IMPERIAL VALLEY COLLEGE

Basic Course Information

Semester:	**Spring 26'**	Instructor Name:	**Pat Barbee**
Course Title & #:	**AUT 255 Heavy Equipment Air Conditioning**	Email:	**Pat.barbee@imperial.edu**
CRN #:	**21260**	Webpage (optional):	
Classroom:	**1100**	Office #:	**1104A**
Class Dates:	**February 17th-June 12th**	Office Hours:	**Tuesday/Thursday 12:20-1:20pm**
Class Days:	**Tuesdays/Thursday**	Office Phone #:	
Class Times:	8:00-12:20pm	Emergency Contact:	**Tisha Nelson 760-355-6361**
Units:	4.0	Class Format:	

Course Description

The course is designed to prepare students to gain employment in the heavy equipment air conditioning service industry. The use of charging station and heavy equipment systems will be part of this course. Instruction will include, long haul refrigerated boxes and heavy equipment refrigeration systems. Upon completing this course the student will be prepared to take Automotive Service Excellence (ASE) certification examination in air conditioning. (CSU)

Course Prerequisite(s) and/or Corequisite(s)

None.

Student Learning Outcomes

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. Diagnosing A/C system conditions that cause protection devices to interrupt system.
2. Preform A/C system testing and identify A/C system malfunctions.
3. Identify and troubleshoot air conditioning.
4. Determine necessary action and possible repair.

Course Objectives

Upon satisfactory completion of the course, students will be able to:

1. Heating Ventilation and Air Conditioning
2. Environmental and Safety Practices
3. Thermodynamics

4. Air Conditioning Components: Compressor, Condenser, and receiver dryer
5. The Refrigeration System
6. Service Procedures
7. Cab Climate Control
8. Troubleshooting and performance testing
9. Truck-trailer refrigeration equipment
10. Truck-trailer refrigeration electrical components
11. Truck-trailer refrigeration maintenance

Textbooks & Other Resources or Links

Textbook Used Cengage Heating, Ventilation, Air Conditioning & Refrigeration (ISBN: 978-1-133-71625-9)

Access to computer, Internet, and word type applications.

Pen and pencils

Standard writing paper and notebook.

Lab days will require: Safety glasses, work footwear (no open toe shoes, slip resistant), Please wear Appropriate attire!

Course Requirements and Instructional Methods

This course will consist of a variety of instructional methods and assignments including, but not limited to, lectures, class discussions, group activities, a research paper, interviews, and hands-on shop experiences.

Course Grading Based on Course Objectives

Grading System:

A-513-570 of points=Excellent

B- 456-512 of points= Good

C- 399-455 of points= Acceptable

D- 342-398 of points = Below Average F - 341 points and below= Failing

Activities	**Points**
Homework (13 assignments * 5pts each)	65
Quizzes (27 quizzes * Points each)	270
Labs (5 labs * 15pts each)	
Final Lab Exam	80

Final Exam	80
Total Points	570

***There are no make-up exams unless arrangements with the instructor are made prior to exam.

Course Policies

- Electronic Devices: Cell phones and electronic devices must be turned off and put away during class, unless otherwise directed by the instructor.
- Food and Drink: Food and drink are prohibited in all classrooms. Water bottles with lids/caps are the only exception. Additional restrictions will apply in labs. Please comply as directed by the instructor.
- Disruptive Students: Students who disrupt or interfere with a class may be sent out of the room and told to meet with the Campus Disciplinary Officer before returning to continue with coursework. Disciplinary procedures will be followed as outlined in the General Catalog.
- Children in the classroom: Due to college rules and state laws, only students enrolled in the class may attend; children are not allowed. Students must be present to take Mid-tem and final Exam.

Academic honesty in the advancement of knowledge requires that all students and instructors respect the integrity of one another's work and recognize the important of acknowledging and safeguarding intellectual property. There are many different forms of academic dishonesty. The following kinds of honesty violations and their definitions are not meant to be exhaustive. Rather, they are intended to serve as examples of unacceptable academic conduct.

Plagiarism is taking and presenting as one's own the writings or ideas of others, without citing the source. You should understand the concept of plagiarism and keep it in mind when taking exams and preparing written materials. If you do not understand how to cite a source correctly, you must ask for help.

