

Imperial Valley College  
Industrial Technology Division  
ACR 105 Heat Load Calculation and Measurements  
**Spring 2014**

Instructor: Frank Miranda

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Office Hours:	Monday	10:30 – 11:30 a.m.
	Tuesday	10:30 – 11:30 a.m.
	Friday	8:35-9:35 a.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: 20777

Semester: Spring, January 21, 2014- May 16, 2014

Breaks/Holidays- No Classes Held

See Attach Schedule:

Class: Monday: 6:30 p.m.– 8:35 p.m. Lecture

Location: Room 1101

## 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

- a. Demonstrate knowledge of safety practices required during the measurements/calculation of HVAC Equipment.
- b. Demonstrate knowledge of the techniques for determining heating and cooling loads.
- c. Demonstrate knowledge of calculators to apply mathematical formulas related to HVAC units.
- d. Demonstrate knowledge of readings, tools and test meter measurements.
- e. Demonstrate knowledge of writing, reading, and changing common numbers to metric systems.
- f. Demonstrate knowledge of volumes, pressures, temperatures, weights, and measurements.
- g. Demonstrate knowledge of using formulas to measure compression ratios and btu's.
- h. 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

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

- 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. Student Learning Outcome**

I.V.C. as an institution has adapted five Student Learning Outcome (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 responsibilities
4. information literacy
5. global awareness

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

The use of cell phones is prohibited during instruction time,

10 minute breaks allowed at professor discretion,

Tardiness and early departure is loss of credits.

Call-in if absence or tardy 2 hours before class time.

Please pick up after yourself before leaving room (trash cans in room and outside)

Safety rules and other procedures are found in the I.V.C. Gen. Cat. 2010-2011

## **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. Resources, Library, Counseling, Parking, etc.**

Refer to the I.V.C. Gen. Cat. 2010 - 2011

## **K. Equipment and Supplies**

### **a. Textbook**

Leo A. Meyer: "Airflow in Ducts" Lama Books

ISBN 0-88069-016-X