



Alabama
Department of

Postsecondary Education

Representing Alabama's Public Two-Year College System

AMT 103

**Weight and Balance, Ground Handling and Servicing, Cleaning
and Corrosion Control**

Plan of Instruction

Effective Date: 2022

Version Number: Base Document

**AMT 103 Weight and Balance, Ground Handling and Servicing, Cleaning and
Corrosion Control** 135 Hours Theory 45 Laboratory 90

COURSE DESCRIPTION: This course introduces basic information necessary for entering students in aviation maintenance technology. Emphasis is placed on aircraft weight and balance, handling and securing aircraft, cleaning and corrosion control. Upon completion, students should be able to conduct aircraft weight and balance, compute aircraft weight and balance, handle and secure aircraft during ground operations, and cleaning and corrosion control.

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)

Determined by college unless stated otherwise

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

Subject C, Aircraft Weight and Balance:

- AM.I.C.K1 – 10 Knowledge of aircraft Weight and Balance
- AM.I.C.R1 – 5 Ability to identify, assess, and mitigate risks associated with aircraft Weight and Balance
- AM.I.C.S1 – 17 Ability to Demonstrate SKILLS associated with aircraft Weight and Balance

AM.I.F Ground Operations and Servicing

- AM.I.F.K1 – 16 Knowledge of aircraft Ground Operations and Servicing
 AM.I.F.R1 – 10 Ability to identify, assess, and mitigate risks associated with aircraft Ground Operations and Servicing
 AM.I.F.S1 – 12 Ability to Demonstrate SKILLS associated with aircraft Ground Operations and Servicing

AM.I.G Cleaning and Corrosion Control

- AM.I.G.K1-24 Knowledge of Cleaning and Controlling Corrosion on Aircraft
 AM.I.G.R1-8 Ability to identify, assess, and mitigate risks associated with Corrosion Control on aircraft
 AM.I.G.S1-14 Ability to Demonstrate SKILLS associated with Corrosion Cleaning and Control

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**SUBJECT C. WEIGHT AND BALANCE**

- AM.I.C.K1 Weight and balance terminology.
 AM.I.C.K2 Purpose for weighing an aircraft.
 AM.I.C.K6 Purpose of determining CG.
 AM.I.C.R4 Aerodynamic effect of CG that is forward or aft of CG limits.
 AM.I.C.R5 Aerodynamic and performance effects of weight in excess of limit.

103 AM.I.C Practical 1 (Paper Exercise)

- AM.I.C.K4 Procedures for calculation of the following: arm, positive or negative moment, center of gravity (CG), or moment index.
 AM.I.C.K5 Purpose and application of weight and CG limits.
 AM.I.C.K7 Adverse loading considerations and how to calculate if adverse loading causes an out-of-limit condition.
 AM.I.C.K8 Determine proper empty weight configuration.
 AM.I.C.K9 Proper ballast placement.

103 AM.I.C Practical 2 (Paper Exercise)

- AM.I.C.K3 Weighing procedures, including the general preparations for weighing, with emphasis on aircraft weighing area considerations.
 AM.I.C.K10 Jacking an aircraft.
 AM.I.C.R1 Situations and conditions when jacking an aircraft.
 AM.I.C.R2 Aircraft weighing procedures.
 AM.I.C.R3 Use of scales.
 AM.I.C.S4 Check aircraft weighing scales for calibration.

103 AM.I.C Practical 3 (Weigh an Aircraft)

- AM.I.C.S1 Research and explain the procedures for weighing an aircraft.
 AM.I.C.S10 Identify tare items.
 AM.I.C.S11 Locate weight and balance
 AM.I.C.S12 Locate datum.
 AM.I.C.S13 Locate weight and balance placarding and limitation requirements for an aircraft.

AM.I.C.S16 Determine an aircraft's CG range using aircraft specifications, Type Certificate Data Sheets (TCDSs), and aircraft listings information.

103 AM.I.C Practical 4 (Paper Exercise)

AM.I.C.S2 Perform weight and balance calculations.

AM.I.C.S3 Calculate ballast weight shift and required weight location.

AM.I.C.S5 Calculate weight and balance for an aircraft after an equipment change.

AM.I.C.S6 Compute forward and aft loaded CG limit.

AM.I.C.S8 Compute the empty weight and empty weight CG of an aircraft

AM.I.C.S9 Calculate the moment of an item of equipment.

AM.I.C.S15 Calculate the change needed to correct an out of balance condition.

103 AM.I.C Practical 5 (Paper Exercise)

AM.I.C.S7 Create a maintenance record for a weight and balance change.

AM.I.C.S14 Revise an aircraft equipment list after equipment change.

AM.I.C.S17 Calculate a weight change and complete required records.

103 AM.I.C Practical 6 (Paper Exercise)

AMT103 Exam 1

SUBJECT F Ground Operations and Servicing

AM.I.F.K4 Airport operation area procedures and ATC communications, including runway incursion prevention.

AM.I.F.K16 Foreign object damage effects.

AM.I.F.S1 Perform a foreign object damage control procedure.

103 AM.I.F Practical 1

AM.I.F.K1 Aircraft towing procedures.

AM.I.F.R1 Preparing to tow an aircraft.

AM.I.F.S3 Prepare an aircraft for towing.

103 AM.I.F Practical 2

AM.I.F.K2 Aircraft securing procedures.

AM.I.F.S11 Secure an aircraft.

AM.I.F.S12 Locate and explain procedures for securing a turbine-powered aircraft after engine shutdown.

103 AM.I.F Practical 3

AM.I.F.K6 Types/classes of fire extinguishers and procedures.

AM.I.F.K12 Tool and hardware use and accountability.

