LAUSD UNIFIED Division of Adult and Career Education

Career Technical Education (CTE) Course Outline

Course Title:	Aviation Mechanic Test Prep
Course Number:	79-70-81
Date:	July 2025
Industry Sector:	Transportation
Pathway:	Systems Diagnostics, Service & Repair
CBEDS Title:	Aircraft Mechanics
CBEDS Code:	5613
CalPADS	8532
Credits:	10

Hours:

Total
150

Course Description:

This competency-based review course includes instruction in Aviation Mechanic General (AMG), Airframe (AMA), and Powerplant (AMP) subjects as they pertain to the requisite written (knowledge) examinations, as well as the Oral and Practical examination(s) (O&P) to obtain Federal Aviation Administration (FAA) certification as an Airframe and/or Powerplant Mechanic (A&P). Students will develop efficient test-taking strategies and gain the confidence needed to nativage the FAA certification examination process and progress toward their goals to work in the aviation maintenance industry. The competencies of this course are aligned with FAA-S-ACS-1 Aviation Mechanic Certification Standards for General, Airframe, and Powerplant, as well as the California Common Core Standards and the California Career Technical Education Model Curriculum Standards.

Prerequisites:	Enrollment requires successful completion of the Aviation Mechanic Airframe course number 79-70-66 and/or Aviation Mechanic Powerplant II – Turbine Engines course number 79-70-79.

NOTE:	For Perkins purposes this course has been designated as a **capstone** course. This course **can** be repeated once a student receives a Certificate of Completion.
A-G Approval	N/A
Methods of Instruction:	Lecture and discussion, multimedia presentations, visual aids, projects, individualized instruction
Student Evaluation:	Summative: End of section assessments
Industry Certification:	N/A
Required Test Guides:	Aviation Supplies & Academics (ASA): 2025 General Mechanic Test Guide, ASA-AMG-25, ISBN: 978-1-64425-423-3 ASA: 2025 Airframe Mechanic Test Guide ASA-AMA-25, ISBN: 978-1-64425-421-9 ASA: 2025 Powerplant Mechanic Test Guide ASA-AMP-25, ISBN: 978-1-64425-426-4 ASA: Aviation Mechanic Oral & Practical Exam Guide, 5th Edition, ASA-OEG-AMT5, ISBN: 978-644-25-362-5 ASA: Airman Certification Standards – Aviation Mechanic (AMG) (AMA) (AMP) FAA-S-ACS-1/FAA-G-ACS-1 ASA-AS-1, ISBN: 978-1-644-25-275-8
Link to Resource Folder	https://bit.ly/aviationtestprepresources

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
A. INTRODUCTION AND SAFETY Understand, apply, and evaluate classroom and workplace policies and procedures. (3 hours)	1. Review the scope and purpose of the course. 2. Review the federal certification requirements. 3. Review and explain classroom policies, grading, and procedures. 4. Review classroom and workplace first aid and emergency procedures based on the American Red Cross (ARC) standards. 5. Review school safety regulations. 6. Review the safe use of shop equipment and storage areas. 7. Pass the safety test with 100% accuracy.	**Career Ready Practice:** 1, 2, 4, 5 **CTE Anchor:** Academics: 1.0 Communications: 2.1, 2.3, 2.5 Technology: 4.2 Problem Solving & Critical Thinking: 5.2, 5.4 Health & Safety: 6.2, 6.3, 6,4, 6.5, 6.6 Technical Knowledge & Skills: 10.2 **CTE Pathway:** C1.4, C2.2
B. AVIATION MECHANIC GENERAL (AMG) Electricity & Electronics	1. The student demonstrates understanding and ability to perform: a. electron theory, magnetism capacitance, and inductance in both alternating (AC) and direct circuits (DC) b. principal electrical laws and theories in the application of respective laws, formulas, and calculations c. electrical measurement tools, principles, and procedures to determine voltage,	**Career Ready Practice:** 1, 2, 4, 5, 10 **CTE Anchor:** Academics: 1.0 Communications: 2.1, 2.3, 2.5

