UTTyler ENGINEERING

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MENG 3310 – Fluid Mechanics
Course Syllabus

Semester/ Year	**Summer I 2026**
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	Grade C or better in: - ENGR 2302: Engineering Mechanics: Dynamics - MATH 3305: Ordinary Differential Equations as a co-requisite.
Section number	050, 051
Instructor name	Ahmed Ismail
Contact info	**Email:** aismail2@patriots.uttyler.edu
Class Type / Location	Hybrid: HEC **A216 / RBN 3040**
Class Time	Mo/We/Fr 8:00 AM – 10:15AM
Office Hours	**Friday:** 11:00 am – 1:00 pm (Zoom Link in Canvas) or by appointment
Credit Hours	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	1. Since the mechanical engineering program is designed to prepare students for professional practice, all submitted work (e.g., homework, lab reports, projects, presentations) is expected to meet professional standards. Work that does not reflect professional quality may be subject to grade reductions, even if professionalism is not explicitly listed in the grading rubric. 2. 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.
Evaluation Method	Grading: Homeworks & Quizzes **20** % Mid-term Exam I **25** % Mid-term Exam II **25** % Final Exam **30** %
Grading Policy / Scale	Letter grades, scale: **A**: 90 – 100; **B**: 80 – 89; **C**: 70 – 79; **D**: 60 – 69; **F**: < 60 Grade appeal: grades can be appealed by meeting the instructor during office hours, but no later than a week after the grade has been given.
Important events/ dates	**Census date:** June 4 **Last day to withdraw:** June 24

	Midterm Exams: TBD https://www.uttyler.edu/academics/academic-calendar-25-26/academic-calendar-7-week.php
Attendance/ Makeup policy/ other rules	Attendance at every meeting is strongly encouraged. 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.
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	• Week 1: 1. Introduction & Properties of Fluids 2. Fluid Statics – Pressure & Manometry 3. Fluid Statics – Forces on Surfaces • Week 2: 1. Fluid Statics – Buoyancy, Flotation & Stability 2. First Exam 3. Fluids in Motion – Flow Classification, Bernoulli Equation • Week 3: 1. Fluids in Motion: Velocity & Acceleration Fields 2. Fluids in Motion: The Energy Equation and Conservation of Mass 3. Fluids in Motion: Linear Momentum • Week 4: 1. Second Exam 2. Fluids in Motion: Losses in Pipes 3. Fluids in Motion: Losses in Pipes • Week 5: 1. Fluids in Motion: Boundary Layers & Drag 2. Review & Final Exam
University Policies	https://www.uttyler.edu/offices/academic-affairs/faculty-resources/syllabus-information/