	Certificates and documents—ARROW		Approach—location, communication		
	Preflight inspection √		Landing √		
	Aircraft servicing		Traffic pattern, if required		
	Runup√		Landing clearance		
STARTUP	·		Stabilized approach		
	Engine start /		Go around √		
	Engine start √ Comm radio setup		Landings—normal, crosswind, steep		
	Nav radio setup		Roundout—height, crosswind control		
TAXI (If required)	Tav Tadio octap				
TAXI (II Tequileu)			Hover		
	Taxi √ / taxi brief		Taxi clearance		
	Taxi clearance		Taxi √—wind, speed, hazards, air or		
	Taxiing—wind, speed, hazards, air or hover		hover		
	Traffic awareness		Shutdown √		

STAGE 2—Lesson 10 (DUAL) Enhanced Autorotation (CONTINUED)

<u>POSTFLIGHT</u>										
	Postfligh	t inspectior	of aircraf	t						
	Dual deb book	orief / Upda	te TCO ar	nd log-						
COMPLETION STAN	DARDS									
The lesson will be compl 1. Practiced 180° autor 2. Completed a basic t 3. Safely perform runni	ete when trotations, tunderstand ing takeoff	the student erminates : ling of enha	has: at hover w anced auto	vithin 300 f orotation p	eet of safe rocedures	ty point				
<u>Instructor</u>		<u>Student</u>			<u>D</u>	oate	<u>A</u> 	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										1

Hours	5	STAGE 2—Lesson 11 (DUAL) Hover Auto and Aircraft Control OBJECTIVE: The student will apply previously learned skills to Advanced Fligh Maneuvers TIME: As required.
		Time: As required.

PREFLIGHT BRIEF	ING/SPECIAL EMPHASIS AREAS	IAKE	OFF / C	LIMB /	CRUISE
	SRM and ADM				Takeoff √
	Weight and balance				Takeoff clearance
	Wake turbulence / wind shear				Takeoff—normal, crosswind, steep
	Collision avoidance				•
	Positive aircraft control		• • • • •		Climbs √ - turn, Cs (Vx, Vy, cruise), VR-IR
	RUNWAY INCURSION avoidance				Level-off from climb—VR-IR
EMERGENCY PRO	CEDURES √ (Oral review)				Cruise √
	Forced landings	ADVA	ANCED	MANEU	IVERS
	Fire—startup, engine or electrical inflight, cabin				Hovering Autorotation's
	lcing—structural inflight, carb ice				Engine rotor RPM—without use of governor
	Electrical malfunctions				
	Emergency descent		•		Systems and equipment malfunctions
PREFLIGHT	Cockpit √				Instructor directed maneuver practice
	Certificates & documents—ARROW				Zero Speed Rollout
	Preflight inspection √		• • • • • •		Power Limited Takeoff
	Aircraft servicing		• 0 0		Power Limited Landing
STARTUP					Zero Speed Auto
	_ Engine start √	FMFF	RGENC'	PROC	EDURES / (Practical review)
	Comm radio setup—freq, vol, xmit- ter				Engine failure—takeoff, after take- off, inflight
	Nav radio setup—freq, ID, set course				Forced landings—power, no power
	Rotor engagement				Emergency descent
	_ Runup √				
Taxi (if required)					
	_ Taxi √/ taxi brief				
	Taxi clearance				
	Aircraft stability check				
	Positive exchange of controls				
	Taxiing—wind_speed				

STAGE 2—Lesson 11 (DUAL) Hover Auto and Aircraft Control (CONTINUED)

