

78 Aircraft Fabrication and Assembly

Definition

This program is designed to prepare students for careers in aircraft structures and composites fabrication and assembly.

NOTE: These courses are not intended to prepare students to work as licensed aircraft maintenance mechanics. Students must complete the General Aircraft Maintenance, Aircraft Airframe and the Aircraft Powerplant Certificates to be eligible to sit for the FAA aircraft maintenance license exam.

Staff

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Program Description

The certificate and associate degree programs include course work to help prepare students for entry-level employment in the aerospace industry. Students who complete this program will have the necessary skills to be employed by aircraft manufacturers and subcontractors in a variety of positions.

Students must receive a minimum grade of "C" or better in all required core courses and the specific courses listed as program electives in order to qualify for the degree or certificate."

Career Options

Basic Aircraft Assembler

Composite Fabricator

General Mechanic/Electrical Technician

Multi-skilled Composite/Low

Observable Technician

(Some of these careers may require education beyond the two-year college level.)

Certificate Program

Aircraft Fabrication and Assembly Technician

The following courses (26 units) are required for the certificate.

Required Courses:	units
AFAB 110, Basic Blueprint Interpretation	4
AFAB 115, Aircraft Structures	6
AFAB 120, Composites Fabrication and Repair	6
AFAB 130, Aerospace Workplace Issues and Ethics	4
AFAB 210, Aircraft Production Systems	6
Total	26

For a recommended plan of study for the certificate, please refer to the Associate Degree plan minus the general education requirements.

Associate Degree

Aircraft Fabrication and Assembly Technician

The requirements for an associate degree in Aircraft Fabrication and Assembly Technician may be satisfied by completing 26 units of required courses, 21 units of general education requirements, and sufficient elective credits to total 60 units. (See Graduation/Associate Degree Requirements.)

Students who complete the associate degree have enhanced employability in the field of aerospace technology. They have enhanced promotional opportunities into supervisory and/or management positions as they gain experience and training within this career field. The associate degree will also provide students with a broad range of knowledge with which to evaluate and appreciate the physical environment, the culture, and the society in which they live and with the ability to think and communicate clearly and effectively.

Recommended Plan of Study

First Semester (Fall)	units
AFAB 110, Basic Blueprint Interpretation	4
AFAB 115, Aircraft Structures	6
AFAB 120, Composites Fabrication and Repair	6
Total	16

Second Semester (Spring)	units
AFAB 130, Aerospace Workplace Issues and Ethics	4
Course from GE requirement Area A	3
Course from GE requirement Area B	3
Course from GE requirement Area D1	3
Total	13

Third Semester (Fall)	units
AFAB 210, Aircraft Production Systems	6
Course from GE requirement Area C	3
Course from GE requirement Area D2	3
Course from GE requirement Area E	3
Total	15

Fourth Semester (Spring)	units
Course from GE requirement Area F	3
General Electives	13
Total	16

Degree Total 60

Transfer

Not a transfer major.

Prerequisite Completion

If a course is listed as a prerequisite for another course, that prerequisite course must be completed with a satisfactory grade in order to enroll in the next course. According to Title 5, Section 55200(d), a satisfactory grade is a grade of "A," "B," "C" or "P". Classes in which the Pass/No Pass option is available are indicated with an asterisk (*) before the course title. See "Pass/No Pass Option" in the catalog for full explanation.

Aircraft Fabrication and Assembly Courses

AFAB 110 *BASIC BLUEPRINT INTERPRETATION

4 units

4 hours weekly

Advisory: Eligibility for ENGL 099, READ 099 and MATH 070.

Classroom lecture and “hands-on” practice reading and interpreting actual blueprints. Students will be required to interpret basic geometric definitions, basic lines and drafting methods, drawing numbering systems, types of drawings, engineering parts lists, and coordinating reference systems. (AVC)

AFAB 115 *AIRCRAFT STRUCTURES

6 units

8 hours weekly

Prerequisite: Completion of or concurrent enrollment in AFAB 110.

Advisory: Eligibility for ENGL 099, READ 099 and MATH 070.

Designed to give students the necessary skills to perform journeyman aerospace structures assembly and repair. Classroom lecture and “hands-on” practice drilling holes in aluminum, composites, steel and titanium, cold working of holes and installation of special fasteners, the importance of aircraft sealants and proper preparation of surfaces for application of sealants. Includes material fabrication using sheet metal equipment and completion of a final project of moderate complexity. (AVC)

AFAB 120 *COMPOSITES FABRICATION AND REPAIR

6 units

8 hours weekly

Prerequisite: Completion of or concurrent enrollment in AFAB 110.

Advisory: Eligibility for ENGL 099, READ 099 and MATH 070.

Designed to give students the necessary skills to perform composite lay-up and fabrication, as well as composite repair procedures. Consists of classroom lecture and hands-on practice in graphite, aramid, and fiberglass reinforcement materials. Vacuum bagging techniques, lay-ups and repairs using room temperature and oven cures will also be covered. Students are required to interpret engineering prints and or drawings. (AVC)

AFAB 130 *AEROSPACE ETHICS AND ISSUES

4 units

4 hours weekly

Advisory: Eligibility for College Level Reading and ENGL 101.

Addresses the ethical responsibilities of aircraft maintenance technicians (AMTs). Course will articulate an ethical framework for aircraft technicians by critically reflecting on aerospace practices and examining the ethical challenges that confront the aerospace industry, and aerospace technicians and professionals working within these organizations. Includes: social and personal responsibilities in aerospace, truth-telling and disclosure, whistleblowing, professionalism, safety, and human factors. A detailed analysis of many case studies in industry will be reviewed. (AVC)

AFAB 210 *AIRCRAFT PRODUCTION SYSTEMS

6 units

6 hours weekly

Prerequisite: Completion of AERO 230 or AFAB 115.

Advisory: Eligibility for College Level Reading, ENGL 101 and MATH 080.

The course is designed to give students with basic aircraft fabrication skills the necessary knowledge and practical experience to perform effectively and grow professionally in an aircraft production organization. The course will introduce the student to the many functional groups that manage, design, plan, schedule, supply, and oversee aircraft production operations. Students will gain experience with production and quality standards, process controls, and documentation requirements through participation in hands-on laboratory fabrication projects. (AVC)