Colby Watts

MET 330

Final e-Portfolio

Professor Ayala

After completing this course, the student should be able to:

• Describe the nature of fluids and define different fluid properties such as viscosity and pressure;

• Compute pressure and the forces (magnitude, location, and direction) associate with it in a stagnant fluid;

• Discuss what buoyancy is and determine object stability while floating or submerged in a fluid;

• Explain the fluid dynamics in pipes and fittings;

• Apply the principles of conservation of energy (Bernoulli's equation) and mass to fluid flow systems;

• Compute friction losses in pipes for a variety of configurations (series, parallel, network, etc.);

• Identify and solve for different very specific industrial problems, such as, open-channel flow, cavitation, water hammer, drag, lift, forces in pipes, and learn about different instruments to measure fluid flow quantities (such as, pressure, fluid velocity, flow velocity, etc.);

• Explain how fluid-machinery work (focused on pumps);

• Compute and select the appropriate pump for different pipe system configurations.

2. Answer the following questions using links or excerpts (visual, audio, or written) from your e-portfolio to illustrate your answers:

1) Where is your learning demonstrated in the course?

- The work I have done in this class is very well demonstrated in the tests section of my website. Although my work and answer may not be correct, you can understand the process I went through to get my solution.

2) What areas did you feel you were most successful, or improved the most?

- I felt improved on open channel flow systems on the second test of Part 2 when designing a lazy river. I understood the process needed to get through the problem, but my result was nowhere close.

3) How do you see this course's content intersecting with your field or career?

- I see this course intersecting a lot. I have an internship this summer, and they do a lot of municipal work. One of the projects they did was a water treatment plant.

4) Have you been able to apply concepts you have learned in the course to what you

do at work or in other courses?

- Unfortunately, I have not, but I am looking forward to using these concepts in the future.

5) How, when, where and why you might use this information or skill in the future?

- I could use this information when designing an irrigation system for golf courses or residential areas, such as sewer pipeage or really any concept that involves the flow of a fluid.

6) Do you think what you learn is important for your professional career?

- I think anything I learn is a crucial part of being successful in my professional career, no matter what it is.

7) Where do you think you will be using everything you learned?

- Hopefully, I will be using what I learned in my future job because if not, then the degree is pointless; without the knowledge to complete a task, you can't even start it.

8) If you were starting this class again, what advice would you give yourself to

ensure that you had a successful semester?

- I would say use the whole week to do the test and not tackle it all at once; I feel as if I got frustrated easily when knowing I only had a certain amount of time left. I have said this for all my test reflections but never did it. I need to do this for future courses. Sometimes, I work better under pressure. I also should not lose sleep over assignments because it only makes me less inclined to do it the next day.

3. Also answer the following questions:

1) After taking this class, in what ways have you improved as an engineer? What

brought about those improvements?

- I improved as being a better team player; I have always gotten along with people when doing teamwork activities or building exercises, but going through an entire course with my team has made me confident in going to the real world, knowing I have improved my communication skills.

2) What was your biggest accomplishment in the course? Be specific with respect to

your work and the topics you learned in the course.

- My biggest accomplishment was solving for pressure in test 1 using a derivation of Bernoulli's principle and tying in friction losses due to the elbows and vertical/horizontal pipes with a gate valve.

3) What skills did you master in this course? How are they reflected in the

assignments (HW, tests, etc.) Be specific.

- I would say I mastered every skill needed for my professional career. The easiest part of this course was test 1, where we had to compute the pressure in Tank B while already having pressure in Tank A, while calculating for energy losses and the pressure in a manometer.

4) What do you feel are your strengths and weaknesses? Explain while making

specific references to your work.

- My strength would have to be Test 1 and Part 2 of Test 2 where I had to design a lazy river. My biggest weakness was Test 2, Part 1, and Test 3 altogether.

5) How did you think about this course before you took it and how you think about it

now that it is over? How many of your assumptions of understandings changed?

Why?

- I thought this course would be extremely hard because many professional engineers I have talked to say that Fluid Mechanics is the most challenging class they had to take. It was a fairly intermediate course; it got challenging throughout the semester, but nothing is hard if you put your mind to it and barrel through. It was not as hard as many people said; it was granite, they could have had a harsh teacher.