International Water and Sanitation Management MSc

Study in the UK or by Distance Learning

Diploma, Postgraduate Certificate and Professional Development options
Aims and Benefits of the Programme

Aims of the programme

This programme is for graduates who wish to develop careers in managing water and environmental sanitation services in low- and middle-income countries. It aims to:

- provide the multidisciplinary knowledge and skills to coordinate, plan, manage and monitor water and environmental sanitation services, with a focus on low- and middle-income countries;
- support the professionalization of the sector, through policy development, performance improvement, institutional reform, change management, benchmarking services and aiming for financial viability;
- encourage a critical approach to the global principles and local practice of sustainable water and environmental management for the public good;
- equip students with appropriate expertise and skills for relevant work in management of water and environmental sanitation for low- and middle-income countries; and
- encourage critical analysis particularly through in-depth study and a research dissertation on a specialist topic.

Knowledge and understanding

On successful completion of this programme, you will be able to demonstrate knowledge and understanding of:

- international and local initiatives and institutions that promote water and sanitation for all;
- the links between water and environmental sanitation services (including water resources, water treatment and supply, excreta, wastewater, stormwater and solid waste management), hygiene behaviour, health and socio-economic development;
- the key issues in relation to environmental and social impact, equity, effectiveness, efficiency, sustainability and replicability in planning and managing sustainable water and environmental sanitation services;
- the importance of a multidisciplinary approach to the management of water and environmental sanitation and ways to integrate technical, social, economic and environmental perspectives in financing, coordinating, planning, promoting, managing, and monitoring services;
- the range of appropriate water and environmental sanitation technologies and the level of service they provide;
- the assessment, planning, facilitation, regulation and management of social, institutional, economic and environmental issues at sector-wide, institutional and project implementation levels that ensure the sustainability and improvement of water and environmental sanitation services; and
- effective qualitative and quantitative data collection, analysis and dissemination.

About WEDC & Loughborough University

The Water, Engineering and Development Centre (WEDC) is one of the world’s leading education and research institutes developing knowledge and capacity to support the sustainable delivery of water and sanitation services and emergency relief.

We are known and respected for our high-quality postgraduate training programmes which have supported the career development of sector professionals for over 45 years. This programme can be studied at Loughborough University or by distance learning.

We hold one of Loughborough University’s seven Queen’s Anniversary Prizes for Higher and Further Education, cited as providing “outstanding support for developing countries”.

We are proud to be part of the School of Architecture, Building and Civil Engineering at Loughborough University which is ranked in the top 10 in all of the most recent national league tables, cementing our status as one of the country’s leading higher education institutions.

Loughborough University – One of the top 10 UK universities
Skills and other attributes

Subject-specific cognitive skills

On successful completion of this programme, you will be able to:

- evaluate past and current initiatives to deliver water and environmental sanitation services to unserved populations globally;

- identify and integrate socially excluded groups and individuals within target populations;

- understand users’ water and environmental sanitation needs and demands based on conflicting and limited information;

- appraise institutional, social, economic, environmental and technical contexts and determine possible solutions;

- justify appropriate sustainable institutional, social, economic and environmental solutions to meet users’ needs and demands for water and environmental sanitation services;

- investigate relevant emerging challenges facing the sector;

Subject-specific practical skills

- categorize different socio-economic contexts and physical/natural contexts;

- plan surveys and collate suitable data sources relating to the enabling environment, sector, institutional and organizational performance, social conditions, economic performance and environmental status;

- choose appropriate methods to review, validate, analyse, interpret and communicate dissimilar data sets using appropriate methods;

- negotiate and defend various approaches to managing and improving water and environmental sanitation services;

Generic skills

- find and evaluate a variety of existing sources of data, information and knowledge where the quality and quantity of publications is limited;

- collect and record a range of views, especially from socially excluded or vulnerable groups;

- identify the strengths and weaknesses of working both as a member or leader of a team and as an individual;

- communicate effectively in writing, verbally and visually to a range of audiences to disseminate quantitative and qualitative information, advocate change and promote new ideas;

- demonstrate flexible working with the constraints of limited time, resources and information by initiating, planning, organizing and prioritising activities in an ethical manner;

- demonstrate appropriate selection and use of IT.

