SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

Sault College

COURSE OUTLINE

COURSE TITLE:	MECHANICS OF FLIGHT		
CODE NO. :	ASR102	**SEMESTER:**	1
PROGRAM:	AIRCRAFT STRUCTURAL REPAIR		
AUTHOR:	Larry Canduro		
DATE:	June 2007	**PREVIOUS OUTLINE DATED:**	June 2005
APPROVED:			
	_____ **DEAN**		_____ **DATE**
TOTAL CREDITS:	3		
PREREQUISITE(S):			
HOURS: (Total)	54		

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 for fixed wing and rotary wing aircraft. Various aircraft control systems will be researched by the students.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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
   - discuss flight theory for rotary wing aircraft

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 a fixed wing aircraft and how they operate
   - describe various systems and the components found in the system
   - describe the flight control systems for helicopters
   - research a complete flight control system using the supplied manufacturers training manuals and parts books
   - identify which control system affects aircraft movement or pilot selection

Potential Elements of the Performance Continued...

- present personal assignment to the 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 A&P Mechanics Airframe Handbook
A/C 65-9A A&P Mechanics General Handbook

V. EVALUATION PROCESS/GRADING SYSTEM:

Two multiple choice tests -- each accounts for 50 percent of the final grade.
Test #3 Mechanics of Flight
Test #5 Flight Control Systems

Note: Students in the Aircraft Structural Repair Program require a minimum of seventy (70) percent in a course to obtain a passing grade. This equates to a "B" grade.

The following semester grades will be assigned to students in postsecondary courses:

Grade	Definition	Grade Point Equivalent
A+	90 - 100%	4.00
A	80 – 89%	4.00
B	70 – 79%	3.00
C	60 - 69%	2.00
D	50 - 59%	1.00
F (Fail)	49% and below	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	

U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.
NR	Grade not reported to Registrar's office.
W	Student has withdrawn from the course without academic penalty.

VI. SPECIAL NOTES:

Special Needs:
If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your instructor and/or the Special Needs office. Visit Room E1101 or call Extension 2703 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 postsecondary institutions.

Communication:
The College considers ***WebCT/LMS*** as the primary channel of communication for each course. Regularly checking this software platform is critical as it will keep you directly connected with faculty and current course information. Success in this course may be directly related to your willingness to take advantage of the ***Learning Management System*** communication tool.

Plagiarism:
Students should refer to the definition of “academic dishonesty” in *Student Code of Conduct*. Students who engage in academic dishonesty will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Course outline amendments:
The Professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Substitute course information is available in the Registrar's office.

COURSE NOTE: All assignments must be completed. Failure to complete assignments will result in removal of 10% from the test associated with the assignment.

VII. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced credit in the course should consult the professor. Credit for prior learning will be given upon successful completion of a challenge exam or portfolio.

VIII. DIRECT CREDIT TRANSFERS:

Students who wish to apply for direct credit transfer (advanced standing) should obtain a direct credit transfer form from the Dean’s secretary. Students will be required to provide a transcript and course outline related to the course in question.