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Fall 2008

PROGRAM CONCENTRATION: Architecture, Construction,
Communications & Transportation
CAREER PATHWAY: Aircraft Support
COURSE TITLE: Aviation Maintenance I

Aviation Maintenance I is the second course of a four-year term of study. Students will build a solid knowledge base in the basics of aircraft maintenance, performance, and design. Classroom and laboratory activities assure a thorough understanding of the aviation environment.

ACT-AMI-1. Students will demonstrate the ability to perform the following, using appropriate formulas:

- a. Calculate the area of a polygon and/or circle.
- b. Calculate the volume of a sphere, cube, or cylinder.
- c. Perform algebraic operations involving addition, subtraction, multiplication, and/or division of positive and negative numbers.
- d. Locate mathematical formulas used to assist in the maintenance, preventive maintenance, or alteration of aircraft.

ACADEMIC STANDARDS:

MM1A1 Students will explore and interpret the characteristics of functions, using graphs, tables, and simple algebraic techniques.

ACT-AMI-2. Students will demonstrate the ability to perform the following:

- a. Identify parts or systems of an aircraft where Boyle's, Charles' and /or Pascal's Laws apply.
- b. Calculate force, area, or pressure in a specific application.
- c. Identify one or more methods of heat transfer in aircraft systems and where and how heat damage may occur when performing aircraft maintenance.
- d. Determine which of the five forces/stresses are acting on an aircraft or aircraft parts at specific points under given conditions.
- e. Design a simple machine (on paper) that uses one or more methods of mechanical advantage.

ACADEMIC STANDARDS:

SPS7 Students will relate transformations and flow of energy within a system.

SPS8 Students will determine relationships among force, mass, and motion.

ACT-AMI-3. Students will demonstrates the ability to interpret aircraft drawings.

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- a. Perform maintenance and /or inspection using drawings/blueprints and/or system schematics.
- b. Troubleshoot using drawings/blueprints and/or schematics.
- c. Use a control cable tension chart.
- d. Use a servicing, limitation, or calculation chart or graph.
- e. Draw a sketch of an alteration or repair.
- f. Draw a diagram of an electrical circuit or other system, or portion thereof, and explain the drawing.

ACADEMIC STANDARDS:

MM1G1. Students will investigate properties of geometric figures in the coordinate plane.

SPS10. Students will investigate the properties of electricity and magnetism.

ACT-AMI-4. Students will demonstrate the ability to apply aerodynamic principles and perform the following:

- a. Identify any parts or systems of an aircraft and/or engine where Bernoulli's principle and/or Newtonian law are applied.
- b. Identify any of the following and describe how they function aerodynamically: stall strips, wing fences, vortex generators, flaps, slats, spoilers, ailerons, stabilators, elevators, rudders, or trim tabs.

ACADEMIC STANDARDS:

SPS8. Students will determine relationships among force, mass, and motion.

CTAE Foundation Skills

The Foundation Skills for Career, Technical and Agricultural Education (CTAE) are critical competencies that students pursuing any career pathway should exhibit to be successful. As core standards for all career pathways in all program concentrations, these skills link career, technical and agricultural education to the state's academic performance standards.

The CTAE Foundation Skills are aligned to the foundation of the U. S. Department of Education's 16 Career Clusters. Endorsed by the National Career Technical Education Foundation (NCTEF) and the National Association of State Directors of Career Technical Education Consortium (NASDCTEC), the foundation skills were developed from an analysis of all pathways in the sixteen occupational areas. These standards were identified and validated by a national advisory group of employers, secondary and postsecondary educators, labor associations, and other stakeholders. The Knowledge and Skills provide learners a broad foundation for managing lifelong learning and career transitions in a

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rapidly changing economy.

CTAE-FS-1 Technical Skills: Learners achieve technical content skills necessary to pursue the full range of careers for all pathways in the program concentration.

CTAE-FS-2 Academic Foundations: Learners achieve state academic standards at or above grade level.

CTAE-FS-3 Communications: Learners use various communication skills in expressing and interpreting information.

CTAE-FS-4 Problem Solving and Critical Thinking: Learners define and solve problems, and use problem-solving and improvement methods and tools.

CTAE-FS-5 Information Technology Applications: Learners use multiple information technology devices to access, organize, process, transmit, and communicate information.

CTAE-FS-6 Systems: Learners understand a variety of organizational structures and functions.

CTAE-FS-7 Safety, Health and Environment: Learners employ safety, health and environmental management systems in corporations and comprehend their importance to organizational performance and regulatory compliance.

CTAE-FS-8 Leadership and Teamwork: Learners apply leadership and teamwork skills in collaborating with others to accomplish organizational goals and objectives.

CTAE-FS-9 Ethics and Legal Responsibilities: Learners commit to work ethics, behavior, and legal responsibilities in the workplace.

CTAE-FS-10 Career Development: Learners plan and manage academic-career plans and employment relations.

CTAE-FS-11 Entrepreneurship: Learners demonstrate understanding of concepts, processes, and behaviors associated with successful entrepreneurial performance.