I. Course Number: AERM 1349

II. Course Title: Hydraulic, Pneumatic, and Fuel Systems

III. Instructional Time:

    Semester ------ 3 hours
    Lecture ------- 14 hours
    Lab ----------- 70 hours
    Final Test ----- 1 hour
    Total Clock -- 85 hours

IV. Course Description:

    Skill development in inspecting, servicing, and maintaining aircraft fluid systems including
    hydraulics, pneumatics, and fuel. Application of basic concepts through detailed maintenance
    procedures.

V. Course Learning Outcomes:

    Demonstrate industry level competency in fuel maintenance procedures and demonstrate
    competency in aircraft hydraulic and pneumatic systems maintenance procedures.

VI. Program Objectives:

    Level  3  A. Identify and select hydraulic fluids.

    Level  3  B. Inspect, check, service, troubleshoot, and repair hydraulic and pneumatic power
                   systems.

    Level  2  C. Repair hydraulic and pneumatic power system components.

    Level  3  D. Inspect, check, service, troubleshoot, and repair aircraft fuel systems.

    Level  2  E. Repair aircraft fuel systems components.

    Level  2  F. Inspect and repair fluid quantity indicating systems.

    Level  2  G. Troubleshoot, service, and repair fluid pressure and temperature warning systems.

    Level  1  H. Check and service fuel dump systems.

    Level  1  I. Perform fuel management transfer, and defueling.

    Level  1  J. Inspect, check, and repair pressure fueling systems.

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VII. Practical Projects:

A. Perform identification and selection of hydraulic fluids.

B. Perform maintenance of hydraulic and pneumatic power systems.

C. Simulate repair of hydraulic and pneumatic power system components.

D. Perform maintenance of aircraft fuel systems.

E. Simulate repair of aircraft fuel systems components.

F. Simulate inspection and repair of fluid quantity indicating systems.

G. Simulate maintenance of fluid pressure and temperature warning systems.

H. Research maintenance of fuel dump systems.

I. Research fuel management transfer and defueling operations.

J. Research maintenance of pressure fueling systems.

VIII. Teaching Methods:

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

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 students 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:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practical Projects and Mid-term Test</td>
<td>65%</td>
</tr>
<tr>
<td>Final Examination</td>
<td>35%</td>
</tr>
</tbody>
</table>
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E. Final percentage grades shall be converted to letter grades as follows:

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-100</td>
<td>A</td>
</tr>
<tr>
<td>80-89</td>
<td>B</td>
</tr>
<tr>
<td>70-79</td>
<td>C</td>
</tr>
<tr>
<td>60-69</td>
<td>D</td>
</tr>
<tr>
<td>59-0</td>
<td>F</td>
</tr>
</tbody>
</table>

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:

2. JS312624, Standard Aviation Maintenance Handbook, Jeppesen Sanderson, Inc.
3. JS312617, AC 43.13-1B/2A, Acceptable Methods, Techniques, and Practices, Aircraft Inspection and Repair, Department of Transportation, Federal Aviation Administration, Jeppesen Sanderson, Inc.

B. Supplementary Text:

4. JS312616, Federal Aviation Regulations Handbook for Aviation Maintenance Technicians, Jeppesen Sanderson, Inc.
7. JS312625, Aircraft Technical Dictionary, Jeppesen Sanderson, Inc.
8. Aircraft Manufacturers Specifications and/or Support Material.