Module Descriptor Form

Civil and Environmental Engineering

CL439 - Contaminated Land

Module Code	CL439	**Module Title**	Contaminated Land				
Module Registrar	Switzer, Dr Christine						
Other Staff Involved							
Credit Weighting	10	**Semester**	1	**Elective**	No	**Academic Level**	4
Pre-requisites							
Required for							

Module Format and Delivery (hours):

Lectures	Tutorials	Assignments	Labs	Private Study	Total
20	0	40	0	40	100

Educational Aim

This module aims to:

This module aims to provide insights into the remediation of contaminated land, including the regulatory framework; exposure assessment; sampling & analysis; and the various remediation processes for contaminated land.

Syllabus

This module will teach the following:

- Introduction to Land Regeneration – definitions, processes and relevant legislation.
- Exposure assessment and its limitations.
- Overview of contaminant mass transfer processes and influences on remediation design & operation.
- Types of pollutants and contaminants, hazards and risks, site assessment
- Treatment selection and the related management implications.
- Links between Site Investigation, Risk Assessment and Remediation.
- Risk-informed decision-making.
- Land redevelopment: Residential, industrial/commercial and gardens/parks, risk assessment (source-pathways-receptor).
- Planning advice and legislation in Scotland, the UK and the EU.
- International differences in land regeneration.
- Contaminated land management case studies.

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Learning Outcomes

On Completion of the module, the student is expected to be able to:

LO: 1	identify possible human health and environmental risks associated with contaminated land management
LO: 2	demonstrate a working knowledge of the regulatory framework in place in the UK for contaminated land management and remediation, including relevant legislation, policies and regulations
LO: 3	evaluate critically the range of technologies that may be suitable for various types of contamination and ground conditions
LO: 4	make informed decisions about technologies for contaminated land remediation based upon technical solutions, risk assessment & management, planning and financial constraints

(UK SPEC suggests no more than 4 learning outcomes per module. Statements must be broad and be syllabus free and link in with the intended learning outcomes on the programme specifications.)

Assessment of Learning Outcomes - Criteria

Learning Outcome: **1**

	Criteria
1	understand the types of contamination that may be present at a site and their possible impacts
2	identify the potential source-pathway-receptor linkages at a site
3	use conceptual site models to show the potential linkages

Learning Outcome: **2**

	Criteria
1	identify the major parties involved in remediation decisions
2	determine the main mechanisms for triggering remediation decisions
3	place UK framework into an international context

Learning Outcome: **3**

	Criteria
1	determine possible technology choices based on site-specific parameters
2	identify strengths and weaknesses of technology choices
3	connect strengths and weaknesses to site conditions

Learning Outcome: **4**

	Criteria
1	identify all stakeholder groups that may be affected by site contamination and/or the remediation effort
2	connect information learning objectives L01 – L03 and stakeholder needs to remediation decisions
3	evaluate critically costing information provided in the literature

Assessment Method(s) Including Percentage Breakdown and Duration of Exams

To Pass the module, students need to gain a summative mark of: 40%

Description	Semester	Start Week	Duration	Weight	Submission Week	Linked Criteria
Quiz 1	1	3		5%	4	
Quiz 2	1	4		5%	5	
Quiz 3	1	6		5%	7	
Presentation (Video)	1	3		5%	8	
Peer Evaluation	1	8		5%	9	
Project Report	1	3		25%	10	
Final Exam. Open Book: Online exam with access to class notes, written notes, and online content	1		6.00	50%	E	

Principles of Assessment Feedback

PRINCIPLE 1. ASSESSMENT AND FEEDBACK PRACTICES PROMOTE EFFECTIVE STUDENT LEARNING
Assessment and feedback structure and timing is designed to support students' learning . Assessments are distributed through the semester to engage students throughout the course and provide sufficient time to reflect upon feedback .

PRINCIPLE 2. ASSESSMENT AND FEEDBACK PRACTICES ARE APPROPRIATE, FAIR, AND TRANSPARENT
Assessment criteria are published to students and staff in assignment instructions . Answers to students' questions about assignment instructions are published to all students when necessary.

PRINCIPLE 3. ASSESSMENT AND FEEDBACK PRACTICES ARE CLEARLY COMMUNICATED TO STUDENTS AND STAFF
Course descriptor is published to all staff and students at the start of term .

PRINCIPLE 4. ASSESSMENT AND FEEDBACK PRACTICES ARE CONTINUOUSLY REVIEWED
Assessment and feedback practices are reviewed in midterm and end of term surveys.

Additional Information

Resit Procedure

online examination in August diet AND/OR submission of coursework(s) prior to commencement of the August exam diet

Recommended Reading

Recommended textbook and resources:
Nathanail, C.P. and R.P. Bardos (2004) Reclamation of Contaminated Land, London: Wiley Blackwell, 250pp.
USEPA Hazardous Waste Clean-up Information http://www.clu-in.org

Wider References
van Liedekerke, M., G. Prokop, S. Rabl-Berger, M. Kibblewhite, G. Louwagie (2014) Progress in the Management of Contaminated Sites in Europe, Joint Research Centre Institute for Environment and Sustainability, European Commission doi:10.2788/4658
Environment Agency Land Contamination Risk Management
https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm
Environment Agency www.environment-agency.gov.uk/
SEPA www.sepa.org.uk/

Module Timetable

Week	Semester 1	Semester 2
0		
1		
2		
3		
4	Submission 5%	
5	Submission 5%	
6		
7	Submission 5%	
8	Submission 5%	
9	Submission 5%	
10	Submission 25%	
11		
E	Examination 50%	

Date of Last Modification

11-09-2025