LANDING										
	Go around	/								
	Landings—	normal, d	crosswind,	steep						
	Touchdown	—drift								
	Runway inc	ursion a	oidance/							
	Taxi √ - wind taxi	d, speed	, hover or a	air						
	Shutdown √									
<u>POSTFLIGHT</u>										
	Postflight in	spection	of aircraft							
	Debrief / up book	date syll	abus and l	og-						
COMPLETION STAN	IDARDS									
The lesson will be comp 1. Altitude ±200 feet/ti 2. Headings ±15° 3. Airspeed ±15 knots 4. Normal hover -1/+5 5. Maintains position v	olete when all raffic pattern : 5 feet within 8 ft with	areas ha ±150 fee	ave a grade t	e of 2 or b as approp	etter. Sta	andards are	as follow	s:		
<u>Instructor</u>		Studen	<u>ıt</u>			<u>Date</u>	<u>A</u>	cft Type	<u>N#</u>	
										
Dual Pre/Pos	t Dual Day Du	ual Night	Dual X-	Dual Inst	Dual Tes	t Solo Day	Solo X-	Total Acft	Inst	l
			Ctry		Prep	_	Ctry			
Previous										
This Lesson										
Total										

Hours	STAGE 2—Lesson 12 (DUAL) Co	nfined area & Pinnac	le operations
	OBJECTIVE: The student will practice based on confinement. Approach and Department: As required.	previously learned piloting arture power requirements.	ele operations skills and be introduced approach selection
PREFLIGHT BRIEF	FING/SPECIAL EMPHASIS AREAS	<u>NAVIGATION</u>	
	Positive aircraft control		Pilotage / Dead reckoning
	Weight and balance		GPS navigation / Tracking
	Wake turbulence / wind shear		SUAs
	Collision avoidance	ADVANCED MANE	HIVERS
	Checklist usage	ADVANCED WANE	<u>LOVERS</u>
	RUNWAY INCURSION avoidance		Clearing Turn
	CFIT/Wire strike avoidance		High and low reconnaissance—altitude maintained
EMERGENCY PRO	OCEDURES √ (Oral review)		mamameu
	Fire—startup, engine or electrical in-		Hazard recognition
	flight, cabin		Power management
	lcing—structural inflight, static port blockage, carb ice		Approach selection
	Electrical malfunctions		Go-around
	Forced landing—power, no power		Approach to hover—rate of closure, rate of descent
PREFLIGHT			Ground reconnaissance
	Cockpit √		Take-off—max, required, normal
	Certificates and documents—ARROW		Aeronautical Decision Making
	Preflight inspection checklist \checkmark		-
	Aircraft servicing	EMERGENCY PRO	OCEDURES √ (Practical review)
STARTUP			Engine failure—takeoff, altitude, and pattern
	Engine start √		Emergency descent
	Comm radio setup—freq, vol, transmitter	LANDING	
	Runup √	LANDINO	
TAXI (if required)			Approach—location, communication
	Taxi clearance		Pattern entry, if required
	Positive exchange of controls		Traffic pattern, if required
	Taxiing—wind, speed, hazards, air or hover		Landing clearance

STAGE 2—Lesson 12 (DUAL) Confined area & Pinnacle operations (CONTINUED)

<u>POSTFLIGHT</u>										
F	Postflight i	nspection c	of aircraft							
[Debrief / U	Ipdate TCO	and logbo	ook						
COMPLETION STAN	<u>DARDS</u>									
The lesson will be comp 1. Basic understanding 2. Perform operation s 3. Performs all clearing	lete when g of confin afely g and reco	all areas ha ed operatio on turns	ave a grad ns	e of 2 or b	etter. The	standards	are as foll	ows:		
<u>Instructor</u>		Studen	<u>ıt</u>		<u>D</u>	<u>ate</u>	<u>Ac</u>	oft Type	<u>N#</u> 	
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										

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Hours	STAGE 2—Lesson 13 (<u>DUAL) Slo</u> OBJECTIVE: The student will app Maneuvers TIME: As required.	<i>pe Operation / Torque Failure</i> bly previously learned skills to Advanced Flight
PREFLIGHT BRIEFI	NG/SPECIAL EMPHASIS AREAS	TAKEOFF / CLIMB / CRUISE

