

MENG 3310 – Fluid Mechanics
Course Syllabus

Semester / Year	Fall 2025								
Catalog Description	Basic concepts of a fluid, and the fundamentals and applications of ideal and real fluid flow. Topics include fluid statics, conservation principles, the Bernoulli equation, fluid flow in pipes, open channel flow, and fluid flow measurement devices. Three hours of lecture per week.								
Prerequisites	C or better grade in ENGR 2302 and MATH 3305, and MATH 2415 as a co- requisite.								
Section Number	030								
Instructor Name	Dr. Ermias Koricho								
Contact Information	Email: ekoricho@uttyler.edu Phone: 903-730-3895 Office: A220 (HEC campus)								
Class Type / Instruction Mode/ Location	Tyler: Lecture/Face-to-Face/HEC 0A217								
Class Time	Tue and Thu 08:00 AM to 09:20 AM								
Office Hours	Tu and Th 03:30 PM to 04:30 PM W 04:45 PM to 05:45 PM and by appointment								
No. of Credits	3								
Required Textbook	No textbook is required as lectures will reference material from a range of fluid mechanics text and provide a full complement of lecture notes with practice questions.								
Optional References	1. Munson, Young and Okiishi's Fundamentals of Fluid Mechanics, 8th Edition, Wiley, 2016. ISBN: 9781119080701. 2. Schaum's Outline of Fluid Mechanics and Hydraulics, 4th Edition (Schaum's Outlines) 4th Edition by Liu, Ranald and Evett								
Additional Rules and Requirements	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>25%</td> </tr> <tr> <td>Exam 2</td> <td>25%</td> </tr> <tr> <td>¹ Homework, Project, and Quizzes (10%)</td> <td>20%</td> </tr> <tr> <td>Final Exam</td> <td>30%</td> </tr> </table> ¹There will be several homework assignments that are directly related to classroom discussion and test material. Everybody is required to attend all the classes. There will be both announced and unannounced quizzes. These quizzes cannot be made up in any circumstances. Besides, there will be a group project related to water rocket. The group/s will compete at the Ratliff Relay competition (College wide student competition) which will be held on November 1st, Saturday, from 8 am to 1 pm. Detail information will be shared at the first week of the semester.	Exam 1	25%	Exam 2	25%	¹ Homework, Project, and Quizzes (10%)	20%	Final Exam	30%
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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 08 First drop for non-payment: September 02 Last date to withdraw from one or more 15-week courses: November 03 Exam date(week): Refer to the course plan below in the table. https://www.uttlyer.edu/academics/academic-calendar-25-26/
Attendance / Makeup policy / other rules	Regular attendance is required. In case you miss a class, it is your responsibility to keep up with the class work and be informed of all the announcements made in the class. Homework Assignments: homework will be assigned according with the topics covered in lectures. Assignments are considered very important for the understanding of the course material. Completing your homework independently is necessity to do well in this course. Besides it is expected that all work products (e.g. homework, projects, presentations, etc.) submitted for class to be of professional quality. Failure to submit professional quality work may result in grade reductions, regardless of whether any grading scheme or rubric for an assignment explicitly includes professionalism in the grade calculation. Makeup exam: An opportunity to make up a missed exam may be available to students with an excused absence. Excused absences include absences for university-sponsored events and for religious observances (University policies). Other makeups are granted only in extreme cases and at the discretion of the instructor. Excused absence due to illness will require evidence of treatment by medical personnel at a medical facility. Canvas: All course materials, including the syllabus, handouts, example problems with solutions, homework assignments, quiz solutions, and review materials, will be posted on Canvas. Please make sure to review the materials posted on Canvas regularly.
Course Learning Objectives / ABET & PEOs Relation	By the end of this course, students will be able to: 1. Apply concepts of fluid statics. 2. Apply principles of conservation of mass, momentum, and energy in engineering problems. 3. Use Bernoulli's Equation for the calculation of flow parameters. 4. Calculate and use minor and major head losses in pipe flows. 5. Apply basic boundary layer theory to external flows.
Tentative Topics/Course Plan	Week 1 Introduction & Properties of Fluids Week 2 Properties of Fluids Week 3 Fluid Statics – Pressure & Manometry Week 4 Fluid Statics – Forces on Surfaces Week 5 Fluid Statics – Buoyancy, Flotation & Stability, and Water rocket related Project Progress report presentation Week 6 Review & First Exam Week 7 Fluids in Motion – Flow Classification, Bernoulli Equation Week 8 Fluids in Motion: Velocity & Acceleration Fields Week 9 Fluids in Motion: The Energy Equation and Conservation of Mass Week 10 Fluids in Motion: Linear Momentum Week 11 Review & Second Exam Week 12 Fluids in Motion: Losses in Pipes Week 13 Fluids in Motion: Losses in Pipes Week 14 Fluids in Motion: Boundary Layers & Drag Week 15 Review & Final Exam
University Policies	https://www.uttlyer.edu/offices/academic-affairs/files/syllabus-information.pdf