

**WESTERN UNIVERSITY
DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING**

**CEE9704 – Assessment and Remediation of Contaminated Sites
Course Outline – 2012FT**

OBJECTIVES: This course is designed for graduate students enrolled in the Faculty of Engineering to develop analytical and technical skills in assessment and remediation of contaminated sites. The specific learning objectives are:

- Source – pathway – receptor analysis of subsurface contamination.
- Assessment of site contamination: delineation of the scope and extent of contamination in subsurface incorporated with reliability and risk analysis.
- Common remediation technologies and selection of a remediation technology for a specific contaminated site.
- Preliminary design of site remediation.

Specific topics:

Introduction

Sorption

Volatilization

Metals in soil

Bio-basics

Site assessment

In-situ Remediation - overview

Remediation - SVE

Remediation - Thermal

Remediation - Chemical

Remediation - Bio

Remediation - Metals

Natural attenuation and containment

FORMAT: The course consists of weekly lectures and discussions, 3 assignments and a final project that include the assessment of a contaminated site, selection of remediation technology and preliminary remediation design for the site. The course instructor will assign a specific site to each student.

CONTACT HOURS:

2 hour lectures weekly on Thursdays, 3:30 PM – 5:30 PM, Sept 27 – Dec 1, 2012.

REFERENCES:

- Watts, R.J. Hazardous Wastes: Sources, Pathways, Receptors. Wiley, 1997.
Gilbert, R.O. Statistical Methods for Environmental Monitoring. VNR. 1987.
Kuo, J. Practical design calculations for groundwater and soil remediation, Lewis, 1998.
Suthersan, S.S. Remediation Engineering, Design concepts. CRC, 1997.
USEPA website: <http://cfpub.epa.gov/superrods/index.cfm?fuseaction=main.splash>

EVALUATION:

Assignments (3)	30%
Final project	70%

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