Test 2 Reflection

Tyler Gray

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.

In this test I used skills developed throughout the course such knowing the nature of fluids, determining buoyance, Computing pressure and forces on a surface, Computed friction losses in pipe, Identifying specific problems such as water hammer and cavitation.

2) How your test compares against the available solution. State the mistakes you made and what you will do next time to avoid making 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?

The mistakes that I tended to make were based on incorrectly setting an equation which can be fixed by practicing more free body diagrams.

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?

Using the Rubric on the overall test material I gave myself a 70.48% I also added 10% for completeness of the HW' s for a total score of 80.48%. My strengths were with correctly solving the problems once I had the correct formula. My weakness was the drag/friction section and the reaction force section I incorrectly set up the equation.

Test 2 Self Reflection Grading

WRITING RUBRIC

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	2.0/10.0 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 WRITING RUBRIC	10.0/10.0 out of 10.0/10.0

PART 1)

1. Correct equation 1/4 out of 1/4
2. Area calculation 1/4 out of 1/4
3. Hydraulic radius calculation 1/4 out of 1/4
4. Correct results? 1/4 out of ¼

PART 2)

1. Free body diagram and correct forces 1/4 out of 1/4
2. Force in x 0.5/4 out of 1/4
3. Force in y (weight) 0.5/4 out of 1/4
4. Correct results? 0/4 out of 1/4

PART 3)

1. Right equation and A1/A2 1/3 out of 1/3
2. C value 1/3 out of 1/3
3. Correct results? 0.5/3 out of 1/3

PART 4)

1. Water hammer
    a. Wave velocity (units?) & pressure increase 0.5/4 out of 1/4
    b. Operating pressure & pipe thickness 0.5/4 out of 1/4
2. Cavitation
    a. Lowest pressure & compare to sat pressure 1/4 out of 1/4
3. Correct results? 0.5/4 out of 1/4

PART 5)

1. Hydrostatic force on the gate
    a. Magnitude 1/5 out of 1/5
    b. Location 1/5 out of 1/5
2. Solve for buoy force with moment conservation 1/5 out of 1/5
3. Using buoyancy, get sphere diameter. 1/5 out of 1/5
4. Correct results? 1/5 out of 1/5

PART 6)

1. Correct area 0.5/4 out of 1/4
2. Correct velocity 0.5/4 out of 1/4
3. How Cd was obtained? 1/4 out of 1/4
4. Correct results? 0/4 out of 1/4

PART 7)

1. Setting up the spreadsheet for all parts 1/3 out of 1/3
2. Case for flow rate when the pump power is half 1/3 out of 1/3
3. Correct results? 0.5/3 out of 1/3

FINAL GRADE:

10.0 + (80/7)*(4/4 + 2/4 + 2.5/3 + 2.5/4 + 5/5 + 2/4 + 2.5/3) = 70.48

4) Discuss the following:
a. What issues did you encounter in completing the test? How did you troubleshoot them?
I was confused about the buoy question but, reviewed again and got it correct the second attempt at it.
b. What steps did you take to complete the whole test? Would you change something?
I studied and rewatched every lecture leading up to the test again. I wouldn't change anything
c. What new concepts have you learned?
How to calculate buoyancy force, drag, flow nozzle, and calculating risks of water hammer and cavitation
d. Where you think engineers use those concepts (provide specific examples)?
In the industry mostly industrial designers and for the drag equations will largely be used in aircraft design
e. Where do you think you will be using everything you learned?
In the industry
f. Do you think what you learn is important for your professional career?
Absolutely
g. How, when, where and why you might use this information or skill in the future?
To design systems were water or another fluid is present and to prevent design errors.
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 a few of these concepts have already been used for the design project
i. What areas did you feel you were most successful, or improved the most?
I was very comfortable with the buoyancy force portion,
j. How do you see this course's content intersecting with your field or career?
Most likely, even if all the material isn't used for my career, I could image a large portion will be
k. How much time did you spend on the test? How was the time organized? What would you do differently? Why?
I spent a total of 16 hrs on the test, 4 for the pretest, 2 on excel, 1 on the structure and the remainder was on the material. I would complete the pre-test again it was beneficial to give me an idea what the test was structured like and so I could get a feel for the difficulty and how much time would need to be spent on the test so that I was not feeling rushed.