Course Outline

Transportation **REVISED: January/2023**

Job Title
Aircraft Mechanics & Service Technicians

Career Pathway:
Systems Diagnostics, Service, & Repair

Industry Sector:
Transportation

O*NET-SOC CODE:
49-3011.00

CBEDS Title:
Aircraft Mechanics

CBEDS No.:
5653

79-70-69

Aviation Mechanic Systems I - Airframe

Credits: 20 **Hours:** 292.5

Course Description:
This competency-based course includes instruction in general subjects related to aviation maintenance including orientation and safety, aircraft electrical systems, aircraft fuel systems, airframe fire protection systems, ice and rain control systems, environmental systems, water and waste systems, airframe inspection, and employability skills and resume preparation. It prepares students to pass parts of the Federal Aviation Administration (FAA) airframe and powerplant mechanic examinations. The competencies in this course are aligned with the FAA Title 14 CFR Part 147 Airman Certification Standards requirements, California High School Academic Content Standards, and the California Career Technical Education Model Curriculum Standards.

Prerequisites:
Enrollment requires a minimum 9.0 reading level as measured by the CASAS GOALS test and a minimum 9.0 math level as measured by the CASAS GOALS test and the minimum age of 16.

NOTE: For Perkins purposes this course has been designated as a **capstone** course.

This course **cannot** be repeated once a student receives a Certificate of Completion.

Los Angeles Unified School District
Division of Adult and Career Education
Instructional and Couseling Services Unit
Adult Curriculum Office
www.wearedace.org

COURSE OUTLINE COMPETENCY-BASED COMPONENTS

A course outline reflects the essential intent and content of the course described. Acceptable course outlines have six components. (Education Code Section 52506). Course outlines for all apportionment classes, including those in jails, state hospitals, and convalescent hospitals, contain the six required elements:

(EC 52504; 5CCR 10508 [b]; Adult Education Handbook for California [1977], Section 100)

COURSE OUTLINE COMPONENTS	**LOCATION**
GOALS AND PURPOSES	Cover

The educational goals or purposes of every course are clearly stated, and the class periods are devoted to instruction. The course should be broad enough in scope and should have sufficient educational worth to justify the expenditure of public funds.

The goals and purpose of a course are stated in the COURSE DESCRIPTION. Course descriptions state the major emphasis and content of a course and are written to be understandable by a prospective student.

PERFORMANCE OBJECTIVES OR COMPETENCIES	pp. 7-12

Objectives should be delineated and described in terms of measurable results for the student and include the possible ways in which the objectives contribute to the student's acquisition of skills and competencies.

Performance Objectives are sequentially listed in the COMPETENCY-BASED COMPONENTS section of the course outline. Competency Areas are units of instruction based on related competencies. Competency Statements are competency area goals that together define the framework and purpose of a course. Competencies fall on a continuum between goals and performance objectives and denote the outcome of instruction.

Competency-based instruction tells a student before instruction what skills or knowledge they will demonstrate after instruction. Competency-based education provides instruction which enables each student to attain individual goals as measured against pre-stated standards.

Competency-based instruction provides immediate and continual repetition. In competency-based education the curriculum, instruction, and assessment share common characteristics based on clearly stated competencies. Curriculum, instruction, and assessment in competency-based education are explicit, known, agreed upon, integrated, performance oriented, and adaptive.

COURSE OUTLINE COMPETENCY-BASED COMPONENTS (continued)

