M.E. Rinker, Sr. School of Building Construction
University of Florida

BCN 4510 **Mechanical Systems** 4 Credits

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Prerequisites: PHY 2005, PHY 2005L, BCN 3521

Description: Principles and practices of year-round air conditioning for the building contractor will be explored. Basic design principles and problems will be presented with emphasis on considerations of concern to the general contractor.

Keywords: Mechanical Systems, Heating and Cooling Calculations, Air Distribution Systems

Method: 4 lecture hours and 1 laboratory hour per week

Objective: This course includes heating and cooling load analysis; psychrometrics; fan and system curves; equipment sizing, selection and location; reading mechanical drawings; air handling systems; refrigeration system fundamentals; and plumbing.

Student Learning Outcomes:

1. Identify conditions that constitute a comfortable environment, (PL 1, ACCE SLO 10).
2. Demonstrate knowledge of residential and commercial plumbing systems, (PL 1, ACCE SLO 10).
3. Explain the components and operation of direct expansion and chilled water equipment (PL 1, ACCE SLO 10).
4. Locate the properties of air with a psychrometric chart , (PL 1, ACCE SLO 10).
5. Understand the operation of air distribution systems and be able to interpret and extract information from codes and standards. (PL 1, ACCE SLO 10).
6. Interpret mechanical specifications, drawings and submittals (PL 1, ACCE SLO 7. Discuss energy efficiency measures to reduce a building's heating and cooling load (PL 1, ACCE SLO 11).

Required Texts: Mechanical and Electrical Systems in Buildings, by Richard R. Janis and William K.Y. Tao, Perason Prentice Hall Publishers, latest edition

Suggested References: Environmental Systems Technology, by W. David Bevirt, National Environmental Balancing Bureau, 1991.

ASSESSMENT METHODS

Assessment	SLO 1	SLO 2	SLO 3	SLO 4	SLO 5	SLO 6	SLO 7
Test 1	X						
Test 2			X				
Test 3				X			
Test 4					X		
Test 5							X
Submittal Lab		X				X	

Assessment	Target
Tests	At least 80% receive a grade of B- or better
Lab	Successful completion of 90% of lab questions

Grading Policy

Grades for this course will be determined by a combination of exams and labs. No late assignments will be accepted. There will be no make-up work provided, unless there is a documented medical emergency. Please keep in contact with the Course Instructor through the e-Learning email system about anticipated conflicts with submitting work in a timely manner. Flexibility is much more feasible prior to submission deadlines than after the fact.

Grading System

5 tests @ 180 points each	= 900 points
Lab attendance: 10 labs @ 10 points each	= 100 points
Total	1000 points

Grading

Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E
Numeric points	930-1000	900-929.9	870-899.9	830-869.9	800-829.9	770-799.9	730-769.9	700-729.9	670-699.9	630-669.9	600-629.9	0-599
Quality Points	4.0	3.67	3.33	3.0	2.67	2.33	2.0	1.67	1.33	1.0	0.67	0.0

Canvas

This course utilizes Canvas as a repository for all course material including lecture notes, homework, and grades. It is the student's responsibility to take advantage of the university resources to learn how to utilize Canvas.

Counseling

The University of Florida maintains extensive counseling facilities for students. Resources are available at http://www.counseling.ufl.edu/cwc/ . The instructor recommends that you visit this web-site to become acquainted with the range of services available.

Honor Code and Academic Honesty

https://catalog.ufl.edu/ugrad/current/advising/info/student-honor-code.aspx

Students with Disabilities:

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. **It is the responsibility of the student to contact the Course Instructor via e-Learning indicating special needs assistance AT THE BEGINNING OF THE SEMESTER**. 0001 Reid Hall, 392-8565, https://www.dso.ufl.edu/drc/

Course Evaluation:

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.