

University of Texas at El Paso  
Department of Civil Engineering

Syllabus

**CE 2375: Introduction to Fluid Mechanics**

Spring 2025

CRN 25628

Class Meeting: 12:00-1:20 pm, TR, January 21-May 08

Class Room: Education Building 301

Textbook: Fluid Mechanics, 3rd Edition by R.C. Hibbeler, ISBN: 013464929X

Pearson MasteringEngineering (comes with E-Text). Purchase for access to the MasteringEngineering homework can also be made in combination with the textbook (available at UTEP Bookstore).

Instructor: Alex Mayer

Department of Civil Engineering Office: A221

E-mail: amayer2@utep.edu

Office Hours: by appointment

**Course Objectives**

At the end of the course, students will achieve the following:

- understand the concept of fluid systems and control volume
- understand the concepts of temperature, pressure, and energy
- understand fluid flow descriptions and graphical descriptions
- apply conservation of mass and energy
- apply the Bernoulli and energy equations
- apply the linear momentum equation
- understand steady laminar flow within parallel plates and smooth pipes
- understand resistance to flow in rough pipes and minor and major losses in single pipe flow

**Chapters Covered**

1. Fundamental Concepts in Fluid Mechanics
  2. Fluid Statics
  3. Kinematics of Fluid Motion
  4. Conservation of Mass
  5. Work and Energy of Moving Fluids
  6. Fluid Momentum
  9. Viscous Flow within Enclosed Conduits
  10. Analysis and Design for Pipe Flow
- FE Fundamentals of Engineering (FE) Exam Fluid Mechanics

## Learning Outcomes

Student Learning Objective	Outcome
Demonstrate the ability to consider different points of view and to work effectively with others to support a shared purpose or goal	Teamwork Skills
Draw on existing knowledge bases to create “new” or “transformed” knowledge	Critical Thinking Skills
Engagement through effective exchange of information and ideas	Communication Skills
Find solutions to complex problems/issues	Problem Solving

## Grades

Your grade for this course will be based on your performance in the homework (15%), quizzes (15%), 3 mid-term exams (45%), and Final Exam (25%).

Quizzes will be given at the beginning of class throughout the semester. The content of a quiz may include materials covered in previous class sessions or to be covered that day. There will be no make-up quizzes. Your lowest quiz grade will be dropped.

Three exams will be given during class during the semester and one comprehensive final during final exam week at the end of the semester. Every student is required to take all of the exams. Every exam will be counted towards your final grade. Approved scientific calculators for the exams include

- Casio: All fx-115 models. Any Casio calculator must contain fx-115 in the model name.
- Hewlett-Packard: The HP33s and HP 35s models, but no others
- Texas Instruments: All TI-30X and TI-36X models. Any Texas Instruments calculator must contain either TI-30X or TI-36X in its model name.

Your final grade will be calculated based on the points you have accumulated as follows:

A	>90
B	>80 but <90
C	>70 but <80
D	>60 but <70
F	<60

The instructor reserves the right to revise this grading plan. However, students will be informed of any changes during the semester.

## Homework

Students need to submit the assigned homework problems online before the due date. Late homework assignment submissions will receive a deduction of 5% per day after due date, but never lower than 60% credit. You don't need to rewrite the problem statement, but make sure to clearly indicate the problem number. Make sure to write down necessary

details in the solution for easy checking of calculational errors or other possible mistakes so that you can get partial credit. Use the hints provided in the MasteringEngineering website for the problems. Discuss the problems with your classmates, the teaching assistant, or the instructor. You will do well in the class if you understand all the problems you solved. To access and submit the homeworks, go to:

<https://mlm.pearson.com/enrollment/mayer04479>. Detailed instructions on how to register on Pearson are included at the end of this document.

### **Attendance and Tardiness**

Attendance is mandatory. Absence can be tracked by the instructor through exams, roll calling, randomly picking names for problem solving in class, or other mechanisms. You could receive an F grade if you miss more than 50% of the classes without the instructor's consent. The instructor appreciates all efforts to attend the class. There will be no penalty for being late. You are always welcome to attend the class. However, all exams and quizzes will be given at the beginning of the classes. No additional time will be allowed for late attendees.

I will not drop you from the course unless you feel that you are unable to complete the course successfully, please let me know and then contact the Registrar's Office to initiate the drop process. If you do not, you are at risk of receiving an "F" for the course.

### **Study Suggestions**

- Establish a good studying habit and you will do very well in the class.
- ***Expect to spend 5-8 hours each week on the subject outside of class.***
- Read the text to be discussed prior to the scheduled class and review the subject thoroughly after the class. Work all examples given in the text and solve as many unassigned problems as you can.
- Use the tutorial materials available in MasteringEngineering before and after class.
- Office Hours: My office hours are for your questions and comments about the course. I prefer to have office hours in-person; however, you can request a virtual meeting on TEAMS or Zoom.
- Email: UTEP email is the best way to contact me. I will make every attempt to respond to your e-mail within 24 hours of receipt. When emailing me, be sure to email from your UTEP student email account and please put the course number in the subject line. In the body of your email, clearly state your question. At the end of your email, be sure to put your first and last name.
- Announcements: Check the Blackboard announcements frequently for any updates, deadlines, or other important messages.
- There will be a teaching assistant (TA) assigned to each session of the course. The TA will assist the instructor in grading quizzes, proctoring exams, and answering questions. In addition to the instructor's office hours, there will be TA office hours to answer your questions. The TA's schedule will be announced in class.
- ACES and the Tutoring Center. Students are reminded of the tutoring services available in the ACES and the library. These services are provided to you by the

University. Check the schedules and make use of the services.

### **Campus Resources**

UTEP provides a variety of student services and support. Please refer to the link for a listing of campus resources: [https://www.utep.edu/advising/student\\_resources/student-success-resource-hub.html](https://www.utep.edu/advising/student_resources/student-success-resource-hub.html)

### **Scholastic Integrity**

Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as one's own. Collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All suspected violations of academic integrity at The University of Texas at El Paso must be reported to the Office of Student Conduct and Conflict Resolution (OSCCR) for possible disciplinary action. To learn more, please visit HOOP: Student Conduct and Discipline.

### **Accommodations Policy**

The University is committed to providing reasonable accommodations to students with documented disabilities. Students who become pregnant may also request reasonable accommodation, in accordance with state and federal laws and regulations and University policy. To make a request, please register with the UTEP Center for Accommodations and Support Services (CASS). Contact CASS at 915-747-5148, email them at [cass@utep.edu](mailto:cass@utep.edu), or apply for accommodations online via the CASS portal.

### **To register for CE 2375 Fluid Mechanics:**

Go to <https://mlm.pearson.com/enrollment/mayer04479>.

1. Sign in with your Pearson student account or create your account. For Instructors creating a Student account, do not use your instructor credentials.
2. Select any available access option, if asked.
  - Enter a prepaid access code that came with your textbook or from the bookstore.
  - Buy instant access using a credit card or PayPal.
  - Select Get temporary access without payment for 14 days.
3. Select Go to my course.
4. Select CE 2375 from My Courses.

If you contact Pearson Support, give them the course ID: mayer04479

To sign in later, Go to <https://mlm.pearson.com>.

1. Sign in with the same Pearson account you used before.
2. Select CE 2375 from My Courses.