

Final ePortfolio Reflective Letter

Looking back, I can remember the first day of class, as I sat through the review of the syllabus, and thinking to myself, “that sounds like a lot of work!”, “I am never going to pass this class!” Now, as I have completed and done very well on [Exam 1](#) and [Exam 3](#) and have worked through the workforce syllabus which requires the submittal of a semester long [final project](#), I have proven that I can do this! Although I did not do very well on Exam 2, I believe that doing a [test reflection](#) was extremely helpful in helping me understand what I did incorrectly. Not only did I follow through and struggle now and again in the class, surprisingly, I found that I very much enjoyed the lectures, working through a great majority of the test as well as homework problems, and the overall knowledge I’ve gained this semester. The professor has made, what I feel was, a very difficult subject, relatable and possible to find ways to use what we’ve learned out in the field of engineering.

The use of real life situations was very useful for me to apply all of the sections of fluid mechanics to my current job and also to my next job, which will be as a mechanical engineer. Each of the problems assigned for homework was selected to help us get comfortable with problems that rely on fluid mechanics to solve. From our first set of [homework problems](#) computing pressure and forces in a stagnant fluid to the final task in a [semester long project](#) of computing and selecting the correct pump for a specific application, we were challenged to think about simple and efficient solutions to solve complex problems.

[Exam 1](#) along with the [homework](#) covered the topics of: Nature of fluids, Viscosity of Fluids, Pressure, Hydrostatic Forces due to static fluids, Buoyancy and Stability, Bernoulli, and Navier-Stokes equations. [Exam 2](#) and its corresponding [homework](#) covered the topics of: Energy equation, Applications, Dimensional analysis & similarity, Boundary Layer, Friction losses in pipes (single pipe), Minor losses in pipes, Series pipeline systems, Parallel pipeline systems, and Network pipeline systems. [Exam 3](#) covered instrumentation, Open channel flow, Water hammer & Cavitation, Drag and lift, Impulse theorem, and Turbo machinery. All these topics, with the addition of Pumps, Pump affinity laws, Positive displacement pumps, and Pump NPSH were needed to complete the semester long final project. This project, which was to design a piping system for a new machine shop, was divided into tasks that required the use of every concept learned throughout the semester. This project was very challenging, but very rewarding as well.

1) Where is your learning demonstrated in the course?

What we learned was called upon during each and every assignment given. Dr. Ayala provided many opportunities to use the concepts that were being discussed at the time.

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

The area I feel I improved the most was in using Microsoft excel as a tool to solve problems that required the use of complex formulas ([shown here](#)) for many iterations to achieve the correct answer. I was not aware of that capability, but it is a tool that I will use for the rest of my career – unless an alternate solution comes available.

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

I am certain that this course was the most important course I will use in my career as a mechanical engineer followed closely by Thermodynamics. I currently work in an engineering group responsible for the design and maintenance of HVAC systems throughout the entire shipyard.

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

As stated above, I have been able to use every concept I've learned in Fluid Mechanics in my everyday tasks. My group performs heat loads, sizes pumps for chilled water systems, designs piping systems for water, steam, gas, and tool air on a daily basis. What I have learned in this class will prove to be invaluable toward my future career.

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

Not only will I use this information and skills I've acquired in the future, I am already using them now. I have been in need of this knowledge since before I enrolled in the class. I am very thankful to have had an instructor that stresses the importance of fluid mechanics and is passionate about teaching the subject.

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

There is no doubt the skills I've learned this semester in fluid mechanics will play a critical role in future promotions as an engineer.

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

Not only will I use what I've learned in my current career at Newport News Shipbuilding, if I were to choose to seek employment elsewhere, the skills and knowledge I've gained in this class has allowed me to have more confidence in myself to be able to move into more technical roles.

8) If you were starting this class again, what advice would you give yourself to ensure that you had a successful semester?

If I were to take this class again, I would, without a doubt, do more of the assigned homework problems. This semester I rarely did more than what was required. I often had to make a choice, based on my available time, as to what questions I would answer. If I were to have the opportunity again, I would make time to do ALL the selected problems.