
 COURSE NAME

 COURSE NUMBER
I. COURSE DESCRIPTION:

This course deals with the various forces acting on an aircraft in flight. Presentations deal with airfoil design, flight control systems, aircraft axis and various terms associated with aircraft controllability and stability. Various aircraft control systems will be researched by the students.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

(Generic Skills Learning Outcomes placement on the course outline will be determined and communicated at a later date.)

Upon successful completion of this course the student will demonstrate the ability to:

- 1) Discuss and understand how an aircraft maintains flight, forces acting on A/C during flight. Various terms such as wing condition, center of pressure, angle of attack and aircraft stability and maneuverability.

Potential Elements of the Performance:

- describe how an aircraft produces lift using Bernoulli's Principle.
- identify the four forces acting on an aircraft during flight
- discuss terms such as relative wind, airfoil, wing camber, wing chord, center of pressure and angle of attack
- describe the three axis of an aircraft and the terminology associated with the aircraft movements about the three axis
- discuss aircraft stability and the various factors associated and affecting stability
- describe lateral, longitudinal and vertical stability
- describe profile and induced drag as they affect aircraft flight

- 2) Research and discuss various aircraft control systems as presented by both instructor and students groups. Rebalancing techniques of control surfaces will be presented.

Potential Elements of the Performance:

- identify primary and secondary control systems of an aircraft and how they operate
- describe various systems and the components found in the system
- discuss components found in elevator, rudder, and aileron systems in DeHaviland

Turbo

Beaver aircraft

- discuss secondary systems such as trim tab systems found in DeHaviland Turbo Beaver Aircraft and Canadair CL215 aircraft
- identify which control system affects aircraft movement or pilot selection
- describe how to use structural repair and parts manuals for parts identification and

MECHANICS OF FLIGHT

ASR102

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removal for repair

**II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE
(Continued)**

Potential Elements of the Performance Continued.....

- discuss personal assignment in front of class pertaining to their system as assigned by the instructor
- discuss the purpose of spoilers, slats, slots and stall strips associated with wing components
- describe the purpose of rebalancing aircraft components after repair using the “static” balancing method

III. TOPICS:

- 1) Theory of Flight
- 2) Flight Control Systems

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

A/C 65-15A

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Two Multiple Choice Tests - Each accounts for 50 Percent of the final grade.

Grading: A+ (94-100%) B (78-85%)
 A (86-93%) C (70-77%) R (Repeat)

VI. SPECIAL NOTES:

- Special Needs
If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, learning disabilities), you are encouraged to discuss required accommodations with the instructor and/or contact the Special Needs Office, Room E1204, Ext. 493, 717, 491 so that support services can be arranged for you.
- Retention of Course Outlines
It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other post-secondary institutions.
- Disclaimer for Meeting the Needs of the Learners
- Substitute Course Information is available at the Registrar's Office.
- COURSE NOTE: All assignments must be completed. Failure to complete assignments will automatically remove 10% of the final grade.

VII. PRIOR LEARNING ASSESSMENT

Students who wish to apply for advanced credit in the course should consult the instructor.