

I. COURSE DESCRIPTION:

This course is comprised of 32 hours of theory/practical work designed to introduce the student to the manufacturing and repair of advanced composites for modern aircraft.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. *Identify the types of composite materials being used in aircraft structures.*Potential Elements of the Performance:

- Define modern composites
- Give examples of composite materials
- Describe the composite materials being used in aircraft structures
- Explain the advantages and disadvantages of composites for aircraft use

2. *Identify and describe laminated structural materials.*Potential Elements of the Performance:

- Describe glass fiber and other fiber reinforcement products
- Explain polyester and epoxy resin systems
- Understand how thixotropic agents are used

3. *Explain the types of laminated construction.*Potential Elements of the Performance:

- Lay up, moulds and parting agents
- Laminated stack-ups
- Sandwich panel construction

4. *Describe general manufacturing and repair techniques.*Potential Elements of the Performance:

- Assessment of damage
- Criteria of a good manufactured part or a good repair
- Equipment required
- Safety equipment and precautions

5. Describe the general repair procedures.Potential Elements of the Performance:

- Surface scratches
- Step cut repair
- Dents in sandwich structure
- Potted repairs
- Skin penetrated and core damage

6. Manufacture two glass fiber laminates.Potential Elements of the Performance:

- Tools (molds) to be provided
- Assign cloth style number and orientation for each ply
- Room temperature cure epoxy wet resin used

III. TOPICS:

1. Introduction to Composites
2. Laminated Structural Materials
3. General Manufacturing and Repair Techniques
4. General Repair Procedures

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Advanced Composites (Cindy Foreman)
Teacher Handouts
D2L

V. EVALUATION PROCESS/GRADING SYSTEM:

Two tests worth 100% of the final grade.
Tests #28 A and B

Test #28A 50%
#28B 50%

Notes:

- 1/ 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.**
- 2/ Course attendance is mandatory. If a student is absent, he/she must have a valid reason – documentation is required. Students having missed more than 5 percent of the program through absences, shall not qualify for experience credit from Transport Canada, and will not be granted make-up or re-write options for theory tests and shop projects.**
- 3/ If a student misses a test, he/she must have a valid reason – documentation is required. In addition, the instructor must be notified prior to the test, or the student will receive a mark of zero, with no make-up option.**
- 4/ All assignments must be completed. Failure to complete assignments will result in removal of 10% from the test associated with the assignment.**
- 5/ Re-writes for tests, and Repeats for shop projects will not be granted.**

Valid reasons for being absent:

- **Illness – supported by doctor’s note**
- **Family death or serious illness – supported by applicable documents**

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

<u>Grade</u>	<u>Definition</u>	<u>Grade Point Equivalent</u>
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.	

If a faculty member determines that a student is at risk of not being successful in their academic pursuits and has exhausted all strategies available to faculty, student contact information may be confidentially provided to Student Services in an effort to offer even more assistance with options for success. Any student wishing to restrict the sharing of such information should make their wishes known to the coordinator or faculty member.

VI. SPECIAL NOTES:Attendance:

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session.

It is the departmental policy that once the classroom door has been closed, the learning process has begun. Late arrivers will not be granted admission to the room.

**CELL PHONES MUST NOT BE USED
IN THE SHOP OR CLASSROOM**

VII. COURSE OUTLINE ADDENDUM:

The provisions contained in the addendum located in D2L and on the portal form part of this course outline.