Unit 1. Flight. Dual – Local. First Flight
Unit 2. Ground. Introduction to Training Materials. Mindset
Unit 3. Ground. Basic Aerodynamics, Forces of Flight
Unit 4. Ground. Basic Aerodynamics, Maneuvering Flight
Unit 5. Flight 1. Dual – Local, Basic Flight Maneuvers
Unit 6. Ground, Basic Aerodynamics, Stability, Stalls, Slow Flight, Spins11
Unit 7. Flight 2. Dual – Local, Basic Flight Maneuvers
Unit 8, Ground, Systems, Airplane Components, Powerplant and Related
Systems
Unit 9. Flight 3. Dual – Local, Use of Flaps, Slow Flight
Unit 10. Ground. Flight Instruments
Unit 11. Flight Simulator (PCATD)/CPT/Drv Flving, Division of Attention.
Power-off Stalls
Unit 12, Ground, Safety of Flight, Airports, Charts
Unit 13, Flight 4, Dual – Local, Slow Flight, Power-off Stalls, Compass, 22
Unit 14. Ground. Airspace 23
Unit 15. Flight 5. Dual – Local, Communication, Slow Flight, Power-on
Stalls
Unit 16, Ground, Radar Services, Sources of Flight Information
Unit 17, Flight 6, Dual – Local, Power-on Stalls, Steep Turns
Unit 18. Ground. Radio Communication Procedures and Techniques29
Unit 19. Flight 7. Dual – Local, Slips, Go-Arounds
Unit 20, Flight 8, Review of Performance Maneuvers, Slips,
Demonstration Stalls
Unit 21. Ground. Meteorology for Pilots
Unit 22. Simulator. Traffic Pattern
Unit 23. Flight 9. Dual – Local. Pilotage, Turns around a Point, S-Turns38
Unit 24. Ground. Interpreting Weather Data
Unit 25. Ground. Weather Practice Session
Unit 26. Flight 10. Dual – Local. Pilotage, Ground Reference Maneuvers42
Unit 27. Ground. Airplane Performance
Unit 28. Flight 11. Dual – Local. Ground Reference Maneuvers
Unit 29. Ground. FAR
Unit 30. Flight 12. Dual – Local. Emergency Procedures
Unit 31. Ground/CPT. Review of the Pre-solo Knowledge Test,
Emergencies47
Unit 32. Flight 13. Dual – Local. Emergencies, Power-off landings48
Unit 33. Ground. Pre-solo knowledge test
Unit 34. Flight 14. Dual – Local. Pre-solo Review/Stage I Check50
Unit 35. Flight 15. Solo – Local. First Solo
Unit 36. Flight 16. Solo – Local. Second Solo
Unit 37. Flight 17. Dual – Local. Uncontrolled or Controlled Airport
Operations. Short-Field Takeoff and Landing
Unit 38. Flight 18. Solo – Local. Stalls, Slow Flight, and Steep Turns55
Unit 39. Ground. Aviation Physiology56

Unit 40. Flight 19. Dual – Local. Basic Instrument Flight Maneuvers58
Unit 41. Flight 20. Solo – Local. Ground Reference Maneuvers
Unit 42. Ground. Pilotage and Dead Reckoning, VOR Navigation60
Unit 43. Flight 21. Dual – Local. Night Operations
Unit 44. Flight 22. Dual – Local. Night Operations, Unusual attitudes63
Unit 45. Flight Simulator (PCATD). VOR Orientation, Intercept and
Tracking64
Unit 46. Flight 23. Dual – Local. VOR Orientation, Intercept and Tracking;
Soft-Field Takeoff and Landing65
Unit 47. Ground. Cross Country Planning
Unit 48. Flight 24. Dual – Cross Country67
Unit 49. Simulator/PCATD. Division of Attention on Cross Country Flights68
Unit 50. Flight 25. Dual – Cross Country. Lost Procedures, Diversion69
Unit 51. Ground. Knowledge Test Preparation
Unit 52. Flight 26. Dual – Cross Country. Class C, Radar Procedures71
Unit 53. Flight 27. Dual – Cross Country. Night Cross Country
Unit 54. Flight 28. Dual – Local. Pre-solo Cross Country Review/Stage II
Check
Unit 55. Flight 29. Solo – Cross Country74
Unit 56. Flight 30. Solo – Cross Country75
Unit 57. Flight 31. Solo – Cross Country. Long Cross Country
Unit 58. Ground. Oral Test Preparation77
Unit 59. Flight 32. Dual – Local. Simulated Practical Test. Stage III
Check

Abbreviations:

AFH – Airplane Flying Handbook PHAK – Pilot Handbook of Aeronautical Knowledge ChS – Chart Supplement CPT – Cockpit Procedures Trainer FAR – Federal Aviation Regulations PCATD – PC-based Aviation Training Device ACS – Airmen Certification Standards POH – Pilot's Operating Handbook

Unit 1. Flight. Dual – Local. First Flight

Complete

Objective: Familiarize the student with the aircraft and basic flight maneuvers.

