Department of Mechanical Engineering
Phone: +1.903.566.7003
Fax: +1.903.566.7148
Uttyler.edu/engineering

MENG 3211 – Thermal-Fluids Lab
Course Syllabus

Semester / Year	Spring 2025
Catalog Description	*Introduction to basic Thermal/Fluid sciences laboratory procedures and practices. Experimental topics to include fluid flow, heat exchanger basics, and basics of refrigeration. Student teams will design, analyze and document an experimental procedure. All procedures will result in a professional quality laboratory report. One hour of lecture and one three-hour lab per week.*
Prerequisites	*MENG 3210, MENG 3401, MENG/CENG 3310, and co-requisite EENG 3308*
Section Number	MENG 3211.001, MENG 3211.001L, MENG 3211.002L
Instructor Name	Dr. Nelson Fumo
Contact Information	Office: RBN 3009; Email: nfumo@uttyler.edu
Class Type / Instruction Mode / Location	Lecture and Laboratory/Face-to-Face Lecture RBN 3038 and Lab RBN 1035
Class Time	MENG 3211.001: Mo 12:20PM - 1:15PM MENG 3211.001L: Mo 2:00PM - 4:45PM MENG 3211.002L: We 2:00PM - 4:45PM
Office Hours	Tu/Th/Fr 2:00PM - 3:00PM or by appointment
No. of Credits	2
Required Textbook	No textbook is required but instead students must budget $50 for developing the project.
Optional References	Textbooks from prerequisite courses
Additional Rules and Requirements	1. The use of cellular phones during the lectures and labs is prohibited. If a student uses the cellular phone (call, text, internet), he/she will be asked to leave the classroom and penalties of missing the class will apply. It is highly recommended to keep your cellular phone off. 2. 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	Mid-Term Exam 20% Final Exam 20% Lab Assignments 20% Quizzes and Class Participation 20% Student Design Lab Project 20%
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: January 27 First drop for non-payment: January 21 Last date to withdraw from one or more 15-week courses: March 31 Exam date: Refer to the last page for the exams dates.
Attendance / Makeup policy / other rules	1. Attendance to lecture classes is not mandatory but is strongly recommended.

	2. No options for makeup of quizzes, but the lowest grade on quizzes will be dropped. 3. Attendance to laboratory classes is mandatory. A student missing a laboratory activity will have a zero for the laboratory assignment (report or data analysis or other) and must work in a makeup assignment to avoid 10 points being dropped in the midterm or final exam. 4. Homework will not be graded, but it is required to take the quiz. Students are advised that if a question in a quiz is similar to a question in the homework, maximum partial credit will be 50 points. However, if the quiz is the same as the homework, no partial credit will be given. 5. To ensure that the students review any material given by the instructor prior the laboratory, pop quizzes can be applied. 6. Unless otherwise stated, all lab assignments are due one week after being assigned. Assignments must be submitted at the beginning of the lab; otherwise, a penalty of 20 points will be applied. An additional penalty of 10 points will be applied if the materials are not stapled together. 7. Questions involving knowledge covered in class (lecture/laboratory) will be answered if the student proves that they have tried to come up with the answer. 8. Solution to homework and quizzes will not be given. However, students can work on the right solution by checking their work with the instructor.
Course Learning Objectives / ABET & PEOs Relation	By the end of this course, students will be able to: 1. Apply fluid mechanics concepts for analysis of basic fluid mechanics experiments. 2. Apply heat transfer concepts for analysis of basic heat exchangers configurations. 3. Apply thermal system concepts for analysis of refrigeration and heat pump cycles, and psychrometric processes. 4. Design, perform, and report results of a mechanical engineering experiment. 5. Write professional quality laboratory reports.
Tentative Topics / Course Plans	See class schedule in next page
University Policies	https://www.uttyler.edu/offices/academic-affairs/files/syllabus-information.pdf

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MENG 3211 - Class Schedule

Day	Date		Lecture Activity
Mo	Jan	13	Course Introduction
Mo		20	Holiday - No Class
Mo		27	Uncertainty Review
Mo	Feb	3	Flow Meters
Mo		10	Flow through an Orifice
Mo		17	Losses in Pipes I (Major Losses)
Mo		24	Losses in Pipes II (Minor Losses)
Mo	Mar	3	Impact of a Jet
Mo		10	Midterm Exam
Mo		17	Spring Break - No Class
Mo		24	Psychrometric
Mo		31	Refrigeration and Heat Pump Cycles
Mo	Apr	7	Heat Exchangers
Mo		14	Effects of Altitude on Engineering Computations
Mo		21	Review for final exam
University Schedule			Final Exam

Day	Date		Laboratory Activity
Mo	Jan	13	Lab Introduction
We		15	
Mo		20	No Lab Activity
We		22	
Mo		27	MathCad for Uncertainty Analysis
We		29	
Mo	Feb	3	Flow Meters
We		5	
Mo		10	Flow through an Orifice - Project
We		12	
Mo		17	Losses in Pipes I (Major Losses)
We		19	
Mo		24	Losses in Pipes II (minor Losses)
We		26	
Mo	Mar	3	Impact of a Jet
We		5	
Mo		10	Student Design Lab Project
We		12	
Mo		17	Spring Break - No Class
We		19	
Mo		24	Psychrometric
We		26	
Mo		31	Refrigeration and Heat Pump Cycles
We	Apr	2	
Mo		7	Heat Exchangers
We		9	
Mo		14	Validation of Student Design Lab Project
We		16	
Mo		21	Presentations of Student Design Lab Project
We		23	