

## Senior Design Project Data Sheet

Project #	Project Name	Project Track	Project Family
P11411	Water Desalination System for Dubai	Energy and Sustainable Systems	Water Cleaning Systems
Start Term	Team Guide	Project Sponsor	Doc. Revision
2010-2	Gerry Garavuso	Dr. Edward Hensel	2 (Jan. 2011)

### Project Description

#### Project Background:

This project is a pioneering project within the Sustainable Water Systems family roadmap, and first one to focus on desalination water cleaning efforts. It is not a direct continuation of a previous senior design project, but an MSD team would find it useful to reference 'Water Desalination P08401' MSD project to gain a better perspective on this cleaning process. The project objective is to develop a cleaning technology that will be placed in a series with a biological cleaning system to achieve both a salt/mineral free and bio-contaminant free water stream. This project is very important to not only the growing region of Dubai, but to the rest of the world as well. Understanding the desalination process is therefore a critical component of these efforts, and this project will develop an educational tool to do so.

#### Problem Statement:

The primary focus of this project is to better understand the desalination process by focusing on designing and manufacturing a single laboratory-scale desalination unit. This project will fall within the cleaning module/function of the Sustainable Water System roadmap family.

#### Objectives/Scope:

1. An educational water desalination tool for RIT and RIT Dubai students that will demonstrate the small scale operation of a desalination unit.
2. The hardware product at the end should be appropriate for both USA and UAE student teams to build upon.
3. The project will lay the foundation for future MSD teams that will correspond and work between RIT and RIT Dubai.

#### Deliverables:

- Educational Desalination Unit
- Manual and Instructions on how to operate unit
- Infrastructure for future international MSD projects between RIT and RIT Dubai

#### Expected Project Benefits:

- Educational desalination tool for upper level RIT and RIT Dubai students
- Provide foundation for developing a sustainable water system on RIT Dubai campus

#### Core Team Members:

Sergey S Chiripko Jr., Wayne Evans, Kelsey McConnaghy, Allison Schneider, Dylan Connole, Andrew Thistle

### Strategy & Approach

#### Assumptions & Constraints:

1. The hardware product at the end should be appropriate for both USA and UAE student teams to build upon.
2. This project should clearly identify and solve logistics problems associated with multi-national MSD projects.
3. The primary application and objective for this project is educational so that MSD teams gain experience with desalination for subsequent MSD teams to build upon

#### Issues & Risks:

- Multicultural and Multinational Logistics, Technical Requirements
  - During 20102, half of the team will be studying abroad in Dubai while the other half remains in Rochester
  - Cultural, communicational, and national difference exist for members in Dubai
  - There has never been a cross-continental MSD project at RIT so the project must be technically sound and successful to build this infrastructure
  - Unpredictable weather conditions in Rochester could delay project or demand costly simulation.