Aircraft Drawing Weight & Balance Fluid Lines & Fittings Materials, Processes & Hardware	current, resistance, and power in series, parallel and complex circuits d. electrical circuit drawings of basic, complex, combined, and integrated circuits 2. The student demonstrates understanding and ability to perform: a. drawings, blueprints, sketches, charts, graphs, and system schematics, including commonly used lines, symbols, and terminology b. repair or alteration of an aircraft system or component(s) using drawings, blueprints, or system schematics to perform inspections and determine conformity with type design 3. The student demonstrates understanding and ability to perform: a. weight and balance terminology and the purpose for weighing an aircraft b. purpose, application, and methods of determining aircraft weights and CG c. adverse loading considerations and calculate adverse loaded or out-of-limit conditions requiring load shifting or ballast installation 4. The student demonstrates understanding and ability to perform: a. rigid and flexible line materials, applications, sizes, and identification b. rigid and flexible line fabrication, installation, and inspection techniques and practices c. proper torquing and securing of aircraft fluid lines 5. The student demonstrates understanding and ability to perform: a. materials and hardware commonly used in aircraft and their general purpose and application b. safety wire and clip requirements and safety techniques c. precision measurement tools, principles, and techniques	Technology: 4.2 Problem Solving & Critical Thinking: 5.1, 5.2, 5.3, 5.4 Health & Safety: 6.2, 6.3, 6.4, 6.5, 6.6 Technical Knowledge & Skills: 10.1, 10.2 Demonstration & Application: 11.1 **CTE Pathway:** C1.4, C1.3, C2.1, C2.2, C2.3, C2.4, C2.5, C2.6, C2.7, C3.1, C3.2, C3.3, C3.5, C3.6, C3.7, C4.1, C4.2, C4.3, C5.2, C5.6, C6.1, C6.2, C6.3, C6.4, C7.1, C7.2, C7.3, C7.4, C7.7

Ground Operations	6. The student demonstrates understanding and ability to perform: a. aircraft towing and securing procedures b. proper aircraft fueling/defueling procedures with an understanding of fuel identification, characteristics, additives, and appropriate fuel grades c. types and classes of fire extinguishers and proper use procedures	
Cleaning & Corrosion Control	7. The student demonstrates understanding and ability to perform: a. corrosion theory, causation, types and effects on corrosion-prone areas with corresponding cleaning, treatment, removal, and prevention methods used in aircraft corrosion identification and inspection procedures b. regulatory requirements for replacing identification, registration markings, and placards c. inspection of aircraft finishes and consideration for effect on control surface balancing	
Mathematics	8. The student demonstrates understanding and ability to perform: a. areas and volumes of various geometrical shapes b. ratio, proportion, and percentage problems as it relates to aircraft maintenance or system(s) operation c. scientific notation, decimal, fractional, binary, and various conversions	
Regulations, Maintenance Forms, Records & Publications	9. The student demonstrates understanding and ability to perform: a. privileges, limitations, and recent experience requirements of a mechanics certificate b. maintenance record entries for approval or disapproval for return to service after performing maintenance, repairs, alterations, and inspections c. airworthiness limitations, alerts, cautions, and warnings indications used in maintenance and operating manuals	