COURSE OUTLINE COMPONENTS	LOCATION
INSTRUCTIONAL STRATEGIES	p. 14
Instructional techniques or methods could include laboratory techniques, lecture method, small-group discussion, grouping plans, and other strategies used in the classroom. Instructional strategies for this course are listed in the TEACHING STRATEGIES AND EVALUATION section of the course outline. Instructional strategies and activities for a course should be selected so that the overall teaching approach takes into account the instructional standards of a particular program, i.e., English as a Second Language, Programs for Adults with Disabilities.	
UNITS OF STUDY, WITH APPROXIMATE HOURS ALLOTTED FOR EACH UNIT	Cover
The approximate time devoted to each instructional unit within the course, as well as the total hours for the course, is indicated. The time in class is consistent with the needs of the student, and the length of the class should be that it ensures the student will learn at an optimum level. Units of study, with approximate hours allotted for each unit are listed in the COMPETENCY AREA STATEMENT(S) of the course outline. The total hours of the course, including work-based learning hours (community classroom and cooperative vocational education) is listed on the cover of every CBE course outline. Each Competency Area listed within a CBE outline is assigned hours of instruction per unit.	pp. 7-12
EVALUATION PROCEDURES	p. 14
The evaluation describes measurable evaluation criteria clearly within the reach of the student. The evaluation indicates anticipated improvement in performances as well as anticipated skills and competencies to be achieved. Evaluation procedures are detailed in the TEACHING STRATEGIES AND EVALUATION section of the course outline. Instructors monitor students' progress on a continuing basis, assessing students on attainment of objectives identified in the course outline through a variety of formal and informal tests (applied performance procedures, observations, and simulations), paper and pencil exams, and standardized tests.	
REPETITION POLICY THAT PREVENTS PERPETUATION OF STUDENT ENROLLMENT	Cover
After a student has completed all the objectives of the course, he or she should not be allowed to reenroll in the course. There is, therefore, a need for a statement about the conditions for possible repetition of a course to prevent perpetuation of students in a particular program for an indefinite period of time.	

ACKNOWLEDGMENTS

Thanks to ROBERT GIBSON and DANIEL D. PERKINS for developing and editing this curriculum. Acknowledgment is also given to ERICA ROSARIO for designing the original artwork for the course covers.

ANA MARTINEZ
Specialist
Career Technical Education

MATTHEW OBERLANDER
Coordinator
Adult Education Instruction

ROSARIO GALVAN
Administrator
Division of Adult and Career Education

APPROVED:

ROWENA LAGROSA
Interim Executive Director
Division of Adult and Career Education

CALIFORNIA CAREER TECHNICAL EDUCATION MODEL CURRICULUM STANDARDS
Transportation Industry Sector
Knowledge and Performance Anchor Standards

1.0 Academics
Analyze and apply appropriate academic standards required for successful industry sector pathway completion leading to postsecondary education and employment. Refer to the Transportation academic alignment matrix for identification of standards.

2.0 Communications
Acquire and accurately use Transportation sector terminology and protocols at the career and college readiness level for communicating effectively in oral, written, and multimedia formats.

3.0 Career Planning and Management
Integrate multiple sources of career information from diverse formats to make informed career decisions, solve problems, and manage personal career plans.

4.0 Technology
Use existing and emerging technology to investigate, research, and produce products and services, including new information, as required in the Transportation sector workplace environment.

5.0 Problem Solving and Critical Thinking
Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Transportation sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.

6.0 Health and Safety
Demonstrate health and safety procedures, regulations, and personal health practices and determine the meaning of symbols, key terms, and domain-specific words and phrases as related to the Transportation sector workplace environment.

7.0 Responsibility and Flexibility
Initiate, and participate in, a range of collaborations demonstrating behaviors that reflect personal and professional responsibility, flexibility, and respect in the Transportation sector workplace environment and community settings.

8.0 Ethics and Legal Responsibilities
Practice professional, ethical, and legal behavior, responding thoughtfully to diverse perspectives and resolving contradictions when possible, consistent with applicable laws, regulations, and organizational norms.

9.0 Leadership and Teamwork
Work with peers to promote divergent and creative perspectives, effective leadership, group dynamics, team and individual decision making, benefits of workforce diversity, and conflict resolution as practiced in the SkillsUSA career technical student organization

10.0 Technical Knowledge and Skills
Apply essential technical knowledge and skills common to all pathways in the Transportation sector, following procedures when carrying out experiments or performing technical tasks.

