UTTyler ENGINEERING

Department of Mechanical Engineering
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MENG 3310 – Fluid Mechanics
Course Syllabus

Semester / Year	Fall 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	C or better grade in ENGR 2302 and MATH 3305, and MATH 2415 as a co-requisite.
Section Number	MENG 3310.001
Instructor Name	Dr. Nelson Fumo
Contact Information	Office: RBN 3009, Email: nfumo@uttyler.edu
Class Type / Instruction Mode / Location	Lecture/Face-to-Face/HPR 262
Class Time	Tu and Th 9:30 AM to 10:50 AM
Office Hours	Mo, Tu, and Th 11:00 PM to 11:50 AM and by appointment, except on Fridays, which are reserved for the instructor's research.
No. of Credits	3
Required Textbook	Munson, Young and Okiishi's Fundamentals of Fluid Mechanics, 8th Edition, Wiley, 2016. Binder Ready Version (looseleaf); ISBN: 9781119080701. Other presentation: Munson, Young and Okiishi's Fundamentals of Fluid Mechanics, 8e Binder Ready Version with WileyPLUS Card Set; ISBN: 9781119231714.
Optional References	Schaum's Outline of Fluid Mechanics, M. Potter and Wiggert, McGraw-Hill, 2008. Student Solutions Manual and Study Guide, Fundamentals of Fluid Mechanics, 7th, Munson et al, Wiley, 2013.
Additional Rules and Requirements	**Grading of Problems in Exams:** • Students are expected to provide complete and correct solutions to all assigned problems. Full credit will only be given for correct final answers that are supported by the proper procedure and reasoning. Problems with an incorrect final answer are not eligible for partial credit unless the submitted work clearly demonstrates a correct solution method with only a minor computational or algebraic error. Any partial credit awarded is at the instructor's sole discretion. **Artificial Intelligence:** • 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. **Professional Quality of Submitted Work** • 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.

Evaluation Method	Exam 1 20% Exam 2 20% Exam 3 20% Exam 4 20% Final exam 15% Ratliff Relays competition 5%
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 8 Drop for non-payment: September 16 Last date to withdraw from one or more 15-week courses: October 30 Academic Calendar 2026 - 2027
Attendance / Makeup policy / other rules	1. **Attendance**: Attendance is not mandatory but is strongly recommended. Students are responsible for all material covered during any class they miss. Class time will not be used to provide individual make-up instruction for missed lectures. 2. **Makeup exam**: A makeup exam may be offered only for an excused absence. Excused absences include participation in university-sponsored activities and religious observances, in accordance with university policy. Other makeup exams will be considered only under extraordinary circumstances and at the instructor's sole discretion. Absences due to illness must be supported by documentation of evaluation or treatment from a licensed medical provider or recognized medical facility. Makeup exams may be scheduled at the end of the semester. 3. **Grade Appeal**: Questions regarding the grading of an assignment or exam must be discussed with the instructor within one week of the grade being posted. After that period, the grade will be considered final unless required otherwise by university policy. 4. **Questions**: Students are encouraged to seek assistance when needed. However, questions should reflect a genuine effort to solve the problem independently before requesting help. 5. **Communication Policy**: Course-related communication must be sent directly to my university email (nfumo@uttyler.edu). Canvas messaging will not be used for course communication and may not receive a response. 6. **Syllabus Changes**: The instructor reserves the right to modify this syllabus as necessary. Any changes will be announced in class and/or through Canvas and will take effect as specified in the announcement. 7. **Professional Responsibility**: Students are responsible for monitoring their university email and Canvas announcements regularly. Information communicated through these official channels is considered received on the date it is posted or sent.
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 Plans	• Pressure and manometry, • Forces on Surfaces and buoyancy, • Bernoulli Equation, • Conservation on mass, • Linear momentum, • Energy equation, • Losses in pipes, • Drag force. Please refer to the next page for the class schedule and topics.
University Policies	https://www.uttyler.edu/offices/academic-affairs/faculty-resources/syllabus-information/

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MENG 3310 Fluid Mechanics Class Schedule

Lec	Day	Date	Topic	Reading
1	Tu	25-Aug	Introduction	1.1 - 1.9
2	Th	27-Aug	Pressure and Manometry	2.1 - 2.7
3	Tu	1-Sep	Work on related problems	
4	Th	3-Sep	Forces on Surfaces	2.8 - 2.10
5	Tu	8-Sep	Buoyancy, Flotation, Stability	2.11
6	Th	10-Sep	Work on related problems	
7	Tu	15-Sep	Exam 1 - Chapter 1 and 2	
8	Th	17-Sep	Elementary Fluid Dynamics - Bernoulli Equation	3.1 - 3.5
9	Tu	22-Sep		3.6 - 3.7
10	Th	24-Sep	Velocity/Acceleration Fields & Reynolds Transport Theorem	4.1 - 4.4
11	Tu	29-Sep	Conservation of mass (Int)	5.1
12	Th	1-Oct	Work on related problems	
13	Tu	6-Oct	Exam 2 - Chapter 3 and 4 and Section 5.1	
14	Th	8-Oct	Linear Momentum (Int)	5.2.1 - 5.2.2
15	Tu	13-Oct	The Energy Equation	5.3.1 - 5.3.4
16	Th	15-Oct	Viscous Flow	6.8 - 6.9
17	Tu	20-Oct	Work on related problems	
18	Th	22-Oct	Exam 3 - Chapter 5 and 6	
19	Tu	27-Oct	Dimensional analysis, similitude, and modeling	7.1 - 7.3
20	Th	29-Oct		7.4 - 7.8
21	Tu	3-Nov	Viscous Flow in Pipes	8.1 - 8.2
22	Th	5-Nov	Losses in Pipes	8.4
23	Tu	10-Nov	Losses in Pipes	8.5
24	Th	12-Nov	Work on related problems	
25	Tu	17-Nov	Exam 4 - Chapter 7 and 8	
26	Th	19-Nov	External Flow and Boundary Layers	9.1 - 9.2
	Tu	24-Nov	Thanksgiving - No class	8.6
	Th	26-Nov		9.2 - 9.3
27	Tu	1-Dec	Drag	9.2 - 9.3
28	Th	3-Dec	Work on related problems	
University Calendar			Final Exam - Comprehensive	