## **2011 CEE Capstone Design Project Topics**

## **Geological Engineering**

Ecothermal modelling of a granite reservoir at depth

Grey Owl Mine tailings cover design

Design of a seepage control structure

Numerical simulation of fractured reservoirs

Motor selection for improving directional drilling control in horizontal wells

Laurel Creek remediation

Waterman realignment

Design of the OSL ETF to reach a height of 60 m

Design of a flourescent tracer injection experiment to characterize infiltration patterns

Caribou Mine tailings dam

Investigation into the failure of a grout-in-place pipe liner in a steel culvert

## **Environmental Engineering**

Design of a snow storage facility for the Region of Waterloo

Lockwood solvent groundwater plume site remediation

Rehabilitation of fish habitat in the Rocky Saugeen River

Electrokinetic separation system for use at the IDOL Landfill

Simmons lake gas station trichloroethylene remediation

Biofilm removal device for large diameter wells

Design of a surface water treatment plant for the Village of Ayr

Upgrade of a conventional water treatment facility to address the presence of emerging contaminants in source water

## **Civil Engineering**

Improving the sustainability of the University of Waterloo campus

Parking Structure on the University of Waterloo campus

Solar panels and recycled concrete aggregates for Engineering VI building on UW campus

Wind farm in British Columbia, Canada

Sherbourne Common architectural pavilion, Toronto waterfront

Stabilization and strengthening alternatives for spalled concrete girder bridges

University of Waterloo Light Rail Transit (LRT) station

Temporary modular bridge design for Bridgeport bridge crossing

Victoria Park pedestrian bridge design, Kitchener

University of Waterloo hydrology lab flume redesign

Design of Franklin Boulevard roundabout, Cambridge

Design of Bus Rail Transit (BRT) system at Hespeler and Pinebush Road, Cambridge

Stormwater management plan for University of Waterloo northwest campus

Nepal rural bridge project

Expansion of the Panama Canal

Formwork system for 3-story concrete office building and underground parking structure

Design of a parking garage in Vancouver, British Columbia

Material and resource management for general contracting organizations

Preventative climate change design for bridges in Ontario

Region of Waterloo Light Rail Transit(LRT): Fairview Park Mall to King-Victoria station

Implementation of a High Occupancy Vehicle (HOV) lane in an urban environment

Bear Creek culvert design

Shoring at 500 East