

Senior Design Project Description

Company Name	UNC Charlotte – Facilities Dept	Date Submitted	October 13, 2017
Project Title	FM Water SCADA (FM_SCADA)	Planned Starting Semester	Spring 2018

Personnel

Typical teams will have 4-6 students, with engineering disciplines assigned based on the anticipated Scope of the Project. 250 hours are expected per person.

Complete the following table if this information is known, otherwise the Senior Design Committee will develop based on the project scope:

Discipline	Number	Discipline	Number
Mechanical	6	Electrical	
Computer	1	Systems	
Other (Civil)			

Project Overview:

UNC Charlotte maintains water systems for drinking water, irrigation, cooling, steam, and wastewater, and is planning to add reclaimed water as an input. There is currently no centralized system for monitoring these systems. Facilities Management is adopting a Water GEMS (this is a software decision support tool for water distribution networks) model for potable water and will add wastewater in 2017-2018, and may add stormwater and reclaimed water in the future. The project is to develop a SCADA system capable of integration to WaterGems to provide the capability for a centralized water monitoring system.

Project Requirements:

This project will study existing campus metering and data systems (e.g. for flow, pressure, water quality/chemistry) and design a Supervisory Control And Data Acquisition (SCADA) system capable of interfacing with the Water GEMS model. The focus of the project will be potable water systems with the ability to incorporate the other water systems in the future. An inventory of the current system components will be developed and used for a gap analysis. The final design will include a SCADA prototype and a cost-benefit analysis for recommended upgrades or improvements to create the final campus-wide SCADA.

Expected Deliverables/Results:

- A SCADA system design based on the latest available technology
- A prototype of the designed SCADA system
- A digital report that includes the options analyzed and a cost benefit analysis for the preferred system.



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- Well-documented spreadsheet should be provided for the inventory and cost-benefit analysis.

Disposition of Deliverables at the End of the Project:

Prototype to be delivered to the Facilities Management Department after the conclusion of the Expo.

List here any specific skills, requirements, knowledge needed or suggested (If none please state none):

- None