

**COURSE INFORMATION****MECH 3113: Thermo-fluid Lab****CRN:** 24260**Term:** Spring 2025**Delivery Method:** In- person, some parts may be online**Meeting Day and Time:** Fridays, 11:00 am – 1:50 pm**Location:** Undergraduate Learning Center, Room 216**INSTRUCTOR INFORMATION**

Dominic Austen, Instructor

Written Communication: per email dhausten@miners.utep.edu

Office Location: Undergraduate Learning Center, Room 216

Office Hours:

- Face-to-Face: Fridays, after lecture
- Scheduled meetings on MS Teams

REQUIRED MATERIALS**Textbook:**

- **No Textbook required.**
- **Reading materials will be posted.**
- **Laboratory manual and handouts should be used as references.**

Prerequisite: MECH 2311 (Intro to Thermal-fluid Sci)**COURSE DESCRIPTION:**

This three-credit-hour course will provide you with hands-on experience with engineering experiments. In this lab, you will learn how to run and experiment and measure the desired outcome, analyze the data and compare it to theoretical calculations. You will be expected to present and defend your obtained results.

Topics covered will include reviewing of works the basic aspects of thermos-fluids, the basic principle of how the experimental system works, evaluation and characterization of thermo-fluids properties and their physical significance. Some practical problems and their consequences originated in thermodynamic systems at different operating conditions will also be discussed.



There are ten experimental test setups designed to test specific phenomenon. The following experiments listed below will be performed throughout the semester (may change):

1. Viscosity Experiment
2. Wind Turbine
3. Wind Tunnel
4. Centrifugal Pump
5. Flat Panel Solar Collector
6. Parabolic Solar Panel
7. Heat Transfer Conduction
8. Rankine Cycle

COURSE OBJECTIVES:

The general purpose of this course is to strengthen the student's understanding of thermo-fluids. Specifically, at the end of the course the student will be able to:

1. Become familiar with different thermos-fluids based systems
2. Generate ideas and apply mathematical concepts to thermo-fluids systems
3. Methodically record data and present it in a technical report format

ASSIGNMENT AND GRADING

Assignments for this course are assessed according to rubrics.

Grades	
Laboratory Reports	40%
Presentation	40%
Attendance	20%
Total	100%
Extra Credit Quiz	10%

The instructor reserves the right to revise the grade plan.

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

Grade Scale	
A	90 – 100%
B	80 – 89%
C	70 – 79%
D	60 – 69%
F	< 60%

TECHNOLOGY REQUIREMENTS

Some course content is delivered via the Internet through the Blackboard learning management system. Ensure your UTEP email account is working and you have access to the Web and a stable web browser. Google Chrome and Mozilla Firefox are the best browsers for Blackboard; other browsers may cause complications. When having technical difficulties, update your browser, clear your cache, or try switching to another browser.

You will need to have access to a computer/laptop. You will need to download or update the following software: Microsoft Office, Adobe Acrobat Reader, Windows Media Player, QuickTime, and Java. Check that your computer hardware and software are up-to-date and able to access all parts of the course.

If you do not have word-processing software, you can download Word and other Microsoft Office programs (including Excel, PowerPoint, Outlook, and more) for free via UTEP's Microsoft Office Portal. Click the following link for more information about [Microsoft Office 365](#) and follow the instructions.

IMPORTANT: If you encounter technical difficulties beyond your scope of troubleshooting, please contact the UTEP [Help Desk](#), as they are trained specifically in assisting with technological needs of students. Please do not contact me for this type of assistance. The Help Desk is much better equipped than I am to assist you!

ATTENDANCE AND PARTICIPATION

Our class meetings are in-person at the designated location mentioned above.

Attendance in the course is determined by participation in the course's learning activities. Your participation in the course is important not only for your learning and success but also to create a community of learners. Participation is determined by the completion of the following activities:

- Reading/Viewing all course materials to ensure understanding of assignment requirements
- Participating in engaging discussions with your peers
- Other activities as indicated in the weekly modules or as indicated by the instructor for daily or weekly class participation.

Because these activities are designed to contribute to your learning each week, they cannot be made up after their due date has passed.

ILLNESS PRECAUTIONS

Please stay home if you have symptoms of a communicable illness. If you are feeling unwell, please let me know as soon as possible so that we can work on appropriate accommodation.

EXAM / QUIZ INSTRUCTIONS

- Students are NOT allowed to go to restrooms during the test. Students with disabilities must have a letter of accommodation and coordinate this with the instructor.
- Students are NOT allowed access to any materials in their backpacks without permission.
- Students can NOT use devices during the exam (such as cell phones, iPads, iPods, and wristwatches).
- Late students are NOT allowed to take the exam/quiz.
- No wearing hats is allowed during the test.

