Course Content Form

PIMA COMMUNITY COLLEGE

Effective Term: N/A

AV 165 Part 65 Airframe & Powerplant Certification

Credit Hours: N/A **Lecture Periods:** N/A **Lab Periods:** N/A

Description:

64 Hour non-credit course focused on filling general aviation knowledge and skills gaps of experienced aircraft mechanics with Federal Aviation Administration authorization for certification. Students are exposed to maintenance fundamentals such as Federal Aviation Regulations, aviation math, aircraft drawings, and basic electricity. Students will increase their knowledge and hands-on competencies by performing inspections, functional checks, and adjustments on a multitude of airframe and powerplant systems; and will also gain specialized skills in aircraft structural repair.

Prerequisite(s): N/A

Course Learning Outcomes:

Upon successful completion of the course, the student will be able to:

1. Demonstrate the ability to complete an FAA Form 337. (Level 3)
2. Demonstrate the ability to fabricate a flare on tubing. (Level 3)
3. Demonstrate the ability to weigh an aircraft. (Level 3)
4. Demonstrate the ability to measure resistance, current, and/or voltage in an electrical circuit. (Level 3)
5. Demonstrate the ability to install range marks on an instrument glass. (Level 3)
6. Demonstrate the ability to balance a flight control surface. (Level 3)
7. Demonstrate the ability to inspect, check, troubleshoot, and/or repair a fire detection system. (Level 3)
8. Demonstrate the ability to service landing gear air/oil shock strut. (Level 3)
9. Demonstrate the ability to prepare and install a patch for damage to an aircraft or component. (Level 3)
10. Demonstrate the ability to adjust oxyacetylene flame to neutral appearance. (Level 2)
11. Demonstrate the ability to start and operate an aircraft reciprocating engine. (Level 2)
12. Demonstrate the ability to check cylinder compression with differential compression tester. (Level 3)
13. Demonstrate the ability to set internal timing of a magneto. (Level 3)
14. Demonstrate the ability to check the float level on a float-type carburetor. (Level 3)
15. Demonstrate the ability to inspect combustion liners. (Level 3)
16. Demonstrate the ability to repair metal propeller leading edges, trailing edges or tips that have nicks, scratches, and cuts and determine what minor propeller alterations are acceptable using the appropriate type certificate data sheet. (Level 3)

Outline:

I. General Mechanics
   - A. Federal Aviation Regulations
   - B. Fluid Lines and Fittings
   - C. Materials and Processes
   - D. Aircraft Drawings
   - E. Aviation Math
   - F. Basic Physics
   - G. Weight and Balance
   - H. Basic Electricity

II. Airframe Mechanics
   - A. Landing Gear Systems
   - B. Hydraulic and Pneumatic Systems
   - C. Fire Protection Systems

- D. Ice and Rain Control Systems
- E. Cabin Atmospheric Control Systems
- F. Fuel Systems
- G. Communication and Navigation Systems
- H. Aircraft Instruments
- I. Assembly and Rigging
- J. Aircraft Electrical Systems
- K. Position and Warning Systems
- L. Structures
    1. Metallic
        (1) Welding
    2. Non-Metallic
        (1) Composites
        (2) Wood Structures
            (a) Covering
            (b) Finishing
- M. Aircraft Inspection

III. Powerplant Mechanics

- A. Turbine Engines
    1. Ignition and Starting Systems
    2. Lubrication Systems
    3. Fuel/Fuel Metering Systems
    4. Airflow Systems
        (1) Induction
        (2) Exhaust
            (a) Thrust Reverser Systems
    5. Engine Cooling Systems
    6. Engine Instrument Systems
    7. Engine Inspection
    8. Auxiliary Power Units
- B. Reciprocating Engines
    1. Ignition and Starting Systems
    2. Lubrication Systems
    3. Fuel/Fuel Metering Systems
    4. Airflow Systems
        (1) Induction
        (2) Exhaust
    5. Engine Cooling Systems
    6. Engine Instrument Systems
    7. Engine Inspection
- C. Propellers