

Chemical Engineering

Prevention and Remediation of Environmental Contamination (CENG0036)**Description****Aims:**

The aim of this module is to enable the students to understand possible environmental consequences connected with the extraction and utilization of natural resources. The students will learn how to prevent these consequences, and they will also learn how to remediate some of them, should it be required. The students will learn qualitative the methods that can, and should, be put in place to prevent environmental contaminations, and will also learn the basics of processes that could be implemented to remediate existing contaminations. The students will also become familiar with societal concerns related to the mining, the nuclear, and the mineral industry in general.

Learning Outcomes:

Upon successful completion of this module the students will be able to:

- appraise the possible environmental consequences of basic mineral operations;
- design remediation strategies for common types of environmental contamination;
- argue the physical chemistry elements regarding the remediation strategies;
- formulate the importance of legacy in operations related to natural resources;
- appraise possible methods to store nuclear waste

Synopsis:

This module has the goal of illustrating possible environmental consequences related to the extraction and handling of natural resources. Focus will be on acid drainage and sulfide oxidation, as related to the mining industry, as well as on nuclear waste and water use in many activities related to the sub-surface.

Key information

Year	2020/21
Credit value	15 (150 study hours)
Delivery	PGT L7, Campus-based
Reading List	View on UCL website
Tutor	Dr Alex Norori-McCormac
Term	Term 2
Timetable	View on UCL website

Assessment

- Written examination (departmentally managed): 50.0%
- Coursework: 30.0%
- Coursework: 20.0%

Find out more

For more information about the department, programmes, relevant open days and to browse other modules, visit ucl.ac.uk

The course will touch upon the processes of environmental contaminations, the measurements of such contamination, prediction and methods to prevent the contamination, regulatory examples on how to manage mining in a responsible manner, and processes that could be implemented to remediate contaminated areas.

The module will consider:

- Nuclear waste management
- Acid drainage and sulfide oxidation
- Natural acid rock generation, drainage and metal leaching: Impact on exploration, mining and reclamation
- Sampling strategies; acid drainage and aquatic resources
- Prevention of arsenic mobilization
- Water usage in shale rock stimulation
- Remediation processes including water reclamation
- Mine reclamation policy and regulation of selected jurisdictions
- Case study and site visit

Expert lectures and field trips will contribute to the course.



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