

# Instrument Pilot Flight Instruction Lesson Plan

## Basic Attitude Flying – 1 – Straight and Level, Airspeed Changes, Level Turns

Student: \_\_\_\_\_ Date: \_\_\_\_\_

### Objectives:

Upon completion of this lesson, the student will:

- Be able to perform straight and level flight solely by reference to the flight instruments.
- Be able to change airspeed while maintaining straight and level flight solely by reference to the flight instruments.
- Be able to perform level, standard rate turns solely by reference to the flight instruments.

### Elements:

- Instrument Cross Check
- Instrument Interpretation
- Aircraft Control
- Straight and level flight at various airspeeds
- Level turns at standard rate

### Schedule:

- |  |       |
|--|-------|
| • Pre-lesson briefing  | 00:15 |
| • Pre-Flight and flight to practice area                         | 00:15 |
| • Straight and level flight at normal cruise airspeed            | 00:10 |
| • Standard rate turns  | 00:10 |
| • Change of airspeed while maintaining straight and level flight | 00:10 |
| • Straight and level flight at slow cruise speed                 | 00:10 |
| • Return flight from practice area                               | 00:10 |
| • Post-lesson debriefing   | 00:10 |
| Total:   | 01:30 |

### Equipment:

- Airworthy airplane with standard flight instruments (Airspeed, Attitude Indicator, Altimeter, Turn Coordinator, Heading Indicator [or HIS / RMI], Vertical Speed Indicator).
- View limiting Device (Foggles, Hood, etc.)
- Appropriate IFR Departure, STAR, en-route and approach charts.

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### Instructor Actions:

1. Pre-lesson briefing
  - Present lesson objective and outline of the lesson.
  - Discuss which instruments are primary and secondary for pitch, bank and power when:
    - Flying straight and level at a constant airspeed.
    - Changing airspeed while maintaining straight and level flight.
    - Establishing a standard rate turn.
    - Maintaining a standard rate turn.
  - Discuss the method of scanning the instruments.
  - Discuss instrument cross check procedures.
  - Discuss instrument interpretation as it applies to straight and level flight and standard rate turns.
  - Discuss procedure for changes of airspeed while in straight and level flight.
  - Discuss procedure for establishing and maintaining a standard rate turn.
2. Pre-flight and flight to practice area
  - Once at an appropriate altitude for the lesson (> 1,500 AGL), have the student don the view limiting device and coach him or her through maintaining straight and level flight at normal cruise speed.
  - The remaining parts of the lesson should be performed upon reaching the practice area.
3. Demonstrate the method for entering and maintaining standard rate level turns. Use the opportunity to clear the area of other traffic; Have student perform standard rate level turns to various headings.
4. Demonstrate the method for changing airspeed while maintaining straight and level flight.
5. Return flight from practice area.
  - Have student fly straight and level at normal and slow cruise speeds intermixed with standard rate level turns.
  - Simulate ATC instructions to the student to turn to various headings and/or change airspeed.
6. Post Lesson Debriefing
  - Critique student's performance of maneuvers with constructive suggestions to improve technique.
  - Answer student questions.
  - Ask student questions to evaluate what was learned.
  - Explain what will be covered in the next lesson and assign reading material.

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## Basic Attitude Flying – 1 – Straight and Level, Airspeed Changes, Level Turns

Student: \_\_\_\_\_ Date: \_\_\_\_\_

### Student Actions:

1. Pre-lesson briefing
  - Ask questions concerning previous lessons and/or this one.
2. Pre-flight and flight to practice area
  - Perform pre-flight and pre-takeoff procedures using appropriate checklists
  - Upon reaching an appropriate altitude for the lesson (> 1,500 AGL), put on the view-limiting device and perform straight and level flight to the practice area at normal cruise speed.
    - Maintains altitude +/- 100 ft., heading +/- 10<sup>0</sup> and airspeed +/- 10 Knots.
3. Perform standard rate level turns to the left and to the right to various headings as assigned by the instructor.
  - Maintains altitude +/- 100 ft. and airspeed +/- 10 Knots.
  - Rolls out on assigned headings +/- 10<sup>0</sup>.
4. Perform changes of airspeed from normal cruise to slow cruise; maintain straight and level flight at slow cruise speed.
  - Maintains altitude +/- 100 ft., heading +/- 10<sup>0</sup> and airspeed +/- 10 Knots.
5. Return flight from practice area
  - Student will comply with instructor simulated ATC instructions to change heading and airspeed.
    - Maintains altitude +/- 100 ft. and airspeed +/- 10 Knots.
    - Maintains heading in straight and level flight +/- 10<sup>0</sup>.
    - Rolls out on assigned headings +/- 10<sup>0</sup>.
6. Post-flight debriefing.
  - Ask questions about the lesson.

### Completion Standards:

This lesson will be completed when the student is able to:

- Perform straight and level flight at various airspeeds, solely by reference to the flight instruments, maintaining altitude +/- 100 feet, heading +/- 10<sup>0</sup>, and airspeed +/- 10 knots.
- Perform level standard rate turns to specified headings, solely by reference to the flight instruments, maintaining altitude +/- 100 feet, heading +/- 10<sup>0</sup>, and airspeed +/- 10 knots.

### Common Errors:

- Improper instrument scan technique, for example fixating on a single instrument.
- Improper instrument interpretation.
- Failure to maintain coordinated flight in turns.
- Failure to periodically check the heading indicator against the magnetic compass.

### References:

- Instrument Flying Handbook (FAA-H-8083-15); Chapters 4 and 5
- INSTRUMENT PTS Area of Operation IV Tasks A, B, E
- CFII Handouts; Instrument Classification

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**Possible Review Questions:**

In straight and level flight, the primary instruments for pitch, bank and power are the \_\_\_\_\_, \_\_\_\_\_ and the \_\_\_\_\_ .

When establishing a standard rate level turn, the primary bank instrument is the \_\_\_\_\_.

Once a standard rate level turn is established, the primary bank instrument is the \_\_\_\_\_.

For altitude variations of 100 feet or less, pitch corrections should be made by a \_\_\_\_\_ width on the attitude indicator.

True or false? The miniature airplane in the turn coordinator gives a direct indication of the amount of bank.