

Imperial Valley College  
Industrial Technology Division  
ACR 106 Air Conditioning Ventilation Duct Systems  
**Spring 2013**

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

Semester: Spring 2013, January, 14 – May 10, 2013

Credits/Units: 2 Lecture Hours & 3 Lab Hours (3 Units)

CRN: 20569

Class:	Monday:	1:30 – 3:30 p.m.	Lecture
	Thursday:	1:30 – 4:40 p.m.	Lab

Location: Room 1101

**A. Course Description**

Recommended Preparation: Completion of ACR 105, with a grade of “C” or better.

This is a course of study covering duct systems used in the heating, ventilation, air conditioning, and refrigeration industry. This course is comprised of the study of designing duct systems, materials, layout procedures, shop and hand tools, sheet metal ducts and components, duct board and flex duct components, and safety practices.

## B. Course Objective

- a. Demonstrate competency and mastery of the body-of-knowledge in employee responsibilities within the HVAC/R Industry.
- b. Demonstrate knowledge of designing HVAC/R duct systems.
- c. Demonstrate knowledge of duct materials.
- d. Demonstrate knowledge of layout procedures for duct components.
- e. Demonstrate knowledge of sheet metal ducts and components.
- f. Demonstrate knowledge of duct board and flex duct components.
- g. Demonstrate knowledge of safety practices required during the installation of HVAC/R duct systems.

## C. Course Instructional Schedule

Wk. 1 - 2	Unit 1	Layingout Patterns
Wk. 3	Unit 2	Making Connections
Wk. 4	Unit 3	Triangulation
Wk.5	Unit 4	Rectangular Transitions
Wk. 6	Unit 5	S Offsets
Wk. 7	Unit 6	Rectangular Duct Elbows
Wk. 8		<b>MID-TERM</b>
Wk. 9	Unit 7	Square-to-Rounds
Wk. 10	Unit 8	Round Tapers
Wk. 11	Unit 9	Round Tees
Wk. 12	Unit 10	Round Elbows
Wk. 13		Roof Elbows
Wk. 14		Flex Duct
Wk. 15		Duct Board
Wk. 16		<b>FINAL</b>

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 an 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: "Layout for duct Fittings" Lama Books  
ISBN 0-88069-028-3
- 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