AM.I.F.K13 Material handling.

AM.I.F.K14 Parts protections.

AM.I.F.K15 Hazardous materials, Safety Data Sheets (SDS), and PPE.

103 AM.I.F Practical 4 (Paper Exercise)

AM.I.F.K3 Aviation fueling/defueling procedures.

AM.I.F.K7 Aircraft oil, hydraulic and pneumatic, and deicing servicing procedures.

AM.I.F.K9 Characteristics of aviation gasoline and turbine fuels, including basic types and means of identification.

AM.I.F.K10 Fuel additives commonly used in the field.

AM.I.F.K11 Use of approved grades/types of fuel in aircraft engines.

103 AM.I.F Practical 5 (Paper Exercise)

AM.I.F.K8 Oxygen system servicing procedures.

AM.I.F.R5 Oxygen system servicing.

103 AM.I.F Practical 6

AM.I.F.K5 Engine starting, ground operation, and aircraft taxiing procedures.

AM.I.F.S4 Use appropriate hand signals for the movement of aircraft.

103 AM.I.F Practical 7 (Paper Exercise)

AM.I.F.R3 Fueling/defueling ungrounded aircraft or using improper equipment.

AM.I.F.R4 Mis-fueling and using incorrect or contaminated fuel.

AM.I.F.S5 Inspect an aircraft fuel system for water and foreign object debris (FOD)contamination.

AM.I.F.S6 Identify different grades of aviation fuel.

AM.I.F.S7 Select an approved fuel for an aircraft.

AM.I.F.S8 Prepare an aircraft for fueling.

103 AM.I.F Practical 8

AM.I.F.R2 Connecting external power equipment to an aircraft.

AM.I.F.R6 Engine start/run-up without using a checklist.

AM.I.F.R7 Engine starting and ground operations.

AM.I.F.R8 Engine starting and operation while troubleshooting or adjusting engine controls.

AM.I.F.R9 Ground operation of an aircraft engine with cowling removed contrary to manufacturer instructions.

AM.I.F.S2 Connect external power to an aircraft.

AM.I.F.S9 Follow a checklist to start up or shut down an aircraft reciprocating or turbine engine.

AM.I.F.S10 Identify procedures for extinguishing fires in an engine induction system.

103 AM.I.F Practical 9

AMT103 Exam 2

SUBJECT G Cleaning and Corrosion Control

AM.I.G.K2 Corrosion theory and causation.

AM.I.G.K3 Types and effects of corrosion.

AM.I.G.K4 Corrosion-prone areas in aircraft.

AM.I.G.K6 Corrosion identification and inspection.

AM.I.G.K11 Improper use of cleaners on aluminum or composite materials.

AM.I.G.K12 Dissimilar metals causing accelerated corrosion and role of protective barriers to mitigate this risk.

AM.I.G.K19 Effects of improper surface preparation on finishing materials.

AM.I.G.S1 Perform a portion of an aircraft corrosion inspection.

AM.I.G.S5 Inspect an aircraft compartment for corrosion.

103 AM.I.G Practical 1

AM.I.G.K1 Aircraft cleaning procedures.

AM.I.G.K5 Corrosion preventive maintenance procedures.

AM.I.G.K7 Corrosion removal and treatment procedures.

AM.I.G.K8 Corrosion preventive compounds (CPC) (e.g., waxy sealants, thin-film dielectrics).

AM.I.G.K10 Use of high-pressure application equipment.

AM.I.G.K14 Materials used for protection of airframe structures.

AM.I.G.R3 Identification of materials and processes to be used for cleaning or corrosion treatment on a given part or structure to prevent further damage.

AM.I.G.R4 SDS PPE instructions for products during removal and treatment of corrosion.

AM.I.G.S2 Identify, select, and use aircraft corrosion prevention/cleaning materials.

AM.I.G.S3 Apply corrosion prevention/coating materials.

AM.I.G.S6 Identify procedures to clean and protect plastics.

103 AM.I.G Practical 2 (Prepare and Wash Aircraft)

AM.I.G.K13 Conversion coatings.

AM.I.G.K17 Surface preparation for a desired finishing material.

AM.I.G.R2 Ventilation.

AM.I.G.R6 Disposal of chemicals and waste materials.

AM.I.G.S13 Apply etch solution and conversion coating.

103 AM.I.G Practical 3

AM.I.G.K15 Primer materials.

AM.I.G.K16 Topcoat materials.

AM.I.G.K18 Effects of ambient conditions on finishing materials.

AM.I.G.K23 Finishing materials application techniques and practices.

AM.I.G.S9 Identify finishing materials and appropriate thinners.

AM.I.G.S14 Identify types of protective finishes.

103 AM.I.G Practical 4

AM.I.G.R7 Use of PPE when working with paints and solvents.

AM.I.G.R8 Application of finishing materials.

AM.I.G.S8 Prepare composite surface for painting.

AM.I.G.S10 Layout and mask a surface in preparation for painting.

AM.I.G.S11 Prepare metal surface for painting.

AM.I.G.S12 Determine what paint system can be used on a given aircraft.

103 AM.I.G Practical 5

AM.I.G.K20 Regulatory requirements for replacing identification, registration markings, and placards.

AM.I.G.K21 Inspection of aircraft finishes.

AM.I.G.K22 Safety practices/precautions when using finishing materials (e.g., PPE, fire prevention).

AM.I.G.K24 Control surface balance considerations after refinishing.

AM.I.G.R5 Working with flammable chemicals.

AM.I.G.S4 Inspect finishes and identify defects.

103 AM.I.G Practical 6

AMT103 Exam 3

AMT103 Final Examination