



MENG 3310 – Fluid Mechanics
Course Syllabus

Semester / Year	Fall 2023								
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(s)	030								
Instructor	Hayder Abdul-Razzak, PhD, PE								
Contact info	habdulrazzak@uttyler.edu								
Class Type /Instruction Mode/ Location	HEC Room A217								
Class Times	Tue/Thu 5:00PM to 6:20PM								
Office Hours	Tue/Thu 3:30PM to 5:00PM 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	N/A								
Instruction / Evaluation Method/	<table> <tr> <td>Quizzes</td> <td>30% (3 x 10%)</td> </tr> <tr> <td>First Exam</td> <td>25%</td> </tr> <tr> <td>Second Exam</td> <td>25%</td> </tr> <tr> <td>Final Exam.</td> <td>20%</td> </tr> </table>	Quizzes	30% (3 x 10%)	First Exam	25%	Second Exam	25%	Final Exam.	20%
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Homework	<p>Practice questions shall be assigned but not graded. Students must turn in the homework during the class period on the due date; please keep in mind that no late submission will be accepted.</p> <p>The revised homework will be needed to discuss problems of exams if the student asks for review. That is, if a problem in the exam has a related problem in a homework, the student waives the right of discussing the problem with the instructor if the student does not present/bring the revised homework problem.</p>								
Grading Policy / Scale	<p>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. 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.</p>								



Important events/dates	See UT Tyler Academic Calendar: https://www.uttyler.edu/schedule/files/2023-2024/academic-calendar-2023-2024-main-20230614b.pdf
Attendance / Makeup policy	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: <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</p> <p>Week 2 Properties of Fluids</p> <p>Week 3 Fluid Statics – Pressure & Manometry</p> <p>Week 4 Fluid Statics – Forces on Surfaces</p> <p>Week 5 Fluid Statics – Buoyancy, Flotation & Stability</p> <p>Week 6 Review & First Exam</p> <p>Week 7 Fluids in Motion – Flow Classification, Bernoulli Equation</p> <p>Week 8 Fluids in Motion: Velocity & Acceleration Fields</p> <p>Week 9 Fluids in Motion: The Energy Equation and Conservation of Mass</p> <p>Week 10 Fluids in Motion: Linear Momentum</p> <p>Week 11 Review & Second Exam</p> <p>Week 12 Fluids in Motion: Losses in Pipes</p> <p>Week 13 Fluids in Motion: Losses in Pipes</p> <p>Week 14 Fluids in Motion: Boundary Layers & Drag</p> <p>Week 15 Review & Final Exam</p>
University Policies	https://www.uttyler.edu/academic-affairs/files/syllabus_information_2021.pdf