Cheating is defined as fraud, deceit, dishonesty in an academic assignment, or using or attempting to use materials, or assisting others in using materials that are prohibited or inappropriate in the context of the academic assignment in question. Anyone caught cheating or plagiarizing will receive a zero (0) on the exam or assignment, and the instructor may report the incident to the Campus Disciplinary Officer, who may place related documentation in a file. Repeated acts of cheating may result in an F in the course and/or disciplinary action. Please refer to the General Catalog for more i nformation on academic dishonesty or other misconduct. Acts of cheating include, but are not limited to, the following:

- plagiarism
- copying or attempting to copy from others during an examination or on an assignment
- communicating test information with another person during an examination
- allowing others to do an assignment or portion of an assignment

- using a commercial term paper service.

Attendance: A student who fails to attend the first meeting of a class or does not complete the first mandatory activity of an online class will be dropped by the instructor as of the first official meeting of that class. Should readmission be desired, the student's status will be the same as that of any other student who desires to add a class. It is the student's r esponsibility to drop or officially withdraw from the class. See General Catalog for details.

Regular attendance in all classes is expected of all students. A student whose continuous, unexcused absences exceed the number of hours the class is scheduled to meet per week may be dropped. For online courses, students who fail to complete required activities for two consecutive weeks may be considered to have excessive absences and may be dropped.

Absences attributed to the representation of the college at officially approved events (conferences, contests, and field trips) will be counted as excused absences.

Other Course Information

Shop/Lab Area Safety

- *Safety test must be passed to work in the shop and complete required lab exercise.*
- *Safety glasses are required to be worn at all times while in the shop area, safety glasses are the student's respons ibility (students not wearing safety glasses will be asked to leave lab for that day, no exceptions).*
- *Clean up your area and any other lose debris, trash, or spills.*
- *Wear all required safety protection and comply with posted signs.*
- *No shorts or open toe footwear, always be prepared for lab exercises.*
- *Comply with tool check out policy and clean tools before returning.*
- *Damaged or missing tools must be reported immediately. Tools are the students' responsibility.*
- *Do not perform any work on any vehicle outside the assigned task without permission from your instructor.*
- *Long hair must be kept in a ponytail or tucked away for safety.*
- *Jewelry such as rings and necklaces must be put away or tucked in for safety.*
- *Lab work will cease 20 minutes prior to end of class to allow time for cleaning areas and returning tools. Projects*
- *All projects must be approved by instructor and require a written work order.*

- *All projects must be removed from campus prior to finals.*
- **Projects are taken with students at end of class unless approved** *by* **instructor.**

In addition to standard course curriculum, portions of this course will prepare you for ASE certifications.

IVC Student Resources

IVC wants you to be successful in all aspects of your education. For help, resources, services, and an explanation of policies, visit http://www.imperial.edu/studentresources or click the heart icon in Canvas.

Anticipated Class Schedule/Calendar

Date or Week	Activity, Assignment, and/or Topic	Pages/ Due Dates/Tests
Week 1	Syllabus & Introduction Shop Safety Test Chapter 2: Environmental & Safety Practices Chapter 6 Shop Safety	Pages 15-24
Week 2	Chapter 1: Heating, Ventilation and Air Conditioning	Pages 1-13
Week 3	Chapter 3: Thermodynamics	Pages 27-38
Week 4	Chapter 4: Air Conditioning Components: Compressor, Condenser, and receiver dryer	Pages 41-57
Week 5	Chapter 5: Air Conditioning Components: Metering Devices and Accumulator	Pages 61-73
Week 6	Chapter 6: The Refrigeration System	Pages 75-89
NO SCHOOL	Spring Break	
Week 8	John Deere Service Training	Online
Week 9	Chapter 8: The Engine Cooling system	Pages 113-137
Week 10	Chapter 9: Cab Climate Control/Supplemental Truck Heating and Cooling	Pages 141-157
Week 11	Chapter 10: Troubleshooting and Performance Testing	Pages 159-173
Week 12	Chapter 14: Refrigeration Components	Pages 227-240
Week 13	Chapter Refrigeration Flow Control	Pages 243-256
Week 14	Chapter APAD/ACPU A/C Control Systems	Pages 177-194
Week 15	Truck-Trailer Refrigeration Equipment	Pages 215-225
Week 16	Truck-Trailer Refrigeration Maintenance Final Exam	Pages 281-301

*****Subject to change without prior notice*****