Brazosport College
500 College Drive
Lake Jackson, Texas 77566

HART 2441
COMMERCIAL AIR CONDITIONING

COURSE DESCRIPTION

The study of refrigeration principles and procedures as pertains to commercial rooftop units, chillers, and cooling towers.

PREREQUISITES

HART 1410, HART 1401, and HART 1407

COURSE GOALS

1. Student will apply and describe the sequence of operation for commercial air conditioning systems and their accessories
2. Student will use gages, multi-meters, thermometers and formulas to determine the cooling and heating capacities of roof top units.
3. Student will operate unit in heating and cooling mode and use pressure-temperature measurements to determine capacities.
4. Student will identify components relative to commercial air conditioning.
5. Student will Explain energy efficient and renewable energy technologies.
6. Student will use readings from fresh and exhaust air to determine the amount of energy saved with the use of ERV units.
7. Student will construct a pictorial diagram of a hot water system and develop a maintenance checklist for it.
8. Student will compare piping methods and terminal units to determine the optimum system for a commercial application.

INSTRUCTOR INFORMATION

Brandon Taylor

E-mail brandon.taylor@brazosport.edu

Adjunct teachers will give individual information. Students can contact Mr. Cady about any HART class they will miss.

TEXT AND REFERENCES

- Whitman/Johnson. Refrigeration and Air Conditioning Technology, Delmar Publisher, Inc., ISBN-13: 978-1-111-64447-5
- "Required course materials are available at the Brazosport College bookstore, on campus or online at http://www.brazosport.edu/bookstore. A student of this institution is not under any obligation to purchase a textbook from the college bookstore. The same textbook is/may also be available from an independent retailer, including an online retailer."

National Center for Construction Education and Research. Wheels of Learning, 2013

Modules: HART 2441
03305 -13 Commercial Hydronic Systems
03306-13 Steam Systems
03308-13 Water Treatment
03406-13 System Start-up and Shutdown

LABS:

Each class period consists of a lecture session followed by a laboratory session. All students are expected to attend all labs unless excused by the teacher.

1. Labs are very important part of the learning process. The hands-on practical experience is important in order to be successfully employed in this field.
2. If you leave the lab class before completing the whole lab assignment, you will receive a zero for that night. You do not earn half credit for half a lab. Your instructor must sign off on your lab work before you are dismissed.

STUDENTS WITH DISABILITIES

BC is committed to providing equal education opportunities to every student. BC offers services for individuals with special needs and capabilities including counseling, tutoring, equipment, and software to assist students with special needs. Please contact Phil Robertson, Special Populations Counselor, 979-230-3236 for further information.

ACADEMIC HONESTY

BC assumes that students eligible to perform on the college level are familiar with The ordinary rules governing proper conduct including academic honesty. The principle of academic honesty is that all work presented by you is yours alone. Academic dishonesty including, but not limited to, cheating, plagiarism, and collusion shall be treated appropriately. Please refer to the BC Guide for more information, this is available online at http://www.brazosport.edu, click on the link on the left side of the homepage.

Academic dishonesty violates both the policies of this course and the Student Code of Conduct. In this class, any occurrence of academic dishonesty will be referred to the Dean of Student Services for prompt adjudication, and may, at a minimum, result in ____C_____ in this course. Sanctions may be imposed beyond your grade in this course by the Dean of Student Services.

ATTENDANCE AND WITHDRAWAL POLICES

1. Students who call in due to working late, illness, or other legitimate reasons may receive an excused absence. However an excessive amount of any absences can result in a poor grade or withdrawal from the class. Any unexcused absence will result in zero points for attendance and lab for that class period. Call Dave Cady @ 230-3360
2. If a student has three or more absences of any kind in the class, the instructor may withdraw the student from the class due to excessive absences, in which case the student will receive a "W" as his/her grade for the course. If the student feels that he has justification of the absences, he may appeal to the instructor for reinstatement. The instructor will give the student a "W" if the student contacts the instructor and asks him to withdraw him/her. Dropping the class to get a "W" instead of an "F" is the responsibility of the student, not the instructor.
3. If the student finds that he/she will not be able to finish the class, for whatever reason, he/she must officially withdraw before the withdrawal deadline. If the student does this, the student will receive a "W" on his/her transcript; if the student does not do this, he/she will receive an "F" on his/her transcript.