Aviation Physics Inspection Concepts & Techniques Human Factors (48 hours)	10. The student demonstrates understanding and ability to perform: a. physical laws of principles as they apply to simple machines and effect on mechanical advantage b. gas laws and fluid mechanics and their effect on heat, pressure, and laws of motion c. theory of flight and effect on aerodynamic and flight controls d. relationship between temperature, density, weight, and volume and effect on force, area, or pressure in a specific application 11. The student demonstrates understanding and ability to perform: a. inspection methods, use of precision measuring tools to include calibration and tool accuracy requirements b. Non-destructive Testing (NDT) procedures and methods c. aircraft inspection programs 12. The student demonstrates understanding and ability to perform: a. safety culture and organizational factors, types of human errors, principles, and performance limitations b. physical and social environment, communication, and reporting hazards c. shift and task turnover, conditions/preconditions for unsafe acts	
C. AVIATION MECHANIC AIRFRAME (AMA) Metallic Structures	1. The student demonstrates understanding and ability to perform: a. inspection, selection, identification, and testing of various sheet metal alloy and condition types used in repairing metal structures and defects b. layout, cutting, forming, bending, and drilling of metallic structural components and corresponding maintenance and safety practices/precautions for sheet metal fabrication c. selection of rivets, hardware, and fasteners with respective layout,	**Career Ready Practice:** 1, 2, 4, 5, 10 **CTE Anchor:** Academics: 1.0 Communications: 2.1, 2.3, 2.5 Technology: 4.2

	installation, and removal methods for a given sheet metal repair	Problem Solving & Critical Thinking: 5.1, 5.2, 5.3, 5.4 Health & Safety: 6.2, 6.3, 6.4, 6.5, 6.6 Technical Knowledge & Skills: 10.1, 10.2 Demonstration & Application: 11.1
Non-Metallic Structures	2. The student demonstrates understanding and ability to perform: a. types and characteristics of wood materials and wood structures, inspection, repair methods, techniques, and practices b. fabric covering material inspection, preservation, restoration, and repair techniques and practices utilized on areas most susceptible to deterioration c. identification, inspection, testing, and repair of composite materials, fasteners, hardware, and structures and the corresponding types of defects and storage concerns	
Flight Controls	3. The student demonstrates understanding and terminology of: a. control cable types, connectors, guides, stops, and maintenance b. aircraft primary flight controls and stabilizer rigging, balance, and flutter control systems c. secondary and auxiliary control services and other aerodynamic wing features	**CTE Pathway:** C1.3, C1.4, C1.5, C2.1, C2.2, C2.3, C2.4, C2.5, C2.6, C2.7, C3.1, C3.2, C3.3, C3.5, C3.6, C3.7, C4.1, C4.2, C4.3, C5.2, C5.6, C6.1, C6.2, C6.3, C6.4, C7.1, C7.2, C7.3, C7.4, C7.7, C8.1, C8.3, C8.4, C8.5
Airframe Inspection	4. 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	
Landing Gear Systems	5. The student demonstrates understanding and ability to perform: a. landing gear strut servicing, lubrication, and inspection of shock absorbing systems	

	b. landing gear position, warning, anti-skid component inspection, servicing, and operational checks c. wheel, brake, tire construction, inspection, servicing, storage, and care	
Hydraulic & Pneumatic Systems	6. The student demonstrates understanding and ability to perform: a. hydraulic system components, fluids, and operating principles b. pneumatic system types, components, and servicing requirements c. servicing, function, and operating procedures for maintaining accumulators, pressure regulators, restrictors, valves, and filters	
Environmental Systems	7. The student demonstrates understanding and ability to perform: 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. vapor-cycle and air-cycle systems, components, operational and inspection procedures d. types of oxygen systems, components, operation, maintenance, and inspection procedures	
Instruments	8. The student demonstrates understanding and ability to perform: a. magnet compass inspection, operation, and swing procedures for direction indicating instruments b. pitot-static and gyroscopic instrument systems and regulatory requirement for performing static system leak checks c. instrument range markings, limitations, conditions, and characteristics d. instrument and/or panel removal, installation, bonding protection on electrostatic sensitive devices, and built-in test equipment	

