HOUSTON COMMUNITY COLLEGE

Construction Industry & Manufacturing
https://www.hccs.edu/programs/areas-of-study/construction-industry--manufacturing/

HART 1341: Residential Air Conditioning | Lecture/Lab | #10297

Summer 2024 | 8 Weeks (6.3.2024-7.26.2024)
Hybrid/Lab | HCC Online S Campus WLGH Rm 141 | TTH 8:00 a.m.-10:20 a.m.
3 Credit Hours | 80 hours per semester

Instructor Contact Information

Instructor:	Armando R. Villanueva	**Office Phone:**	713-718-5284
Office:	SE Campus PRKG Room 108	**Office Hours:**	M-R 9:30-10:45 a.m.
HCC Email:	Armando.villanueva@hccs.edu	**Office Location:**	SE Campus PRKG Room 108

Please feel free to contact me concerning any problems that you are experiencing in this course. Your performance in my class is very important to me. I am available to hear your concerns and just to discuss course topics.

Instructor's Preferred Method of Contact

I will respond to emails within 24 hours Monday through Friday; I will reply to weekend messages on Monday mornings.

What's Exciting About This Course

In this course you will study the components, applications, and installation of mechanical air conditioning systems including operating conditions, troubleshooting, repair, and charging of air conditioning systems.

My Personal Welcome

Welcome to the Residential air conditioning course. There is a high demand for qualified HVAC/R technicians in the city and surrounding communities. The industry is growing in high technology using the basic skills necessary for career growth and opportunities. Your understanding of the HVAC/R skills is necessary for development and a prosperous life in the industry.

Prerequisites and/or Co-Requisites

- HART 1301 (with a "D" or better)
- HART 1303 (with a "D" or better)
- HART 1307 (with a "D" or better)
- Or may co-enroll in HART 1303 & 1307 as co-requisites.

Eagle Online Canvas Learning Management System

This section of HART 1341 will use Eagle Online Canvas (https://eagleonline.hccs.edu) to supplement in-class assignments, exams, and activities.
When students are able to manage time and assignments in CANVAS, it demonstrates to industry the ability to work with little or no supervision
HCCS Open Lab locations may be used to access the Internet and Eagle Online Canvas. It is recommended that you **USE FIREFOX OR CHROME AS YOUR BROWSER**.

HCC Online Information and Policies

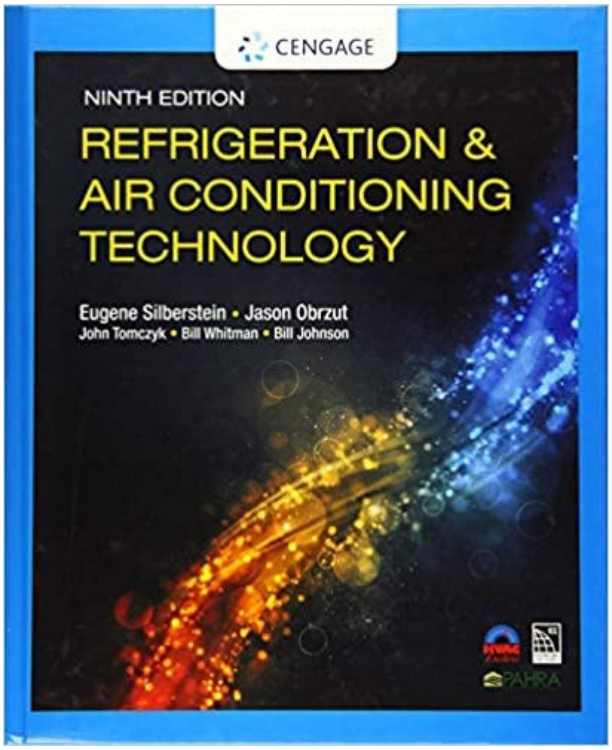
Here is the link to information about HCC Online classes including the required Online Orientation for all fully online classes: http://www.hccs.edu/online/

Scoring Rubrics, Sample Assignments, etc.

Look in Eagle Online Canvas for the scoring rubrics for assignments, samples of class assignments, and other information to assist you in the course.
https://eagleonline.hccs.edu/login/ldap

Instructional Materials

Textbook Information



Required:
Refrigeration and Air Conditioning Technology
Eugene Silberstein/Jason Obrzut/John Tomczyk/Bill Whitman/Bill Johnson

9th Edition
ISBN-13: 9780357122273
It is included in a package that contains the text as well as an access code and are found at the HCC Bookstore. You may either use a hard copy of the book, or rent the e-book from Pearson. Order your book here: HCC Bookstore

Temporary Free Access to E-Book

Here is the link to get temporary free access to a digital version of the text for fourteen days:
N/A

Other Instructional Resources

Publisher's Digital Workbook

https://www.cengage.com/student/

IMPORTANT:
Please have the student contact the Tutoring Call Center to schedule a session at (713) 718 - 8184.