			<u> </u>
	SRM and ADM		Takeoff √
	Weight and balance		Takeoff clearance
	Wake turbulence / wind shear		Takeoff—normal, crosswind, steep
	Collision avoidance		•
	Positive aircraft control		Climbs √ - turn, Cs, VR-IR
	RUNWAY INCURSION avoidance		Level-off from climb—VR-IR
EMERGENCY PROG	CEDURES √ (Oral review)		Cruise √
	Forced landings	ADVANCED MANEU	<u>VERS</u>
	Fire—startup, engine or electrical inflight, cabin		Slope Operations Anti-torque system failures
	lcing—structural inflight, carb ice		Low rotor RPM recognition and re-
	Electrical malfunctions		covery
	Emergency descent		Settling with power/vortex ring state
<u>PREFLIGHT</u>			
	Cockpit √		Instructor directed maneuver practice
	Certificates & documents—ARROW		tice
	Preflight inspection √		
	Aircraft servicing		
STARTUP			
	_ Engine start √		
	Comm radio setup—freq, vol, xmitter	EMERGENCY PROC	EDURES / (Practical review)
	Nav radio setup—freq, ID, set course		Engine failure—takeoff, after take- off, inflight
	Rotor engagement		Forced landings—power, no power
	. Runup√		Emergency descent
TAXI (If required)	- Ranap v		
	Taxi √ / taxi brief		
	Taxi clearance		
	Aircraft stability check		
	Positive exchange of controls		
	Taxiing—wind, speed, hover, air		

STAGE 2—Lesson 13 (<u>DUAL</u>) Slope Operation / Torque Failure (CONTINUED)

LANDING										
	Go around	1								
	Landings— <i>i</i> shallow	normal, d	crosswind :	steep,						
	Touchdown	—drift								
	Taxi clearar	nce—hov	er or air							
	Runway inc	ursion av	oidance/							
	Shutdown √									
POSTFLIGHT										
	Postflight in									
	Debrief / up book	date syll	abus and l	og-						
COMPLETION STANK	DARDE									
COMPLETION STAN										
The lesson will be compl 1. Altitude ±200 feet/±′ 2. Headings ±15° 3. Airspeed ±15 knots 4. Hover −1/+5 ft 5. Maintain position with	ete when all 50 ft traffic p hin 8 ft with ı	areas ha pattern no aft mo	ove a grade	e of 2 or be	etter. Sta	andards are	as follows	:		
<u>Instructor</u>		Studen	<u>t</u>			<u>Date</u>	A	<u>cft Type</u>	<u>N#</u>	
										1
Dual Pre/Post	Dual Day Du	ual Night	Dual X- Ctry	Dual Inst	Dual Tes Prep	st 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 BRIEF	ING /SPECIAL EMPHASIS AREAS	TAKEOFF / CLIMB	/ CRUISE
	Discussion of lesson		Takeoff √
	SRM, ADM and risk management		Takeoff clearance
	Weight and balance		Takeoff—normal, crosswind, steep
	Wake turbulence / wind shear		Climbs √ - with turns, Cs, VR-IR
	CFIT/wire strike avoidance		Traffic pattern departure
	Collision avoidance		Level-off from climb—VR-IR
	Positive aircraft control		Cruise √—VR-IR
	RUNWAY INCURSION avoidance		Engine checks, traffic checks
	LAHSO	NAVIGATION	•
EMERGENCY PRO	CEDURES √ (Oral review)	<u> </u>	
	Checklist usage		Opening flight plan
	Fire—startup, engine or electrical inflight,		VOR intercepting, tracking
	cabin		GPS intercepting, tracking
	lcing—structural inflight, static port block- age, carb ice		Pilotage, dead reckoning
	Electrical malfunctions		Diversion / use of compass
	Emergency landing	ADVANCED MANE	<u>UVERS</u>
PREFLIGHT			PMC, emerg landing area, clearing turns
	Cockpit √		Straight-in auto's
	Certificates and documents—ARROW		Hover auto
	Preflight inspection √		180° auto
	Aircraft servicing		Rapid deceleration
STARTUP		EMERGENCY PRO	CEDURES √ (Practical review)
	Engine start √		
	Comm radio setup—freq, vol, trans		Engine failure—hover, takeoff, after takeoff, inflight
	Nav radio setup—freq, ID, set course		Forced landings—power, no power
	Rotor engagement		Emergency landing
TAXI (If required)		GROUND REFEREN	NCE
	Taxi √/ taxi brief		
	Taxi clearance		Clearing turns, emerg landing area, PMC
	Positive exchange of controls		Rectangular patterns
	Taxi—wind, speed, hazards, hover, air		Turns around a point
	Traffic awareness		S-Turns
	Runup√		O Tullio