Communication & Navigation Systems	9. The student demonstrates understanding and ability to perform: a. antenna, static discharge wicks, and avionics identification, inspection and mounting requirements b. systems, components, and operation c. Emergency Locator Transmitter (ELT), transponder/encoder system, Radio Altimeter (RA), Ground Proximity Warning System (GPWS) theory, components, and operation d. Automatic Direction Finder (ADF), VHF Omnidirectional Range (VOR), Distance Measuring Equipment (DME) theory, components, and operation	
Fuel Systems	10. The student demonstrates understanding and ability to perform: 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	
Aircraft Electrical Systems	11. The student demonstrates understanding and ability to perform: a. DC generator and AC alternator power generation and distribution systems b. voltage regulators, over and under volt protection, inverter systems, and derating factors in switch selection c. aircraft wiring sizes, types, selection, installation, and circuit protection devices, wiring shielding, and lighting protection d. electrical system measurement, adjusting, testing, and troubleshooting e. soldering preparation, types of solder, flux usage, electrical connectors splices, terminals, and switches	
Ice & Rain Control Systems	12. The student demonstrates understanding and ability to perform: 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	
Fire Protection Systems	13. The student demonstrates understanding and ability to perform: 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	
Rotorcraft	14. The student demonstrates understanding and ability to perform: a. rotorcraft design, types, aerodynamics, flight controls, and operation of rotor systems b. transmission and rigging requirements for rotary wing aircraft c. rotor and drive system vibrations, track, balance, and inspection	
Water & Waste Systems	15. The student demonstrates understanding and ability to perform: a. portable water system components and operation b. lavatory waste system components and operation c. inspection and servicing requirements for water and waste systems	
(48 hours)		
D. AVIATION MECHANIC POWERPLANT (AMP)	1. The student demonstrates understanding and ability to perform: a. radial and horizontally-opposed engine construction and internal components b. engine storage and preservation c. reciprocating engine performance, maintenance, inspection, and ground operation	**Career Ready Practice:** 1, 2, 4, 5, 10
Recip. Engines		**CTE Anchor:** Academics: 1.0 Communications: 2.1, 2.3, 2.5 Technology: 4.2 Problem Solving & Critical Thinking: 5.1, 5.2, 5.3, 5.4 Health & Safety:
Turbine Engines	2. The student demonstrates understanding and ability to perform: a. turbine engine performance, monitoring, adjustment, and testing b. turbine engine troubleshooting, maintenance, inspection procedures, and causes for performance loss c. auxiliary power units and bleed air systems	

Engine Inspection	3. The student demonstrates understanding and ability to perform: a. inspection and maintenance recordkeeping requirements under 14 CFR parts 43 and 91 b. special inspections and identification of life-limited parts and their replacement interval c. use of FAA-approved data and compliance with service letters, service bulletins, airworthiness directives, and instructions for continued airworthiness	6.2, 6.3, 6.4, 6.5, 6.6 Technical Knowledge & Skills: 10.1, 10.2 Demonstration & Application: 11.1 **CTE Pathway:** C1.3, C1.4, C1.5, C2.1, C2.2, C2.3, C2.4, C2.5, C2.6, C2.7, C3.1, C3.2, C3.3, C3.5, C3.6, C3.7, C4.1, C4.2, C4.3, C5.2, C5.6, C6.1, C6.2, C6.3, C6.4, C7.1, C7.2, C7.3, C7.4, C7.7
Engine Instruments	4. The student demonstrates understanding and ability to perform: a. fuel flow, torquemeters, and Engine Pressure Ratio (EPR) b. engine temperature and pressure indicating instruments c. engine speed indicating systems, instrument range markings, and instrument indication conditions d. digital engine control module, FADEC, and electronic centralized Aircraft Monitor (ECAM)	
Engine Fire Protection	5. The student demonstrates understanding and ability to perform: a. types of fires and engine fire zones b. fire detection warning system operation c. fire detection and extinguishing system maintenance and inspection d. fire extinguishing agents, system types, and operation	
Engine Electrical	6. The student demonstrates understanding and ability to perform: a. DC generators, AC alternators, and starter-generator systems b. voltage regulators, overvoltage/overcurrent protection, Constant Speed Drive (CSD) and Integrated Drive Generator (IDG) system and components c. purpose and procedure for paralleling a dual-generator electrical system d. engine electrical wiring, switches, and protective devices	

