



Water and Sanitation for Development

MSc, PgDip, PgCert



Ensuring the sustainable provision of water and sanitation is one of the greatest global challenges of the 21st century. By drawing on our cutting-edge research, real-life problem-solving experiences and extensive practitioner input, the Water and Sanitation for Development MSc will provide you with the tools to help solve this challenge.

The course provides a unique balance of engineering, environmental science, public health and social science, and therefore provides you with the skills and knowledge to plan and implement water supply and sanitation projects and programmes in any part of the world, particularly in low- and middle-income countries. A key part of the MSc is the opportunity to conduct your thesis on a real-life project in a developing country.

Who is it for?

This course is ideal for graduates who wish to progress their career in the planning, implementation and management of sustainable water supply and sanitation projects to low and middle income countries. The course comprises assessed modules, group projects and an individual project. The modules include lectures, tutorials, practicals, simulations and workshops with an emphasis on analysis of real problems, with practical field work to reinforce learning.

Course structure

- Four taught modules (40%),
- Group project or dissertation: (20%),
- Individual research project (40%).

Informed by industry

The Water and Sanitation for Development MSc is closely aligned with water sector needs to ensure that you are fully prepared for your new career. An Industrial Advisory Board for the programme scrutinises course content and ensures its relevance to the needs of global employers. The teaching team are heavily involved in applied research and development, which leads the course content and aligns it with the latest sector thinking.

WASH sector personnel contribute to course lectures and projects, from companies such as: CARE International, Mott MacDonald, Oxfam, Practical Action, Skat and Water & Sanitation for the Urban Poor.

Future career

The Water and Sanitation for Development MSc is based on cutting-edge research, so you can be sure it is relevant in today's employment market. Our graduates leave with the skills to make an immediate contribution in the international water sector. Many enjoy long-term careers in diverse roles such as consultants, managers, engineers, sanitation specialists and project managers at leading WASH institutions across the world.

Some of our graduates went on to work with non-governmental organisations, emergency relief agencies, government and UN and related agencies such as UNICEF. Graduates are also going on to work with global private sector organisations such as Mott MacDonald and McKinsey & Company.

The course also provides an ideal grounding for research positions and PhD programmes, and the part-time option allows practitioners to extend their professional development within their current employment.

Key information

Duration:

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

Start date:

Full-time: October.
Part-time: October.

Qualification:

MSc, PgDip, PgCert.

Location:

Cranfield campus.

Entry requirements

A first or second class UK Honours degree in a relevant science, engineering or related discipline, or the international equivalent of these UK qualifications. Other relevant qualifications, together with significant experience, may be considered.

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 2020-2021 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).

Public Health, Hygiene and Sanitation

As future workers in this sector, this module will equip you with a technical understanding of sanitation technologies and water and wastewater treatment processes. You will also learn a critical appreciation of their applicability within different scenarios and contexts. This technical competence must be deployed with due consideration to the benefits of improved services and a cleaner environment including public health improvement, quality of life, convenience, dignity and personal safety. The vital importance of human behaviour and behaviour change must also be considered within the context of hygiene, ending unsanitary practices such as open defecation, and the creation of demand and willingness to pay for a more sanitary environment.

Resilience, Shocks and Emergencies

The combined pressures of climate change, population growth and urbanisation create a demand for transformation in the relationship between development and resilience. There is a need to embed resilience within public, private and community planning so to support sustainable services and livelihoods in this era of rapid change. While there is no widely accepted definition, the concept of resilience implies both long-term thinking, to better anticipate and plan for emerging challenges, and the ability to deal with near-term (and potentially unexpected) shocks and disruptions. Achieving this ambition creates significant challenges for water, wastewater/sanitation and hygiene in terms of how to supply growing populations (in planned and/or unplanned settlements); how to plan new, and manage ageing, infrastructure; how to interact with the natural environment; and how to deal with the increasing frequency and severity of disruptive events and the growing uncertainty surrounding them. This module will examine these challenges and provide you with the skills to identify, contextualise and evaluate different management strategies and approaches.

Water Resource Engineering

As a water management professional you will need detailed knowledge of the design, construction and management of water sources for domestic and small-scale agricultural use, as well as of the engineering of water pumps, open channel and piped distribution systems. This needs to be underpinned by an understanding of rainfall, evapotranspiration, runoff, groundwater recharge, groundwater storage, and groundwater movement. This module aims to provide you with the theoretical basis for the design of water resources capture

and distribution systems, together with comprehensive practical experience. The focus will be on rural areas of lower-income countries. As a water management professional you will need detailed knowledge of the design, construction and management of water sources for domestic and small-scale agricultural use, as well as of the engineering of water pumps, open channel and piped distribution systems. This needs to be underpinned by an understanding of rainfall, evapotranspiration, runoff, groundwater recharge, groundwater storage, and groundwater movement.

Water, Society and Development

This module will evaluate the socio-economic, behavioural and political enablers and barriers to the provision of water, sanitation and hygiene services across urban and rural resources constrain contexts. It will teach you to locate the provision of WASH within broader processes of societal change and development, providing you with a theoretical underpinning in development theory and a critical understanding of key developmental concepts and strategies. Analysing the need, demand and supply of WASH services across urban and rural contexts you will compare and contrast the service delivery challenges and provide an introduction to appropriate financing, management and governance strategies for each. The module will also equip you with relevant tools and methodologies for the management and implementation of WASH interventions and provide you with an introduction to social research methods and design.

Group project

The group project provides you with the opportunity to take responsibility for a consultancy-type project, while working under academic supervision. Success is dependent on the integration of various activities and working within agreed objectives, deadlines and budgets.

Examples of recent group projects include:

- Guidelines for the siting of sand dams
- Safely managed sanitation services in small towns: an analysis of knowledge and experiences from developing countries.

Individual project

You select the individual project in consultation with the thesis project coordinators. The individual project provides you with the opportunity to demonstrate the ability to carry out independent research, think and work in an original way, contribute to knowledge, and overcome genuine problems in water management. Many of the projects are supported by external organisations such as WaterAid, Oxfam and Excellent Development and are based in low and middle income countries.

Accreditation

The MSc of this course is accredited by the Chartered Institution of Water and Environmental Management (CIWEM). As a graduate of the MSc course, you are eligible for graduate membership in this leading professional body.



Accredited Course

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

Every effort was made to ensure that the information on this document was correct at the time it was produced. Please check our website for the latest information. April 2020.