Syllabus – ME 313 Fluid Mechanics Laboratory

Instructor Information
Name: Dr. Yitong Zhao
Office Location: 17-2117
Office Hours: Mo 9-10am, We 3-6 pm in office; Other time by appointment.
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Course Information
Class Information
Time: Mo 12-2:50 pm (section01), We 12-2:50 pm (section02)
Location: 17-1468

Catalog Description
1) HAVC experiment
2) Pipe Friction experiment
3) Linear Momentum experiment
4) Benchtop flow Measurement
5) Centrifugal Pump experiment
6) Pump-Pipe System Design Lab

Prerequisites
Pre: GWT (7 or better), C- or better in ME 231 or equivalent (e.g., ENG 105, PHL 202)
Co: ME 312

Required Materials
The Lab Manual for this course is available on Blackboard under ‘Course Materials’.

Course Learning Objectives
• Help understand concepts in Fluid Mechanics
• Train formal report writing skill and team work

Grading
Preparation Quizzes (Must be done prior to experiment, or experiment session will NOT be allowed to attend): 18%, with 3% each;
Attendance (Must attend experiment session): 4%
Group lab reports (6): 78%, 13% each

Approximate Grading Scale
90 – 100% A
80 – 89 % B
70 – 79 % C
60 – 69 % D
below 60% F

Students must attend all lab sessions on time unless a medical or family emergency occurs. In the event that a student is late or absent, proof of the emergency must be presented to the instructor. Additionally, it is expected that the student will call or email the instructor and fellow group members if he or she will be late or absent to class. Unauthorized absences will result in the following penalties on your overall course score:

Late (5-30 min),
1\textsuperscript{st} offense – warning
2\textsuperscript{nd} offense – 10% off next lab report
3\textsuperscript{rd} offense – 25% off next lab report
4\textsuperscript{th} + offense – 50% off next lab report

Absent (>30 min),
1\textsuperscript{st} offense – 50% off next lab report
2\textsuperscript{nd} offense – 100% off next lab report
3\textsuperscript{rd} offense – failure of course

No make-up labs will be given.

You must follow all safety guidelines in the Lab Manual when working in the fluid mechanics lab. You should read the Lab Manual thoroughly, do the necessary background reading, and print out blank data sheet before coming to class. Bring your fluid mechanics textbook and the Lab Manual to each session.

Tentative Course Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Topics</th>
<th>Assignment</th>
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<tbody>
<tr>
<td>1</td>
<td>Introduction to the Fluid Mechanics Laboratory Form group; Review important topics including report format; Briefing for HVAC experiment.</td>
<td>Watch safety video, HVAC procedures video, read lab manual to get familiar with lab requirement. (Detail see Blackboard Assignment) Prep quiz for HVAC and Pipe friction experiment</td>
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<tr>
<td>2</td>
<td>Turn in proof of your pre/co-req attainment; Sign safety form; Run HVAC experiment.</td>
<td>HVAC report assigned, due in 5 days online;</td>
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<tr>
<td>Date</td>
<td>Activity</td>
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</tbody>
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| 3    | Discussion of HVAC reports;  
Briefing for Pipe Friction;  
Briefing for Linear Momentum;  
Briefing for Benchtop Flow Measurement;  
Briefing for Centrifugal Pump experiment.  
Prep quiz for Pipe Friction; Prep quiz for Linear Momentum |
| 4    | Run Pipe Friction experiment;  
Run Linear Momentum experiment;  
Pipe Friction and linear momentum report assigned, due in two weeks online; |
| 5    | No Meeting |
| 6    | Run Benchtop Flow Measurement experiment  
Run Centrifugal Pump experiment  
Benchtop Flow Measurement and Centrifugal pump report assigned, due in two weeks online; |
| 7    | Run Benchtop Flow Measurement experiment  
Run Centrifugal Pump experiment  
Bencthop Flow Measurement and Centrifugal pump report assigned, due in two weeks online;  
Prep quiz for Pump-Pipe System Design Experiment |
| 8    | Pump-Pipe System Design  
Pump-Pipe System Design report assigned, due in two weeks online. |
| 9    | No Meeting  
Holiday (Wednesday) |
| 10   | No Meeting |