



MENG 3310 – Fluid Mechanics

Course Syllabus

Semester / Year	Spring 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	MENG 3310.052 and MENG 3310.053
Instructor Name	Dr. Nelson Fumo
Contact Information	Office: RBN 3009, Email: nfumo@uttyler.edu, Phone: (903) 565-5588
Class Type / Instruction Mode / Location	Tyler: Lecture/Face-to-Face/RBN 3038 HEC: Hybrid – Zoom Lectures and In-Classroom-Exams/HEC A216. Zoom ID: 936-9422-4961 Passcode: HEC
Class Time	We and Fr 12:20 PM to 1:40 PM
Office Hours	Tu/Tr/Fr 2:00 PM to 3:00 PM and by appointment
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	<p>Access to lectures:</p> <ol style="list-style-type: none"> Students must log in from their own computers to attend Zoom lectures. Computers MUST have a working camera. Attendance will be taken at the end of each lecture by capturing a screenshot of the Zoom session attendees. <p>Exams:</p> <ol style="list-style-type: none"> All exams will be conducted online during scheduled lecture times. Students MUST keep their cameras on and ensure they are visible to the instructor for proctoring throughout the exam. Students MUST remain in the exam session, with their cameras on and showing themselves, until the exam is officially closed on CANVAS. The instructor is not responsible for connection or computer issues. Students MUST take the necessary precautions to ensure they can complete the exam without interruptions. <p>Artificial Intelligence:</p> <p>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.</p>



Evaluation Method	Exam 1 20% Exam 2 20% Exam 3 20% Exam 4 20% Final exam 20%
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: January 27 First drop for non-payment: January 21 Last date to withdraw from one or more 15-week courses: March 31 Exam date: Refer to the last page for the exams dates.
Attendance / Makeup policy / other rules	<ol style="list-style-type: none"> Attendance: Attendance is not mandatory but is strongly recommended. Questions about missed classes will not be answered. 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. Makeup exams may be scheduled for the end of the semester. 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. Questions: Questions will only be addressed if the student can demonstrate that they have made a genuine effort to find the solution or answer independently. Syllabus Changes: The instructor reserves the right to make changes to the syllabus. Any changes will take effect one week after they are announced. Class Schedule: Refer to the next page for the class schedule.
Course Learning Objectives / ABET & PEOs Relation	By the end of this course, students will be able to: <ol style="list-style-type: none"> Apply concepts of fluid statics. Apply principles of conservation of mass, momentum, and energy in engineering problems. Use Bernoulli's Equation for the calculation of flow parameters. Calculate and use minor and major head losses in pipe flows. Apply basic boundary layer theory to external flows.
Tentative Topics / Course Plans	<ul style="list-style-type: none"> Pressure and manometry, Forces on Surfaces and buoyancy, Bernoulli Equation, Conservation on mass, Linear momentum, Energy equation, Losses in pipes, Drag force.
University Policies	https://www.uttyler.edu/offices/academic-affairs/files/syllabus-information.pdf



MENG 3310 Fluid Mechanics Class Schedule

Lec	Day	Date	Topic	Reading
1	We	15-Jan	Introduction	1.1 - 1.9
2	Fr	17-Jan	Pressure and Manometry	2.1 - 2.7
3	We	22-Jan	Work on related problems	
4	Fr	24-Jan	Forces on Surfaces	2.8 - 2.10
5	We	29-Jan	Buoyancy, Flotation, Stability	2.11
6	Fr	31-Jan	Work on related problems	
7	We	5-Feb	Exam 1 - Chapter 1 and 2	
8	Fr	7-Feb	Elementary Fluid Dynamics - Bernoulli Equation	3.1 - 3.5
9	We	12-Feb		3.6 - 3.7
10	Fr	14-Feb	Velocity/Acceleration Fields & Reynolds Transport Theorem	4.1 - 4.4
11	We	19-Feb	Conservation of mass (Int)	5.1
12	Fr	21-Feb	Work on related problems	
13	We	26-Feb	Exam 2 - Chapter 3 and 4 and Section 5.1	
14	Fr	28-Feb	Linear Momentum (Int)	5.2.1 - 5.2.2
15	We	5-Mar	The Energy Equation	5.3.1 - 5.3.4
16	Fr	7-Mar	Viscous Flow	6.8 - 6.9
17	We	12-Mar	Work on related problems	
18	Fr	14-Mar	Exam 3 - Chapter 5 and 6	
	We	19-Mar	Spring Break - No Class	
	Fr	21-Mar		
19	We	26-Mar	Dimensional analysis, similitude, and modeling	7.1 - 7.3
20	Fr	28-Mar		7.4 - 7.8
21	We	2-Apr	Viscous Flow in Pipes	8.1 - 8.2
22	Fr	4-Apr	Losses in Pipes	8.4
23	We	9-Apr	Losses in Pipes	8.5
24	Fr	11-Apr	Work on related problems	9.1 - 9.2
25	We	16-Apr	Exam 4 - Chapter 7 and 8	
26	Fr	18-Apr	External Flow and Boundary Layers	9.2 - 9.3
27	We	23-Apr	Drag	9.2 - 9.3
28	Fr	25-Apr	Work on related problems	
University Calendar			Final Exam - Comprehensive	