	Date	Date
Aircraft preflight procedures		
Positive exchange of flight controls		
Flight controls		
Trim		
Engine start (instructor)		
Brake use and proper taxi technique		
Takeoff and initial climb		
Level flight with and without turns		
Climbs and descents with and without turns		
Pattern entry (instructor)		
Normal landing (instructor)		
After landing procedures		
Post-flight procedures		

Instructor's Comments:

Unit 2. Ground. Introduction to Training Materials, Mindset

References: Jeppesen Ch. 1B, 1C, Ch. 10B PHAK Ch 1, 2

PHAK Cn 1, 2 FAR Part 1, 61.5, 61.17, 61.19, 61.23(c), 61.83, 61.87(a)-(d) (l), 61.102, 61.103, 61.105, 61.107, 61.109 91.3, 91.7, 91.9, 91.17, 91.203 Aircraft logs Course Materials: Airworthiness Checklist

	Date
Training course sequence	
Federal Aviation Regulations (Title 14 CFR)	
Knowledge requirements	
Flight training requirements	
Aeronautical Information Manual	
Text book, quizzes	
Airmen Certification Standards	
Airplane Flying Handbook	
Chart Supplement	
Charts	
Plotter	
Flight computer	
Fuel tester	
Certificates and Ratings	
Categories and Classes	
Medical Certificates – Classes and Duration	
Responsibilities of Pilot in Command	
Risk Factors	
Aircraft	
Airworthiness	
Documents Required (ARROW)	
Maintenance and Inspections	
AV1ATE	
IS LA CA	
Pilot	
Self assessment (I'M SAFE)	
Alcohol Limits	
Hazardous Attitudes (I'M AIR)	
Environment	
Operation	
Aeronautical Decision Making (ADM), DECIDE model	
Crew Resource Management (CRM)	
Effective Communication	

	Date
Workload Management	
Planning and Preparation	
Cockpit Management and Organization	
Prioritizing (Aviate, Navigate, Communicate)	
Workload Management, Workload Overload	
Situational Awareness	
Overview of Airplane Components	
Review of Basic Physics, Terms and Units	
Mass	
Weight	
Speed	
Velocity	
Acceleration	
Force	
Work	
Power	
Viscosity and Compressibility	
Cohesive and Adhesive Forces	
Working with Units in Formulas	
Center of Gravity (CG), Applicability to Any Force	
Working with Vectors	
Addition	
Projection	

Unit 3. Ground. Basic Aerodynamics, Forces of Flight

References: Jeppesen Ch.3A PHAK, Ch 4

Quiz # 1 Score:

	Date
Forces Of Flight	
Weight	
Thrust – Relationship Between Power And Thrust	
Lift	
Newton's Laws	
Bernoulli Principle, 1783	
Coanda Effect and Its Connection with Newton's Third Law	
Difference in Speed of Different Layers, Boundary Layer	
Airflow around the Wing and Forces on Wing and Air:	
Upwash	
Downwash	
Net Change to Air Velocity	
Popular Explanations of Lift	
Airfoil Terminology	
Airfoil	
Leading Edge	
Trailing Edge	
Upper Surface	
Lower Surface	
Chord	
Flight Path	
Relative Wind	
Angle of Attack (AOA)	
Angle of Incidence	
Camber	
Mean Camber	
Symmetrical Vs. Asymmetrical Wing	
Distribution of Pressures	
Centers of Pressure (CP)	
Aerodynamic Center (AC), or Center of Lift	
Wing Loading	
Lift Formula, C _L Graph, Geometrical vs. Effective AOA	
Flight at Slow Speeds	
Increased Reverse Flow	
Distribution of Pressures	
Increased Wing Loading	

continued

Unit 3. (continued)