All students shall be aware that the state of Texas mandates that any person working in certain heating, air conditioning and refrigeration occupations is required to purchase a Technician Registration License. This license includes a background check and an individual who has been convicted of a criminal offence may be denied this license.

GRADING

Each course will have a total of 1000 points.
Attendance will count for 200 points or 20% of your grade.
Lab work will count for 300 points or 30% of your grade
Test, quizzes, and papers will count for 300 points of 30% of your grade
The final exam counts for 200 points or 20% of your grade

The final grade will be determined accordingly:

Attendance- 20%
Lab work -30%
Test, quizzes, papers- 30%
Final Exam- 20%

Letter Grade Guidelines:
100-90 = A
89-80 = B
79-70 = C
69-60 = D
59-0 = F

TESTS

There will be 3 major tests during this course, with a review for each test in the previous class period. The final will be given on the last day of class. The review and tests date will be shown on a separate syllabus.

MAKE-UP POLICY

Students who miss tests, assignments, or labs will be responsible for contacting the teacher to schedule a make-up time.

STUDENT RESPONSIBILITIES

Students are expected to fully participate in the course. The following criteria are intended to assist you in being successful in this course.

a. Time Management
b. Understanding the Syllabus Requirements
c. Utilizing Online Components (such as WebCT0
d. Communicating with the Instructor
e. Completing Course Work.

HART 2441 Commercial AC Course Summary

- Run operation tests on commercial roof top units with gas and electric heating systems
- Make diagram of a basic water chilled system and detail the function of each component
- Make a diagram of cooling tower system and detail the function of each component
- Make diagram of commercial boiler system and detail the function of each component
- Compare the types of piping distribution systems used with hot water, chilled water, and dual temperature water systems
- Complete all troubleshooting exercises on air conditioning units in the lab.

Get the information you need – when you need it. Click http://geni.us/BRAZO to install **BC Connect** on your mobile device to receive reminders, explore careers, map your educational plan, be in the know about events, find out about scholarships, achieve your goals and much more.

Title IX Statement (Just copy and paste the following):

Brazosport College faculty and staff are committed to supporting students and upholding the College District's non-discrimination policy. Under Title IX and Brazosport College's policy FFDA (Local), discrimination based on sex, gender, sexual orientation, gender identity, and gender expression is prohibited. If you experience an incident of discrimination, we encourage you to report it. While you may talk to a faculty or staff member at BC, please understand that they are "Responsible Employees" and must report what you tell them to college officials. You can also contact the Title IX Coordinators directly by using the contact information below. Additional information is found on the Sexual Misconduct webpage at www.brazosport.edu/sexualmisconduct.
Kelli Forde Spiers, Director, Student Life and Title IX CoordinatorOffice J117D;979-230-3355; kelli.fordespiers@brazosport.edu

Commercial Air Conditioning
Hart 2441
Instructor: Brandon Taylor
Phone: 230-3360

Week 1	Orientation
Week 2	Unit 50 Commercial Rooftop Systems
Week 3	Unit 47 Chilled Water Systems
Week 4	Unit 47 Chilled Water Systems
Week 5	Module 3305-13 Commercial Hydronic Systems
	Review for TEST
Week 6	TEST on Unit 47
	Unit 48 Cooling towers and pumps
Week 7	Unit 48 Cooling towers and pumps
Week 8	Module 3308-13 Water treatment
	Review for TEST
Week 9	TEST on Unit 48
	Unit 49 O.M.T. of Chilled Systems
Week 10	Unit 49 O.M.T. of Chilled Systems
Week 11	Module 3406-13 System Start up and shut down
	Review for TEST
Week 12	TEST on Unit 49
	Module 3406-13 System Start up and shut down
Week 13	3 Module 306-13 Steam Systems
Week 14	Module 3306-13 Steam Systems
Week 15	Review for Final TEST
Week 16	Final TEST