Who this programme is for

This programme is suitable for graduates from a variety of backgrounds, and has the specific objective of developing participants’ understanding of the principles and practices of water and environmental management for the public good.

The programme focuses on water supply and sanitation but also includes study of water resources and environmental issues from an international perspective.

Accreditation and relevance

The programmes at PGCert, PGDip and MSc levels are accredited by the Chartered Institute of Water and Environmental Management (CIWEM) and at MSc level are accredited by the Joint Board of Moderators (JBM) as meeting the ‘further learning’ requirements needed by graduates who already have acquired an accredited CEng (partial) BEng (Hons) undergraduate first degree, in order for them to achieve the status of Chartered Engineer.
### Modules, Credits and Levels of Study

#### MSc Programme Modules: Semester 1 (30 September 2019 – 31 January 2020)  
15 credits

<table>
<thead>
<tr>
<th>Topic</th>
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</table>
| **Management of Water and Environmental Sanitation Development Programmes**  
*Module Tutor: Dr Sam Kayaga* |  | |
| • Poverty and development | • Basic economic/financial concepts of WASH services |
| • Benefits, progress and plans for improved WASH | • Project cycle and results framework/theory of change |
| • Stakeholders in WASH | • Introduction to solid waste management |
| • Governance, accountability and the enabling environment | • Solid waste storage and primary collection |
| • Institutions, capacity development and institutional change | • Solid waste transfer and secondary storage |
| • Service delivery approaches | • Case study on recycling and reuse |
| • Project planning, monitoring and evaluation | • Human rights, equity and inclusion for WASH |
| • Project and people management | • Participatory approaches |

| **Management of Village Water Services**  
*Module Tutor: TBC* |  | |
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<tr>
<td>• Communal and household point water sources for urban and rural areas</td>
<td>• Groundwater abstraction</td>
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<td>• Estimating water demand and storage</td>
<td>• Management of rural water supplies</td>
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<td>• Water safety and drinking water quality</td>
<td>• Cost-recovery</td>
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<td>• Point-of-use and point-of-collection water treatment systems</td>
<td>• Financial management</td>
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<td>• Choosing technologies and service options</td>
<td>• Procurement and contracting</td>
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<td>• Rainwater harvesting</td>
<td>• Household self-supply</td>
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<td></td>
<td>• Strategic planning and monitoring for sustainability</td>
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<td></td>
<td>• Enabling sustainable outcomes</td>
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| **Water and the Natural Environment**  
*Module Tutor: Dr Tanja Radu* |  | |
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<tbody>
<tr>
<td>• The natural environment</td>
<td>• Groundwater</td>
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<tr>
<td>• Water resources</td>
<td>• Livelihoods and water use</td>
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<tr>
<td>• Integrated approaches to environmental management</td>
<td>• Land and river management</td>
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<td>• Water quality</td>
<td>• Water pollution control</td>
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<td>• Environmental health</td>
<td>• Environmental assessment process</td>
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<td>• Environmental pollution</td>
<td>• Types of environmental assessment</td>
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<tr>
<td>• Rainfall</td>
<td>• Mitigation of impacts</td>
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<tr>
<td>• Surface water</td>
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| **Research Methods**  
*Module Tutors: UK-based module: Dr Pablo Ballesteros-Pérez / Distance learning: Dr Julie Fisher* |  | |
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<tr>
<td>• Research methodology</td>
<td>• Data gathering</td>
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<td>• Literature review</td>
<td>• Participatory methods</td>
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<tr>
<td>• Variation and sampling</td>
<td>• Data management</td>
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<tr>
<td>• Physical and environmental data</td>
<td>• Assessment tools</td>
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<tr>
<td>• Social and economic data</td>
<td>• Quantitative data presentation and analysis</td>
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<tr>
<td>• Ethics and risk</td>
<td>• Qualitative data presentation and analysis</td>
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#### MSc Programme Modules: Semester 2 (3 February 2020 – 17 June 2020)  
15 credits

