Instructor: Wheeler North  
Office Hours: 3:30PM - 4:30PM Mondays  
Location: F108 D  
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Course Title: Aircraft Induction and Fuel Metering Lab

Subject Area and Course Reference Number:  
Aviation Maintenance Technology - 250  
CRN 84360

Class Meets: Lab: 7:40 PM - 10:50 PM Mondays 3.0 hours 1.0 units Room F101

Catalog Course Description:  
Grade Only Prerequisite: Aviation Maintenance Technology 100 and 100S, each with a grade of “C” or better, or equivalent. Corequisite: Aviation Maintenance Technology 249; or completion of Aviation Maintenance Technology 249 with a grade of "C" or better, or equivalent. This course is the practical application of the theory of operation, design, overhaul, inspection, servicing, repair and troubleshooting of normally aspirated, turbo-charged, and supercharged induction systems, fuel metering systems, anti-detonation systems, and fuel controls in aircraft powerplants (FT) Transfer Credit: CSU Reference (FAR 147, Appendix D., Section II: Subjects F., 20., 21., 22., G., 24., 25., Subjects H., 26., 27., 28.,) Transfer Credit: CSU

Course Objectives:  
A student who successfully completes this course will be able to:

1. Inspect and evaluate basic induction/fuel metering systems.
2. Develop and apply skills needed for induction/fuel system analysis and evaluation.
3. Overhaul fuel metering components.
4. Apply diagnostic skills and techniques for induction/fuel metering.
5. Inspect various induction filtration systems.
6. Inspect various turbo-charger controllers.
7. Inspect and troubleshoot fuel delivery systems related to fuel metering.

Evaluation:  
A. Lab Course grade determined on the following criteria:  
   1. Written assignments and shop projects = 60%  
   2. Final Exam = 40%
B. Test and Quizzes will be given at various stages throughout the course. There will be a minimum notice of one class period. Homework due dates will be announced in class when they are assigned. Required Notebook will be due on the day of the final exam.

C. A maximum grade of 70% will be given for all make-up tests and/or projects as a result of unexcused absence. There will be no make-up for Quizzes. (The current College Catalog is a legal extension of this syllabus).

D. Federal Aviation Regulation requires that all grades and attendance be recorded and maintained on file subject to Federal Audit. A copy of the Course Record Sheet used to fulfill this regulation is attached. A student may review this document upon request at any time.

E. Time cards are used to document makeup attendance, failure to punch in and/or out will result in the loss of that time. Time cards must have the student’s name and the course title, in ink, and a Program Instructor’s signature with every “start” and “stop” time-clock entry stamp. It is required that students document makeup time on one time card per student per course. All makeup time must be spent working on coursework. Time can be made up under the supervision of any Program Instructor, who may assign makeup activities at their discretion. Make-up time may not be “banked” ahead of the missed time. Time cards will be turned in on the day of the Final Exam.

F. All tests, written assignments, lab projects, and final exams are MANDATORY. If any class assignments, projects, test/exams or Federal time minimums are not completed by the end of the semester an “I” incomplete grade may be issued. If the missing work/time is not completed within one year of the end of this semester a less than satisfactory grade will be issued. Course repetition will not remove an incomplete. Copies of these records will be maintained by AMT Dept. for the FAA required period of time.

G. As per SDCCD and FAA requirements students may not miss any class time. You must make up any time missed. The instructor may elect to drop or issue a failing grade to any student who has missed more than 6% of the total class time and the student will be dropped or issued a failing grade if they have more than 12% accumulated missing time. Missed time must be made up by prior arrangement with any Program Instructor. Make-up time may not be “banked” ahead of the missed time. Any student who is late or leaves early in combination three or more times will be dropped from the course or will receive a failing grade if this limit is exceeded after the final drop date. Exceptions to this limit may be made by prior arrangement with the instructor limited to two exceptions and any excused tardiness may not exceed ½ hour. All missed time must be made up per the make-up requirements included in this syllabus (Item E). Withdrawal add/drop dates may be found in the college catalog or online class schedule at [http://schedule.sdccd.edu/](http://schedule.sdccd.edu/)

H. Homework not turned in by the due date will receive a maximum of 70%. Any homework turned in after the end of the week before finals will receive a grade of zero. Regardless of grades received, all assigned homework is mandatory and must be at least a 70% quality for a final passing grade in the course.

I. NOTICE: For safety and the protection of property, video monitoring equipment is being utilized in this facility.

J. Inappropriate utilization of these facilities, to include all shop equipment, buildings, furniture, computer equipment etc. is grounds for dismissal from class and disciplinary action by the appropriate authorities. This can include, but is not limited to unescorted presence in secure areas such as the tool room or faculty office areas, kicking or slamming doors and furniture, modifying settings or software on computing equipment, inappropriate utilization of Internet access such as adult or hate websites, chat rooms or other activities as deemed inappropriate by District policies.

**Method of Instruction:**
Lecture, demonstration and class discussion, supported by various forms of audio-visual and multi-media aids.
Text and Supplies:
Aircraft Powerplants; Glenco Series; Kroes, Wild, Bent, McKinley (#1)
FAA Advisory Circular AC 65-12A (#2)
FAA Advisory Circular AC 43.13-1A/2A (#3)
Handbook of Descriptive Technical Terms (DOT). (#4)
Federal Aviation Regulations for Mechanics (#5)
Three-ring loose leaf binder
Pen and #2 Pencil

Written assignments: All assignments must be typed or in ink.

1. Maintenance record entry for the removal and installation of the assigned fuel injection system components.

2. Discrepancy sheets identifying defects, applicable Airworthiness Directives and Airworthiness Alerts for the assigned induction system.

Shop Projects:

Induction
1. Inspect, check, service and describe the repairs necessary to make the assigned induction system airworthy.
2. Inspect and service an induction system air filter or screen.
3. Inspect, check, service and describe the repairs necessary to make the assigned priming system airworthy.

Float and Pressure Carburetors
4. Identify a venturi and explain its purpose in an assigned carburetor.
5. Trace and describe the fuel flow and airflow through an assigned float and pressure carburetor or fuel injection system.
6. Identify a fuel metering orifice and explain its removal, installation and purpose in the carburetor.
7. Identify an air metering orifice and explain its purpose in the carburetor.
8. Identify a discharge nozzle in a pressure carburetor and explain its purpose and operation.
9. Identify the type of acceleration system in the assigned float and pressure carburetors and explain its operation and purpose.
10. Identify the type of economizer/power enrichment system in the assigned float and pressure carburetors and explain its operation and purpose.
11. Identify the type of mixture control on the assigned float and pressure carburetors and explain its operation and purpose.

Float Carburetors
12. Inspect the float in the assigned float carburetor and determine its serviceability.
13. Explain and describe the repair of the float in the assigned carburetor.
14. Inspect the needle valve and seat the assigned float carburetor and determine its serviceability.
15. Describe the adjustment and setting of the float level in the assigned float carburetor.

Pressure Carburetors
16. Using a given schematic, describe the operational distress of a pressure carburetor with obstructed impact tubes and or a ruptured diaphragm.

Fuel Injection
17. Remove, install, and inspect an installation of a pressure carburetor or fuel injection system and describe the adjustment of the idle speed and mixture.