

Imperial Valley College  
Industrial Technology Division  
ACR 105 Heat Load Calculation and Measurements  
**Fall 2015**

Instructor: Frank Miranda

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Office Hours:	Monday	10:05 – 11:05 a.m.
	Tuesday	10:05 – 11:05 a.m.
	Wednesday	11:10 – 12:10 p.m.
	Thursday	11:10 – 12:10 p.m.

**AVAILABLE BY APPOINTMENT**

Secretary/Division Office: 10

Division Coordinator: Jose Lopez (760) 355-6361 Fax: (760) 355-6552

Credits/Units: 2 Lecture Hours (2 Units)

CRN: 10796

Semester: Fall, August 17- December 11, 2015

Breaks/Holidays- No Classes Held

September 7	Labor Day
November 11	Veterans Day
November 26-28	Thanksgiving

Class: Tuesday 8:00 – 10:05 am

Location: Room 3115

## A. Course Description

This is a course of study includes theories and factors that affect heating and cooling loads, on residential and light commercial buildings. Calculations and measurement techniques of proper capacity and unit size will be studied and applied to residential and light commercial buildings.

## B. Course Objective

1. Demonstrate knowledge of safety practices required during the measurements/calculation of HVAC Equipment.
2. Demonstrate knowledge of the techniques for determining heating and cooling loads.
3. Demonstrate knowledge of calculators to apply mathematical formulas related to HVAC units.
4. Demonstrate knowledge of readings, tools and test meter measurements.
5. Demonstrate knowledge of writing, reading, and changing common numbers to metric systems.
6. Demonstrate knowledge of volumes, pressures, temperatures, weights, and measurements.
7. Demonstrate knowledge of using formulas to measure compression ratios and btu's.
8. Demonstrate knowledge of calculation to estimate service and repair orders.

## C. Course Instructional Schedule

Unit 1	Wk. 1	Basics of Airflow
Unit 2	Wk. 2	Calculating Duct Sizes
Unit 3	Wk. 3-4	Air Quantity and Velocity
Unit 4	Wk. 5	Pressures in a Duct
Unit 5	Wk. 6	Airflow in a Duct and Dynamic Losses
	Wk. 7	Mid-Term
Unit 6	Wk. 8,9,10	Sizing Ductwork
Unit 7	Wk. 11-12	Calculating Pressure Losses in Ductwork
Unit 8	Wk. 13-14	Duct Fittings
Unit 9	Wk. 15	Measuring Airflow
	Wk. 16	Final

- Review exam will be given each week on chapter being studied.
- Homework will be review questions at the end of every chapter.
- No extra credit will be assigned
- Homework will be collected weekly
- 10% loss of credit for late homework 1<sup>st</sup> wk, 20% 2<sup>nd</sup> wk, 30% 3<sup>rd</sup> wk., 40% 4<sup>th</sup> wk., and 50% 5<sup>th</sup> wk.

#### **D. Grading Criteria**

Learning Labs: There are several 'labs' on campus to assist you through the use of computers, tutors, or a combination. Please consult your college map for the Math Lab, Reading & Writing Lab, and Study Skills Center (library). Please speak to the instructor about labs unique to your specific program.

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.

a. Tardiness: 3 tardies equal 1 absence (I.V.C. Gen. Catalog) 2010-2011

b. Absences: (I.V.C. Gen Catalog) 2010-2011

#### **E. Exam and Grading Procedures:**

There will be a mid-term and final exam. Each will be worth 25% of the student's final grade. The student will be evaluated on classroom participation and test each week on chapters that have been assigned and/ or covered in class. These classroom assignments will be worth 25% of the student's grade. The remaining 25% of the student's grade will be based on the student's performance in the lab section of the class. All homework and tests must be completed and delivered to the instructor.

Grading Systems	Percent of Overall Grade
A= 90%-100%	25% Completed Lab Assignments
B= 80%-89%	25% Completed Classroom Assignments
C=70%-79%	25% Midterm Exam
D=60%-69%	25% Final Exam
F= Less than 60%	

Based on Attendance, Homework, Hands On, Test and Final Exam.

#### **F. Students with Disabilities**

Any student with a documented disability who may need educational accommodations should notify the instructor or the Disabled Student Programs & Services (DSP&S) office for assistance as soon as possible.

DSP&S  
Room 2117  
Health Sciences Building  
(760) 355-6312

## **G. Equipment and Supplies**

- a. Textbook  
Leo A. Meyer: "Airflow in Ducts" Lama Books  
ISBN 0-88069-016-X
- b. 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

## **H. Classroom Room Management Procedures**

- 10 minute breaks allowed at professor discretion
- 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.
- 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.
- Please pick up after yourself before leaving room (trash cans in room and outside)

## **I. Harassment Statement**

All forms of harassment are contrary to basic standards of conduct between individuals and are prohibited by state and federal law, as well as this policy, and will not be tolerated. The District is committed to providing and academic and work environment that respects the dignity of individuals and groups. The District shall be free of sexual harassment and all forms of sexual intimidation and exploitation.

The District seeks to foster an environment in which all employees and students feel free to report incidents of harassment without fear of retaliation or reprisal. Therefore, the District also strictly prohibits retaliation against any individual for filing a complaint of harassment or for participating in a harassment investigation. Such conduct is illegal and constitutes a violation of this policy.

(I.V.C. General Catalog 2010-2011)

## **J. Student Counseling and Health Services**

Students have counseling and health services available, provided by the pre-paid Student Health Fee. We now also have a fulltime mental health counselor. For information see <http://www.imperial.edu/students/student-health-center/>. The IVC

Student Health Center is located in the Health Science building in Room 2109, telephone 760-355-6310.

### **K. Student Rights and Responsibilities**

Students have the right to experience a positive learning environment and due process. For further information regarding student rights and responsibilities, please refer to the IVC General Catalog available online at [http://www.imperial.edu/index.php?option=com\\_docman&task=doc\\_download&gid=4516&Itemid=762](http://www.imperial.edu/index.php?option=com_docman&task=doc_download&gid=4516&Itemid=762)

### **L. Information Literacy**

Imperial Students can access tutorials at <http://www.imperial.edu/courses-and-programs/divisions/arts-and-letters/library-department/info-lit-tutorials/> Valley College is dedicated to helping students skillfully discover, evaluate, and use information from all sources.

### **M. Academic Honesty**

- 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 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 School 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. S