11.0 Demonstration and Application
Demonstrate and apply the knowledge and skills contained in the Transportation anchor standards, pathway standards, and performance indicators in classroom, laboratory, and workplace settings, and through the SkillsUSA career technical student organization.

C. Systems Diagnostics and Service Pathway
The Systems Diagnostics and Service pathway prepares students for postsecondary education and employment in the transportation industry, which includes but is not limited to motor vehicles, rail systems, marine applications, and small-engine and specialty equipment.

Sample occupations associated with this pathway:

- Service Technician/Maintenance Worker/Shop Foreman
- Technical Writer
- Dispatcher
- Engineer
- Investigator/Inspector

C1.0 Demonstrate the practice of personal and occupational safety and protecting the environment by using materials and processes in accordance with manufacturer and industry standards.

C2.0 Practice the safe and appropriate use of tools, equipment, and work processes.

C3.0 Use scientific principles in relation to chemical, mechanical, and physical functions for various engine and vehicle systems.

C4.0 Perform and document maintenance procedures in accordance with the recommendations of the manufacturer.

C5.0 Apply and understand appropriate business practices.

C6.0 Demonstrate the application, operation, maintenance, and diagnosis of engines, including but not limited to two- and four-stroke and supporting subsystems.

C7.0 Demonstrate the function, principles, and operation of electrical and electronic systems using manufacturer and industry standards.

C8.0 Demonstrate the function and principles of automotive drivetrain, steering and suspension, brake, and tire and wheel components and systems in accordance with national industry standards.

CBE
Competency-Based Education

COMPETENCY-BASED COMPONENTS
for the Aviation Mechanic Systems I - Airframe Course

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
A. ORIENTATION AND SAFETY Understand, apply, and evaluate classroom and workplace policies and procedures. (2 hours)	1. Review the scope and purpose of the course. 2. Review the FAA requirements for attendance. 3. Review the federal certification requirements. 4. Review and explain classroom policies, grading, and procedures. 5. Review the different occupations in the Transportation Industry Sector which have an impact on the role of aviation mechanics. 6. Review the opportunities available for promoting gender equity and the representation of non-traditional populations. 7. Review and recognize the importance of teamwork, respecting individual and cultural differences and diversity in the workplace. 8. Review the impact of Environmental Protection Agency (EPA) legislation on Transportation Industry Sector practices in protecting and preserving the environment. 9. Review OSHA-10 policies, procedures, and regulations for the workplace environment. 10. Review and demonstrate the procedures for contacting proper authorities for the removal of hazardous materials based on the EPA standards. 11. Review the California Occupational Safety and Health Administration (Cal/OSHA) and its electrical safety standards governing aviation mechanics. 12. Review the Safety Data Sheet (SDS) as it applies to the aviation industry. 13. Review classroom and workplace first aid and emergency procedures based on the American Red Cross (ARC) standards. 14. Review school safety regulations. 15. Review the safe use of shop equipment and storage areas. 16. Pass the safety test with 100% accuracy.	**Career Ready Practice:** 1, 3, 9, 10 **CTE Anchor:** Academics: 1.0 Career Planning and Management: 3.4, 3.6, 3.9 Health and Safety: 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7 Leadership and Teamwork: 9.6 Technical Knowledge and Skills: 10.2 Demonstration and Application: 11.1 **CTE Pathway:** C1.2, C1.3, C1.4, C2.2, C4.2, C5.1, C5.2
B. AIRCRAFT ELECTRICAL SYSTEMS Demonstrate and understand the knowledge, risk management, and skill elements required for aircraft electrical systems.	1. The student demonstrates understanding and terminology of: a. DC generator and AC alternator power generation and distribution systems b. Starter-Generators, Constant Speed Drive (CSD), and Integrated Drive Generator (IDG) c. voltage regulators, over and under volt protection, inverter systems, and derating factors in switch selection d. aircraft wiring sizes, types, selection, installation, and circuit protection devices, wiring shielding, and lighting protection e. instrument or instrument panel removal and installation	**Career Ready Practice:** 1, 4, 5, 10, 11 **CTE Anchor:** Academics: 1.0 Technology: 4.1

