

MENG 5318 – Heating, Ventilation and Air Conditioning
Course Syllabus

Semester / Year	Fall 2025
Catalog Description	This course covers fundamentals of HVAC, including properties of moist air, psychometrics, psychrometry of air conditioning processes, vapor-compression refrigeration cycle, design conditions, and load calculations. Components, equipment, and common systems, as well as software for HVAC with emphasis in whole building energy simulation are introduced.
Prerequisites	Graduate standing, and MENG 3401 and MENG 3310 or equivalent.
Section Number	Tyler campus: MENG 5318.001 and HEC: MENG 5318.051
Instructor Name	Dr. Nelson Fumo
Contact Information	Office: RBN 3009, Email: nfumo@uttyler.edu
Class Type / Instruction Mode / Location	Tyler: Lecture/Face-to-Face/RBN 3038 HEC: Hybrid – Zoom Lectures and In-Classroom-Exams/HEC 0A218.
Class Time	Monday and Wednesday 5:00 PM to 6:20
Office Hours	Tu, We, and Th 11:00 AM to 12:00 PM and by appointment, except on Fridays, which are reserved for the instructor's research.
No. of Credits	3
Required Textbook	No textbook is required for this course.
Optional References	• Heating, Ventilating, and Air Conditioning: Analysis and Design, 7th Edition. Faye C. McQuiston, Jerald D. Parker, Jeffrey D. Spitler, Hessam Taherian. Wiley ISBN: 978-1-119-89416-2 • W. P. Jones, Air Conditioning Engineering, Fifth Edition, available of free download from the library (optional). • ASHRAE Handbooks with emphasis in the handbooks of Fundamentals and Systems and Equipment.
Additional Rules and Requirements	HEC Students Access to lectures: 1. Students must log in from their own computers to attend Zoom lectures. Computers MUST have a working camera. 2. Attendance will be taken at the end of each lecture by capturing a screenshot of the Zoom session attendees. Tyler and HEC Students Exams: 1. All exams and quizzes will be conducted online through CANVAS, during the regularly scheduled lecture times. 2. HEC students MUST keep their cameras on and ensure they are clearly visible to the instructor for proctoring throughout the entire exam or quiz. 3. Students MUST remain in the session with their cameras on, showing themselves, until the exam or quiz is officially closed on Canvas. 4. The instructor is not responsible for internet or computer issues. Students MUST take all necessary precautions to ensure they can complete the exam without interruption.

	Artificial Intelligence: AI tools are allowed to support students' learning and productivity, provided that their use aligns with academic integrity standards. When required, students must disclose their use of AI.										
Evaluation Method	<table> <tr> <td>Exam 1</td><td>20%</td></tr> <tr> <td>Exam 2</td><td>20%</td></tr> <tr> <td>Quizzes and assignments</td><td>20%</td></tr> <tr> <td>Projects</td><td>20%</td></tr> <tr> <td>Final exam</td><td>20%</td></tr> </table>	Exam 1	20%	Exam 2	20%	Quizzes and assignments	20%	Projects	20%	Final exam	20%
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Grading Policy / Scale	Letter grades, scale: A: 90 – 100; B: 80 – 89; C: 70 – 79; D: 60 – 69; F: < 60										
Important Events / Dates	Census date: September 8 Second drop for non-payment: September 17 Last date to withdraw from one or more 15-week courses: November 3										
Attendance / Makeup policy / other rules	Attendance: Attendance is not mandatory but is strongly recommended. Questions regarding missed classes will not be answered. There will be no makeups for quizzes; however, the lowest quiz grade will be dropped. Makeup exam: An opportunity to make up a missed exam may be offered to students with an excused absence. Excused absences include participation in university-sponsored events and religious observances, in accordance with university policy. Other makeups will be granted only in extreme circumstances and at the discretion of the instructor. Absences due to illness must be supported by documentation of treatment from medical personnel at a recognized medical facility. Makeup exams may be scheduled for the end of the semester. Grade Appeal: Grades may be appealed by meeting with the instructor during office hours, but no later than one week after the grade has been posted. Questions: Questions will only be addressed if the student can demonstrate that they have made a genuine effort to find the solution or answer independently. Communication Policy: Students must contact me directly by email at nfumo@uttyler.edu. Please do not use Canvas messaging, as I do not monitor it for course communication and it does not allow proper threads of replies. Syllabus Changes: The instructor reserves the right to make changes to the syllabus. Any changes will take effect one week after they are announced.										
Course Learning Objectives / ABET & PEOs Relation	By the end of this course, students will be able to: - Apply psychrometric concepts to air conditioning processes. - Identify appropriate design condition for a location and building. - Recognize the parameters affecting load calculations. - Describe critical parameters for computer models in HVAC.										
Tentative Topics / Course Plans	Please refer to the next page for the class schedule and topics.										
University Policies	https://www.uttyler.edu/offices/academic-affairs/files/syllabus-information.pdf										



MENG 4318/5318 HVAC

Lec	Day	Date	Topic
1	Mo	25-Aug	Introduction
2	We	27-Aug	Fundamental Concepts
	Mo	1-Sep	Labor Day holiday: all offices closed; no classes held
3	We	3-Sep	HVAC Industry
4	Mo	8-Sep	HVAC System Design
5	We	10-Sep	Vapor Compression Refrigeration Cycle
6	Mo	15-Sep	Characteristics of Humid Air
7	We	17-Sep	Psychrometric Processes
8	Mo	22-Sep	Psychrometric Processes
9	We	24-Sep	Psychrometric Processes
10	Mo	29-Sep	Psychrometric Processes
11	We	1-Oct	Review for Exam 1
12	Mo	6-Oct	Exam 1
13	We	8-Oct	Occupant Comfort and Design Conditions
14	Mo	13-Oct	Occupant Comfort and Design Conditions
15	We	15-Oct	Load Calculations
16	Mo	20-Oct	Load Calculations
17	We	22-Oct	Load Calculations
18	Mo	27-Oct	Water Distribution System
19	We	29-Oct	Water Distribution System
20	Mo	3-Nov	Air Distribution System
21	We	5-Nov	Air Distribution System
22	Mo	10-Nov	Economic Analysis
23	We	12-Nov	Economic Analysis
24	Mo	17-Nov	Review for Exam 2
25	We	19-Nov	Exam 2
	Mo	24-Nov	Thanksgiving - No class
	We	26-Nov	
26	Mo	1-Dec	Graduate Students Presentations
27	We	3-Dec	Graduate Students Presentations
University Calendar			Final Exam - Comprehensive