

MENG 3310 – Fluid Mechanics
Course Syllabus

Semester / Year	Fall 2024
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	ENGR 2302, MATH 2415, and MATH 3305
Section Number(s)	030
Instructor	Dr. Soren Maloney
Contact info	Office: HEC A206 or via Zoom (details posted on Canvas) E-mail: smaloney@uttyler.edu
Class Type /Instruction Mode/ Location	MENG 3310.030 Face to Face, HEC Room A217
Class Times	Mon/Wed 5:00PM to 06:20PM
Office Hours	Mondays 9-10AM and 12PM to 2PM or by appointment
No. of Credits	3 credit hours with 3 hours of lecture per week
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	<ol style="list-style-type: none"> 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 requirements	Students can use AI programs (ChatGPT, Copilot, etc.) in this course. If you utilize an AI tool to help create content for an assignment, you must acknowledge and cite the tool's contribution to your work.
Instruction / Evaluation Method/	Two Term Exams (2 x 30%) 60% Final Exam 40%
Homework	Practice questions shall be assigned but not graded.
Grading Policy / Scale	Grading in this course will be based on the following: Scale: A: 90 - 100, B: 80 - 89, C: 70 - 79, D: 60 - 69, F: < 60.
Important events/dates	See UT Tyler Academic Calendar: https://www.uttyler.edu/schedule/files/2024-2025/academic-calendar-2024-2025-main-20240724.pdf Census Date – September 9 Exam 1 – October 2, Week 6

	<p>Exam 2 – November 25, Week 13 Final Exam – December 9, Week 16 Note: All exams will be in-person. Students MUST take exams on campus.</p>
Attendance / Makeup policy	<p>Attendance and participation to lectures are expected per university's class attendance policy.</p> <p>There will be no makeup for missed in-class work. An opportunity to make up a missed exam may be available to students with an excused absence. Be advised that makeup exams may be more challenging. Excused absences include absences for university sponsored events and for religious observances (see the University policy). 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 or at a medical facility.</p> <p>Make-up assignments or exams if approved will be administered during finals week.</p>
Course Learning Objectives / ABET & PEOs relation	<p>By the end of this course students will be able to:</p> <ol style="list-style-type: none"> 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	<p>Week 1 Introduction & Properties of Fluids Week 2 Properties of Fluids Week 3 Fluid Statics – Pressure & Manometry Week 4 Tutorial Week 5 Fluid Statics – Forces on Surfaces Week 6 Fluid Statics – Buoyancy, Flotation & Stability / Exam 1 Week 7 Fluids in Motion – Flow Classification, Bernoulli Equation Week 8 Tutorial Week 9 Fluids in Motion: Velocity & Acceleration Fields Week 10 Fluids in Motion: The Energy Equation and Conservation of Mass Week 11 Fluids in Motion: Linear Momentum Week 12 Fluids in Motion: Losses in Pipes Week 13 Tutorial & Exam 2</p>

	Week 14 Fluids in Motion: Boundary Layers & Drag Week 15 Review Week 16 Final Exam & Makeup Exams
University Policies	https://www.uttyler.edu/offices/academic-affairs/files/syllabus-information.pdf