Monday: 5pm – 8pm
Wednesday: 5pm – 8pm
Thursday: 4pm – 8pm
Saturday: 9am – 2pm

The subject(s)/software(s) I will tutor:
AutoCAD, Revit, Technical Drafting, Math up to Intermediate Algebra.
No: Survey Classes (SRVY 1301), MicroStation, Sketch-Up, Adobe PhotoShop / Illustrator, Lumion / Enscape.

Have an E X C E L L E N T Fall 2023 semester! I look forward to assisting your students succeed in their education!

**Please share this email with anyone that would benefit from these 1-on-1/group learning sessions.*
*Also: The email that is in this string also includes my good friend who is also an excellent tutor himself, Mr. Jesus Perez (Stafford Campus).

Tutoring

HCC provides free, confidential, and convenient academic support, including writing critiques, to HCC students in an online environment and on campus. Tutoring is provided by HCC personnel in order to ensure that it is contextual and appropriate. Visit the HCC Tutoring Services website for services provided.

Libraries

The HCC Library System consists of 9 libraries and 6 Electronic Resource Centers (ERCs) that are inviting places to study and collaborate on projects. Librarians are available both at the libraries and online to show you how to locate and use the resources you need. The libraries maintain a large selection of electronic resources as well as collections of books, magazines, newspapers, and audiovisual materials. The portal to all libraries' resources and services is the HCCS library web page at http://library.hccs.edu.

Supplementary Instruction

Supplemental Instruction is an academic enrichment and support program that uses peer-assisted study sessions to improve student retention and success in historically difficult

courses. Peer Support is provided by students who have already succeeded in completion of the specified course, and who earned a grade of A or B. Find details at http://www.hccs.edu/resources-for/current-students/supplemental-instruction/.

Course Overview

In this course you will study the components, applications, and installation of mechanical air conditioning systems including operating conditions, troubleshooting, repair, and charging of air conditioning systems

Core Curriculum Objectives (CCOs)

Identify various types of system applications; perform charging, recovery, and evacuation procedures of an installed system; perform component and part diagnostics and replacement; and perform system maintenance.

Program Student Learning Outcomes (PSLOs)

Can be found at:
https://www.hccs.edu/programs/areas-of-study/construction-industry--manufacturing/heating-air-conditioning--refrigeration/

Course Student Learning Outcomes (CSLOs)

Upon completion of this course you should be able to;

1. Identify high and low voltage power supplies and controls of an air conditioning system.
2. Understand pressure temperature relationships.
3. Analyze a complete mechanical refrigeration system.
4. Test system performance and properly diagnose a refrigeration system.

Learning Objectives

In this course, instructions are as follows.

1. Identify high and low voltage power supplies and controls of an air conditioning system.
    a. Construct power supply to both high voltage and control voltage connections for an air conditioning system.
2. understand pressure temperature relationships.
    a. Learn to interpret pressure and temperature of refrigerants and to identify appropriate refrigerants for various air conditioning systems.
3. Analyze a complete mechanical refrigeration system.
    a. Identify four major refrigeration system components, create a sketch of the refrigeration cycle of a mechanical system and explain the function of each component.
4. Test system performance and properly diagnose refrigeration system.
    a. Memorize refrigerant flow of refrigeration cycle and record pressure and temperature of a refrigeration system.

Student Success

Expect to spend at least twice as many hours per week outside of class as you do in class studying the course content. Additional time will be required for written assignments. The

assignments provided will help you use your study hours wisely. Successful completion of this course requires a combination of the following:

- Reading the textbook
- Attending class in person and/or online
- Completing assignments
- Participating in class activities

There is no shortcut for success in this course; it requires reading (and probably re-reading) and studying the material using the course objectives as your guide.

Instructor and Student Responsibilities

As your Instructor, it is my responsibility to**:**

- Provide the grading scale and detailed grading formula explaining how student grades are to be derived.
- Facilitate an effective learning environment through learner-centered instructional techniques.
- Provide a description of any special projects or assignments.
- Inform students of policies such as attendance, withdrawal, tardiness, and make up
- Provide the course outline and class calendar which will include a description of any special projects or assignments.
- Arrange to meet with individual students before and after class as required.

