CEE9704 – Assessment and Remediation of Contaminated Sites Course Outline – 2020ST - INTERIM – NOT YET APPROVED

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 and calculations for groundwater and soil remediation.

Topics:

- Introduction
- Environmental regulations
- Definitions and calculations
- Site assessment
- volatile organic compounds
- Metals and metalloids
- Remediation technologies
  - Vacuum techniques
  - Stabilization
  - Chemical
  - Thermal

Prerequisite:
Undergraduate degree in Civil and Environmental Engineering. Students with other degrees must get permission from the course instructor before enrolling the course.

Co-requisite: None

Anti-requisite: None

Note: It is the student's responsibility to ensure that all Prerequisite and Co-requisite conditions are met or that special permission to waive these requirements has been granted by the Faculty. It is also the student's responsibility to ensure that they have not taken a course listed as an Anti-requisite. The student may be dropped from the course or not given
credit for the course towards their degree if they violate the Prerequisite, Corequisite or Antirequisite conditions.

Instructor:
Dr. Julie Q. Shang, P.Eng., SEB3082, email: jqshang@uwo.ca. Administrative Support: SEB 3005

Contact Hours:
On line between May 13 and Aug 14, 2020, lecture notes posted weekly, questions via telephone with prior appointments and emails, weekly assignments in study groups and final individual project report submitted online, detailed instructions will be given in the first lecture notes posted on line.

Course Materials:
Course notes: posted on the course website.
References: posted on the course website.
Kuo, J. Practical design calculations for groundwater and soil remediation, Lewis, 2nd Ed. 2014 (e-book in UWO library).

Evaluation
Weekly Assignments in groups 40%
Individual final project report 60%

Instructor:
Dr. J.Q. Shang, P.Eng. SEB3082. jqshang@uwo.ca

Computing:
Students must be proficient in spreadsheets, such as MS Excel.

Units:
SI units will be used in lectures, assignments and projects.

Use of English:
In accordance with Senate and Faculty Policy, students may be penalized up to 10% of the marks on all assignments, tests, and examinations for the improper use of English. Additionally, poorly written work with the exception of the final examination may be returned without grading. If resubmission of the work is permitted, it may be graded with marks deducted for poor English and/or late submission.

Scholastic Offences:
Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

**Plagiarism:**
University policy states that plagiarism, defined as the “act or an instance of copying or stealing another’s words or ideas and attributing them as one’s own.” (excerpted from Black’s Law Dictionary, West Group, 1999, 7th ed., p. 1170) is a scholastic offence. In submitting any written work as part of the coursework requirements for this course students must ensure that this work is written in their own words. Whenever students take an idea or a passage of text from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations.

All required papers may be subject to submission for textual similarity review to the commercial plagiarism-detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (http://www.turnitin.com).

A student who is found guilty of plagiarism in respect of any written work submitted as part of the coursework requirements for this course will be given a grade of zero for the submitted work. Repeated acts of plagiarism, either in this course or any other course subsequent to a first offence, will result in the student being given a failing grade for the course in which the subsequent offence occurs, and may also incur further penalties such as requiring the student to withdraw from the program in which they are enrolled in.

**Accessibility:**
Please contact the course instructor if you require material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x 82147 for any specific question regarding an accommodation.

**Conduct:**
Students are expected to arrive at lectures on time, and to conduct themselves during class in a professional and respectful manner that is not disruptive to others. Late comers may be asked to wait outside the classroom until being invited in by the Instructor. Please turn off your cell phone before coming to a class, tutorial, quiz or exam.
On the premises of the University or at a University-sponsored program, students must abide by the Student Code of Conduct: http://www.uwo.ca/univsec/board/code.pdf.

**Sickness and Other Problems:**
Students should immediately consult with the Instructor or Department Chair if they have any problems that could affect their performance in the course. Where appropriate, the problems should be documented (see attached). The student should seek advice from the Instructor or Department Chair regarding how best to deal with the problem. Failure to notify the Instructor or Department Chair immediately (or as soon as possible thereafter) will have a negative effect on any appeal.

For more information concerning medical accommodations, please see: http://www.uwo.ca/univsec/handbook/appeals/accommodation_medical.pdf.

**Notice:**
Students are responsible for regularly checking their email, and the course OWL site for new notices related to the course.