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MET 330

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Final MET 330 Course Reflection

Mechanical Engineering Technology, or what is known at Old Dominion University as MET, class 330 was a course that was as challenging as it was informative. It beings you from a person's generalized understanding of fluids to a much more in-depth understanding of how they flow, how they interact with their environments, and how the components we use to manipulate and move the fluids correlate with one another. This course gives you a more thorough understanding of what it is and what it will be like to be an engineer.

Beginning this course we started by easing into what the various fluid properties were and doing a few basic unit conversions to ensure that we were familiar with the units used during the course and how to manipulate them should we need to in the future. Once we were successfully able to show that we had the requisite knowledge to do the simple calculations we immediately transitioned into gauges, how they work, how to read them, and how varying the height and specific weight of the fluid will change how it responds. Having completed the two beginning sections, this is where things began to get more complicated as we began computing the stresses placed on objects based upon their orientation and the fluid(s) that they were interacting with. This also marked the end of the first quarter of information we would learn for the class and thus the first exam. The biggest item was that even though I am familiar with excel and how to do the calculations required for the class, in my current career and throughout my entire past schooling we were required to use a calculator so moving away from that took a little getting used to. While for myself I did not do as well as I would have wanted to, I will say that should anyone put in all the required work and be able to give the appropriate amount of time for the class they will have no problems passing if not excelling throughout the course.

Now with the first section done I thought I would get a little bit of a break but found no such luck as this class was taken over the summer and it was right back to the grind immediately following the exam. Beginning of the next section, section 4, expanded what we had learned in the first portion of the course and added a key portion to what will carry us through the rest of course. This section introduced us to Bernoulli's equation, the equation used to calculate or derive the majority of the equations throughout the remainder of the class. Using that base knowledge, we rolled into piping and how to calculate the various needs of a system given a set of requirements, i.e., what it would be like to be the engineer being told how what the business or client needs done and now it is up to you to put together a system that will perform as such. After gaining that knowledge and learning about, and how to calculate, losses within a system we took our second exam. This exam was one that I was able to spend the most amount of time on, as well as this section of the class in general, and as such my grade correlates to it as it was one that I scored my best on. I felt like I had the best understanding of the class up to this point and that everything was beginning to essentially click together for me.

Coming from the confidence boost that was exam number two, sections eight and nine we talked about the flow in open and channels, and what actually classifies a channel as open, various flow meters and how they work, and then introduced the concept of cavitation and drag. Furthermore, right before this exam we covered forces within a pipe, forces within pipe bends, and then introduced and covered impulse theorem which is what would be used to calculate the forces occurring in pipe bends. This portion of the course ended up working out poorly for myself due to timing with starting a new career and trying to balance that, school, and my family. As such the exam ended up not being the best work I could have turned in and my grade reflected that.

The final portion of this class brought us through turbomachinery, or what is more commonly referred to as pumps. While the other portions of the class laid the groundwork for fluid flow within a system, aside from for example flow down a grade for a drain, this section taught us the importance of selecting the right pump for the job and how to put it all together and build a system. While it may seem somewhat reasonable to put together a system with the biggest pump and piping that you can as it will in most cases somewhat get the job done, the

results can end up being hiring operating costs, decreased efficiency, and damage to the expensive pump through cavitation. This portion also marked the final for the course where we were tasked with picking up a project left by a previous engineer and developing a system that will be used by a company to pump fluid from a railcar to a storage tank to be then used by the in-house machinery.

Using all the information learned and supplied by the course I feel like overall I learned the most about the piping and how the flow throughout a piping system interacts with all the components. This aspect as well as the last topics regarding the pump information and pump selection process will greatly help me now in my current role as a facilities preservation engineer where I am responsible for all the tanks on site and thus the systems that correlate to them and in the future for any of the positions I plan to grow into. Unfortunately, however as of this point in my career, and being as I just shifted into this role midsemester from my nuclear shift test engineer position, I have not had much time in this role, and it has not helped me yet. This class and all the other engineering classes have helped me not only develop a better understanding of engineering but have also helped me understand what I want to grow into as a business professional and how I want my career to evolve. This picture that has been and continues to be painted for me allows me to make more educated and well thought out decisions and thus will lead me and my family to a better future.

Looking back at this class in its entirety has been nothing but a bear to try and tackle for me. Between the shortened timeline of a summer schedule, the coupling of this class with the lab and thermodynamics, working 50-60 hours a week, and trying to be there for my family has been nothing short of draining. If I had to start this class over again, I would tell myself to not take thermodynamics and allow myself more time to focus on just the one. Up till this point I had been able to maintain a respectable GPA through either A's or B to B+'s but as I said this turned out to be a lot to handle within this one semester. With that, I have been able to improve as an engineer. Through the completion of these classes and thus placing me two semesters away from graduating and coupling that with my prior Navy and engineering experience I was able to step away from my career at the shipyard making $90k a year and into a role that makes $131k. My choice to go back to school and pursue my dream of becoming

what I always wanted to have paid off more than I could have ever hoped it would have being as when I first moved back to Virginia after leaving the Navy I was making $18/hr. So yes this class, these courses, and the school as a whole has done a ton to improve me as an engineer and as a person.

My biggest accomplishment for this course would be the completion of the course. By completing the course, it places me just that much closer to finishing my degree and allowing me to move on to pursuing my master's in engineering management. Regarding the coursework itself I would have to say that my biggest accomplishment would have been my now understanding of the pump selection process. I have worked with and around pumps for many years and up till this class I never fully understood the requirements behind them, as it wasn't something that was in the scope of my job. Being able to look at a pump, understand the type, how it functions, and why the person that designed the system chose that pump is something that will continue to help me for years to come. This has also helped me highlight some of my strengths and weaknesses, it continued to show me that I am not 22 and don't quite pick up on things just as quickly as I had in the past but yet between learning the roles at a new job and the shortened amount of time I was able to devote myself to the coursework I was still able to pick up, understand, and regurgitate enough information for the course as shown by my lackluster grades in the class. Then overall, going into the class I had high hopes that it was going to go like my other classes where I can breeze through them. I quickly learned that would not be the case and that I would need to put forth some actual work to not have to take this class again next semester. So most if not all my assumptions going into it changed within the first week of taking the course.