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
(Refer to FAA-ACS Subject K) (93.5 hours)	f. electrical system measurement, adjusting, testing, and troubleshooting g. soldering preparation, types of solder, flux usage, electrical connectors splices, terminals, and switches h. aircraft battery troubleshooting and maintenance 2. The student demonstrates the ability to identify, assess, and mitigate risk associated with: a. testing/troubleshooting electrical systems components, connect/disconnect external power, and perform maintenance on energized circuit/systems b. maintenance in areas containing aircraft wiring, wire routing, and securing wire bundles c. selecting the size of wire in terminals for installation d. soldering effects and practices 3. The student demonstrates the ability to: a. use a wire circuit diagram to identify, inspect, and install electrical wiring, switches, bonding jumpers, and circuit protection devices in AC rectified to DC systems b. perform wire terminations and splices, assemble a connector using solder, and secure wire bundles c. troubleshoot an airframe electrical system where DC is supplied by AC power systems d. determine an electrical system load, check output voltage of a DC generator, and check the resistance of a given electrical system component e. inspect generator brush serviceability and spring tension, electrical system components, and various lights for proper operation f. perform a continuity test on a conductor and check for opens or short to ground in a circuit	Problem Solving and Critical Thinking: 5.1, 5.2, 5.3, 5.4 Technical Knowledge and Skills: 10.1, 10.2 Demonstration and Application: 11.1 **CTE Pathway:** C2.1, C2.2, C2.3, C2.5, C2.7, C3.4, C3.5, C3.6, C3.7, C4.1, C5.1, C7.1, C7.4, C7.7
C. AIRCRAFT FUEL SYSTEMS Demonstrate and understand the knowledge, risk management, and skill elements required for aircraft fuel systems.	1. The student demonstrates understanding and terminology of: a. characteristics of fuel and fuel system types b. aircraft fuel tanks/cells, fuel system components, including filters and selector valves c. fuel flow and fuel quantity indication d. fueling, defueling, fuel transfer, fuel jettisoning/dump systems e. fuel system maintenance and inspection 2. The student demonstrates the ability to identify, assess, and mitigate risk associated with: a. fuel system maintenance and servicing requiring fuel tank entry b. fuel spills and fuel system contamination c. defueling aircraft 3. The student demonstrates the ability to: a. inspect, check, troubleshoot, or repair a metal, bladder, or integral fuel tank and manually-operated selector valve and check for proper operation and leaks	**Career Ready Practice:** 1, 4, 5, 10, 11 **CTE Anchor:** Academics: 1.0 Technology: 4.1 Problem Solving and Critical Thinking: 5.1, 5.2, 5.3, 5.4 Health and Safety: 6.3 Technical Knowledge and Skills: 10.1, 10.2

