

## Test Reflection 1

1) How and why the test demonstrates your work toward one, or more, of the course learning objectives. Be specific on the course objectives you decide to mention.

- Applying principles of conservation of energy including (Bernoulli's equation)

2) How your test compares against the available solution. State the mistakes you made and what you will do next time to avoid making the same mistakes. Please point out exactly where you made the mistake, say why you made the mistake, and how you should have done it. If you were taking this test again, what advice would you give yourself to ensure that you had a successful test?

- Numerous mistakes were made but in my question 1 calculations. I didn't properly solve for my  $h_A$ , my added energy to my equation. This occurred from lack of attention to detail from trying to rush through the test. Also not correctly utilizing energy lost equations for elbows, pipe, valve, and exit. I wasn't understanding exactly what I needed in order to compute those values. I didn't have as much time as I needed to finish the test because the fluid laboratory report was taking longer than expected. I believe if I started my test first I would have had a clearer mind to work on my problems. There were bits and pieces of my problems that were okay, but as a whole they didn't fit together. I wasn't confident with my calculations so it makes sense that my excel would reflect that also. Instead of rushing in the final hours to just turn something in. I have to be much more proactive in getting help when I don't have a clear understanding of something. Even if I can't attend lectures due to immense work responsibilities, I still make an attempt to get help outside of class.

3) What your grade should be. Base it on the writing rubric provided in the test and the correctness of your solution. What are the strengths and weaknesses of your test?

- Based on Rubric. Strengths- drawings and information about each problem looked good. Weaknesses - the calculations and excel files were subpar in terms of what I expected from myself.

### WRITING RUBRIC (APPLIES TO THE WHOLE TEST, NOT TO PARTICULAR PARTS)

1. Purpose	0.5/10.0 out of 0.5/10.0
2. Drawings	1.0/10.0 out of 1.0/10.0
3. Sources	1.0/10.0 out of 1.0/10.0
4. Design considerations	1.0/10.0 out of 1.0/10.0
5. Data and variables	0.5/10.0 out of 0.5/10.0
6. Procedure	2.0/10.0 out of 2.0/10.0
7. Calculations	1.0/10.0 out of 2.0/10.0
8. Summary	0.5/10.0 out of 0.5/10.0
9. Materials	0.5/10.0 out of 0.5/10.0
10. Analysis	1.0/10.0 out of 1.0/10.0
TOTAL	9.0/10.0 out of 10.0/10.0

### PART 1)

- |   |                  |
|---|------------------|
| 1. Select pipe diameter                                 | 1/7 out of 1/7   |
| 2. Use Bernoulli's to get $h_a$ (ref & points in pict.) | 0.5/7 out of 1/7 |
| 3. Pipe energy losses                                   | 0/7 out of 1/7   |
| 4. Minor losses   | 1/7 out of 2/7   |
| 5. Pump power with efficiency                           | 1/7 out of 1/7   |
| 6. Correct results                                      | 0/7 out of 1/7   |

### PART 2)

- |   |                |
|---|----------------|
| 1. Use geometrical relation                     | 0/6 out of 2/6 |
| 2. Use $\gamma h$ procedure                     | 1/6 out of 1/6 |
| 3. Proper manipulation of eqs and solve for "h" | 0/6 out of 2/6 |
| 4. Correct results?                             | 0/6 out of 1/6 |

### PART 3)

- |  |                          |
|--|--------------------------|
| 1. Use spreadsheet from previous parts to get pump power (P) for diff Q. Did losses change with Q? | 1/5 out of 1/5           |
| 2. Plot pump power (P) vs Q  | 1/5 out of 1/5           |
| 3. Read Q for pump power equal to $\frac{1}{2}P$ in part 1   | 0/5 out of 1/5           |
| 4. What is the new manometer reading?  | 0/5 out of 1/5           |
| 5. Correct results?  | 0/5 out of $\frac{1}{5}$ |

$$9.0 + (80/3) * (3.5/7 + 1/6 + 2/5) = 37.4$$

4) Discuss the following:

a. What issues did you encounter in completing the test? How did you troubleshoot them?

- I encountered a time issue on this test that impacted my ability to be level headed. Through much of this test I was in sheer panic because I was simply unprepared. I just simply tried my best to make values make sense.

b. What steps did you take to complete the whole test? Would you change something?

- I tried to work them similarly to the homework problems, however they had additional complexity that I did not factor in. The amount of time that I gave myself to take the test is something that I would change.

c. What new concepts have you learned?

- How to relate complex problems into an excel file helps automate the work for you. Which can be very beneficial in the working environment. Properly solving for the energy gained and lost in a fluid system.

- d. Where do you think engineers use those concepts (provide specific examples)?
- Yes, especially the excel portion of the calculations. If there are large amounts of data to process using excel can help automate the process instead of solving by hand.
- e. Where do you think you will be using everything you learned?
- On our group project where we will need to be able to design a piping system.
- f. Do you think what you learn is important for your professional career?
- Yes I ultimately want to be a test engineer for different subsystems of whatever I'm working on.
- g. How, when, where and why you might use this information or skill in the future?
- Indeed I work in the shipbuilding industry and miles of piping systems run through our ships. So being able to apply some knowledge from fluid mechanics could certainly help.
- h. Have you been able to apply concepts you have learned in the course to what you do at work or in other courses?
- Yes, I've been able to apply some concepts to the fluid mechanics lab.
- i. What areas did you feel you were most successful, or improved the most?
- Find a pipe size that would work for problem 1. I just couldn't pull it all together to perform on the latter part of the test.
- j. How do you see this course's content intersecting with your field or career?
- Yes in the shipbuilding industry concepts of fluids and piping come up on the regular basis.
- k. How much time did you spend on the test? How was the time organized? What Would you do differently? Why?
- Approximately 5 hours for the test was due. I was overloaded with other school work and could not start it any earlier. Recently I was promoted to a supervisor role at work that impacts my lecture time because I have meetings at that time. My group is also busy and as a whole we're going through it. I felt uneasy about going for help since I am not able to make lectures. So I've been feeling overwhelmed by it all.