I. Course Number: AERM 1243

II. Course Title: Instruments and Navigation/Communication

III. Instructional Time:

Semester ----- 2 hours
Lecture -------- 14 hours
Lab ------------ 28 hours
Final Test ----- 1 hour
Total Clock -- 43 hours

IV. Course Description:

A study of aircraft instruments and electronic flight instrument systems including testing and installing instruments; inspecting, checking, and troubleshooting navigation and communication systems; and inspecting and repairing antennas and electronic equipment installations.

V. Course Learning Outcomes:

Inspect, check, troubleshoot, and repair flight instrument systems; install and test instruments; and inspect, check, and troubleshoot aircraft navigation and communication systems.

VI. Program Objectives:

Level 1 A. Inspect, check, service, troubleshoot, and repair electronic flight instrument systems and both mechanical and electrical heading, speed, altitude, temperature, pressure, and position indicating systems to include the use of built-in test equipment.

Level 2 B. Install instruments and perform a static pressure system leak test.

Level 1 C. Inspect, check, and troubleshoot autopilot servos and approach coupling systems.

Level 1 D. Inspect, check, and service aircraft electronic communication and navigation systems, including VHF passenger address interphones and static discharge devices, aircraft VOR, ILS, LORAN, Radar beacon transponders, flight management computers, and GPWS.

Level 2 E. Inspect and repair antenna and electronic equipment installations.
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VII. Practical Projects:

A. Research maintenance of aircraft instruments and systems, including systems with on-board diagnostics (OBD).

B. Simulate instrument installation and static pressure system leak testing.

C. Research maintenance of autopilot servos and approach coupling systems.

D. Research maintenance of communication and navigation systems.

E. Simulate inspection and repair of antenna and electronic equipment installations.

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>Practical Projects and Mid-term Test</th>
<th>65%</th>
</tr>
</thead>
<tbody>
<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>Letter 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:
1. JS312692, **A&P Technician Airframe Textbook**, Jeppesen Sanderson, Inc.
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.
5. JS312693, **A&P Technician Airframe Test Guide**, Jeppesen Sanderson, Inc.
6. JS322711, **A&P Technician Airframe Workbook**, Jeppesen Sanderson, Inc.
7. JS312625, **Aircraft Technical Dictionary**, Jeppesen Sanderson, Inc.
8. Aircraft Manufacturers Specifications and/or Support Material.