

Course Syllabus

HVACR 23 - Commercial Refrigeration Applications

Course 7115 - Fall 2015 August 25, 2015 through December 10, 2015

Course Description

This course explores refrigeration theory, characteristics of refrigerants, temperature and pressure, tools and equipment, soldering, brazing, commercial refrigeration systems, system high side components, system low side components, metering devices, and compressors. Students will learn how to charge commercial systems with new Environmental Protection Agency (EPA) refrigerants and evaluate the proper operation of systems. Troubleshooting techniques are explained with the use of wiring diagrams and electric multi-meters.

Instructor: Phyllis Barthel

Email: prbarthel@elcamino.edu

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

ISBN# 978-1-61960-199-4

Lecture: Room CAT 120, Tuesday 7:00 PM to 10:10 PM

Lab: ACR Lab, Thursday 7:00 PM to 10:10 PM

Materials: Pencil, Pen, Paper, Binder

Fall 2015 Calendar

Last Day to Drop Without Notation on Permanent Record Friday, September 4, 2015

Labor Day Holiday (Campus Closed) Monday, September 7, 2015

Last Day to Apply for Degrees and Certificates (Fall) Friday, October 9, 2015

Veterans Day Holiday (Campus Closed) Wednesday, November 11, 2015

Last Day to Drop with a "W" Friday, November 13, 2015

Thanksgiving Holiday (Campus Closed) Thursday, November 26 – Sunday, November 29, 2015

Last Day of Semester Friday, December 11, 2015

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.*

SLO Statement 1: After reading the textbook and participating in class discussions, students will apply their knowledge of appropriate lab practices, concepts, and theories to operating low temperature walk-in freezer. Students will check proper freezer temperatures, amperage draw on the operating compressor, subcooling, and superheat temperatures.

SLO Statement 2: Students completing this course will apply their knowledge to the application, service, and testing of special refrigeration system components.

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SLO Statement 3: Students completing this course will apply their knowledge to service and troubleshooting using electrical diagrams and schematics specific to commercial refrigeration.

Grading:

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

Course Outline

Chapter	Page	Description
42	1007	Overview of Commercial Refrigeration Systems - Applications, Commercial and Industrial
43	1039	Special Refrigeration Systems and Applications
44	1059	Commercial Refrigeration Systems - System Configurations
45	1077	Commercial Refrigeration Systems - High Side Components
46	1131	Commercial Refrigeration Systems - Low Side Components
47	1163	Commercial Refrigeration Systems - Piping
48	1177	Understanding Heat Load and System Thermodynamics
49	1207	Commercial Refrigeration Component Selection
50	1227	Installing Commercial Systems
51	1251	Troubleshooting Commercial Systems - System Diagnosis
52	1291	Troubleshooting Commercial Systems - Component Diagnosis
53	1317	Servicing Commercial Systems

- ❖ During the semester there may be opportunities for the students to attend alternate site meetings. Alternate site meetings will be announced during the semester. Students are responsible for making transportation arrangements to attend alternate site meetings.

Homework:

Questions at the end of each unit must be completed with questions and answers written out.

- 10 points will be deducted from assignments for every class meeting that they are turned in late. For example, if the assignment is 2 class days late 20 points will be deducted $100-20=80$. 80% is the highest grade you can receive for a perfect assignment.
- Assignments must be turned in during class, electronic copies will not be accepted.

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Quizzes and Tests

Notes may be used when taking quizzes and tests unless otherwise told in advance. **It will be to your advantage to take notes during lecture.**

- Make up tests and quizzes will be allowed for *excused* absences for full credit.
- Make up test and quizzes for *unexcused* absence will be allowed however, points will be deducted.

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.

ECC STUDENT SERVICES CENTER BUILDING

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

Class Policies

- a) Students are expected to attend classes regularly. Students who have absences exceeding 10% of scheduled class meeting time may be dropped by the instructor.
- b) **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.*
- c) **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.*
 - ❖ Any student who has a disability and/or special need should alert the instructor on the first day of the semester so that special accommodations can be made.