

Course Syllabus

Air Conditioning and Refrigeration 5 – Electrical Applications

Course 7100 - Fall 2014 August 26th through October 14th

Course Description: The course focuses on basic electrical theory and training in installing, servicing, troubleshooting, and operating electrical control systems for air conditioning and refrigeration technology with the use of electrical diagrams. Single phase and three phase electrical power for air conditioning and refrigeration systems are covered in classroom discussions and laboratory assignments.

Instructor: Phyllis Barthel

Phone: 562-972-2766

Email: prbarthel@gmail.com

Office Hours: by appointment

Text: Modern Refrigeration and Air Conditioning

By: Andrew D Althouse, Carl H Turnquist, Alfred F Bracciano, Daniel C Bracciano,
Gloria C Bracciano

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Lecture: 8:00 AM to 11:10 AM Tuesday, Thursday

Lab: 11:20 AM to 2:30 PM Tuesday, Thursday

Materials: Pen, Pencil, Paper, Binder, Safety Glasses, Gloves

El Camino College Mission Statement: *El Camino College offers quality, comprehensive educational programs and services to ensure the educational success of students from our diverse community.*

SLO Statement 1: After reading the textbook and participating in class discussions, students will apply their knowledge of appropriate lab practices, concepts and theories by troubleshooting a faulty air conditioning unit with the use of a wiring schematic and digital multimeter. After finding the problem, they will operate the unit, making sure it is operating at manufacturer specifications.

SLO Statement 2: After completion of this course, students will have the basic skills necessary to read and interpret simple wiring diagrams in order to effectively troubleshoot and repair simple HVACR control and power related problems.

SLO Statement 3: Upon completion of this course students will apply knowledge gained on diagrams and component operation to identify HVACR systems and components sequencing and operating conditions.

Attendance: Attendance in the classroom, as well as, the lab is critical components to success in this course. Like in the work place, attendance is required. Absences from that exceed 10% of the scheduled class meeting times may be dropped from the class. Students are expected to be on time for class and lab, fully prepared. A student who registers for a class and never attends is still responsible for dropping the class. It is the responsibility of the student to officially drop a class by the dead line date.

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Grading:

Attendance	25%
Test & Quizzes	25%
Lab Assignments	25%
Final Exam	25%

Note: If you choose to drop out of class, it will be your responsibility to drop the class or you will be give an "F" grade at the end of the semester

Course Outline

Chapter	Page	Description
9, 10	198-217	Principles of Electricity, Types of Electricity, Electrical Materials, Circuit Fundamentals, Magnetism, Electrical Generators, Transformer Basics, Electrical Power, Power Circuits, Electrical Problems
10,11	218-249	Circuit Fundamentals, Magnetism, Electrical Generators, Transformer Basics, Semiconductor Basics, Control Circuits and Electronic Devices, Circuit Boards and Microprocessors, Switches, Relays, Solenoids, Thermocouples
12, 13	250-303	The Elementary Electric Motor, AC Induction Motors, Electronically Commutated Motors, Standard Motor Data, Motor Applications in HVACR Systems, Circuit Diagrams, Control System Fundamentals, Motor Controls, Motor Protection Devices
14	304-334	Electical Test Equipment, Troubleshooting Electrical Motors, Servicing Hermetic Compressors, Servicing Fan Motors, Servicing External Motors, Servicing Motor Control Systems

Homework: Questions at the end of each unit must be completed with questions and answers written out and are due the day of a quiz, and will be counted as part of your overall grade for quizzes.

Test Policy: Notes may be used when taking quizzes and tests unless otherwise told in advance. It will be to your advantage to take thorough notes during lecture and keep your notes organized in a binder.

Lab: Students are expected to keep the lab clean and in orderly condition. When lab is complete, all tools are to be returned to the tool crib, equipment is to be put back together with all missing screws and panels in their place. We treat our lab like we would treat a paying customer. Students are expected wear safety glasses at all times when working in the lab

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Student Orientation: Participate in orientation with the Online Orientation through MyECC or in the Matriculation Group academic counseling sessions for students, new to the college. Students will meet with a counselor in the Matriculation Groups to prepare an educational plan for the semester. Students who complete Online Orientation must bring in the confirmation page to make a 30 minute counseling appointment for an educational plan.

Academic Honesty: El Camino College places a high value on the integrity of its student scholars. When an instructor determines that there is evidence of dishonesty in any academic work (including, but not limited to cheating, plagiarism, or theft of exam material), disciplinary action appropriate to the misconduct as defined in BP 5500 may be taken. A failing grade on an assignment in which academic dishonesty has occurred and suspension from class are among the disciplinary actions for academic dishonesty (AP 5520). Students with any questions about the Academic Honesty or discipline policies are encouraged to speak with their instructors in advance.

Special Accommodations: Any student who has a disability and/or special need should alert the instructor by the second week of the semester so that special accommodations can be made.

ADA Compliance: Accommodations: It is the policy of the El Camino Community College District to encourage full inclusion of people with disabilities in all programs and services. Students with disabilities who believe they may need accommodations in this class should contact the campus Special Resource Center at 310-660-3295 as soon as possible. This will ensure that students are able to fully participate.

ECC STUDENT SERVICES CENTER BUILDING: (Please see the Activities Center and Special Resource Center ECC webpage for hours of operation and services offered)