

Reflective Cover Letter

1. Course Objectives and Learning Experience

- *Fluid Properties and Dynamics:* Throughout this course, I have developed a deep understanding of fluid properties such as viscosity and pressure, and how they apply to pipe systems and machinery.
- *Application of Principles:* By applying Bernoulli's equation and conservation of mass, I have learned to compute friction losses and evaluate system configurations.
- *Professional Alignment:* My learning is well-represented by my portfolio, where I moved from initial struggles to mastering complex topics like pump selection and drag/lift calculations

2. Reflection on Learning

- Where is your learning demonstrated?
 - My learning is primarily demonstrated through the iterative feedback process between my homework submissions and test results. By analyzing my errors, such as in my Test 2 reflections, I was able to bridge the gap between theoretical concepts and practical application. [MET330 - Unit 2 Reflections](#)
- Areas of improvement:
 - I saw the most significant improvement in my ability to approach pipe network design systematically. By learning to slow down during the initial setup of downstream isolation steps, I avoided calculation errors in later, more complex problems. [MET330 - Unit 2 Exam](#)
- Intersection with career:
 - This course intersects directly with my work in hydraulics. While I have hands-on experience, this course has provided a vital analytical perspective that allows me to view our systems with a much deeper technical understanding.
- Application of concepts:
 - I have already begun applying these concepts to re-examine systems I work with at the Cockpit Motion Facility. Furthermore, the knowledge gained here has prompted me to revisit thermodynamic principles from previous courses to better grasp the "big picture" of system energy.
- Future use:
 - I anticipate using these skills for future system upgrades. Whether evaluating the benefits or drawbacks of a specific fluid configuration or performing technical safety reviews, this knowledge is essential for my daily engineering tasks.
- Importance to professional career:
 - This is highly important. As an engineer, my work requires an analytical approach that goes beyond basic math. Being able to document, explain, and justify design decisions, as I learned through my test reflections, is what defines a reliable engineer.

- Where will I use this?
 - I will use this in my current role at the Cockpit Motion Facility to troubleshoot and optimize systems, and in any future roles within the HVAC, power plant, or manufacturing sectors.
- Advice for next time:
 - If I were starting this class again, I would prioritize allocating more time to work through complex scenarios rather than just focusing on the theory. Consistency and dedication are key to mastering these topics.

3. Engineering Growth and Accomplishments

- Improved as an engineer:
 - I have improved by learning to embrace the feedback process and viewing my mistakes as the most valuable part of my education. Analyzing my oversights, such as the pump selection process on my final exam, has made me more thorough and detail-oriented.
- Biggest accomplishment:
 - My biggest accomplishment was mastering the drag and lift concepts. Being able to visualize the aerodynamic theory and apply it to complex problems was a highlight of the course. [MET330 - Unit 3 Exam](#)
- Mastered skills:
 - I mastered the application of fluid mechanics to industrial problems, specifically in cavitation. These are reflected in my assignments where I moved from simple calculations to identifying specific system requirements
- Strengths and weaknesses:
 - My strength is the ability to apply core concepts to diverse, real-world problems. My primary weakness is time management; outside obligations occasionally limited my ability to dive as deeply as I wanted into certain topics, which directly impacted my performance on some exams.
- Changing assumptions:
 - I was intimidated by the complexity of fluid mechanics at the start. I previously viewed concepts like cavitation as purely theoretical, but now I see them as critical, practical factors in system maintenance and design. My understanding of how these forces influence real-world performance has completely evolved.