MEET 4360 EXPERIMENTAL THERMAL SCIENCES

Spring 2014
Tu  8:30AM-9:20AM NTDP B157, Tu 9:30AM- 12:20PM NTDP F185 (Lab)

Instructor       Dr. Huseyin Bostanci
Office           NTDP F115L
Office Hours     M 10:00AM-12:00PM
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Course Description
Designing and conducting experiments in fluid mechanics, hydraulics, thermodynamics and heat transfer. Pre-
requisites: MEET 3940, 3990 and 4350 or concurrent enrollment.

Course Objectives
ABET\ASME program outcomes and program educational objectives supported.
1. Understand current instrumentation for temperatures and temperature differences (a, l, m).
2. Learn current instrumentation for pressure (b).
3. Understand current instrumentation and methods for velocity and flow rate (c, m, n).
4. Be familiar with data acquisition and analysis systems (e, f).
5. Understand measurement systems for performance analysis (d, j).

Student Learning Outcomes (Course objectives supported)
a. Measure system performance parameters. (1, 2, 3)
b. Design instrument systems for specified tasks. (4)
c. Design instrumentation systems. (5)

Required Text

Course Outline
This is a tentative course outline. Instructor will attempt to follow it closely, and reserves the right to
substitute any other relevant material at any point throughout the course.

<table>
<thead>
<tr>
<th>Week of</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>1/13/14 Introduction</td>
</tr>
<tr>
<td>2</td>
<td>1/20/14 UNT Discovery Park Facilities Tour</td>
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<tr>
<td>3</td>
<td>1/27/14 Temperature Measurements</td>
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<tr>
<td>4</td>
<td>2/03/14 Pressure Measurements</td>
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<td>5</td>
<td>2/10/14 Flow Measurements</td>
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<tr>
<td>6</td>
<td>2/17/14 Thermal- and Transport- Property Measurements</td>
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<tr>
<td>7</td>
<td>2/24/14 Vapor Power Cycles</td>
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<tr>
<td>8</td>
<td>3/03/14 Laminar /Turbulent Flow Boundary Layers</td>
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<tr>
<td>9</td>
<td>3/10/14 Spring Break (no class)</td>
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</tbody>
</table>
10. 3/17/14  | **Midterm Exam**
11. 3/24/14 | Infrared Thermography
12. 3/31/14 | Heat Exchangers
13. 4/7/14   | Building Heating/Cooling Loads
14. 4/14/13  | Building Energy Assessment
15. 4/21/13  | Fundamentals of Data Acquisition - LabView Basics
16. 4/28/13  | Review

**Final Exam (comprehensive) 5/06/14, Tuesday, 8:30AM-10:30AM**

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**Grading Criteria**

<table>
<thead>
<tr>
<th>Contribution</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Midterm Exam</td>
<td>25%</td>
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<tr>
<td>Final Exam</td>
<td>30%</td>
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<tr>
<td>Lab Assignments</td>
<td>40%</td>
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<tr>
<td>Attendance, Attitude, Participation</td>
<td>5%</td>
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**Expected Grade Distribution**

A: ≥90%, B: 80-89%, C: 70-79%, D: 60-69%, F: <60%

**Policies and Procedures**

1. Attendance is required, as discussions and demonstrations during both lecture and lab sessions contain important information to do well on exams.
2. The course website, Blackboard Learn, at learn.unt.edu will be used for posting course materials, assignments, and grades, as well as for email communications. Students are encouraged to check the course website often.
3. Students will complete regularly assigned lab reports. The lab reports have to be submitted on time - by the following week on Tuesday at 9:30AM - for grading. Late submissions will get zero grade. The reports should be submitted in pdf format through the Blackboard Learn. The two lowest grades from the lab assignments will be dropped when calculating the average grade at the end of the semester.
4. This course provides opportunities for students to take advantage of several software packages supported by the department in the classroom or in lab experiments, in simulation studies, homework assignments, or in projects.
5. There will be no make-up exams or assignments unless you have a documented, university-excused absence. If you know in advance that you will miss an exam, you must contact instructor before the scheduled exam.
6. This syllabus is subject to change at any time during the semester with changes to be announced in class.
7. The instructor reserves the right to change the grade distribution at the end of the semester. If any changes occur, the changes will be less stringent that the distribution above.
8. All rules relating to academic dishonesty will be enforced in accordance with University policies. Cheating on examinations and laboratory assignments, and plagiarism on various papers and reports are types of disciplinary misconduct for which penalties are assessed under the UNT Code of Student Conduct and Discipline. Major responsibility for implementing the University's policy on scholastic dishonesty rests with the faculty. Be advised that the instructor of this course supports and fully implements this policy. The following actions will be taken when evidence of such misconduct is observed. The student will be presented with the evidence of misconduct and given an opportunity to
explain the same. Based on the outcome of this private conference, the matter will be either dropped or the student will be given a grade of "F" in the course and be referred to the Dean of Students for further counseling and/or disciplinary action.

9. Students are responsible to protect their work so it is not available to others for submission as their efforts. This is especially true of files that are generated on the computer. Students who knowingly allow others to use their work are partners in this unethical behavior.

10. An I (incomplete) grade is given only for extenuating circumstances and in accordance with University and Departmental Policies.

11. Discussion and exchange of ideas are important parts of the learning process and I encourage collaboration in a community of scholars. However, you must be sure the work you submit for grading is your own. Submitted works that are copies from solution manuals or website solutions or your classmates will be treated as plagiarism.

12. Grades are based in part on the student's ability to communicate. You must present your entire solution in an orderly way for each problem. Full grade points will be assigned only on the correct final answers with correct steps. You must show complete process of your solution. Partial credits will be assigned for correct steps taken towards the solution.

13. Requests for the review of a graded exam/assignment must be made within one week of the grade announcement. Upon review, the exam/assignment score may increase, remain the same, or decrease.

14. The Student Evaluation of Teaching Effectiveness (SETE) is a requirement for all organized classes at UNT. This short survey will be made available to you at the end of the semester, providing you a chance to comment on how this class is taught. I am very interested in the feedback I get from students, as I work to continually improve my teaching. I consider the SETE to be an important part of your participation in this class.

Disabilities Accommodation
The University of North Texas complies with Section 504 of the 1973 Rehabilitation Act and with the Americans with Disabilities Act of 1990. The University of North Texas provides academic adjustments and auxiliary aids to individuals with disabilities, as defined under the law. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodations of their disabilities. If you believe that you have a disability requiring accommodation, please see the instructor and/or contact the Office of Disability Accommodation at 940 565-4343 during the first week of class.