

1. Department, number and title of course:

Mechanical and Aerospace Engineering, EML 4737, section 75B2

Hydronics and Pneumatics for Building Systems

Instructor: Kurt Schulze, Ph.D, P.E., Room NEB 231

Work Phone: 392-9929, email address: schulzek@ufl.edu

Email noted above is the preferred method to contact me or through Canvas.

Office hours: TBA

This will be an online course. It will be taught via Zoom during the schedule class periods of Monday, Wednesday, Friday, 12:30-1:45 PM. The Zoom lectures will be synchronous and recorded so you can view at your convenience. It my intent to teach in it's original format which was a mix of PowerPoint and blackboard (or whiteboard) presentations.

TA: Sourabh Kakade. (Please contact through the Canvas website)

2. Course(catalog)Description: Credits 3, EML 4737, Summer C 2020, Prereq: EML 3100. This course is set up to provide senior level engineering students with advanced coverage of the applications, design, maintenance and operation of various pneumatic, hydronic and other mechanical systems typically used in buildings.

3. Textbooks(s) and /or other required material:

- a. Title: *None required*
- b. Supplemental reading materials:

. ASHRAE Handbooks, Fundamentals and Systems Handbooks, American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc. 1791 Tullie Circle, NE, Atlanta, GA, current publications.

Cameron Hydraulic Data, 17 Ed., Ingersoll Rand, Woodcliff Lake, N. J., 1988.

Process Instruments and Controls Handbook, Second Ed., Considine, Douglas M. Editor in Chief, McGraw-Hill Book Company, New York, 1974.

Kinzey, Bertram Y. Jr. and Howard M. Sharp, Environmental Technologies in Architecture, Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1963.

Schneider, Raymond K., HVAC Control Systems, John Wiley & Sons, New York, 1981.

ASPE DataBook, American Society of Plumbing Engineers, 3617 Thousand Oaks Blvd., Westlake Village, CA, current publications.

Various industrial design manuals from different manufacturers of system components.

4. Course objectives:

This course is set up to provide senior level engineering students with advanced coverage of the applications, design, maintenance and operation of various pneumatic, hydronic and other mechanical systems typically used in buildings. Woven throughout the course are in-depth design concepts and techniques. The course also covers the preparation of specifications, cost estimating and life cycle cost analysis for the various systems. During the course, the student will develop resources and skills that will have direct application in the design of building infrastructure systems.

5. Topics covered:

Week of	Topics Covered	Comments
May 11	Introduction Life Cycle Costing and Methods Cost Estimating Methods; Psychrometric Analyzer	
May 18	Ductwork Sizing, Fans/Blowers Ductwork Design Fan Sizing and Selection	
May 15	Review of Vapor Compression Cycles Chilled Water Pipe Sizing	May 27 is a holiday
June 1	Cooling Water Pipe Sizing Heating Hot Water Pipe Sizing Pump Sizing and Selection	
June 8	Steam and Condensate Pipe Sizing Steam/Condensate System Design Boiler Sizing and Selection	
June 15	Water Treatment for Hydronic and Steam Systems Review for Exam No. 1 on Wednesday	Exam No. 1
June 11	Summer Break	
June 29	Pneumatic System Design (motive and controls) Medical Gas Piping Design	July 3 is a holiday
July 6	Medical Gas Piping Design	

	Fuel Gas Piping Design Fuel Oil Piping Design	
July 13	Filtration Systems	
July 20	Domestic Water Systems Sanitary, Soil, Waste and Vent Systems Design and Specification	
July 27	Fire Protection Systems Design and Specification	
Aug 3	Review for Exam No. 2	Exam No. 2 this week
		Classes end August 10

Grading Policy

All exams will be open book

Homework	50%	Homeworks matter!
Exam No. 1	25%	
Exam No. 2	25%	

Grading Scale: 96-100 A, 91-95 A-, 86-90 B+, 81-85 B, 76-80 B-, 71-75 C+, 66-70 C, 61-65 C-, 56-60 D+, 51-55 D, 46-50 D-

Homework submittals are due as noted on the assignment and will be submitted via Canvas. No late homework will be accepted without prior arrangement or medical excuse. Collaboration on homework is encouraged to the extent that principles and solution methods are discussed. Exams will be announced at least two weeks in advance and will be given during the schedule class period. Questions concerning grading of an assignment or exam shall be brought to the attention of the instructor or T/A within 7 days of the score being posted to be considered.

6. **Honorlock will proctor your exams this semester.** Honorlock is an online proctoring service that allows you to take your exam from the comfort of your home. You **DO NOT** need to create an account, download software or schedule an appointment in advance. Honorlock is available 24/7 and all that is needed is a computer, a working webcam, and a stable Internet connection.

To get started, you will need Google Chrome and to download the Honorlock Chrome Extension. You can download the extension at www.honorlock.com/extension/install.

When you are ready to test, log into the LMS, go to your course, and click on your exam. Clicking **Launch Proctoring** will begin the Honorlock authentication process, where you will take a picture of yourself, show your ID, and complete a scan of your room. Honorlock will be recording

your exam session by webcam as well as recording your screen. Honorlock also has an integrity algorithm that can detect search-engine use, so please do not attempt to search for answers, even if it's on a secondary device.

Good luck! Honorlock support is available 24/7/365. If you encounter any issues, you may contact us by live chat, phone (**844-243-2500**), and/or email (support@honorlock.com).

If you encounter issues within the LMS, you may contact Your School's Online Support Services team at their number.

7. Honesty Policy – All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a UF student and to be honest in all work submitted and exams taken in this course and all others
8. Accommodation for Students with Disabilities – Students Requesting classroom accommodation must first register with the Dean of Students Office. That office will provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.
9. UF Counseling Services – Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:
 - University Counseling Center, 301 Peabody Hall, 392-1575, Personal and Career Counseling.
 - SHCC mental Health, Student Health Care Center, 392-1171, Personal and Counseling.
 - Center for Sexual Assault/Abuse Recovery and Education (CARE), Student Health Care Center, 392-1161, sexual assault counseling.
 - Career Resource Center, Reitz Union, 392-1601, career development assistance and counseling.
10. Software Use – All faculty, staff and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.
11. Course Evaluation: Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu/evals>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.
12. Class Demeanor, ***if we were on campus*** — Class is started on time. On many occasions, notes have already been placed on the board to expedite starting time. Students are

expected to be on time or early. Engineers are expected to be on time for meetings and this is an excellent habit to cultivate! Turn off cell phones, etc, before coming into class.