<table>
<thead>
<tr>
<th>Topic</th>
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| **Management and Operation of Water Utilities**  
*Module Tutor: Kevin Sansom* |  | |
| • Urban water supply | • Non-revenue water |
| • Water sector overview and typical reforms | • Serving the urban poor |
| • Introduction to water distribution | • Customer services and marketing |
| • Introduction to water treatment | • Developing human resources |
| • Operation and maintenance | • Managing organizational change |
| • Developing services and organizations | • Public-private partnerships |
| • Utility financial statements, ratios and tariffs | • Cost-fee partnerships |
| • Demand and willingness to pay issues | |
Urban Sanitation Management

- Institutions for urban sanitation
- Strategic approaches to sanitation provision
- Cost recovery and tariffs for non-networked sanitation
- Wastewater treatment
- Sewerage
- Surface water management
- Latrine emptying and transportation of faecal sludge and septage
- Sanitation as a business
- Strategic urban site planning
- Shared sanitation in informal settlements
- Sanitation marketing
- Service-based networks: sanitation service chains and faecal sludge management
- Managing treatment and disposal facilities

Household and Communal Sanitation Management

- Sanitation in context
- Hygiene promotion
- Behaviour change
- On-site rural sanitation
- Sanitation in small town, peri-urban and informal urban settings
- Accessibility: design criteria and features
- School sanitation
- Promotion and management of sanitation
- Community Led Total Sanitation
- Community Led / School Led Total Sanitation: achieving sustainable outcomes
- Case study: rural sanitation
- Institutional support
- Developing capacity and innovations
- Sanitation at scale: the enabling environment
- Case study: managing innovation

Research Dissertation: June – September

- Module Tutors: UK-based module: Prof. M. Sohail / Distance learning: Dr Julie Fisher

The aim of this module is to provide the student with experience of the process and methodology of research by defining and studying (on an individual basis) a complex problem in a specialised area relating to their degree.

Optional modules (choose one) Semester 2 (3 February 2020 – 17 June 2020)

Disaster Risk Management

- The impact of disasters globally
- Global urbanism
- International and national approaches to disaster risk management (DRM)
- Natural hazards
- Manmade threats in urban environments
- Increasing the resilience and sustainability of the built environment
- The role of construction professionals
- Structural adaptation principles
- Earthquake engineering
- Flood mitigation
- Counter-terrorism measures
- Integrating sustainable drm and urban resilience into construction practice
- Drm strategies
- Managing disaster risks in global cities
- Case study

Humanitarian Water, Sanitation and Hygiene

- Introduction to emergencies and the role of water supply and sanitation
- Engineering assessments in emergencies
- Stages of an emergency
- The role of sphere in decision making
- Key stakeholders and their roles
- Dealing with vulnerable populations
- Water and sanitation contributions to epidemic control
- Disposal of dead bodies
- Exit strategies
- Managing emergency interventions
- Management of people
- Managing organizations
- Provision of water in emergencies
- Provision of sanitation in emergencies
- Provision of solid waste management in emergencies

Level of award

- **Master of Science** (MSc) 9 modules
- **Postgraduate Diploma** (PGDip) 8 modules
- **Postgraduate Certificate** (PGCert) 4 modules
- **Professional Development** (PD) 1 - 3 modules

<table>
<thead>
<tr>
<th>Level of award</th>
<th>Modules studied</th>
<th>Max. duration</th>
<th>Credits studied/required</th>
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<tbody>
<tr>
<td>Master of Science</td>
<td>9</td>
<td>5 years</td>
<td>180 / 160</td>
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<tr>
<td>Postgraduate Diploma</td>
<td>8</td>
<td>5 years</td>
<td>120 / 105</td>
</tr>
<tr>
<td>Postgraduate Certificate</td>
<td>4</td>
<td>3 years</td>
<td>60 / 60</td>
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<tr>
<td>Professional Development (PD)</td>
<td>1 - 3</td>
<td>1 - 3 semesters</td>
<td>15 (per module)</td>
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Why choose to study at Loughborough?

