ARC 334L: Environmental Controls II
Instructor: Michael Garrison
Spring 2019, (3 hours credit)

Course Description
Environmental Controls II considers the application of the thermal environment, the issues of daylighting, vertical transportation systems, water systems, and the application of the fire code and, to integrate these systems into the form making process of architectural design.

Course Goals and Objectives
1. Required fire protection and fire exits.
2. Review of elevator specifications.
3. Sizing heating, venting and air conditioning systems.
4. Servicing the water needs of plumbing.

Student Performance Criterion/addressed
1. Determine building environmental controls needs for fostering comfort and performance requirements.
2. To suggest building strategies to satisfy these needs.
3. To synthesize building solutions and environmental control schemes that promote the design of efficient buildings.
4. To analytically and physically evaluate the performance of their environmental control decisions.

Topical Outline

A.	LEED Case Studies	1 week
B.	Resources	1 week
C.	Building Envelope	1 week
D.	Fire Code	1 week
E.	Elevators	1 week
F.	Heating & Cooling	1 week
G.	Daylighting and Glazing	1 week
H.	Heat transfer	2 weeks
I.	HVAC Case Studies	1 week
J.	HVAC System Analysis	3 weeks
K.	Plumbing	1 week
L.	Solid waste & IAQ	1 week

Prerequisites
Arc 310K, Arc 310L, M408C, Phy 302K, Phy 102M, Arc 320K, Phy 302L, Phy 102N, Arc 415K, Arc 415L, Arc 520L, Arc 520M, Arc 435K, Arc 334K

Textbook:
Mechanical and Electrical Equipment for Buildings, 12th Edition,
By Grondzik, Kwok, Wiley Sons, New York, 2015.

Architecture 334L
Course Description

Format

The course will have four components, including: (1) regularly scheduled lectures; (2) a series of readings; (3) homework assignments (4) exams.

Note the four components complement each other. The lectures and readings are offered to provide the basic "information of the course. The homework and case study assignments (team of four) should be used by students to resolve any questions about the topics considered in the lectures and readings and will serve as an opportunity to explore your sound building projects and their solutions in greater depth. Finally, the exams are meant to encourage student synthesis of the course material.

Evaluation Criteria

1. LEED Building and Commercial Interiors case stud	due: Feb 4, 2019	15pts
2. Heat gain, heat loss, building load	due: Mar 27, 2019	15 pts
4. HVAC duct sizing and integration	due: April 22, 2019	15 pts
5. Exam No. 1	Feb 15, 2019	15 pts
6. Exam No. 2	April 10, 2019	20 pts
7. Exam No. 3	TBA	20 pts

Homework more than one (class) day late will be lowered one letter grade. Projects later than one week late will be lowered one additional letter grade for each week the project continues to be late. Projects more than three weeks late will not be accepted for class credit. There will not be makeup tests. If you miss an exam with a medical excuse, the value of the other exams will be increased.

All work done in this course will be evaluated according to the criteria outlined here. Each student should develop a habit of generation of his or her own evaluation of the work by testing it against these criteria. Grading is based on 60-69=D, 70-72=C-, 73-76=C, 77-79=C+, 80-82=B-, 83-86=B, 87-89=B+, 90-92=A-, 93-96=A, 97-100=A+

Class meetings will be devoted to lectures and discussions, so regular attendance and active participation is essential. You may miss three classes– for any reason–without penalty. Each additional absence will lower your course grade by 5%, and six or more absences will result in a failing grade for the course. Will be reported to the Assistant Dean. Because our time in class is limited, promptness is important. If you are late for class, it is your responsibility to make sure you have not been marked absent. There will be a sign in roster at the back of the class and you must sign the roster at the start of each class. 15 minutes after the start of class the TAs will take up the roster and any

student arriving later than that time will be counted as absent. Students may make up an absence by submitting an excuse and submitting approved make-up work to the TAs, which must be also approval of the instructor. Students are required to check blackboard for course information at least twice a week.

A student who misses classes or exams, for the observance of a religious holy day should inform the instructor as far in advance of the absence as possible, so that arrangements can be made to complete an assignment within a reasonable time after the absence.

The University of Texas at Austin provides upon request appropriate academic accommodations for qualified students with disabilities. For more information, contact Services for Students with Disabilities at 471-6259 (voice) or 232-2937 (video phone)

Students are required to adhere to the UT Honor Code (or statement of ethics) and an explanation or
http://registrar.utexas.edu/catalogs/gi09- 10/ch01/index.html)

The following recommendations regarding emergency evacuation from the Office of Campus Safety and Security, 512-471-5767, http://www.utexas.edu/safety/: Occupants of buildings on The University of Texas at Austin campus are required to evacuate buildings when a fire alarm is activated. Alarm activation or announcement requires exiting and assembling outside. Familiarize yourself with all exit doors of each classroom and building you may occupy. Remember that the nearest exit door may not be the one you used when entering the building.

Students requiring assistance in evacuation shall inform their instructor in writing during the first week of class. In the event of an evacuation, follow the instruction of faculty or class instructors. Do not re-enter a building unless given instructions by the following: Austin Fire Department, The University of Texas at Austin Police Department, or Fire Prevention Services office.

Please schedule a meeting with this instructor if you are not sure of your standing in the course. My office hours are 10-11am on W & F, and my office is Goldsmith Hall 4.104. If you would like to schedule an appointment at another time please contact me via email mgarrison@utexas.edu

It is up to the student to ask questions about items that are unclear to the student. If you have questions related to the course, please feel free to ask in class or contact one of the TA's or myself outside of class. I will be available (upon request) immediately after the class for questions. My office is Goldsmith Hall 4.104, or you may make an appointment at 632-1972, e-mail address: mgarrison@utexas.edu