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

<u>LANDING</u>				
Approacl	n—location, communicatio	n		
Pattern e	entry			
Landing	I			
Landing	clearance			
Traffic pa	attern, as required			
Stabilize	d approach— <i>steep, norma</i>	nl .		
Go arour	nd √			
Landings	—normal, crosswind			
Taxi √				
Shutdow	n √			
<u>POSTFLIGHT</u>				
Postfligh	t inspection of aircraft			
Debrief /	Update syllabus and logbo	ook		
COMPLETION STANDARDS				
This lesson will be complete when 1. Altitude ±200 feet/traffic patte 2. Headings ±10° 3. Airspeed within ±10 knots 4. Remain within 4 feet of select	rn ±100 feet	2 or better. Standards are as t	iollows:	
5. Hover altitude ±1/2 POH				
Instructor	<u>Student</u>	<u>Date</u>	Acft Type	<u>N#</u>
		·····		-
				

	Dual Pre/Post	Dual Day	Dual Night	Dual X- Ctry	Dual Inst	Dual Test Prep	Solo Day	Solo X- Ctry	Total Acft	Inst
Previou	s									
This Lesso	n									
Tota										

ŀ	lours	OBJECTIVE: The student will practice piloting skills for tasks assigned by the
		instructor. TIME : As required.

PREFLIGHT BRIE	FING - DUAL	BASIC MANEUVE	<u>RS</u>
	Review of all emergency checklists		Level-off from climb
	Endorsements		Cruise √
	SPECIAL EMPHASIS AREAS		Straight and level
<u>PREFLIGHT</u>			Level turns to headings
	Cockpit √		-
	Certificates and documents—ARROW		Tracking a straight line
	Preflight inspection √		Engine check / traffic check
	Airplane servicing		Descents /—with turns, Cs, best glide
<u>STARTUP</u>			Normal Approach
	Engine start √		Steep Approach
	Comm radio setup—freq, vol, transmitter		Go-around
	Nav radio setup—freq, ID, set course	LANDING	
	Rotor engagement		Approach—location, communication
TAXI (if required)			Pattern entry
	Taxi √		Landing √
	Taxi clearance		Landing clearance
	Taxiing—wind, speed, hazards, hover, air		Traffic pattern, as appropriate
	Traffic awareness		Stabilized approach
<u>TAKEOFF</u>			Landings—normal, crosswind, steep
	Takeoff √		Taxi clearance
	Takeoff clearance		Runway incursion avoidance
	Takeoff—normal, crosswind, steep		Taxi √—wind, speed, hazards, hover, air
	Climbs √		Shutdown /
	Pattern departure		

STAGE 2—Lesson 15 (DUAL) Student Review of Maneuvers (CONTINUED)

<u>POSTFLIGHT</u>										
	_ Postflight insp	ection of a	aircraft							
	Dual debrief / book	Update sy	llabus a	nd log-						
RELEASED FOR	SOLO									
Date	Instructo	r								
Date	Instructo	r								
Date	Instructo	r				_				
COMPLETION S	TANDARDS									
This lesson will be	complete when the	e student h	as pract	iced all th	e noted m	naneuvers.				
Instructor		Student				<u>Date</u>		Acft Type	<u>N#</u>	
					· · · · · · · · · · · · · · · · · · ·					
	· · · · · · · · · · · · · · · · · · ·		8 8 6							
Dual Pre	e/Post Dual Day Du	ıal 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.
		Time. As required.

