



Basic Course Information			
Semester:	Winter 2025	Instructor Name:	Frank Miranda
Course Title & #:	Air Cond Elec Cir & Cntrls	Email:	frank.miranda@imperial.edu
CRN #:	15177	Webpage (optional):	None
Classroom:	3115	Office #:	10
Class Dates:	01/2/25-02/03//25	Office Hours	By Appointment Only
Class Days:	Monday-Friday	Office Phone #:	760-355-6372
Class Times:	8:05 AM - 11:55 AM	Emergency Contact:	Department office Secretary 760 355-5758
Units:	3	Class Format:	FACE-TO-FACE

#### Course Description

Recommended preparation: ACR 101. This is a course of study in electrical circuits and controls used in the heating, ventilation, air conditioning, and refrigeration industry. This course consists of the study of Ohm's Law, electrical meters and test equipment, wiring materials, diagrams and schema cs, electrical components, installation of controls, layout of electrical circuits, and safety practices.

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

There are NO prerequisites or corequisites for this course



## Student Learning Outcomes

IVC as an institution has adopted five Student Learning Outcomes (SLO's). They are inter-connected with each other. They will be inherent throughout this course.

1. Communication Skills
2. Crucial Thinking Skills
3. Personal Responsibility
4. Information Literacy
5. Global Awareness

## Course Objective

Upon successful completion of this course, the student will:

1. Demonstrate competency and mastery of the body-of-knowledge in Employee Responsibilities within the HVAC/R industry.
2. Demonstrate knowledge of electrical meters and electrical test equipment.
3. Demonstrate knowledge of wiring materials.
4. Demonstrate knowledge of wiring diagrams and schemas both pictorial and ladder.
5. Demonstrate knowledge of electrical components used in the HVAC/R industry.
6. Demonstrate knowledge of the technique required to install and wire electrical.
7. Demonstrate the ability to troubleshoot and repair electrical circuits and components.
8. Demonstrate knowledge of safety practices required during the installation of HVAC/R electrical equipment.

## Textbooks & Other Resources or Links

### 1. Textbook

Modern Refrigeration and Air Conditioning, 22nd Edition, eBook Author: Andrew D. Althouse, Carl H. Turnquist, A.F. Bracciano, D.C. Bracciano, and G.M. Bracciano ISBN: 978-8-88817-489-0

### 2. Personal Protective Equipment

- 2.1 Safety Glasses
- 2.2 Leather Gloves

- 2.3 Ear plugs
- 2.4 Work footwear
- 2.5 Proper shirt and pants



## Course Requirements and Instructional Methods

### COURSE ACTIVITIES INCLUDE:

- LABORATORY ASSIGNMENTS
- QUIZZES
- CHAPTER REVIEWS
- WRITTEN EXAMS
- READING ASSIGNMENTS.

## Course Grading Based on Course Objectives

A= 90%-100% Excellent

B= 80%-89% Good

C= 70%-79% Satisfactory

D= 60%- 69% Pass, less than satisfactory

F= 59%&Below Failing

The course grade will be determined by various factors such, as class participation, classroom assignments, chapter reviews & drawing project, midterm & final exams.

The grading range is as follows:

- Class Participation 25%
- Laboratory 25%
- Midterm 25%
- Final Exam 25%

## Course Policies

- 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.



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- 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.

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.



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## Other Course Information

### 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 (!!!!)]

## IVC Student Resources

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.

- Blackboard Support Site. The Blackboard 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.



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Anticipated Class Schedule/Calendar
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Unit	Topic
12	Basic Electricity
13	Electrical Power
14	Basic Electronics
15	Electric Motors
16	Electrical Control Systems
17	Electrical Troubleshooting Fundamentals
18	Servicing Electric Motors and Controls

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.