Allowed Calculators

- The following will be the only calculators allowed in exams:
 - Casio: All fx-115 models. Any Casio calculator must contain fx-115 in its model name.
 - Hewlett Packard: The HP 33s 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.

EXCUSED ABSENCES AND/OR COURSE DROP POLICY

According to UTEP Catalog, "At the discretion of the instructor, a student can be dropped from a course because of excessive absences or lack of effort. A grade of "W" will be assigned before the course drop deadline and a grade of "F" after the course drop deadline." See Policies and Regulations in the UTEP Undergraduate Catalog for a list of excuse absences. Therefore, if I find that, due to non-performance in the course, you are at risk of failing, I will drop you from the course. I will provide 24-hour advance notice via email.

OR

I will not drop you from the course. However, if 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.

MAKEUP WORK

Makeup work will be given *only* in the case of a *documented* emergency. Note that makeup work may be in a different format than the original work, may require more intensive preparation, and may be graded with penalty points. If you miss an assignment and the reason is not considered excusable, you will receive a zero. It is therefore important to reach out to me—in advance if at all possible—and explain with proper documentation why you missed a given course requirement. Once a deadline has been established for makeup work, no further extensions or exceptions will be granted.

ALTERNATIVE MEANS OF SUBMITTING WORK IN CASE OF TECHNICAL ISSUES

I strongly suggest that you submit your work with plenty of time to spare in the event that you have a technical issue with the course website, network, and/or your computer. I also suggest you save all your work (answers to discussion points, quizzes, exams, and essays) in a separate Word document as a backup. This way, you will have evidence that you completed the work and will not lose credit. If you are experiencing difficulties submitting your work through the course website, please contact the UTEP Help Desk. You can email me your backup document as a last resort.

INCOMPLETE GRADE POLICY

Incomplete grades may be requested only in exceptional circumstances after you have completed at least half of the course requirements. Talk to me immediately if you believe an incomplete is warranted. If granted, we will establish a contract of work to be completed with deadlines.

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. Accommodations that constitute undue hardship are not reasonable. 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, or apply for accommodations online via the CASS portal.

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 ones' 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](#).

GUIDANCE ON ARTIFICIAL INTELLIGENCE

AI prohibited

Use of A.I. technologies or automated tools, particularly generative A.I. such as [ChatGPT](#) or [DALL-E](#), is **not allowed** for assignments in this class. Each student is expected to use critical and creative thinking skills to complete tasks and not rely on computer-generated ideas. Any direct use of AI-generated materials submitted as your own work will be treated as plagiarism and reported to the Office of Student Conduct and Conflict Resolution (OSCCR).

COURSE RESOURCES: Where you can go for assistance

UTEP provides a variety of student services and support. Please refer to the Q.R. code below for a listing of campus resources or visit https://www.utep.edu/advising/student_resources/student-success-resource-hub.html.



ACES & Tutoring Center from the College of Engineering

Please note there are tutoring services available in the ACES center.

<https://www.utep.edu/engineering/student-resources/student-resources-aces-tutoring.html>

Weekly Calendar (Subject to Change)

This calendar provides an overview of the course. More details and a weekly checklist are available in the weekly modules in Blackboard. The due date for major homework assignments is ALWAYS Sunday at 11:59 pm (MST).



Weeks	Topics	Assignments Due
<u>Week 1</u> 01/24	No Class	
<u>Week 2</u> 01/31	Course Introduction and Lab Tour	
<u>Week 3</u> 02/7	Viscosity	
<u>Week 4</u> 02/14	Centrifugal Pump	Lab Report Viscosity
<u>Week 5</u> 02/21	Wind Turbine	Lab Report Centrifugal Pump
<u>Week 6</u> 2/28	Wind Tunnel	Lab Report Wind Turbine
<u>Week 7</u> 3/7	Flat Panel Solar Collector	Lab Report Wind Tunnel
<u>Week 8</u> 3/14	No Class Spring Break	
<u>Week 9</u> 3/21	Parabolic Solar Collector	Lab Report Flat Panel Solar Collector



<u>Week 10</u> 3/28	No Class Cesar Chavez Holiday	
<u>Week 11</u> 4/04	Heat Transfer Conduction	Lab Report Parabolic Solar Collector
<u>Week 12</u> 4/11	Heat Transfer Convection	Lab Report Heat Transfer Conduction
<u>Week 13</u> 4/18	Heat Exchanger	Lab Report Heat Transfer Convection
<u>Week 14</u> 4/25	Rankine Cycle	Lab Report Heat Exchanger
<u>Week 15</u> 5/2	Quiz	Lab Report Rankine Cycle
<u>Week 16</u> 5/9	No Class	

The above schedule, policies, and assignments in this course are subject to change in the event of extenuating circumstances or by mutual agreement between the instructor and the students.