Syllabus correct Verification of student certificate Verification of medical certificate Completing 8710 Form/ IACRA Endorsements Endorsements Endorsements Endorsements Meteorology (i.e. Wx Theory) Risk elements Currency, privileges, limitations Documents & ID requirements Logbook/Record keeping Compensation Compensation Medical certificates Medical certificates Pilotage and dead reckoning Drugs and alcohol/IMSAFE Risk elements True airspeed & density altitude AIRWORTHINESS REQUIREMENTS Certificates Inspections Preventative maintenance Required equipment Inoperative equipment Special flight permit Risk elements Sectional and symbology WEATHER INFORMATION Adverse Conditions: Ground-based navigation WSTMS/WA/UUA/CWA Current Weather: MC TCAFED MATIONAL AIRSPACE SYSTEM Types of airspace and classes Requirements and restrictions Requirements and restrictions Risk elements NATIONAL AIRSPACE SYSTEM Types of airspace and classes Requirements and restrictions Requirements and restrictions Risk elements NATIONAL AIRSPACE SYSTEM Types of airspace and other airspace	CERTIFICATES—ST	<u>UDENT</u>			Forecasts: (continued)
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SLIA SERA and other airspace		•			_ Requirements and restrictions
IAF/FU —— —— —— · · · · ·					SUA, SFRA, and other airspace
Surface/SIGWX prog. charts Risk elements					

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

PERFORMANCE A	AND LIMITATIONS	HUMAN FACTORS	(continued)
	Charts, tables, and data		Hypothermia
	Factors affecting performance		Optical illusions
	Loading on performance		Alcohol, drugs, OTC meds
	Weight and balance		ADM & hazardous attitudes
			Collision avoidance
	Aerodynamics		Risk elements
	Risk elements	COMMUNICATIONS	S AND LIGHT GUN SIGNALS
OPERATION OF S	SYSTEMS		Obtaining frequencies
	Primary flight controls		Communication procedures and phraseology
	Powerplant and rotors		-
	Fuel, oil		Transponders
	Electrical		Radar assistance
	Avionics		Lost communication procedures
	Pitot-static, vacuum/pressure & associated flight instruments		Automated WX and airport info Risk elements
		TRAFFIC PATTERN	<u>IS</u>
	Environmental		Towered/Non-towered operations
	Deicing and anti-Icing		Runway selection
	Normal operation		Right-of-way rules
	Common errors		Wake turbulence
	Abnormal operation		Runway incursion avoidance
	Risk elements		Risk elements
HUMAN FACTORS	<u>s</u>	NIGHT PREPARAT	<u>ION</u>
	Нурохіа		Physiology, equipment
	Hyperventilation		Airport lighting systems
	Middle ear and sinus problems		Aircraft lighting systems
	Spatial disorientation		Orientation, nav, & chart reading
	Motion sickness		Somatogravic/Black hole approach illusion
	Carbon monoxide poisoning		- Visual scanning
	Stress and fatigue		Inadvertent IMC
	Dehydration and nutrition		- Risk elements

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

EMERGENCY OPERATIONS	System ar	nd Equipment Malfunction:
Emergency landing	g	Partial or complete power loss
Glide speed vs. dis	stance	Engine roughness or overheat
Energy manageme	ent	Carburetor or induction icing
Wind and effects		Loss of oil pressure
Emergency proced	dures —— —	Fuel starvation
Communications		Electrical malfunction
ELTs: Operation/Li	imitations/Tests	Pitot/Static system malfunction Structural icing
Radar assistance/	Transponders	Smoke/Fire/Engine compartment fire
Minimum fuel		Any other emergency appropriate to the aircraft
Emergency equipn	nent — —	
Climate extremes	(Hot/Cold)	Risk elements for all emergency operations
COMPLETION STANDARDS The student must demonstrate sufficient kr	nowledge in the lesson areas to ra	ate at least a 3 on each item
<u>Instructor</u>	<u>Student</u>	<u>Date</u>