Choose to study at Loughborough and complete your MSc in one year. Our staff, many of whom have extensive practical in-country work experience, are readily accessible to help you during your studies. You will learn from your peers too, who typically arrive with experiences to share from many different countries.

The School of Architecture, Building and Civil Engineering has excellent laboratory facilities which include equipment for field sampling, analysis of water and wastewater, and hydraulics experiments. Dedicated water laboratory staff are specialists in pollutant analysis, hydraulics and continuous trials.

Other outdoor facilities for student practical exercises during the programmes include the largest single-site collection of handpumps used for maintenance training. Other practical activities include latrine slab construction; flow measurements; and water quality sampling and analysis. Field visits are made to relevant UK facilities.

Why choose to study by Distance Learning?

Distance learning enables you to learn new knowledge and develop skills whilst maintaining existing employment. This has a number of benefits to both you as a student and to your employer.

- You will be able to directly apply new skills and knowledge and thus reinforce your learning, and at the same time become a more valuable asset to your employer.
- Employers can maintain continuity and also develop their workforce.
- You can learn and study flexibly and at your own pace, for up to a period of five years if you wish.
- The cost of study is spread over a longer time period and can be paid on a module-by-module basis.

Our learning materials are carefully designed to be comprehensive and easy to follow. At the start of each module, students will be able to access these materials online and on a USB pen drive for portability. The online materials include study guidance; a set of highly illustrated self-study notes; additional reading materials; self-assessment questions and answers; and subject-specific references and texts.

Fees

<table>
<thead>
<tr>
<th>Loughborough-based study</th>
<th>Study by Distance Learning</th>
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<tr>
<td><strong>MSc total cost</strong></td>
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<tr>
<td>UK/EU: £10,650</td>
<td>UK/EU: £8,950</td>
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<tr>
<td>International: £22,500</td>
<td>International: £18,250*</td>
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<tr>
<td><strong>15 credit modules</strong></td>
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<tr>
<td>UK/EU: £887</td>
<td>UK/EU: £746</td>
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<tr>
<td>International: £1,875</td>
<td>International: £1,521</td>
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<td><strong>60 credit module (Dissertation)</strong></td>
<td><strong>60 credit module (Dissertation)</strong></td>
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<td>UK/EU: £3,554</td>
<td>UK/EU: £2,984</td>
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<tr>
<td>International: £7,500</td>
<td>International: £6,082*</td>
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* We regularly secure scholarships and bursaries in support of our students. Check out our website for latest details at https://www.lboro.ac.uk/research/wedc/programmes/iwsm/
Assignments, Assessment, Feedback & Schedules

Assignments
As you study, you will be required to submit assignments. Assignments are your response to sets of questions which are provided to you at the start of the module. There are no exams.

There are two assignments to submit for each module and for each there is a specified date by which an electronic copy, must be delivered to the WEDC Administration Office.

The weighting of marks differs for each assignment, normally 40% for the first and 60% for the second assignments.

Assessment
Your module assignments will be assessed at WEDC. On application, distance learners are asked to nominate a local guarantor who will be required to counter-sign each assignment to indicate that they believe it to be the student’s own work. A guarantor will require approval from WEDC. A guarantor is not required for UK-based students. All assignments are checked electronically for plagiarism.

Feedback
Feedback is essential to the learning process and is therefore an integral feature of both the UK-based and distance learning programme options. You are encouraged to meet or correspond with your Module Tutor in person or, for distance learners by telephone, email or a web-based module forum. The use of Skype may be an additional option. Feedback takes the form of a mark and constructive advice from the module or programme tutor sent to you by email, usually within three weeks of an assignment’s submission date.

