I. Course Number: AERM 1314

II. Course Title: Basic Electricity

III. Instructional Time:

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

IV. Course Description:

A study of aircraft electrical systems and their requirements including the use of ammeter, voltmeter, and ohmmeter; series and parallel circuits; inductance and capacitance; magnetism; converting alternating current (AC) to direct current (DC); controlling devices; maintenance and servicing of aircraft batteries; and reading and interpreting aircraft electrical diagrams to include solid state devices and logic functions.

V. Course Learning Outcomes:

Calculate and measure capacitance and inductance; calculate and measure electrical power; and measure voltage, current, resistance, and continuity. Determine the relationship of voltage, current, and resistance in electrical circuits; and read and interpret aircraft electrical circuit diagrams including solid states devices and logic functions. Inspect and service batteries.

VI. Program Objectives:

Level 3 A. Determine the relationship of voltage, current, and resistance in electrical circuits.

Level 3 B. Measure voltage, current, resistance, and continuity.

Level 2 C. Calculate and measure electrical power.

Level 2 D. Calculate and measure capacitance and inductance.

Level 3 E. Read and interpret aircraft electrical circuit diagrams, including solid state devices and logic functions.

Level 3 F. Inspect and service batteries.
VII. Practical Projects:

A. Perform research to determine the relationship of voltage, current, and resistance as applied to electrical circuits.

B. Perform electrical measurements.

C. Research electrical power calculations and simulate measurement.

D. Research capacitance and inductance calculations and simulate measurement.

E. Perform reading and interpretation of electrical circuit diagrams with advanced electronics.

F. Perform aircraft battery maintenance.

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>
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.