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 BRII	<u>EFING</u>	TAKEOFF / CLIME	B / CRUISE
	Aircraft lighting systems		Talcast /
	Airport lighting systems		_ Takeoff √
	Night navigation		_ Takeoff clearance
	Wake turbulence / wind shear		01: 1 / 2// 0
	Collision avoidance		_ Climbs <i>√—with turns, Cs</i>
	Weather planning		_ Traffic pattern departure
	Flight planning/filing		_ Level-off from climb
EMERGENCY PR	ROCEDURES √ (Oral review)		_ Cruise √
	Fire—startup, engine or electrical in- flight, cabin		Risk elements
	lcing—structural inflight, static port blockage, carb ice	<u>NAVIGATION</u>	000
	Systems and equipment malfunctions		_ GPS intercepting, tracking
PREFLIGHT			Pilotage, dead reckoning
	Cockpit √		Risk elements
	_ Certificates and documents—ARROW	Helicopter MANE	<u>UVERS</u>
	Preflight inspection checklist √		Vertical take-off and landing
	Aircraft servicing		_ vertical take-on and landing
	Risk elements		_ Slope operations
STARTUP			_ Hover taxi
	Engine start √		_ Air taxi
	Comm radio setup—freq, vol, trans- mitter		Normal Take-off
	Nav radio setup—freq, ID, set course		_ Maximum performance T/O
	Rotor engagement		_ Steep approach
	Risk elements		Confined area operations
TAXI	_		Pinnacle/Platform
	Taxi √ / taxi brief		Shallow approach and run on landing
	— Taxi clearance		
	Positive exchange of controls		Go-around _
	— Taxi—wind, hazards, hover, air		_ Rapid deceleration
	— Traffic awareness		Straight-in autorotation
	— Runup√		_ 180° autorotation
	Risk elements		Hover auto
			Low rotor RPM recovery
			Settling with power

STAGE 2—Lesson 17 (DUAL) Final Review Lesson (CONTINUED)

s lesson will be tructor Dual P	scomplete when all areas have met the Practice Student re/Post Dual Day Dual Night Dual X- Ctry Dual Inst	<u>Date</u>	<u>Acf</u>	e of 3. t Type N#	
s lesson will be tructor Dual P	complete when all areas have met the Practic Student Complete when all areas have met the Practic Student Student Complete when all areas have met the Practic Pra	<u>Date</u>	Acf	<u>t Type</u> <u>N#</u>	
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	complete when all areas have met the Practic	al Test √ Standards ar			
		,			
	NTAND ADDO				
	Risk elements				
	Shutdown √				
	Runway incursion avoidance				
	Taxi clearance				
	Landing clearance				
	Landing √				
	Pattern entry				
	Approach—location, communication				
<u>NDING</u>					
	Risk elements				
	Systems and equipment malfunctions		_		
	Forced landings—power, no power		– Risk eleme	nts	
			Debrief / uր	odate syllabus a	nd log
	takeoff_inflight		oponiou		
	Engine failure—hover, takeoff, after takeoff, inflight		if opened		flight