Stalls	
Separation of Airflow	
Critical Angle of Attack	
Progression of Stall from Root to Wingtip	
Washout	
Variation of Stall Speed with Weight	
Stalls at Different Speeds and Attitudes	
Drag	
Parasite Drag	
Form	
Interference	
Skin Friction	
Relationship between Parasite Drag and Airspeed	
(~V ²)	
Induced Drag	
Reverse Flow – Boundary Layer (Laminar, Transition	
Region, Turbulent Flow)	
Wingtip Vortices	
Upwash Load	
Rearward Component of Aerodynamic Force Acting	
at an Angle	
Relationship between Induced Drag and Airspeed	
(~1/V ²)	
Ground Effect	
Total Drag	
L/D _{max}	
Best Range and Best Glide Speed	
Wing Aspect Ratio and Planforms	
Their Effect on Stall Characteristics and Drag.	
Rectangular	
lapered	
Semi-Tapered	
Sweptback	
Delta	

Unit 4. Ground. Basic Aerodynamics, Maneuvering Flight

Reference: Jeppesen Ch.2A, 3A, 3C, 3B(axes only), 8B (climb performance only) PHAK Ch.4,5

Quiz # 2 Score:

	Date
Three Axes of Flight	
Primary Flight Control Surfaces	
Ailerons	
Rudder	
Elevator and Stabilator	
Secondary Flight Control Surfaces	
High Lift Devices	
Flaps	
Change in Chord Line	
Increased Angle of Attack	
Increased Drag	
Movement of Centers of Pressure	
Pitching Moment	
Effect of Horizontal Stabilizer on Pitching Moment	
Purpose of Flaps	
Types of Flaps	
Split	
Plain	
Slotted	
Fowler	
Slots	
Slats	
Drag Devices	
Spoilers	
Trim Tabs	
Movable Tabs	
Fixed (Ground Adjustable) Tabs	
Left Turning Tendencies	
Torque	
Spiraling Slipstream	
Asymmetrical Thrust	
Gyroscopic Precession	

continued

Unit 4. (continued)

	Date
Maneuvering Flight	
Climb	
Forces in Climb	
Excess Thrust, Best Angle of Climb Speed	
Excess Power, Best Rate of Climb Speed	
Descend	
Powered Descend	
Glide	
Lift-To-Drag Ratio	
Best Glide Speed	
Glide Ratio	
Effect of Weight, Configuration, and Wind	
Turn	
Horizontal Component of Lift	
Increased Angle Of Attack to Maintain Altitude =>	
Decreased Airspeed => Increase in Power Required	
Position of Ailerons during Entry (Roll-In), In Established	
Turn and Roll-Out	
Adverse Yaw	
Coordination	
Skid	
Slip	
Application of Rudder	
Rate and Radius of Turn	
Overbanking Tendency	
Shallow, Medium and Steep Bank angles	
Load Factor	
Definition, Examples	
Load Factor in Turns	
Stall Speed	
Limit and Ultimate Load Factors	
V-G Diagram	
Design Maneuvering Speed	
Structural Cruising Speed	
Never Exceed Speed	
Review of All Speeds Learned So Far	
Airspeed Indicator Markings	

Unit 5. Flight 1. Dual – Local. Basic Flight Maneuvers

Complete

References:

- AFH Ch. 2. Ground Operations,
 - Ch. 3. Basic Flight Maneuvers
 - Ch. 5. Takeoffs and Departure Climbs (up to Crosswind Takeoffs)

Objective: Familiarize the student with preflight and post-flight procedures, checklist usage and basic principles of flight.

Briefing (1 hr):	Date	Date
Positive exchange of flight controls		
Cockpit management		
Taxiing procedures including positioning controls for wind conditions		
Use of checklists		
Straight and level flight		
Turns		
Climb		
Descent		
Normal takeoff		
Flight controls and trimming technique		
Post-flight procedures		

Flight (1.5 hrs)

Introduction:	
Preflight procedures	
Engine start	
Audio panel and use of radios	
Brake use and proper taxi technique	
Run-up technique	
Normal takeoff	
Straight and level flight	
Turns,roll-out on a reference point and on a	
heading.	
Climbs and descents (straight and turning)	
Pattern entry	
Normal landing performed by the instructor	
After landing procedures	
Post-flight procedures	

Completion Standards:

Altitude: ± 200 feet Heading: ± 20° Bank angle: ± 10° Understanding of preflight and post-flight procedures

