I. Course Number: AERM 1315

II. Course Title: Aviation Science

III. Instructional Time:

   Semester ------ 3 hours
   Lecture ------ 28 hours
   Lab ---------- 42 hours
   Final Test ---- 1 hour
   Total Clock -- 71 hours

IV. Course Description:

   Fundamentals of mathematics, physics, and drawing as they apply to aircraft principles and operations as required by the Federal Aviation Administration for airframe and powerplant mechanics.

V. Course Learning Outcomes:

   The student will extract roots and raise numbers to a given power; determine areas and volumes of various geometrical shapes; solve ratio, proportion, and percentage problems; and perform algebraic operations involving addition, subtraction, multiplication, and division of positive and negative numbers. The student will apply the principles of simple machines, sound, fluid, and heat dynamics; basic aerodynamics; aircraft structures; and theory of flight. The student will interpret aircraft drawings, symbols, and system schematics; draw sketches of repairs and alterations; and interpret blueprint information, graphs, and charts.

VI. Program Objectives:

   Level 3 A. Determine areas and volumes of various geometrical shapes.

   Level 3 B. Solve ratio, proportion, and percentage problems.

   Level 3 C. Perform algebraic operations involving addition, subtraction, multiplication, and division of positive and negative numbers.

   Level 3 D. Extract roots and raise numbers to a given power.

   Level 2 E. Use and understand the principles of simple machines; sound, fluid, and heat dynamics; basic aerodynamics; aircraft structures; and theory of flight.
Level 2 F. Use aircraft drawings, symbols, and system schematics.

Level 3 G. Draw sketches of repairs and alterations.

Level 3 H. Use blueprint information.

Level 3 I. Use graphs and charts.

VII. Practical Projects:

A. Perform calculations to determine areas and volumes of various geometric shapes.

B. Perform calculations for solving ratio, proportion, and percentage problems.

C. Perform complex algebraic operations.

D. Perform calculations to determine roots and powers.

E. Research the use and principles of simple machines; sound, fluid, and heat dynamics; basic aerodynamics; aircraft structures; and theory of flight.

F. Use aircraft drawings, symbols, and system schematics.

G. Draw sketches of repairs and alterations.

H. Use blueprint information.

I. Use graphs and charts.

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:

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

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

<table>
<thead>
<tr>
<th>Grade Points</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:

2. 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:


5. A&P Technician General Workbook, Jeppesen Sanderson, Inc.

6. Aircraft Manufacturers Specifications and/or Support Material.