Student	Examir	ner	Date
lote:			
oper elem miss	evaluator must assess the applicant on all sl ation of the PTS unless otherwise noted. The nent and one risk management element in ea ed on the knowledge exam.	ne evaluator must al	so assess at least one knowledge n any task element(s) the applicant
VALUATION	Y FILLIWIIIVANIES	III. AINFONT O	
	Drivers license—picture ID		Com and Light Gun Signals
	Student certificate—current		Traffic patterns
	Medical certificate—current	IV. TAKEOFFS,	LANDINGS, GO-AROUNDS
	8710 Form—correct, dated, signed	_	Normal, steep, crosswind takeoff and
	Knowledge test report—current		climb
	Certificate of Enrollment—current		Normal, steep and crosswind approach and landing
	Training Course Outline—completed		Shallow approach
	Ground school completion—verified		Maximum performance T/O
PREFLIGH	T PREPARATION		Running T/O
	Pilot qualifications		Slope landing
	<u></u>		Go-around/Rejected landing
	Airworthiness requirements Weather information		Confined Area Operations
	Weather information	V. PERFORMA	NCE MANEUVERS
	Weight and balance		Rapid deceleration
	Cross-Country flight planning		Straight in autorotation
	National Airspace System		180° autorotation
	Performance and limitations	VI. NAVIGATIO	
	Operation of systems		
	Human factors		Pilotage and dead reckoning
PREFLIGH	IT PROCEDURES		Navigation systems and radar
	Preflight assessment		Diversion
	Cockpit management	VII EMEDGEN	Lost procedures CY PROCEDURES
	Engine starting	VII. LIVIERGEN	
	Rotor engagement		Power failure at hover/altitude
	Rotor ongagoment		Settling with power
	Taxiing		Anti-torque failure

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

VIII. BASIC MANEUVERS	ATTEMPT 1
Straight and level	
Constant airspeed climbs	Examiner
Constant airspeed descents	
Turns to headings	Student
Radio communications	Date
IX. EMERGENCY OPERATIONS	
Emergency approach and landing	Oral Time
Emergency equip and survival gear	Flight Time
Systems and equipment malfunctions	ATTEMPT 2
Systems and Equipment Malfunction: Select 3 Skills Partial or complete power loss	Examiner
Engine roughness or overheat	Student
Carburetor or induction icing	
Loss of oil pressure	Date
Fuel starvation	Oral Time
Electrical malfunction	FRALLE
Pitot/Static system malfunction	Flight Time
Structural icing	ATTEMPT 3
Smoke/Fire/Engine compartment fire	
Any other emergency appropriate to	Examiner
the aircraft	Student
X. NIGHT OPERATIONS Night preparation	Date
XI. POSTFLIGHT PROCEDURES	Oral Time
Parking and securing	Flight Time
COMPLETION STANDARDS	TOTAL ORAL TEST TIME
A student pilot must meet the FAA Commercial Pilot Practical Test Standards on this evaluation before being awarded a Commercial Pilot Certificate.	TOTAL FLIGHT TEST TIME
	AIRCRAFT N #

COMMERCIAL HELICOPTER PILOT END-OF-COURSE EVALUATION CRITIQUE

COMMEN	<u>TS</u>		
1 🗖	This end-of-course evaluation	n performance indicates that addition	al review is necessary.
_	A Do Review Lessons on al	ll items marked "1" until your Instructo	or indicates a satisfactory "3"
			indicates a satisfactory o .
	B. Insert the Review Lesson		
	C. Return to a check instruc	tor.	
Chie	f / Asst	Stu-	
Chief Ins		dent	Date
² \square	This End-of-Course evaluation	on was performed in a satisfactory ma	anner.
Chio	f / Asst	Stu-	
Chief Ins		dent	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 Ground Training Course

STAGE 1 12 hours approx of

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 LESSON 2

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.

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

LESSON 3 LESSON 4

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.

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.

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.

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

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 LESSON 8

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.

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

LESSON 9 LESSON 10

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.

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

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

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

LESSON 13 LESSON 14

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
- Нурохіа
- Hyperventilation
- Dehydration and Nutrition
- Middle Ear and Sinus Blockage
- Motion Sickness
- Stress and Fatique
- 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.

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

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-ofcourse examination with a minimum score of 80%.