

INSTRUCTOR REFERENCES

- CFI Lesson Plans
 - II.E Airplane Flight Controls
 - II.D. Principles of Flight
 - II.D. Forces of Flight and Maneuvers

LEARNER REFERENCES

- [Pilot's Handbook of Aeronautical Knowledge](#)
 - [Ch. 4: Principles of Flight](#)
 - [Ch. 5: Aerodynamics of Flight \(pgs. 1-44\)](#)
 - [Ch. 6: Flight Controls](#)
- [Basic Aerodynamics \(thebackseatpilot.com\)](#)
- Private Pilot ACS Review
 - I.F. Perf & Limitations
 - K3. Factors Affecting Performance
 - K4. Aerodynamics
 - I.G. Operation of System
 - K1.A-B. Primary & Secondary Flt Controls

OVERVIEW

This lesson introduces the learner to the various flight controls and their operation, and then transitions to a deeper discussion of airfoil design (lift) and how stability and controllability are incorporated into aircraft design. Left turning tendencies are introduced, followed by the forces of flight and aerodynamics. Finally, the instructor explains how the discussed information comes together to influence an aircraft's design characteristics.

NOTES

Planned to be completed with FLT 1: Intro to Flight

There are two lessons titled II.D. in the CFI lesson plans. Principles of Flight is required by the CFI PTS, while Forces of Flight and Maneuvers is supplemental (although particularly important) information. Both lessons are used here.

PLAN OF ACTION

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| <ol style="list-style-type: none">1. Airplane Flight Controls (II.E.)<ol style="list-style-type: none">A. PrimaryB. SecondaryC. Trim2. Principles of Flight (II.D.)<ol style="list-style-type: none">A. Airfoil DesignB. Stability and ControllabilityC. Left Turning TendenciesD. Load Factors in Airplane Design | <ol style="list-style-type: none">3. Forces of Flight and Maneuvers (II.D.)<ol style="list-style-type: none">A. Lift, Weight, Thrust, DragB. Ground EffectC. Climbs, Descents, TurnsD. AOA and Stalls4. Design Characteristics<ol style="list-style-type: none">A. Ties the above information together |
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OBJECTIVE / COMPLETION STANDARDS

The learner gains an understanding of how an airplane flies and the forces associated with flight, in addition to aircraft design factors and considerations, and can answer review questions on the topics discussed.