As a student, it is your responsibility to**:**

- Attend class in person and/or online.
- Participate actively by reviewing course material, interacting with classmates, and responding promptly in your communication with me.
- Read and comprehend the textbook.
- Complete the required assignments and exams.
- Ask for help when there is a question or problem.
- Keep copies of all paperwork, including this syllabus, handouts, and all assignments
- Attain a raw score of at least 50% on the departmental final exam.
- Be aware of and comply with academic honesty policies in the HCCS Student Handbook

Assignments, Exams, and Activities

Written Assignment, Exams, In-Class Activities, Final Exam

Assessments will be administered to determine understanding and comprehension of the course and to determine an appropriate grade. National Center for Construction Education and Research (NCCER) assessments may be administered, as applicable.

Written Assignments.

All students may be required to participate in a written assignment that will be linked to the course student learning outcomes and learning objectives.

Exams.

All students will participate in exams linked to the assigned textbooks for this class. The exams are linked to the course student learning outcomes and learning objectives.

In-class Activities.

All students will take an active part in all activities, projects, etc. and will be graded on the participation.

Final Exam.

All students will participate in the Final Exam at the end of the semester. Any rescheduling of the Final Exam must be approved prior to the testing date.

Grading Formula

Student Evaluation Policies/Grading Scales

Class Participation	220	22%
Assignments	240	24%
Exam 1	120	12%
Exam 2	120	12%
Midterm Examination	150	15%
Final Examination	150	15%
Total Possible Points	1000 -	
Total Percentage		- 100%

Grade	Total Points
A	90-100 **Excellent**
B	80-89 **Good**
C	70-79 **Fair**
D	60-69 **Passing**
F	<60 **Failing**
FX	**Failing due to non-attendance**
IP	**In Progress**
W	**Withdrawn**
I	**Incomplete**
AUD	**Audit**
IP	**In Progress. Given only certain developmental course. A student must re-enroll to receive credit.**
COM	**Completed. Given in non-credit and continuing education courses.**

HCC Grading Scale can be found on this site under Academic Information:
http://www.hccs.edu/resources-for/current-students/student-handbook/

Course Calendar

Week	Topic/What's due
1	Syllabus Unit 14: Automatic Control Components and Applications
2	Unit 34: Indoor Air Quality Exam 1
3	Unit 35: Comforts and Psychometrics
4	Unit 36: Refrigeration Applied to Air Conditioning Mid-Term Exam
5	Unit 37: Air Distribution and Balance
6	Unit 40: Typical Operating Conditions Exam 2
7	Unit 41: Troubleshooting
8	Final Exam & Review

Syllabus Modifications
The instructor reserves the right to modify the syllabus at any time during the semester and will promptly notify students in writing, typically by e-mail, of any such changes.

Instructor's Practices and Procedures

Missed Assignments
Any missed assignment can be accepted at a later date provided that the instructor is aware of your situation for missed assignments. Only on a one–to-one basis will make-up work be considered. No make-up assignment will be accepted without the knowledge of the instructor. It is NOT acceptable to have a "makeup" for exams. If approved by the instructor makeups may be accompanied by a late-work penalty. If approved by the instructor, documentation is necessary of an emergency to allow a make-up within 24 hours. Let it be known that a make-up exam is not a retake. That is, make-up exams are allowed only for missed exams. Makeup assignments are typically not available. Missed assignments are addressed on a case-by-case basis. Communicating with the instructor is important, especially if you miss a class.

Academic Integrity
All students in this class will be expected to conduct themselves in accordance with HCC academic integrity. Failure to abide by the HCC Academic integrity policies and procedures such as cheating, plagiarism, collusion, etc. will result in severe consequences. Scholastic Dishonesty will result in a referral to the Dean of Student Services. See the link below for details.

Here's the link to the HCC information about academic integrity (Scholastic Dishonesty and Violation of Academic Scholastic Dishonesty and Grievance):
http://www.hccs.edu/about-hcc/procedures/student-rights-policies--procedures/student-procedures/

Attendance Procedures
The HCC attendance policy should be abided by all students. Students are encouraged to get information from the class Syllabus on what will be covered or from a colleague. HCC is concerned about student success. Expect an "early alert" to be issued if there is excessive absenteeism.

Student Conduct
Students are expected to always abide by all HCC policies. Mutual respect is expected in the classroom. Failure to abide by the HCC policies will result in severe consequences that will be implemented for disruptive behavior.

