

SEDV 611: LAND POLLUTION and WASTE MANAGEMENT IN THE ENERGY SECTOR

Waste management principles and effective practices in the development of energy projects. Causes and consequences of land pollution associated with energy production and management practices and technologies for prevention, mitigation and control of pollution.

Instructor:

TBD

Course Objective:

This course is designed to introduce students to a variety of scientific concepts associated with waste management. Students will be trained to apply these concepts to minimize land pollution (i.e.: pollution of soil and groundwater systems). The knowledge gained in this course could be utilized in the following activities:

- Municipal and industrial solid waste management
- Contaminated site remediation, including the selection and implementation of soil and groundwater remediation techniques
- Investigation, analysis and design of landfills, and other land-based waste disposal systems

Topics Covered (Selected):

- Contaminants of concern
- Sources, composition and characteristics of: waste characterization; physical characteristics, chemical characteristics, waste characterization, types of waste from upstream oil and gas industry; types of Waste from forestry industry; and types of waste from mining industry
- Problems with land disposal of waste
- Contaminant migration in the sub-surface
- Chemical and physio-chemical mechanisms of contaminants
- Waste minimization techniques
- Physical and chemical treatment of waste material
- Biological treatment of waste material
- Land disposal of waste
- Design and operation of land disposal facilities
- Hazardous contaminants
- Contaminated sites: investigation and remediation