

EL CAMINO FALL 2015

AIR CONDITIONING 21

Course Description: Air Conditioning and Refrigeration 21

Air Conditioning Fundamentals

4 units; 3 hours lecture, 3 hours lab

Credit, degree applicable

Transfer CSU

This course is designed to introduce students to air conditioning and refrigeration theory and provide an overview of the skills needed for employment in the industry. Topics introduced include safety, air conditioning system operation and components, brazing, electrical applications, service tools, and equipment.

Instructor: Patrick Heeb

Email: pheeb@elcamino.edu

Text: Modern Refrigeration and Air Conditioning 19th Edition

By: Althouse, Turnquist, Bracciano, Bracciano, and Bracciano

Lecture: 7 pm to 10 pm Thursday, Room CAT 102

Lab: 7 pm to 10 pm Tuesday, Room CAT 120

Materials: Pen, Pencil, Paper, Note pad, Safety Glasses (Z87.1), Safety Gloves, Student ID, Library card, Scranton 882e

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 placing refrigeration manifold gauges on a window air conditioning unit and check for correct charge of an operating system based on the type of refrigerant used in the system.

SLO Statement 2: After completion of this course, students will acquire the skills necessary to successfully braze refrigeration components to meet basic industry standards.

SLO Statement 3: After completion of this course, students will have the knowledge necessary to perform basic HVACR service in a safe manner

Course Syllabus

HVACR 21

Grading:

A=100-90 B=89-79 C=78-69 D= 68- 59 F= Below 59

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|---|------------|
| Class room participation | 25% |
| Test & Quizzes | 25% |
| Lab assignments and attendance | 25% |
| Final exam (Explained in class) | 25% |
| Extra Credit up to 5% (Extra Credit must activity must be preapproved by instructor) | |

***Notes: No late testing**

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*

The course content and sequence may change depending on student needs. Students will be advised on any changes ahead of time.

Course Outline

| Section # | Chapter # | Page | Description |
|-----------|-----------|---------|--|
| 1 | 1 | 3-24 | Fundamentals of Refrigeration |
| 1 | 2 | 28-36 | Basic Refrigeration Systems |
| 2 | 3 | 42-64 | Tools and Supplies |
| 2 | 4 | 68-91 | Working with tubing and piping |
| 3 | 6 | 108-126 | Introduction to refrigerants |
| 3 | 7 | 132-156 | Equipment and instruments for refrigerant handling and service |
| 3 | 8 | 164-186 | Working with refrigerants |
| 4 | 9 | 198-214 | Basic electricity |

Course Syllabus

HVACR 21

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|---------|---------|---------|---------------------------|
| 6 | 15 | 336-358 | Compressors |
| 6 | 16 | 366-400 | Valves & Metering Devices |
| Brazing | On line | 1-13 | HVACR Brazing |

Note: Questions at the end of each section must be completed, questions and answers written out. Notebooks may be used when taking quizzes and test, so it will be your responsibility to take notes during lecture.

Attendance: Attendance in the lab and class room is a critical component to success in this course. Like in the work place attendance is required. Students whose absences from a class exceed 10% of the scheduled class meeting times may be dropped from the class. 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 deadline date. Reviews for test and quizzes may be conducted during the lab sessions.

Student Requirements:

1. Students are required to furnish his/her materials and equipment to include yet not limited to textbook, safety equipment, notebooks, and pencils.
2. Students are required to follow all policies outlined in the El Camino College center handbook and all safety class room safety policies and procedures.
3. All students are responsible for full cleanup of their areas in the class room or lab after every class.

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 (310) 660-3295, as soon as possible. This will ensure that students are able to fully participate.*

Student Orientation:

Course Syllabus

HVACR 21

Participate in Orientation with the Online Orientation through MyECC or in the Matriculation Group academic counseling sessions for students new to 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 instructor in advance.

ECC STUDENT SERVICES CENTER BUILDING

(Please see the Activities Center and Special Resource Center ECC web page for hours of operation and services offered)