

Meeting Minutes

Course: Honours Engineering Research Project (Leaky Tank Mystery)

Minutes Documented By: Eric Tsoukatos

Meeting No: 1

Date of Meeting: 1/03/2024

Location: Remote/Online

Time: 4:15pm

1. Attendees

<i>Present</i>	<i>Apologies</i>	<i>Absent</i>
Eric Tsoukatos (ET)		
Michael Stefani (MS)		
Lachlan Mann (LM)		
Derek Abbott (Supervisor)		

2. Meeting Notes, Questions, Decisions, Issues

How will progression occur in terms of completing this honours project?

- Begin with a literature search of the project to become familiar with the experiment.
- Rewrite and understand equations and identify factors in past experiments that cause the observed results to occur.
- Use COMSOL (multiphysics simulator, get license from IT people) and the fluid mechanics module software to simulate the experiment and observe what happens.
- Research for COMSOL code about fluids running down pipes and use/adapt that code such that it satisfies the requirements to our problem.
- Research COMSOL code on Github.
- Complete experiment once all parameters and expected observations have been made. This includes what size the tank must be (small tank is too small a force) (too large a tank creates greater force but too great an inertial force).

What ideas or main factors will alter the behaviour of the water tank and how can they be managed?

- Magnitude of the force from the draining water is far less than any frictional forces hence it has not been completed experimentally.
- IDEA: Have tank and hang four corners from ceiling with thread (frictional forces will be far less).
- QUESTION TO EVALUATE: How will we let water out of a hole in gentle, laminar fashion without disturbing or moving the system, perhaps an electronic release system, the orifice must be designed in such a way to keep laminar.
- Theory must come first such that the tank size can be optimised such that the tank is not too small or too big.
- Use COMSOL to design orifice such that water is laminar.

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3. Action Items

<i>Action</i>	<i>Assigned to</i>	<i>Due Date</i>	<i>Status</i>
Research past studies of the leaky tank mystery to begin understanding the subject matter and the relevant factors that will impact the experiment.	All	6/03/2024	In Progress