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
(Refer to FAA-ACS Subject J) (32.5 hours)	b. troubleshoot and/or repair a fuel valve, fuel temperature/pressure warning, and fuel quantity indicating system c. Locate fuel system defueling procedures, drain fuel sumps, and service a fuel system strainer d. Remove, install, and inspect a fuel quantity transmitter e. Locate fuel system operating instructions, placarding requirements, cross-feed, and inspection procedures	Demonstration and Application: 11.1 **CTE Pathway:** C2.1, C2.2, C2.3, C2.5, C3.7, C4.1, C5.1, C5.6, C6.3, C7.1, C7.7
D. AIRFRAME FIRE PROTECTION SYSTEMS Demonstrate and understand the knowledge, risk management, and skill elements required for airframe fire protection systems. (Refer to FAA-ACS Subject M) (32.5 hours)	1. The student demonstrates understanding and terminology of: a. types of fires, aircraft fire zones, and fire extinguishing agents b. overheat and fire detection/warning system maintenance and inspection c. smoke and carbon monoxide detection systems d. types of fire extinguishing systems, maintenance, and inspection requirements 2. The student demonstrates the ability to identify, assess, and mitigate risk associated with: a. maintenance on circuits associated with fire bottle squibs b. use of PPEs when working on or testing fire extinguishing systems c. fire extinguishing agents 3. The student demonstrates the ability to: a. inspect and troubleshoot an aircraft fire detection/protection system and perform an operational check b. inspect fire protection system cylinders, hydrostatic test, and discharge dates, and determine proper container pressure in an installed fire extinguishing system c. inspect and locate procedures to check a smoke, toxic gas, and carbon monoxide detection system d. locate and explain procedures for inspecting a continuous - loop and overheat type fire detection system	**Career Ready Practice:** 1, 4, 5, 10, 11 **CTE Anchor:** Academics: 1.0 Technology: 4.1 Problem Solving and Critical Thinking: 5.1, 5.2, 5.3, 5.4 Health and Safety: 6.2, 6.6 Technical Knowledge and Skills: 10.1, 10.2 Demonstration and Application: 11.1 **CTE Pathway:** C1.2, C1.3, C1.4, C2.2, C2.3, C2.5, C3.7, C5.1
E. ICE AND RAIN CONTROL SYSTEMS Demonstrate and understand the knowledge, risk management, and skill elements required for aircraft ice and rain control systems.	1. The student demonstrates understanding and terminology of: a. aircraft icing causes/effects and ice detection systems b. aircraft and powerplant anti-ice and de-ice system components and maintenance c. wiper blade, chemical, and pneumatic bleed air rain control systems utilized in environmental conditions that degrade vision 2. The student demonstrates the ability to identify, assess, and mitigate risk associated with: a. system testing or maintenance b. storage and handling of de-icing fluids	**Career Ready Practice:** 1, 4, 5, 10, 11 **CTE Anchor:** Academics: 1.0 Technology: 4.1 Problem Solving and Critical Thinking: 5.1, 5.2, 5.3, 5.4

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
(Refer to FAA-ACS Subject L) (32.5 hours)	c. selection and use of cleaning materials for heated windshields 3. The student demonstrates the ability to: a. inspect, troubleshoot, and operationally check an electrically-heated pitot-static anti-icing system b. clean, inspect, and operationally check a pneumatic de-icer boot c. inspect and operationally check an electrically-heated windshield and thermal anti-icing system d. locate and explain the procedures for inspecting electrically-operated windshield wiper systems, replacing blades, and pneumatic rain removal system	Health and Safety: 6.2, 6.3 Technical Knowledge and Skills: 10.1, 10.2 Demonstration and Application: 11.1 **CTE Pathway:** C2.2, C2.3, C3.7, C5.1, C5.6, C7.6, C7.7
F. ENVIRONMENTAL SYSTEMS Demonstrate and understand the knowledge, risk management, and skill elements required for aircraft environmental systems. (Refer to FAA-ACS Subject G) (52 hours)	1. The student demonstrates understanding and terminology of: a. cabin/pressurization and system component operation and inspection procedures b. exhaust heat exchanger, combustion heater, and bleed air system components, function, operation, and inspection procedures c. aircraft instrument colling d. vapor-cycle and air-cycle systems, components, operational and inspection procedures e. types of oxygen systems, components, operation, maintenance, and inspection procedures 2. The student demonstrates the ability to identify, assess, and mitigate risk associated with: a. storage, handling, and maintenance on high-pressure compressed gas cylinders and chemical oxygen generating systems b. manufacturer's recommended servicing procedures, including refrigerant types and recovery of vapor-cycle refrigerant c. maintenance of combustion heaters 3. The student demonstrates the ability to: a. inspect, purge, and service oxygen system and inspect pressure regulator and cylinder for serviceability b. clean and inspect a pilot emergency oxygen mask and supply hoses and inspect a chemical oxygen generator for serviceability and safe handling c. locate procedures to inspect and troubleshoot a combustion heater and inspect an exhaust heat exchanger system for cracks d. locate procedures for inspecting, servicing, and troubleshooting an air-cycle and vapor-cycle type cooling system e. clean and inspect an outflow valve and locate procedures for troubleshooting a pressurization system	**Career Ready Practice:** 1, 4, 5, 10, 11 **CTE Anchor:** Academics: 1.0 Technology: 4.1 Problem Solving and Critical Thinking: 5.1, 5.2, 5.3, 5.4 Health and Safety: 6.2, 6.3, 6.6 Technical Knowledge and Skills: 10.1, 10.2 Demonstration and Application: 11.1 **CTE Pathway:** C1.4, C2.2, C2.3, C3.2, C3.7, C4.1, C5.1, C5.6, C7.7

