

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY
SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: ENGINES AND AIRFRAMES

Code No.: AVT 230-4

Program: AVIATION TECHNOLOGY (FLIGHT)

Semester: 3

Date: AUGUST, 1986

Author: G. MacLEAN

New: _____ Revision: X

APPROVED: *G.P. Crozitto*
Chairperson

Date

ENGINES AND AIRFRAMES

AVT 230-4

Course Name

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PHILOSOPHY/GOALS:

1. To make the student aware of the purpose of the main elements of the aircraft, so they will be better able to assess the seriousness of damage or modification to the aircraft.
2. To emphasize the necessity for the designer to set flight restrictions, the importance of flying within these restrictions.
3. To make the student more familiar with engineering terms, so they will be better able to communicate with maintenance personnel and report on the condition of the aircraft.
4. To make the student more alert to the structural condition of the aircraft and its materials.

METHOD OF ASSESSMENT (GRADING METHOD):

Test grades will be averaged for the final mark. There will be a minimum of three tests during the semester. Advance notice will be given for all tests (minimum of three days).

TEXTBOOK(S):

Aircraft Sheet Metal Construction and Repair; EA-SMF
Aircraft Bonded Structure; EA-NMR
Aircraft Corrosion Control; EA-CC-1
Nondestructive Testing in Aircraft; AC43-3
Aircraft Tires and Tubes; EA-ATT-2

Aviation Maintenance Publishers
P.B. Box 890
BASIN, Wyoming 82410

<u>TOPIC NUMBER</u>	<u>APPROX. HRS.</u>	<u>TOPIC DESCRIPTION</u>
		AIRFRAME - Structures and Materials
1	3	Nomenclature
2	6	Aircraft Materials a) types, properties, and specifications non-ferrous, and non-metallic aircraft materials. b) standard material thickness and shape
3	17	Strength of Materials - limit and ultimate load, stress, strain, elasticity, stress concentrations, beams, columns, margin of safety, creep, endurance limit, fatigue strength, eccentric loaded fastener groups, repair schemes, pressure vessels.
4	6	Corrosion a) electrolytic and oxidation types b) resistance to corrosion by various A/ materials c) corrosion resisting and high temperature alloys d) paints and coatings
5	3	Standard parts
6	5	Testing a) destructive b) non-destructive
7	5	Aircraft Tires a) tire classification b) tire construction c) tire inspection d) tire operation
		ENGINES
1		Review of first year - 2 hours
		Engine Classification and construction
		a) Piston Engines - cylinder arrangement (advantages and disadvantages) - function and construction of engine parts
		b) Turboprop

- engine description
- c) Turboject
- engine description

N.B. The students are taught the PT6A-27 Turbo Prop engine. It is used in greater than 60% of all light Twin engine aircraft. The relationship between the engine and airframe engine controls is also taught. Materials used are from the DeHavilland Aircraft of Canada Twin Otter Pilot Training course and consist of T.O. cockpit layout, overhead transparencies, P & W PT6A-27 school notes and an audio visual presentation of T.O. engine start and shut-down.