Land Reclamation and Restoration
MSc, PgDip, PgCert

Land reclamation and restoration is designed to meet the increasing demands to manage and restore degraded land as close as possible to its original status. This course aims to provide the knowledge and skills required to bridge the gap between damaged land and fully restored ecosystems.

The course is designed to respond to the industry demands of highly-trained engineers and science professionals able to implement appropriate, innovative and sustainable soil and land management strategies. There is an emphasis on analysis of real problems with practical field work to reinforce learning.

Who is it for?

The Land Reclamation and Restoration MSc is suitable for ecology, science, geography and engineering graduates, or professionals from either a science or technical background.

The course is designed to respond to the industry demands of highly-trained engineers and science professionals who are able to implement appropriate, innovative and sustainable soil and management strategies.

Informed by industry

Our courses are designed to meet the training needs of industry and have a strong input from experts in their sector. These include:

Astrium Geo-information Services, Cresswell Associates, Environment Agency, Geospatial Insight, Health Protection Agency, National Trust, Oakdene Hollins, RSPB, Tarmac, The Coal Authority, Unilever

Course structure

• Eight taught modules (40%),
• Group project (20%),
• Individual research project (40%).

Future career

On completion of this course, you will have career opportunities in consultancy, research, education, public and private sector industry.

Successful graduates have been able to pursue or enhance careers in a variety of key roles such as:
Consultant Engineers, Conservationist, Environmental and Design Planners/Consultants, Land and Sustainability Managers and Advisors and Academic Researchers.

Employers include:
statutory agencies and ministries, conservation trusts, environmental companies, international development organisations, land and natural resource management businesses, large agri-food companies, local authorities, non-government organisations (NGOs), and research organisations.

Key information

Duration:
MSc: Full-time - one year, part-time - two to three years;
PgDip: Full-time - up to one year, part-time - two years;
PgCert: full-time - up to one year, part-time - two years.

Start date:
Full-time: October. Part-time: throughout the year.

Qualification:
MSc, PgDip, PgCert.

Location:
Cranfield Campus.

Entry requirements:
A first or second class UK Honours degee in a relevant subject; an equivalent international qualification; relevant work experience with a degree below second class Honours. Please contact us if you do not meet our formal entry requirements. More information can be found at www.cranfield.ac.uk/entyrequirements.

ATAS Certificate:
Students requiring a visa to study in the UK may need to apply for an ATAS certificate to study this course.

Overview of taught modules

Example modules

Modules form only part of the course content with the projects and theses making up the balance. Please see the course structure for details.

The list below shows the modules offered in the 2019-2020 academic year, to give you an idea of course content. To keep our courses relevant and up-to-date, modules are subject to change – please see the webpage for the latest information.

Compulsory modules

(all the modules in this list need to be taken as part of this course).

Ecological Restoration
This module covers the breadth of considerations required for ecological restoration and gives the opportunity to undertake analysis of management planning at both site and landscape scales.

GIS Fundamentals
GIS is an important technology for handling geographic data and has wide application for studies of the environment. This module provides the opportunity to develop GIS skills that will be of use within your course and in later employment.

Landscape Ecology
This module introduces you to a variety of tools that measure and quantify landscape components at different scales and to understand them in the context of their field of expertise priorities and regulations.

Soil Engineering, Contaminant and Nutrient Management
This module provides you with an understanding of the principles of soil science, bio-science and engineering. This is delivered in relation to land restoration and reclamation practices for improving soil structural conditions for optimal crop growth and the prevention of soil resource losses. It also covers the theoretical and practical principles underlying the successful management of soil.

Soil Erosion Control: Principles and Practices
During this module you will learn about the factors influencing the effective control of water pollution and sedimentation. You will then learn how soil conservation can be achieved through within-field and catchment management by targeting erosion control measures at critical locations in the landscape.

Soil Systems
This module focuses on a fundamental understanding of the science of soil systems and how decisions in land management affect the soil functions related to food production and land restoration.

Elective modules
(Choose two)

Aerial Photography and Digital Photogrammetry
This module introduces techniques for the extraction of topographic information from remotely sensed data using digital photogrammetry techniques. Image interpretation is also a vital skill required in many image based mapping projects. The concepts and techniques of image interpretation will be introduced and practised.

Land Engineering and Water Management
This module will show how land managers and engineers design and implement appropriate land, water and vegetation management through interventions such as drainage, soil conservation, slope stabilisation and irrigation. This understanding and skills set are also the basis for management of projects involving land farming, reclamation, restoration and protection.

Land Resource Planning
This module highlights different methods that can be used to provide land resource planners with the data required to formulate sustainable plans. Often a range of options are possible and techniques to select optimum solutions will be covered.

Principles of Sustainability
This module introduces, critiques and examines the application of three approaches of sustainability - the "Ecosystem Service", the "Circular Economy" and the nexus between renewable energy, food and other ecosystem services.

Group project

This project provides you with the opportunity to take responsibility for a commercially-orientated, consultancy-type project with a UK-based industrial partner, while working in teams under academic supervision. It involves survey design, data collection and analysis, and synthesis and presentation of results to the client. This provides experience equivalent to a real life working environment aiming to provide a solution to a problem faced by industry in an integrated approach drawing upon mixed expertise across various disciplines.

Individual project

This project provides an opportunity to concentrate on a particular aspect of land reclamation and restoration. It also allows you to demonstrate your ability to research independently, to think and work in an original way, to contribute to knowledge, and to overcome genuine problems in this specialist area of land management. Many of the projects are supported by external organisations.

Contact details

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For further information please visit
www.cranfield.ac.uk/lrr

Accreditation

The MSc of this course is accredited by: