

Basic Course Information

Semester:	Fall 17	Instructor Name:	Alan "Moose" Butler
Course Title & #:	Automotive Air Conditioning AUT-210	Email:	Alan.butler@imperial.edu
CRN #:	10790	Webpage (optional):	
Classroom:	1100 1101	Office #:	1104
Class Dates:	Aug 14 - Dec.	Office Hours:	TBA
Class Days:	Tuesday, Thursday	Office Phone #:	760-355-6507
Class Times:	Tuesday: 6 PM – 9:10 PM Thursday: 6 PM – 8:10 PM	Emergency Contact:	619-200-6034 my cell 760-355-6361
Units:	3		

Course Description

The course is designed to impart knowledge and information needed by the student to enter and make progress in employment on a productive basis in the automotive air conditioning service industry in addition. The use of charging station and systems will be part of A/C course. Upon completing this course the student will be prepared to take Automotive Service Excellence (ASE) certification examination in air conditioning. (CSU)

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. Identify and interpret heating and air conditioning concern; determined necessary action.
ILO1,ILO2,ILO3
2. Perform A/C system test; identify A/C system malfunctions. ILO1,ILO2,ILO3.
3. Diagnose A/C system conditions that cause the protection devices to interrupt system operation.
ILO1,ILO2,ILO3.

Course Objectives

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

1. Demonstrate knowledge of personal safety and workshop regulations
2. Demonstrate knowledge of the trade
3. Demonstrate knowledge of basic refrigeration
4. Demonstrate knowledge of temperature control device
5. Demonstrate knowledge of testing and diagnosing equipment.
6. Demonstrate knowledge of component rebuilding
7. Demonstrate knowledge of efficiency testing procedures
8. Analyze problems and practice on various live manufacturers products
9. Demonstrate knowledge of proper recovery and handling of R-12 & R134 with the use of recovery station.

- 10. Demonstrate knowledge of retrofitting system from R-12-R134
- 11. Be familiar with ASE examination requirements, and prepare to successful pass the exam.

Textbooks & Other Resources or Links

James E. Duffy 2009. *Modern Automotive Technology* 8th Edition. G-W Publisher ISBN: 9781590709566. Textbook AND workbook.

- 2. Pen and pencils. (DO NOT ASK TO BORROW ONE FROM THE INSTRUCTOR)
- 3. Standard writing paper.
- 4. Personal Protective Equipment: Safety glasses, • Work footwear, • Proper shirt and pants

Course Requirements and Instructional Methods

Out of Class Assignments: The Department of Education policy states that one (1) credit hour is the amount of student work that reasonably approximates not less than one hour of class time and two (2) hours of out-of-class time per week over the span of a semester. WASC has adopted a similar requirement.

Course Grading Based on Course Objectives

Class Participation Rubric

BELOW AVERAGE	AVERAGE	ABOVE AVERAGE	Points Possible
Student misses class or leaves class early or shows up to class late. (0 Points)	Student comes to class late or leaves class early, but asks permission or provides an excuse (5-7 Points)	Student is always on time. Student only leaves class with permission after completing assignments. (8-10 Points)	All students start with 10 possible points each day. The points are documented in the grade center at the beginning of class.
Student does not participate in assigned tasks. (0 Points)	Student Participates in assigned tasks but does no take an active role or leadership role. The student tends to watch others work. (5-7 Points)	Student takes a leadership role in all assigned tasks. Student is willing to help others. (8-10 Points)	Points are finalized at the end of class. At the end of class points will either remain at 10 or be lowered.
Student Violates Safety Rules. (0 Points)	Student Does not violate safety rules but needs to be asked what he or she is doing? Student does not clean work area or needs to be told to clean up. (5-7 Points)	Student is safe and encourages others to be safe. Student cleans the shop area and encourages others to clean up. (8-10 Points)	

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 responsibility 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.
- **Attendance:** Students who miss four or more classes may be dropped from the course.

Classroom Etiquette

- 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 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, no one who is not enrolled in the class may attend, including children.

Online Netiquette

- What is netiquette? Netiquette is internet manners, online etiquette, and digital etiquette all rolled into one word. Basically, netiquette is a set of rules for behaving properly online.
- Students are to comply with the following rules of netiquette: (1) identify yourself, (2) include a subject line, (3) avoid sarcasm, (4) respect others' opinions and privacy, (5) acknowledge and return messages promptly, (6) copy with caution, (7) do not spam or junk mail, (8) be concise, (9) use appropriate language, (10) use appropriate emoticons (emotional icons) to help convey meaning, and (11) use appropriate intensifiers to help convey meaning [do not use ALL CAPS or multiple exclamation marks (!!!!)].

Academic Honesty

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, or 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 information on academic dishonesty or other misconduct. Acts of cheating include, but are not limited to, the following: (a) plagiarism; (b) copying or attempting to copy from others during an examination or on an assignment; (c) communicating test information with another person during an examination; (d) allowing others to do an assignment or portion of an assignment; (e) using a commercial term paper service.

Additional Student Services

Imperial Valley College offers various services in support of student success. The following are some of the services available for students. Please speak to your instructor about additional services which may be available.

- **Canvas Support Site.** The Canvas Support Site provides a variety of support channels available to students 24 hours per day.
- **Learning Services.** There are several learning labs on campus to assist students through the use of computers and tutors. Please consult your [Campus Map](#) for the [Math Lab](#); [Reading, Writing & Language Labs](#); and the [Study Skills Center](#).
- **Library Services.** There is more to our library than just books. You have access to tutors in the [Study Skills Center](#), study rooms for small groups, and online access to a wealth of resources.

Disabled Student Programs and Services (DSPS)

Any student with a documented disability who may need educational accommodations should notify the instructor or the [Disabled Student Programs and Services](#) (DSP&S) office as soon as possible. The DSP&S office is located in Building 2100, telephone 760-355-6313. Please contact them if you feel you need to be evaluated for educational accommodations.

Student Counseling and Health Services

Students have counseling and health services available, provided by the pre-paid Student Health Fee.

- **Student Health Center.** A Student Health Nurse is available on campus. In addition, Pioneers Memorial Healthcare District provide basic health services for students, such as first aid and care for minor illnesses. Contact the IVC [Student Health Center](#) at 760-355-6128 in Room 1536 for more information.

- [Mental Health Counseling Services](#). Short-term individual, couples, family, and group therapy are provided to currently enrolled students. Contact the IVC [Mental Health Counseling Services](#) at 760-355-6196 in Room 2109 for more information.

Student Rights and Responsibilities

Students have the right to experience a positive learning environment and to due process of law. For more information regarding student rights and responsibilities, please refer to the IVC [General Catalog](#).

Information Literacy

Imperial Valley College is dedicated to helping students skillfully discover, evaluate, and use information from all sources. The IVC [Library Department](#) provides numerous [Information Literacy Tutorials](#) to assist students in this endeavor.

Anticipated Class Schedule/Calendar

Week 1: *Class Orientation, safety procedures, demonstrations, shop activities, and safety test.*

Week 2: *Automotive Air Conditioning History and Certifications*

Lab. activity: HVAC system inspection

Week 3: *Principles of Air Conditioning*

Lab. activity: Install gauge set and check system pressures.

Week 4: *Air Conditioning Tools, Equipment, and Measuring Systems*

Lab. activity: Test condenser performance.

Week 5: *Pressure and Temperature*

Lab. activity: Check expansion device operation

Week 6: *Refrigerants and Lubricants*

Lab. activity: A/C system leak check

Week 7: *Air Conditioning Components*

Lab. activity: Evacuate and recharge an A/C system

Week 8: *Compressors and Clutches*

Lab activity: Bench check an A/C compressor and clutch coil.

[Week 9: Mid-Term](#)

Week 10: *Automobile Heating Systems*

Lab. activity: Check heater system and test heater core

Week 11: Basic Electricity

Lab. activity: Volt-ohmmeter usage and test A/C clutch circuit.

Week 12: Electrical Circuits

Lab. activity: Test HVAC blower circuit and cooling fan circuit.

Week 13: Meters and Testers

Lab. activity: Recharge an A/C system – manifold gauge set.

Week 14: Air Conditioner Controls

Lab. activity: Test vacuum mode door motor and system.

Week 15: Troubleshooting and Repair

Week 16: Final Exam

*****Tentative, subject to change without prior notice*****

