San Diego Community College District
Miramar College
Course Syllabus
Spring 2011

Instructor: Wheeler North
Office Hours: 3:30PM - 4:30PM Tuesdays
Location: F108 D
E-Mail: wnorth@sdccd.edu

Course Title: Powerplant Electrical Systems

Subject Area and Course Reference Number:
Aviation Maintenance Technology 109C    CRN 76127

Class Meets: Lecture: 4:30 PM - 7:20 PM Tuesdays,
Room F106 3.0 hours 3.0 units

Catalog Course Description:
Students learn about the design, installation, and operation of both direct and alternating powerplant electrical current systems. Subjects include lead acid and nickel cadmium batteries, wiring, control circuits, switches, indicators, electrical power generation and control, circuit protection devices, and other electrical systems likely encountered by an aircraft maintenance technician.

REQUISITES:
Prerequisite: AVIM 100, AVIM 100S, AVIM 120 & AVIM 121A, each with a grade of "C" or better, or equivalent.

Course Objectives:
A student who successfully completes this course will be able to:
1. Identify and analyze powerplant electrical system components
2. Inspect and check direct and alternating current powerplant electrical systems
3. Inspect and check powerplant electrical wiring, controls, switches, indicators, and circuit protection devices
4. Inspect and check lead acid and nickel cadmium batteries
5. Inspect and check electrical power generation systems and controls
6. Inspect and check aircraft electronic equipment installations.

Evaluation:
A. Lecture Course grade determined on the following criteria:
   1. Tests = 40%
   2. Quizzes = 10%
   3. Homework and required notebook = 20%
   4. Final Exam = 30%
B. Test and Quizzes will be given at various stages throughout the course. There will be a minimum notice of one class period. Homework due dates will be announced in class when they are assigned. Required Notebook will be due on the day of the final exam.

C. A maximum grade of 70% will be given for all make-up tests and/or projects as a result of unexcused absence. There will be no make-up for Quizzes. (The current College Catalog is a legal extension of this syllabus).

D. Federal Aviation Regulation requires that all grades and attendance be recorded and maintained on file subject to Federal Audit. A copy of the Course Record Sheet used to fulfill this regulation is attached. A student may review this document upon request at any time.

E. Time cards are used to document makeup attendance, failure to punch in and/or out will result in the loss of that time. Time cards must have the student’s name and the course title, in ink, and a Program Instructor’s signature with every “start” and “stop” time-clock entry stamp. It is required that students document makeup time on one time card per student per course. All makeup time must be spent working on coursework. Time can be made up under the supervision of any Program Instructor, who may assign makeup activities at their discretion. Make-up time may not be “banked” ahead of the missed time. Time cards will be turned in on the day of the Final Exam.

F. All tests, written assignments, lab projects, and final exams are MANDATORY. If any class assignments, projects, test/exams or Federal time minimums are not completed by the end of the semester an “I” incomplete grade may be issued. If the missing work/time is not completed within one year of the end of this semester a less than satisfactory grade will be issued. Course repetition will not remove an incomplete. Copies of these records will be maintained by AMT Dept. for the FAA required period of time.

G. As per SDCCD and FAA requirements students may not miss any class time. You must make up any time missed. The instructor may elect to drop or issue a failing grade to any student who has missed more than 6% of the total class time and the student will be dropped or issued a failing grade if they have more than 12% accumulated missing time. Missed time must be made up by prior arrangement with any Program Instructor. Make-up time may not be “banked” ahead of the missed time. Any student who is late or leaves early in combination three or more times will be dropped from the course or will receive a failing grade if this limit is exceeded after the final drop date. Exceptions to this limit may be made by prior arrangement with the instructor limited to two exceptions and any excused tardiness may not exceed ½ hour. All missed time must be made up per the make-up requirements included in this syllabus (Item E). Withdrawal add/drop dates may be found in the college catalog or online class schedule at http://schedule.sdccd.edu/

H. Homework not turned in by the due date will receive a maximum of 70%. Any homework turned in after the end of the week before finals will receive a grade of zero. Regardless of grades received, all assigned homework is mandatory and must be at least a 70% quality for a final passing grade in the course.

I. NOTICE: For safety and the protection of property, video monitoring equipment is being utilized in this facility.

J. Inappropriate utilization of these facilities, to include all shop equipment, buildings, furniture, computer equipment etc. is grounds for dismissal from class and disciplinary action by the appropriate authorities. This can include, but is not limited to unescorted presence in secure areas such as the tool room or faculty office areas, kicking or slamming doors and furniture, modifying settings or software on computing equipment, inappropriate utilization of Internet access such as adult or hate websites, chat rooms or other activities as deemed inappropriate by District policies.
Method of Instruction:
Lecture, demonstration and class discussion, supported by various forms of audio-visual and multi-media aids.

Text and Supplies:
Aircraft Powerplants; Glenco Series; Kroes, Wild, Bent, McKinley (#1)
FAA Advisory Circular AC 65-12A (#2)
FAA Advisory Circular AC 43.13-1A/2A (#3) (optional)
Federal Aviation Regulations for Mechanics (#4) (optional)
Aircraft Gas Engine Turbine Technology; Glenco Series; Treager (#5) (optional)
Three-ring loose leaf binder
Pen and #2 Pencil  Scantron Test Answer Sheets

Calendar
For better retention and understanding of the materials to be covered it is recommended to complete each week’s reading assignment prior to class time.

<table>
<thead>
<tr>
<th>Week</th>
<th>Subject</th>
<th>Recommended Reading Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
<td>Review of AC/DC theory</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Power Sources</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>Test Review</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Phase Test</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Power Generation</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>Test Review</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>Phase Test</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>Motors, wiring, busses</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>Test Review</td>
</tr>
<tr>
<td>15</td>
<td>Final Review</td>
<td>Phase Test</td>
</tr>
<tr>
<td>16</td>
<td>Final Exam</td>
<td>All Written Projects Due</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Notebook due</td>
</tr>
</tbody>
</table>

Additional Notes:
Notebooks are required and due at the beginning of the final. Notes must be in ink or typed. They may not be produced from any source other than personal student notes taken in class, from the AMT website, or from the assigned reading material. They should be organized, and should include all class materials, handouts, projects, and written assignments, except for those not yet returned.

Aviation Website: http://www.sdmiramar.edu/instruction/avim/default.asp
This website is posted as an addendum to some of the Miramar Aviation classes. Students are encouraged to use these resources to assist their learning process. Directly downloading any unauthorized material for reproduction, such as course notes, from this site is a copyright infringement and is grounds for dismissal from this class. You may use this site to complete, confirm or add to course notes taken in class. These notes are a framework for the course and the student is expected to include additional material from course discussion, homework, and reading assignments.

Please Note: The instructor reserves the right to change the above Syllabus and schedule with prior notice.
Written assignments: All assignments must be typed or in ink.

1. Notebook of notes covering lecture material and readings.

2. Describe, in writing, the proper procedure to test if a circuit has an internal open (unaccounted for high resistance).

3. Describe, in writing, the proper procedure to test if a circuit has a short to ground or elsewhere, bypassing the intended load and/or controller.

4. Diagram a schematic of, 1. a positive controlled and 2. a negative controlled circuit, diagramming the electrical flow, the power source, several loads and the controlling circuit for each example. Explain in writing the advantages of each type of circuit and the differences in testing procedures and analysis for diagnosing either type.

Final Exam

Tests

Quizzes