See instructor's comments on the back

Unit 6. Ground. Basic Aerodynamics, Stability, Stalls, Slow Flight, Spins

References: Jeppesen Ch. 3B, 8B PHAK Ch 5 POH ACS Course Materials

Quiz # 3 Score:

	Date
Stability	
Static Stability	
Dynamic Stability	
Wing Stability	
Airplane Balance in Flight	
Longitudinal Balance, Effect of CG and Power (Thrust Line	
Relatively To CG, Propwash)	
Lateral Balance, Effect of Fuel Load	
Stability in Flight	
Longitudinal Stability	
Lateral Stability	
Dihedral	
Keel Effect	
Sweepback	
Directional Stability	
Stability vs. Controllability	
Slow Flight	
Backside of Power Curve	
Speed Instability	
Performing Stalls	
Types of Stalls	
Power-Off Stall	
Power-On Stall	
Secondary Stall	
Elevator Trim Stall	
Accelerated Stall	
Crossed-Control Stall	
Procedures for Power-Off and Power-On Stalls	

Unit 6. (continued)

	Date
Spin	
Definition	
Aerodynamics of Spins	
Phases of Spin	
Recovery Procedures	
Types of Spin	
Effect of CG on Recovery	
Summary of CG Effect On	
Stability	
Controllability	
Stall Speed	
Cruise Speed	
Range	
Fuel Consumption	
Takeoff and Landing Performance	
Calculating Weight and Balance	
Importance of Balance	
Weight and Balance Terms	
Licensed Empty Weight	
Basic Empty Weight	
Unusable Fuel/Usable Fuel	
Useful Load	
Payload	
Maximum Ramp Weight	
Maximum Takeoff Weight	
Maximum Landing Weight	
Reference Datum	
Arm	
Station	
Moment	
Calculating the Position of CG	
Shifting Weight to Move CG	
Determining Total Weight and CG	
Computation Method	
Table Method	
Graph Method	
Adding/Removing Weight	
Weight Shift Formula	

continued

Unit 7. Flight 2. Dual – Local. Basic Flight Maneuvers

Complete

Reference: AFH – Ch. 3. Basic Flight Maneuvers

Objective: Improve trimming techniques and aircraft control in basic flight maneuvers to the ACS standards. Familiarize the student with aircraft flying characteristics at various airspeeds.

Briefing (1 hr):	Date	Date
Review Unit 5 as needed		
Calculate weight and balance		
Working with radios, radio panel setup		
Crosswind takeoff		
Flying at various airspeeds		
Constant airspeed and constant rate climbs		
Constant airspeed and constant rate		
descents		

Flight (1.5 hrs) Review:

Preflight procedures	
Engine start	
Audio panel and use of radios	
Brake use and proper taxi technique	
Run-up technique	
Normal or cross-wind takeoff	
Straight and level flight	
Level turns	
Climbs and descents (straight and turning)	
After landing procedures	
Post-flight procedures	

Introduction:

Flyi	ng at various airspeeds	
Cor	stant airspeed climb	
Cor	stant rate climb	
Cor	stant airspeed descent	
Cor	stant rate descent	
Sta	pility demonstration	

Completion Standards:

Altitude: ± 100 feet	
Heading: ± 10°	
Bank angle: ± 10°	

See instructor's comments on the back

Unit 8. Ground. Systems, Airplane Components, Powerplant and Related Systems

References: Jeppesen Ch. 2A, 2B PHAK Ch 7 POH, Course Materials

Quiz # 4 Score:

	Date
Airplane Components	
The Fuselage	
The Wing	
The Empennage	
Review of Primary and Secondary Control Surfaces	
Possible Failures and Preflight Considerations	
Landing Gear	
Conventional Vs. Tricycle, Tail-Wheel Endorsement	
Fixed Vs. Retractable	
Struts	
Brakes	
Tires	
Possible Failures and Preflight Considerations	
Types of Engines	
Reciprocating Engine	
Components	
Power Rating, High-Performance Endorsement	
The Four-Stroke Operating Cycle (Suck, Squeeze, Bang,	
Blow)	
Propellers	
Spinner	
Fixed Pitch Propeller	
Variable Pitch (Constant-Speed) Propeller	
Propeller Hazards, Hand-Starting	
Possible Failures and Preflight Considerations	
Complex Endorsement	
Induction Systems	
Intake, Air Filter, Preflight Considerations	
The Carburetor	
Components and Operating Principles	
Effect of Throttle and Mixture Controls	
Carburetor Ice	
Carburetor Heat	