I. Course Number: AERM 1357

II. Course Title: Fuel Metering and Induction Systems

III. Instructional Time:

   Semester ------  3 hours  
   Lecture ------- 14 hours  
   Lab ------------- 84 hours  
   Final Test ------  1 hour  
   Total Clock --  99 hours

IV. Course Description:

   A study of fuel metering and induction systems used on reciprocating and turbine engines including fuel metering systems, carburetors, induction systems, heat exchangers, and cooling systems.

V. Course Learning Outcomes:

   Repair engine fuel system components; and inspect, check, service, troubleshoot, and repair engine fuel systems. Troubleshoot and adjust turbine engine fuel metering systems and electronic engine fuel controls; overhaul carburetors; repair engine fuel metering systems components; and inspect, check, service, troubleshoot, and repair reciprocating and turbine engine fuel metering systems. Inspect, check, troubleshoot, service, and repair engine ice and rain control systems; inspect, check, service, troubleshoot, and repair heat exchangers, superchargers, and turbine engine airflow and temperature control systems; and inspect, check, service, and repair carburetor air intake and induction manifolds. Repair engine cooling system components; and inspect, check, troubleshoot, service, and repair engine cooling systems.

VI. Program Objectives:

   Level 2 A. Repair engine fuel system components.

   Level 3 B. Inspect, check, service, troubleshoot, and repair engine fuel systems.

   Level 1 C. Troubleshoot and adjust turbine engine fuel metering systems and electronic engine fuel controls.

   Level 2 D. Overhaul carburetor.

   Level 2 E. Repair engine fuel metering components.

   Level 3 F. Inspect, check, service, troubleshoot, and repair reciprocating and turbine engine fuel metering systems.
Level 2 G. Inspect, check, troubleshoot, service, and repair engine ice and rain control systems.

Level 1 H. Inspect, check, service, troubleshoot, and repair heat exchangers, superchargers, and turbine engine airflow and temperature control systems.

Level 3 I. Inspect, check, service, and repair carburetor air intake and induction manifolds.

Level 2 J. Repair engine cooling system components.

Level 3 K. Inspect, check, troubleshoot, service, and repair engine cooling systems.

VII. Practical Projects:

A. Simulate fuel system component repair.

B. Perform engine fuel system maintenance.

C. Research maintenance of turbine engine fuel metering systems and electronic engine fuel controls.

D. Simulate carburetor overhaul.

E. Simulate repair of fuel metering components.

F. Perform maintenance of reciprocating and turbine engine fuel metering systems.

G. Simulate engine ice and rain control system maintenance.

H. Research heat exchanger, supercharger, and turbine engine airflow and temperature control system maintenance.

I. Perform carburetor air intake and induction manifold maintenance.

J. Simulate repairs on engine cooling system components.

K. Perform maintenance on engine cooling systems.

VIII. Teaching Methods:

To include lecture, discussion, audio/visual aids, computer based training, hand outs, and reference materials.

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IX. Evaluation:

Evaluation methods for this course are as follows:

A. Quizzes: Informal quizzes may be administered periodically to measure student progress and to identify significant learning problems. The quiz type (multiple choice, oral, essay, etc.) and the frequency of administration shall be at the discretion of the instructor. Quiz grades are not used in computing course grades.

B. Practical Projects and Mid-term Tests: At the completion of instruction of an objective, the student's performance will be evaluated by a knowledge test and/or a practical project. Mid-term tests grades are averaged with Practical Projects grades.

C. Final Examination: A final exam will be administered at the conclusion of the course and shall be comprehensive of the entire course.

D. Grading: A percentage grading system shall be used and the student's final grade shall be computed as follows:

   Practical Projects and Mid-term Test 65%
   Final Examination 35%

E. Final percentage grades shall be converted to letter grades as follows:

   90-100          A
   80-89           B
   70-79           C
   60-69           D
   59-0            F

X. Tools and Equipment:

Special tools and equipment required for this unit are to be furnished by Coastal Bend College. All hand tools, however, are to be furnished by the individual student and shall be immediately available to the student at the beginning of this course of instruction.

XI. Attendance Policy:

Refer to the Coastal Bend College Airframe & Power Technology Program attendance policy.
XII. Bibliography:

A. Required Text:


B. Supplementary Text:


6. Aircraft Manufacturers Specifications and/or Support Material.