Instructor's Course-Specific Information (As Needed)
Any questions concerning this course must be communicated to the instructor on a one-to-one basis. For example, include a student's grading policy describing when students can expect grades and feedback after they submit coursework.

Electronic Devices

Electronic can disrupt the learning environment. Do **not** use electronic devices while class is in session. Breaks are typically provided. In the event of an emergency, please exit the classroom if you must conduct business or tend to a personal matter using an electronic device. Calculators are permitted in the classroom, a cellular/mobile phone is **NOT** allowed to be used as a calculator.

Architecture Design & Construction Information

https://www.hccs.edu/programs/areas-of-study/construction-industry--manufacturing/

HCC Policies

Here's the link to the HCC Student Handbook http://www.hccs.edu/resources-for/current-students/student-handbook/ In it you will find information about the following:

Academic Information	Incomplete Grades
Academic Support	International Student Services
Attendance, Repeating Courses, and Withdrawal	Health Awareness
Career Planning and Job Search	Libraries/Bookstore
Childcare	Police Services & Campus Safety
disAbility Support Services	Student Life at HCC
Electronic Devices	Student Rights and Responsibilities
Equal Educational Opportunity	Student Services
Financial Aid TV (FATV)	Testing
General Student Complaints	Transfer Planning
Grade of FX	Veteran Services

EGLS^3

The EGLS^3 (Evaluation for Greater Learning Student Survey System) will be available for most courses near the end of the term until finals start. This brief survey will give invaluable information to your faculty about their teaching. Results are anonymous and will be available to faculty and division chairs after the end of the term. EGLS^3 surveys are only available for the Fall and Spring semesters. -EGLS3 surveys are not offered during the Summer semester due to logistical constraints.
http://www.hccs.edu/resources-for/current-students/egls3-evaluate-your-professors/

Campus Carry Link

Here's the link to the HCC information about Campus Carry:
http://www.hccs.edu/departments/police/campus-carry/

HCC Email Policy

When communicating via email, HCC requires students to communicate only through the HCC email system to protect your privacy. If you have not activated your HCC student email account, you can go to HCC Eagle ID and activate it now. You may also use Canvas Inbox to communicate.

Housing and Food Assistance for Students

Any student who faces challenges securing their foods or housing and believes this may affect their performance in the course is urged to contact the Dean of Students at their

college for support. Furthermore, please notify the professor if you are comfortable in doing so.

This will enable HCC to provide any resources that HCC may possess.

Office of Institutional Equity

Use the link below to access the HCC Office of Institutional Equity, Inclusion, and Engagement (http://www.hccs.edu/departments/institutional-equity/)

disAbility Services

HCC strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please meet with a campus Abilities Counselor as soon as possible in order to establish reasonable accommodations. Reasonable accommodations are established through an interactive process between you, your instructor(s) and Ability Services. It is the policy and practice of HCC to create inclusive and accessible learning environments consistent with federal and state law. For more information, please go to http://www.hccs.edu/support-services/disability-services/

Title IX

Houston Community College is committed to cultivating an environment free from inappropriate conduct of a sexual or gender-based nature including sex discrimination, sexual assault, sexual harassment, and sexual violence. Sex discrimination includes all forms of sexual and gender-based misconduct and violates an individual's fundamental rights and personal dignity. Title IX prohibits discrimination on the basis of sex-including pregnancy and parental status in educational programs and activities. If you require an accommodation due to pregnancy please contact an Abilities Services Counselor. The Director of EEO/Compliance is designated as the Title IX Coordinator and Section 504 Coordinator. All inquiries concerning HCC policies, compliance with applicable laws, statutes, and regulations (such as Title VI, Title IX, and Section 504), and complaints may be directed to:

David Cross
Director EEO/Compliance
Office of Institutional Equity & Diversity
3100 Main
(713) 718-8271
Houston, TX 77266-7517 or Institutional.Equity@hccs.edu
http://www.hccs.edu/departments/institutional-equity/title-ix-know-your-rights/

Office of the Dean of Students

Contact the office of the Dean of Students to seek assistance in determining the correct complaint procedure to follow or to identify the appropriate academic dean or supervisor for informal resolution of complaints.

https://www.hccs.edu/about-hcc/procedures/student-rights-policies--procedures/student-complaints/speak-with-the-dean-of-students/

Department Chair Contact Information

Aurelio Jesus Aguilar Interim Department Chair
aurelio.aguilar@hccs.edu