



Alabama
Department of
Postsecondary Education

Representing Alabama's Public Two-Year College System

AMT 110
Non-Metallic Structures
Plan of Instruction

Effective Date: 2022

Version Number: Base Document

AMT110 Non-Metallic Structures

135 Hours Theory 45 Laboratory 90

COURSE DESCRIPTION: This course is a study of repairs to non-metallic aircraft surfaces and structures. Emphasis is placed on repairs to fabric surfaces and to wood, and composite structures. Upon completion, students should be able to repair fabric surfaces and apply finishing materials, make repairs to wood structures, layout and form composite repairs, and inspect/repair non-metallic components (windows, upholstery).
This is a **CORE** course.

CONTACT/CREDIT HOURS (applicable if entire course is taught in a career/technical education degree or non-degree program)

Theory Contact/Credit Hours	3/3 hours	45 hours (1:1)
Lab Contact/Credit Hours	6/2 hours	90 hours (3:1)
Total Contact/Credit Hours	9/5 hours	135/5 hours

NOTE: Colleges may schedule lab hours as manipulative (3:1) or experimental (2:1). Adjustments in contact hours must be made accordingly.

PREREQUISITE COURSES (applicable if entire course is taught in a career/technical education degree or non-degree program)

AMT 100, AMT 101, AMT 102, AMT 103 or equivalent

CO-REQUISITE COURSES (applicable if entire course is taught in a career/technical education degree or non-degree program)

Determined by college unless stated otherwise.

INDUSTRY COMPETENCIES

AM.II.B Non-Metallic Structures

AM.II.B.K1 – 29	Knowledge associated with aircraft Non-Metallic Structure
AM.II.B.R1 – 7	Ability to identify, assess, and mitigate risks associated with associated with aircraft Non-Metallic Structure
AM.II.B.S1 – 12	Ability to Demonstrate SKILLS associated with aircraft Non-Metallic Structures

COURSE OBJECTIVES

The cognitive objective of this course is for each student to comprehend foundational knowledge needed to perform stated entry-level industry competencies.

The performance objective of this course is for each student to apply foundational knowledge and risk management to problems and exercises encountered in class.

COURSE CONTENT OUTLINE FAA AUTHORITY 147**AM.II.B Non-Metallic Structures**

AM.II.B.K1 Wood structures, including inspection techniques, tools, and practices for wood structures.

AM.II.B.K2 Effects of moisture/humidity on wood and fabric coverings.

AM.II.B.K3 Types and general characteristics of wood used in aircraft structures.

AM.II.B.K4 Permissible substitutes and other materials used in the construction and repair of wood structures.

AM.II.B.K5 Acceptable and unacceptable wood defects.

AM.II.B.K6 Wood repair techniques and practices.

AM.II.B.R1 Selection of glue (adhesive) or fasteners for aircraft structure.

AM.II.B.S9 Locate and explain repair standard dimensions.

AM.II.B.S10 Locate and explain repair procedures for elongated bolt holes.

110 AM.II.B Practical 1 (Wood Structure Practices)**AMT110 Exam 1**

AM.II.B.K7 Factors used in determining the proper type covering material.

AM.II.B.K8 Types of approved aircraft covering material.

AM.II.B.K9 Seams commonly used with aircraft covering.

AM.II.B.K10 Covering textile terms.

AM.II.B.K11 Structure surface preparation.

AM.II.B.K12 Covering methods commonly used.

AM.II.B.K13 Covering means of attachment.

AM.II.B.K14 Areas on aircraft covering most susceptible to deterioration.

AM.II.B.K15 Aircraft covering preservation/restoration.

AM.II.B.K16 Inspection of aircraft covering.

AM.II.B.K17 Covering repair techniques and practices.

AM.II.B.S6 Locate and explain the procedures for tying a modified seine knot.

110 AM.II.B Practical 2 (Fabric Covering Procedures)**110 AM.II.B Practical 3 (Demonstrate Modified Seine Knot Process)****AMT110 Exam 2**

AM.II.B.K18 Inspection/testing of composite structures.

AM.II.B.K19 Types of composite structure defects.

AM.II.B.K20 Composite structure fiber, core, and matrix materials.

AM.II.B.K21 Composite materials storage practices and shelf life.

AM.II.B.K22 Composite repair methods, techniques, fasteners, and practices.

AM.II.B.K23 Thermoplastic material inspection/types of defects.

AM.II.B.K24 Thermoplastic material storage and handling.

AM.II.B.K25 Thermoplastic material installation procedures.

AM.II.B.R2 Composite structure repairs.

AM.II.B.R3 Exposure to materials used in composite repair.

AM.II.B.R4 Storage of composite materials.

AM.II.B.R5 Measuring and mixing of materials associated with composite construction.

AM.II.B.R6 Use of materials that are not part of an approved repair system.

AM.II.B.R7 Material shelf-life.

AM.II.B.S1 Identify appropriate fasteners on composite structures.

AM.II.B.S2 Inspect and repair fiberglass.

AM.II.B.S3 Inspect composite, plastic, or glass-laminated structures.

AM.II.B.S7 Prepare composite surface for painting.

AM.II.B.S8 Perform a tap test on composite material.

AM.II.B.S11 Determine extent of damage and decide if nonmetallic structure is repairable.

AM.II.B.S12 Perform lay up for a repair to a composite panel, including preparation for vacuum bagging, using a manufacturer's repair manual.

110 AM.II.B Practical 4 (Composite Structures Practices)

110 AM.II.B Practical 5 (Perform Wet Layup With Bagging)

110 AM.II.B Practical 6 (Repair Damage to a Composite Structure)

AMT110 Exam 3

AM.II.B.K26 Care and maintenance of windows.

AM.II.B.K27 Window temporary and permanent repairs.

AM.II.B.K28 Maintenance safety practices/precautions for composite materials & structures, and windows.

AM.II.B.K29 Inspecting restraints and upholstery.

AM.II.B.S4 Clean and inspect acrylic type windshields.

AM.II.B.S5 Locate and explain procedures for a temporary repair to a side window.

110 AM.II.B Practical 7 (Transparent Plastics)

110 AM.II.B Practical 8 (Interiors Inspections)

AMT110 Exam 4

AMT110 Final Examination