Study schedules and student inputs
Each module (except Research Dissertation) is based on an estimated total of 150 hours of study. This includes lecture attendance (for UK-based students), the study of the module notes (distance learners spend longer on this), additional reading and completion of the assignments. The Research Dissertation may need up to 600 hours of work. All modules with the exception of Research Dissertation must be undertaken within a single semester (usually 18 weeks).

The semester period allows time for study, submission of assignments and feedback on the first assignment. It also provides the opportunity for more than one module to be taken simultaneously for those who have time available. You must complete your studies for a Postgraduate Certificate within three years, and a Postgraduate Diploma or MSc within five years from when you first register for a module.

Postgraduate credits already gained from studying modules (individually or as part of a Certificate or Diploma) can contribute towards an MSc degree, provided all modules are completed within five years.

Sharing experience with other participants
The main means of communication is by email. Students are also invited to interact with WEDC staff and their peers through LEARN, (our web-based electronic web platform) and module discussion forums.

In addition, we invite distance learning students to join available Loughborough-based presentations by Skype and webinars. For those unable to connect, we provide links for listening to the presentations at a later date.
**Entry Requirements, Funding & Application**

**Entry requirements**

WEDC programmes are designed to be studied at postgraduate level, so you should hold a degree or an equivalent qualification from a university accredited by the Senate of Loughborough University. Applicants for this programme require a lower second class award (2:2) or above. As the programme is delivered in English, all applicants must have an acceptable qualification in English language before they can be admitted (see www.lboro.ac.uk/international/englang/index.htm for details). If you do not possess the above qualifications, you may still be eligible if you can demonstrate you have the necessary academic skills and practical experience to satisfactorily complete the programme.

**Scholarships and bursaries**

From time to time scholarships are available which cover the full fees or part of the fees for study. Some students have received full-fee sponsorship for MSc programmes from the Commonwealth Scholarship Commission in the United Kingdom. Other students have been partially sponsored by the Loughborough University Development Trust which is funded by various bodies and alumni. Visit wedc.lu/wedc-scholarships for details of any current opportunities for scholarships or bursaries. You can send an email to WEDC-Admissions@lboro.ac.uk to request that we inform you whenever new scholarships become available.

**How to find out more**

Details about the content and intended learning outcomes of this programme and for each of the modules are shown in the programme and module specifications which can be found from the WEDC website.

**How to apply**

Visit www.lboro.ac.uk/study/apply/postgraduate/ for full guidance about how to make an application. This web page has links to all the necessary forms you need and the University’s online application portal. If you require help with your application, don’t hesitate to contact us. We look forward to welcoming you either in Loughborough in the UK or as a distance learner!

**What our students say**

“Professionally, I am a more disciplined person. Due to my enhanced capacity in the WASH sector, my career growth has been steady over the last three years from a Water and Sanitation Engineer to a Project Manager and now currently a Senior Programme Coordinator. I am optimistic that more is yet to come.”

“An extremely interesting course. I have greatly increased my understanding of the fundamental issues relating to management in a developing country context as well as boosting my personal confidence. This is paying dividends in my work and in people’s opinion and confidence in me!”

“It was a great experience ... and I have fully enjoyed and benefited from the course materials provided for various modules.”

“Well structured, clearly presented.”

“A very useful experience.”

“The programme has benefited me to significantly improve my technical capacity in all dimensions of water and sanitation fields. The programme has helped me to plan, implement and monitor WASH activities in a more effective manner. I have supported technically other partners working in my area through provision of training, designing of WASH facilities and planning and responding to WASH emergencies.”

**Video reviews**

You can watch short video clips of our students describing their experience of studying with us. wedc.lu/what-our-students-say

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**Water, Engineering and Development Centre**

**Loughborough Water Engineering Group**

**School of Architecture, Building and Civil Engineering**

**Loughborough University**

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**E:** wedc-admissions@lboro.ac.uk  
**W:** www.lboro.ac.uk/wedc  
**Skype:** wedcadmissions

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Details given in this brochure are correct at the time of going to press. Please note, however, that programme dates, fees and University regulations may be subject to change without prior notice. Check the WEDC website for the latest details.  
December 2018