

# 2012 CEE Capstone Design Project Topics

## Geological Engineering

Anchoring Systems for Deepwater Offshore Structures in the Beaufort Sea  
Hydraulic Fracturing in Naturally Fractured Rocks  
Flood Potential and Mitigation in Pemberton, British Columbia, Canada  
Aquifer Storage and Recovery Design  
Seismic Design Parameters for Antamina Mine, Peru  
Design of an Overburden Storage Facility  
Geotechnical Characterization of Iron Bearing Igneous Rocks with Reference to an Open Pit Mine in Eastern Nunavut  
MFT Storage Pond Design Report  
Numerical Analysis of Stresses in Slopes of Varying Height  
Rock Slope Stability on Mt. Currie: Implications for Land Use in the Pemberton Valley  
Numerical and Experimental Measurements Using the MASW Method  
Fracture Permeability Variation during Fluid Injection  
Shale Gas Hydraulic Fracturing

## Environmental Engineering

A Design Process for the Implementation of Passive Solar Heating  
Retrofits on Existing Residential Buildings in Southern Ontario  
Design of an Energy Efficient Wastewater Treatment Plant  
Long-Term Electrical Grid Storage Plan for Ontario  
Best Management Practice Plan for Sulphur Recovery Unit at Nanticoke Imperial Oil Refinery  
Design of a Passive Emitter System  
Microbial Fuel Cell Incorporated Septic Tank for Buildings  
Retrofit of Existing Storm water Infrastructure Based on Precipitation  
Changes due to Climate Change in Stephenville, Newfoundland  
Wilket Creek River Restoration  
Reducing Wildlife Mortality and Improving Hydraulic Connectivity on  
Sewells Road in Rouge Park, Toronto  
Low Impact Development in Baden, Ontario  
High-Density Aquaculture System

## Civil Engineering

Chilligo Creek Stabilization  
Rehabilitation of Spring Creek  
Detailed Design of a Tailings Dam System  
Modular Forward Operating Base Fortification for Military Use  
Detailed Design for Remediation of Former Copper and Zinc Mine Tailings Ponds  
Design of a Point of Use Desalination Unit  
Proposed Pickering Airport Airside Design Preliminary Design  
Sustainable Alternative Housing for Residential and Commercial Use  
Municipal Infrastructure Design for Urban Intensification  
Redevelopment of Mass Transit Hubs – a focused study on GO Transit  
Redesign of Marian Breakwater and Sediment Control  
Niagara Falls Glass Lookout Platform  
Rapid Bridge Replacement  
University of Waterloo Transit Hub Design  
Development of Rural Bridges in Nepal  
Urban High Rise Farming  
The Implementation of Prefabricated housing Systems for New Construction in Northern Canada  
Victoria Park Bridge replacement  
Campus Parking Development  
Temporary Steel Road construction design  
Driving on Sunshine – Detailed Design on Parking lot H  
Kipling Avenue Light Rail Transit Design  
Sustainable Bridge Design at the UW North Campus

