

## Senior Design Project Data Sheet

Project #	Project Name	Project Track	Project Family
P13465	Water Table	Sustainable Systems	
Start Term	Team Guide	Project Sponsor	Doc. Revision
Winter 2012	Gerald Garavuso	Mark Smith	Version 1.0

### Project Description

#### **Project Background:**

The objective of the project is to design and develop a water table that will effectively demonstrate flow streamline behavior over different object geometries at different angles of attack. This project will be used as an educational tool to help students gain a better understanding of concepts in flow behaviors.

#### **Problem Statement:**

Currently, students enrolled in fluids courses at Rochester Institute of Technology are expected to learn the concepts about streamlines, vortices, and flow separation mostly through in-class analytical examples and lectures. The water table would allow the opportunity for students to visualize flow, which would be extremely beneficial in increasing students' comprehension of topics associated with open fluid flow.

#### **Objectives/Scope:**

1. Design an education water table where students can get a heads on learning experience in a lab setting
2. Give students control of water flow, angle of attack and explore different object geometries
3. Modular design- ability for water reservoir and pump to be used in other applications.
4. Both easy and safe for all users to operate.

#### **Deliverables:**

- Functional water table which meets previously discussed needs.
- Schematics, drawings, sketches, and bill of materials
- Detailed installation steps and instruction sheet on how to operate the water table.
- Final technical paper outlining all details about the water table.

#### **Expected Project Benefits:**

- Give students the ability to learn about water flow behavior outside of the textbook. Students will have control of various settings on the table which will help reinforce what they have learned in the classroom/textbook.

- Modular design allows water reservoir and pump to be used for other purposes/projects.

#### **Core Team Members:**

- John Harrington
- Andrew Nauss
- Timothy Jordan
- Danny Abdeen

### Strategy & Approach

#### **Assumptions & Constraints:**

1. Must be reasonable to transport throughout the building and classrooms.
2. Minimal maintenance and cleaning.
3. Zero water loss during system operation.
4. Easy to use interface for user.

#### **Issues & Risks:**

- Water table does not properly demonstrate fluid behavior.
- Water leaks from the system.
- System is considered unsafe for operation
- Flow visualization does not satisfy customer needs.