Test reflections

For every test you archived in your ePortfolio Google drive, you should have a reflection that briefly discusses:

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.

Bernoulli's equation was used to find the pump head in part B of the test. We also had to use the conservation of mass in the third part of the problem to solve for total flow rate and flow rate in the branches.

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?

Overall my procedure was in line with the solution. My biggest error was not using one branch to find pump head. In the pre-test questions there was a HINT not to add losses. If I had to do the test again I would do sections of the test in time slots before the pre-test was due instead of trying to do it in one time slot.

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 the rubric I think a C+ or a B- is what I deserve on this test. My strengths were to recognize that you needed 3 equations for the third part of the test to solve for the 3 unknowns.

WRITING RUBRIC

- 1. Purpose -0.5
- 2. Drawings -0.5
- 3. Sources -1

- 4. Design considerations -1
- 5. Data and variables -0.5
- 6. Procedure -1.5
- 7. Calculations -1.5
- 8. Summary 0.5
- 9. Materials -0.5
- 10. Analysis 1

TOTAL - 8.5

PROBLEM 1)

Compute pump power

- Flow rates through the branches
 - a. Initial set up labelling -0.25
 - b. Initial guessed Qs 1
 - c. Spreadsheet setup -0.5
 - i. Q column 1
 - ii. L_{eq} column -0.25
 - iii. "f" Calculations 0.25
 - iv. k, kQ, and kQ^2 calculations -0.5
 - v. ΔQ calculations and corrections -0.75
 - vi. Iterations (when to stop) -0.5
 - d. Final results -0.75
- Pump head
 - a. Appropriate use of Bernoulli's to solve for h_A 1
 - b. Energy loss calculations before branch -1.5
 - c. Did you use only one branch -0.75
 - d. Final results -0.5
- Total flow rate after closing valve
 - a. Setting up the equations (2 equations from Bernoiulli) -1.5
 - b. Solving for the equations -1.5
 - c. Final results -0.75

FINAL GRADE:

8.5 + (80/3) (5.75/9 + 3.75/5 + 3.75/5) = 64.04

- 4. Discuss the following:
- What issues did you encounter in completing the test? How did you troubleshoot them?

The issues I had was using the Hardy-Cross method. I compared the example from the text and the lecture from 11/14 and ready the sample problems in the second part of the lecture to tie everything together.

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

Everything I did I would do it again. What I would add is solve the test using a different method I was more comfortable with and compare the results.

• What new concepts have you learned?

The Hardy-Cross method was relatively new. I wish I had done a couple sample problems leading up to the test from that section of the test.

• Where you think engineers use those concepts (provide specific examples)?

The Hardy-Cross method is still used today in analyzing lopped pipe systems.

• Where do you think you will be using everything you learned?

In other classes and in my professional life. My knowledge of using excel came in handy when doing the formulas for the Hardy Cross method and iterations.

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

Yes. Lately I have been thinking if I want to stay in manufacturing. The structure of the class gives you a real feel for the designing aspect in the industry and if ever I change it would be a good base to have.

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

In my field pump selection is a common thing but not in my current role. If I were to switch departments the knowledge would be useful.

• Have you been able to apply concepts you have learned in the course to what you do at work or in other courses?

Yes. Meeting timelines are a very important part of my day to day function. Extracting data and putting it into excel and analyzing the data is daily practice.

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

This answer is the same from the last test. Know how to apply Bernoulli's equation. I feel a little more comfortable in problems relating to this. In the second and third part of the problem we had to use Bernoulli's and immediately it came to me where to put my points to include all the information needed to solve the problem.

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

I enjoyed the structure of the class. The design aspect of it. It allows you to think like an employee/in the industry and not just a student. It's the kind of design as an engineer that sparks my interest.

• How much time did you spend on the test? How was the time organized? What would you do differently? Why?

I spent approximately 2 and a half days on the test. About 8 hours were spent doing the test before submitting the pre-test questions.

If I were to do it again I would have tried another method, I was more comfortable with to solve the first part of the problem first before moving on to the actual solution.