Engine Lubrication	7. The student demonstrates understanding and ability to perform: a. types, grades, and uses of engine oil b. lubrication system operation, components, inspection, servicing, and analysis c. wet-sump and dry-sump oil systems d. chip detectors and causes of excessive oil consumption	
Ignition & Starting	8. The student demonstrates understanding and ability to perform: a. ignition system and spark plug theory, shower of sparks, and impulse couplings b. magneto system circuits, components, and operation c. engine starters and turbine engine ignition systems	
Engine Fuel & Metering	9. The student demonstrates understanding and ability to perform: a. float type carburetor, fuel/air mixture ratio and fuel metering theory, components, operation, and adjustment b. digital engine control modules (e.g., FADEC), components theory and operation of turbine engine fuel metering systems c. hydromechanical fuel control systems, fuel nozzles and manifold components, design, operation, and maintenance d. fuel heaters, lines, pumps, valves, filters, and engine fuel drains	
Reciprocating Engine Induction & Cooling	10. The student demonstrates understanding and ability to perform: a. reciprocating engine induction and cooling system theory, types, components, and operation b. causes and effects of induction system icing, carburetor heaters, and induction system filtering c. superchargers, turbochargers, intercoolers, and controls	
Turbine Engine Air Systems	11. The student demonstrates understanding and ability to perform: a. turbine engine internal cooling, air cooling system theory, components, and operation	

	b. turbine engine cowling air flow, engine baffle, and seal installation c. turbine engine induction system theory, components, and operation d. turbine engine anti-ice and bleed air system theory, components, and operation	
Exhaust & Reverser	12. The student demonstrates understanding and ability to perform: a. reciprocating and turbine engine exhaust system theory, components, operation, and inspection b. noise suppression theory, components, and operation c. thrust reverser theory, components, and operation	
Propellers (48 hours)	13. The student demonstrates understanding and ability to perform: a. types of propellers, blade design, and theory of operation b. pitch control and adjustment, constant speed propeller theory and turbine engine propeller reverse/beta range operation c. propeller synchronization systems	
E. CERTIFICATION EXAM REVIEW Understand, evaluate, and demonstrate the skills required to take written and simulated certification exams.	1. Review strategies for minimizing test anxiety including affirmations, visualization and mental association. 2. Demonstrate strategies for answering different types of questions. 3. Employ critical reading, writing, and thinking skills. 4. Employ alliterative clauses and mnemonic devices. 5. Demonstrate utilizing discrimination and elimination techniques. 6. Practice timed reading to improve speed and efficiency. 7. Review tests from study guides and understand the exam objectives. 8. Explain the importance of test taking strategies to successfully pass the exam, to include: a. reading instructions carefully b. time management c. note taking	**Career Ready Practice:** 1, 2, 4, 5, 10 **CTE Anchor:** Academics: 1.0 Communications: 2.1, 2.3, 2.5 Technology: 4.2 Problem Solving & Critical Thinking: 5.1, 5.2, 5.3, 5.4 Technical Knowledge & Skills: 10.1, 10.2

(3 hours)	d. using the process of elimination e. using keywords from the question in your answer 9. Create a study plan. 10. Take a simulated online certification exam. 11. Assess test outcomes and identify areas requiring further testing, if necessary. 12. Explain the registration process to take the FAA general, airframe and powerplant mechanic exams to include FAA Airman Certification Standards (ACS), as they pertain to the FAA Oral and Practical Exam(s) and the exam-testing environment.	Demonstration & Application: 11.1 **CTE Pathway:** C1.1, C2.6, C4.3, C5.2

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Approved by: Renny L. Neyra, Executive Director