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
G. WATER AND WASTE SYSTEMS Demonstrate and understand the knowledge, risk management, and skill elements required for water and waste systems. (Refer to FAA-ACS Subject O) (13 hours)	1. The student demonstrates understanding and terminology of: a. portable water system components and operation b. lavatory waste system components and operation c. inspection and servicing requirements for water and waste systems 2. The student demonstrates the ability to identify, assess, and mitigate risk associated with: a. servicing lavatory waste systems, including use of safety equipment 3. The student demonstrates the ability to: a. locate and explain the procedures for servicing a lavatory waste system b. locate and explain the procedures for servicing a portable water system	**Career Ready Practice:** 1, 4, 5, 10, 11 **CTE Anchor:** Academics: 1.0 Technology: 4.1 Problem Solving and Critical Thinking: 5.1, 5.2, 5.3, 5.4 Health and Safety: 6.6 Technical Knowledge and Skills: 10.1, 10.2 Demonstration and Application: 11.1 **CTE Pathway:** C1.4, C2.2, C2.3, C4.1
H. AIRFRAME INSPECTION Demonstrate and understand the knowledge, risk management, and skill elements required for airframe inspections.	1. The student demonstrates understanding and terminology of: a. inspection and maintenance recordkeeping requirements specified under 14 CFR parts 91 and 43 and other CFRs applicable to inspection and airworthiness b. compliance requirements with airworthiness directives, service letters, service bulletins, and instructions for continued airworthiness c. use of FAA-approved data, identification of life-limited parts, and their replacement interval d. special inspections e. corrosion types and identification 2. The student demonstrates the ability to identify, assess, and mitigate risk associated with: a. visual inspection applicability, interpretation of inspection instructions which can lead to over or under maintenance being performed b. performing radiographic inspections c. selection and use of checklists and other maintenance publications used in maintenance record documentation 3. The student demonstrates the ability to: a. provide a checklist and perform an airframe 100-hour inspection, including record checks and entries in accordance with 14 CFR part 43	**Career Ready Practice:** 1, 2, 4, 5, 10, 11 **CTE Anchor:** Academics: 1.0 Communications: 2.1, 2.3, 2.4, 2.5 Technology: 4.1, 4.3 Problem Solving and Critical Thinking: 5.1, 5.2, 5.3, 5.4 Health and Safety: 6.2, 6.3 Technical Knowledge and Skills: 10.1, 10.2 Demonstration and Application: 11.1

