Faculty Name: Kristiina McConville

Project Title: Sensors and data collection for water management patterns and algorithms

Description of Project (Provide ½ page project description)

The Ryerson University green roof sets a precedent in improving urban health along with reducing environmental impacts. In order to create a policy around green roof agriculture, careful measurements must be taken of water utilization and run-off. A special sensor network will be developed to record soil moisture, ambient humidity, irrigation flux, and outflows. The sensors will be calibrated and monitored by comparing the data to handheld devices and third party data. Measurements will be recorded regularly, and the resulting database will be examined for patterns that could indicate potential improvements. The data will be compared to other green roofs and to equivalent non-green roof areas. A website will be developed to inform other green roof users of best practices. Recommendations will be made to policy makers regarding green roof use and support systems.

Responsibility of Student (Specify the duties and responsibilities of the student)

The student will be responsible for consulting with the Ryerson green roof coordinator, Campus Facilities and Sustainability, and Toronto Public Health, as well as conducting independent research to determine sensor requirements. In consultation with the faculty supervisor, a sensor network will be designed and developed. The following are specific duties:
- Meet with the above stakeholders and obtain inputs
- Research similar systems
- Help to design the system
- Help to build the system
- Calibrate and check the sensors
- Take measurements and maintain the database
- Develop a website to display the findings
- Compare data to other green roof and equivalent non-green roof data
- Make recommendations

Specify Requirements (Please state any specific requirement of this position)

Preferred experience with sensors, databases, and website development. Excellent interpersonal skills required.