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Aviation Maintenance Curriculum

Mathematics Syllabus

Summary: The Mathematics for Aviation course is designed to align with the general knowledge and skill requirements outlined in the Federal Aviation Administration's Mechanic Airman Certification Standards.

This course helps learners review foundational mathematics concepts that aviation maintenance technicians routinely use in their work. Topics include whole numbers, positive and negative integers, fractions, decimals, rounding, ratios, proportions, percentages, powers, roots, and scientific notation. Learners will also review algebra, geometry, trigonometry, measurement systems, unit conversions, and binary notation as they apply to aircraft maintenance tasks.

Couse Number: FAA-ACS-AM-IH-MAT

ACS Reference: Mathematics (AM.I.F)

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Course Objectives:

1. Describe and apply basic mathematical operations using whole numbers, positive and negative integers, fractions, decimals, and mixed numbers.
2. Convert between fractions, decimals, and percentages, and round values to the required level of precision.
3. Solve aviation maintenance problems involving ratios, proportions, percentages, powers, roots, and scientific notation.
4. Apply algebraic operations, formulas, and order of operations to solve maintenance-related problems.
5. Calculate area, volume, and surface area for common two-dimensional and three-dimensional shapes used in aviation examples.
6. Apply basic trigonometry and the Pythagorean Theorem to solve right-triangle measurement problems.
7. Explain conventional and metric measurement systems and perform common unit conversions.
8. Describe binary notation and convert values between binary and decimal systems.

Module 1: Basic Math

- Lesson 1.1 – Whole Numbers
- Lesson 1.2 – Fractions and Mixed Numbers
- Lesson 1.3 – The Decimal Number System
- Lesson 1.4 – Ratios and Proportions
- Lesson 1.5 – Percentages
- Lesson 1.6 – Powers, Exponents, and Roots
- Lesson 1.7 – Number Charts and Scientific notation

Module 2: Advanced Math

- Lesson 2.1 - Algebra
- Lesson 2.2 – Computing Area of Two-Dimensional Solids
- Lesson 2.3 – Computing Volume of Three-Dimensional Solids
- Lesson 2.4 – Computing Surface Area of Three-Dimensional Solids

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- Lesson 2.5 – Trigonometric Functions
- Lesson 2.6 – Measurement Systems and the Binary Number System

SkilRedi simulations included in this course:

- n/a

Hands on labs

- Skill Stations

Each lesson contains the following:

- Lesson Objectives
- Video lecture
- Multiple readings with interactive animations
- Assigned readings in the applicable FAA 8083 Chapter
- Summary and Key Terms
- Assessment Activities

Each Module contains the following:

- Standards and Objectives
- Pre-Assessment
- Key Concepts and Terms
- Further Study
- Module Quiz
- Module Critical Thinking Activity
- Module Survey

Each Course contains the following:

- Course Pre-Test
- Course Introduction
- Course Comprehensive Assessment
- Course Survey

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