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
(Refer to FAA-ACS Subject D) (32.5 hours)	b. determine compliance with a specific AD c. determine if any additional inspections are required during a particular 100-hour inspection d. inspect seats and seatbelts, including Technical Standard Order (TSO) markings	**CTE Pathway:** C2.2, C2.3, C2.5, C2.6, C4.1, C4.2, C4.3, C5.3, C5.6, C6.3
I. EMPLOYABILITY SKILLS & RESUME PREPARATION Understand, apply, and evaluate the employability skills and resume preparation required in aviation. (2 hours)	1. Understand employer requirements for soft skills such as: a. punctuality and attendance b. time management c. flexibility and adaptability d. interpersonal skills e. work ethic f. communication and collaboration g. teamwork h. critical thinking and problem solving i. leadership and responsibility j. ethical behavior k. cultural and diversity differences l. customer service 2. Create/revise a resume, cover letter and/or portfolio. 3. Review the role of online job searching platforms and career websites. 4. Complete and/or review an on-line job application. 5. Understand interview skills to get the job: a. do's and don'ts for job interviews b. how to dress for the job 6. Create sample follow-up letters. 7. Understand the importance of the continuous upgrading of job skills as it relates to: a. certification, licensure, and/or renewal b. professional organizations/events c. industry associations and/or organized labor	**Career Ready Practice:** 1, 2, 3, 4, 5, 7, 8, 9 **CTE Anchor:** Academics: 1.0 Communications: 2.2, 2.3, 2.4, 2.5 Career Planning and Management: 3.2, 3.3, 3.4, 3.6, 3.8 Technology: 4.1, 4.3 Problem Solving & Critical Thinking: 5.1 Responsibility and Flexibility: 7.2, 7.3, 7.4, 7.7 Ethics and Legal Responsibilities: 8.4 Leadership and Teamwork: 9.2, 9.3, 9.4, 9.6 Demonstration and Application: 11.2, 11.5 **CTE Pathway:** C5.1, C5.4

SUGGESTED INSTRUCTIONAL MATERIALS and OTHER RESOURCES

TEXTBOOKS

Jeppesen Sanderson Inc., A & P Technician Airframe Textbook/Workbook, 3rd Edition. Jeppesen Sanderson Publishing, 2016

Jeppesen Sanderson Inc., Airframe Technician: Test Guide with Oral and Practical Study Guide, 6th Edition. Jeppesen Sanderson Publishing, 2016

Federal Aviation Administration., Aircraft Inspection, Repair & Alterations: Acceptable Methods, Techniques & Practices, 8th Edition, Aircraft Technical Book Company, 2009

Federal Aviation Administration (FAA)/Aviation Supplies & Academics (ASA), Federal Aviation Regulations for Aviation Maintenance Technicians, 2022 Edition, Aviation Supplies & Academics, 2021

Optional Handbooks and Reference Material

Federal Aviation Administration, Airframe & Powerplant Mechanics, Airframe Handbook, Volume 1, Aircraft Technical Book Co., 2018

Federal Aviation Administration, Airframe & Powerplant Mechanics, Airframe Handbook, Volume 2, Aircraft Technical Book Co., 2018

Crane, Dale and Michmerhuizen, Aviation Mechanic Handbook, 7th Edition, Aviation Supplies & Academics, 2017

RESOURCES

Employer Advisory Board members

California Career Technical Education Model Curriculum Standards
http://www.cde.ca.gov/ci/ct/sf/documents/transportation.pdf

COMPETENCY CHECKLIST

TEACHING STRATEGIES and EVALUATION

METHODS AND PROCEDURES

A. Lecture and discussion

B. Multimedia presentations

C. Visual aids

D. Projects

E. Individualized instruction

EVALUATION

SECTION A – Orientation & Safety – Pass the safety test with 100% accuracy.

SECTION B – Aircraft Electrical Systems – Pass all assignments and exams with a minimum score of 80% or higher.

SECTION C – Aircraft Fuel Systems – Pass all assignments and exams with a minimum score of 80% or higher.

SECTION D – Airframe Fire Protection Systems – Pass all assignments and exams with a minimum score of 80% or higher.

SECTION E – Ice and Rain Control Systems – Pass all assignments and exams with a minimum score of 80% or higher.

SECTION F – Environmental Systems – Pass all assignments and exams with a minimum score of 80% or higher.

SECTION G – Water and Waste Systems – Pass all assignments and exams with a minimum score of 80% or higher.

SECTION H – Airframe Inspection – Pass all assignments and exams with a minimum score of 80% or higher.

SECTION I – Employability Skills & Resume Preparation – Pass all assignments and exams with a minimum score of 80% or higher.

Standards for Career Ready Practice

1. **Apply appropriate technical skills and academic knowledge.**
   Career-ready individuals readily access and use the knowledge and skills acquired through experience and education. They make connections between abstract concepts with real-world applications and recognize the value of academic preparation for solving problems, communicating with others, calculating measures, and performing other work-related practices.

2. **Communicate clearly, effectively, and with reason.**
   Career-ready individuals communicate thoughts, ideas, and action plans with clarity, using written, verbal, electronic, and/or visual methods. They are skilled at interacting with others: they are active listeners who speak clearly and with purpose, and they are comfortable with terminology that is common to workplace environments. Career-ready individuals consider the audience for their communication and prepare accordingly to ensure the desired outcome.

3. **Develop an education and career plan aligned with personal goals.**
   Career-ready individuals take personal ownership of their educational and career goals and manage their individual plan to attain these goals. They recognize the value of each step in the educational and experiential process, and they understand that nearly all career paths require ongoing education and experience to adapt to practices, procedures, and expectations of an ever-changing work environment. They seek counselors, mentors, and other experts to assist in the planning and execution of education and career plans.

4. **Apply technology to enhance productivity.**
   Career-ready individuals find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring and using new technology. They understand the inherent risks—personal and organizational—of technology applications, and they take actions to prevent or mitigate these risks.

5. **Utilize critical thinking to make sense of problems and persevere in solving them**
   Career-ready individuals recognize problems in the workplace, understand the nature of the problems, and devise effective plans to solve the problems. They thoughtfully investigate the root cause of a problem prior to introducing solutions. They carefully consider options to solve a problem and, once agreed upon, follow through to ensure the problem is resolved.

6. **Practice personal health and understand financial literacy.**
   Career-ready individuals understand the relationship between personal health and workplace performance. They contribute to their personal well-being through a healthy diet, regular exercise, and mental health activities. Career-ready individuals also understand that financial literacy leads to a secure future that enables career success.

7. **Act as a responsible citizen in the workplace and the community.**
   Career-ready individuals understand the obligations and responsibilities of being a member of a community and demonstrate this understanding every day through their interactions with others. They are aware of the impacts of their decisions on others and the environment around them, and they think about the short-term and long-term consequences of their actions. They are reliable and consistent in going beyond minimum expectations and in participating in activities that serve the greater good.

8. **Model integrity, ethical leadership, and effective management.**
Career-ready individuals consistently act in ways that align with personal and community-held ideals and principles. They employ ethical behaviors and actions that positively influence others. They have a clear understanding of integrity and act on this understanding in every decision. They use a variety of means to positively impact the direction and actions of a team or organization, and they recognize the short-term and long-term effects that management's actions and attitudes can have on productivity, morale, and organizational culture.

9. **Work productively in teams while integrating cultural and global competence.**
Career-ready individuals contribute positively to every team, as both team leaders and team members. To avoid barriers to productive and positive interaction, they apply an awareness of cultural differences. They interact effectively and sensitively with all members of the team and find ways to increase the engagement and contribution of other members.

10. **Demonstrate creativity and innovation.**
Career-ready individuals recommend ideas that solve problems in new and different ways and contribute to the improvement of the organization. They consider unconventional ideas and suggestions by others as solutions to issues, tasks, or problems. They discern which ideas and suggestions may have the greatest value. They seek new methods, practices, and ideas from a variety of sources and apply those ideas to their own workplace practices.

11. **Employ valid and reliable research strategies.**
Career-ready individuals employ research practices to plan and carry out investigations, create solutions, and keep abreast of the most current findings related to workplace environments and practices. They use a reliable research process to search for new information and confirm the validity of sources when considering the use and adoption of external information or practices.

12. **Understand the environmental, societal, and economic impacts of decisions.**
Career-ready individuals understand the interrelated nature of their actions and regularly make decisions that positively impact other people, organizations, the workplace, and the environment. They are aware of and utilize new technologies, understandings, procedures, and materials and adhere to regulations affecting the nature of their work. They are cognizant of impacts on the social condition, environment, workplace, and profitability of the organization.

Statement for Civil Rights

All educational and vocational opportunities are offered without regard to race, color, national origin, gender, or physical disability.